Socialism, Capitalism, and Income

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Abstract

Proponents of free-market capitalism extol its high economic growth and freedom of choice. Advocates of socialism protest that capitalism is harsh and leaves too many behind. They argue that socialism is more benevolent. Most important is that if socialism is better for the poor, then low-income groups should fare better under socialism than under capitalism.

This study analyzes income data from 162 countries over multiple decades, coupled with measures of economic freedom, size of government, and transfers to determine how various parts of society fare under capitalism and socialism. The main conclusion is that the poor, defined as having income in the lowest 10 percent of a country's income distribution, do significantly better in economies with free markets, competition, and low state ownership. More impressive is that moving from a heavy emphasis on government to a free market enhances the income of the poor substantially. For example, when countries were ranked on the basis of an economic freedom index in 2015, Mexico was the median country and Singapore was the most free. Changing freedom from the Mexico level to the Singapore level is predicted to raise the income of the poor by about 40 percent. All income groups benefit from the change, but the change typically helps the poor more than other income groups.

Additionally, a rising tide lifts all boats. When the median income in a country rises by 1 percent, the income of the lowest 10 percent also rises by about 1 percent. Furthermore, the richest 10 percent do not increase their income at the expense of the lowest 10 percent. In fact, the reverse is true. Incomes of the poor move with the incomes of the rich, not in opposite directions. Even when the income of the richest 10 percent grows more rapidly than the income of the poorest 10 percent, causing an increase in income inequality, the poor tend to be better off in absolute terms. China is an extreme example. There, the ratio of income of the top 1 percent to the bottom 10 percent rose from eight during the 1980s to forty by 2010. But during the same time interval, income of the poor increased five-fold.

The Nordic countries are important cases because they couple free markets with large government sectors and high levels of government transfers. The evidence supports the argument that large government and high transfers benefit the poor at least at a point in time. There is little doubt that an explicit program of transfers to the poor raises the income of the poor. There is a key additional fact, however. Only rich countries engage in significant redistribution to their poor. The median income in countries that rank in the top half for transfers is about 2.5 times as high as the median income in countries that rank in the bottom half for transfers. Generosity does not appear to be system-specific. There is no tendency for countries with more state ownership to engage in higher transfers.

Transitions from socialism to free-market capitalism take different forms and have different consequences. In China, growth was rapid and the income of all groups rose rapidly, but at substantially higher rates for the top 10 percent of earners than for the bottom 10 percent. In Chile, growth was substantial and parallel. Incomes of the richest and poorest grew at similar rates. The former Soviet bloc experienced a large drop in GDP during the early transition, which hurt the poor more than the rich. Venezuela, which went in the opposite direction, namely from freer markets and private ownership to socialism, saw income stagnation and decline for all.

In sum, all income groups benefit from having free markets and private ownership, but this does not preclude some income transfers. The disadvantage of having a large government sector is slower growth for all, which affects incomes of subsequent generations, rich and poor alike.

I. Introduction

Income is certainly among the most important metrics of societal success, but average income may mask much of what is important. A country that has a small proportion of very wealthy people coupled with a large group of very poor people is not what most would judge as a desirable society. Free-market capitalism with private ownership and market-determined allocation of goods and services is often credited with generating economic growth and high average income. But critics argue that a market-based economy does not help the poor enough. Socialism, which couples government ownership of much of the means of production with substantial centrally determined allocation, is championed as being more benevolent than free-market capitalism.

Much of the literature analyzes relative well-being. Benevolence is often measured by inequality or how the rich do relative to the poor, but inequality is not a good measure of how well the poor fare in general.

China is perhaps the best case in point. Completely different inferences with respect to the welfare of the poor are likely to be drawn depending on the choice of measure. Figure 1 shows what happened to income inequality in China since 1980 as the economy moved from strict command to a more market-oriented one with significant private ownership and business flexibility.[1] The increase in inequality is enormous.

Figure 1

Income Inequality in China
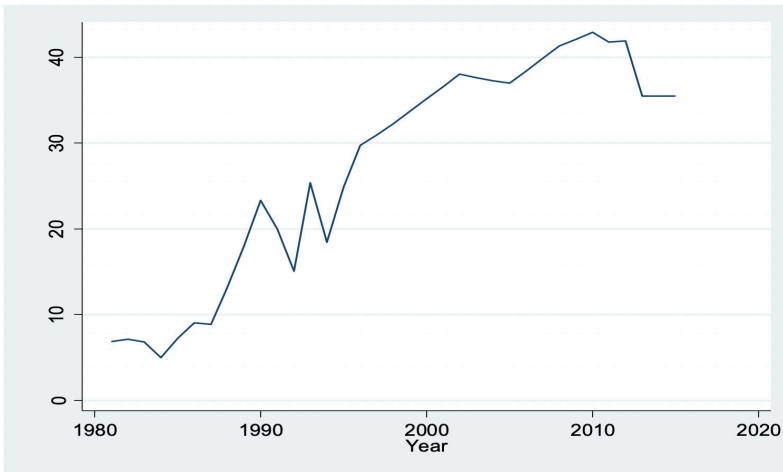
Note: Income is monthly per capita at 2005 PPPs.

The ratio of the average income of those in the top decile to average income of those in the bottom decile went from eight in the 1980s to about forty, only beginning to reverse in recent years. Presented alone, this fact suggests that although the move to the market has benefited the wealthy in China, it has not helped the poor.

Figure 2, which tracks the absolute monthly income of the lowest decile in China over time, suggests a different conclusion. Although it took a decade, in the mid-1990s

Figure 2

Income of the Poor in China
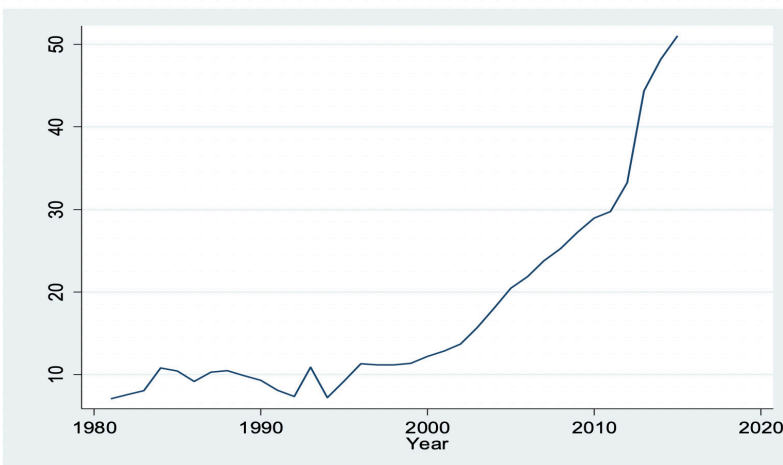
Note: Income is monthly per capita at 2005 PPPs.

income of the poorest in China began to grow and the growth rate picked up in the last decade. Today, the poorest Chinese earn five times as much as they did just two decades earlier. Throughout the 1980s and before, a large fraction of the Chinese population lived in abject poverty. Today's poor in China remain poor by developed-country standards, but there is no denying that they are far better off than they were even two decades ago. Indeed, the rapid lifting of so many out of the worst state of poverty is likely the greatest change in human welfare in world history.

China's experience is perhaps the most pronounced and most important because so many are affected. But it is not unique. India, with a population almost the same as that of China, experienced a similar phenomenon, albeit to a lesser extent. The ratio of income of those in the top decile to those in the bottom decile went from sixteen to twenty over the past three decades. At the same time, the absolute income of the poorest decile approximately doubled.[2] Inequality rose, but the poor became substantially richer. India, too, adopted market reforms in the late 1980s and '90s.[3]

Although surprising, the distinction between inequality and absolute income is an important one that is generally ignored in most of the literature. Almost all analyses of economic systems and outcomes for income focus on mean income and income inequality, not how well the poor have fared under the various systems. It is possible to argue that both are relevant, but it is inappropriate to ignore the importance of poor people's income level as society moves from one system to another. It is doubtful that many earners in the lowest quartile of China would prefer to return to the situation that prevailed before the reforms of the 1980s, despite the dramatic rise in inequality.

Because the goal is to improve life for the typical individual and especially the poor, much of the focus in this essay is on the effects of governmental form on the standard of living of the rich and poor, not on differences between the rich and poor. Inequality receives attention below in large part to connect it to other literature and to make clear what happens to relative positions as societies change governmental and economic form.

II. A Brief Review of the Literature

II. 1. General discussion

The literature on economic systems is replete with theoretical justifications for one system over another. Marx (1867) supplied the most historically important

argument for the advantages of socialism over capitalism and the natural replacement of capitalism by socialism. Capitalism brings about its own demise as technology creates more material goods for society and the abundance causes the rate of profit to decline, which results in depression, falling living standards, and the subsequent rise of the proletariat to overthrow the capitalist class.[4] More recently, Piketty (2014) presents a modern view of the doctrine that traces back to Marx.

Piketty's work is both theoretical and empirical. The conceptual analysis builds on modern growth theory that begins with Harrod (1939), Domar (1946, 1947), and especially Solow (1956). Piketty documents the rise in capital's share over time and argues that this will continue to happen unless action is taken to stop it. Concomitant increases in wage inequality are the inevitable result. There are a number of serious critiques of Piketty's analysis.[5]

On the other side, the notion that incentives matter is found throughout the economic literature and goes back to Adam Smith (1776). Perhaps most important in the context of incentives is labor supply. Workers generally must be paid in order to provide labor hours and effort. The literature on how paying higher wages affects labor and effort goes back at least to the late nineteenth century (Marshall 1890). More specifically, Rosen (1976) provides early estimates of the adverse effects of taxes on hours worked. Higher taxes imply lower take-home wages and Rosen finds that labor hours are diminished as a result. More recent work includes Davis and Henrekson (2004), which finds a reduction in work hours in response to higher taxes, using data from OECD countries. Prescott (2004) analyzes lower work hours among Europeans than among Americans and attributes the majority of the difference to tax rates on labor income. Eichengreen (2008) examines this and asks whether and why European leaders were naive about the effect of taxes on labor supply. Additional analysis is provided by Rogerson (2006, 2007) who argues that it is important to understand how the tax revenue is spent because this affects the labor supply/tax elasticity.

Von Mises (1920) and Hayek (1945) argued that market prices are necessary and provide the best coordination in a world where no single consumer, worker, or firm can possess all the necessary information.

A few authors have compared the performance of public and private firms within economies rather than attempting to compare entire economies under different systems. Early work by Boardman and Vining (1989) finds that state-owned or -operated firms are less profitable and less efficient than their private counterparts. Martin and Parker (1997) examine eleven UK firms that transition from public to private ownership and obtain mixed results, concluding that "neither private nor public sector production is inherently or necessarily more efficient." Winston (2010) examines the US transportation system and estimates that government involvement costs $100 billion per year in lost performance. Comstock, Kish, and Vasconcellos (2003) analyze the long-term performance of privatized state-owned enterprises and find poorer stock returns that are about 50 percent below market performance for former state-owned enterprises.

II. 2. Transitions

Transitions from one form of government to another have been studied by a number of researchers in different contexts. János Kornai has a large body of work on transitions and Kornai (2008) examines the transition from socialism to capitalism in a series of essays. Bandelj and Mahutga (2010) find that income inequality in socialist Central and Eastern European countries was lower than in other countries at a similar stage of development. Furthermore, inequality increased substantially after the fall of communism. In an earlier study, Bergson (1984) estimates that income inequality was low in the 1970s Soviet Union. This does not speak to whether the poorest Soviets earned more than the poor in other countries. Bergson finds that in the mid-1970s, inequality in the USSR, as measured by share of income earned by the highest and lowest quintiles, was comparable to that of Norway and the United Kingdom, but less than in the United States and France.

Neither socialism nor capitalism guarantees or precludes democracy. As an empirical matter (using the data below), there is a negative correlation between legal rights and state ownership of capital. Certainly, the most important socialist societies, namely the Soviet Union (and its satellite states) and China, were far from democratic. Democracy does not ensure equality and Acemoglu et al. (2015) find no clear relation of inequality to democracy.

As made clear in the introduction, high inequality does not imply low wages for the poor. The ratio of wages of the rich to the poor may be rising at the same time that the poor's wage level is rising. There is little evidence on this. Instead, some have examined direct transfers and income redistribution and its relation to inequality. For example, Ostry, Berg, and Tsangarides (2014) find that richer and more unequal societies tend to engage in more redistribution. They also find that growth is negatively correlated with inequality and that growth does not seem to suffer from efforts toward redistribution. There are obvious well-known cases that support this claim. Ireland, which experienced very high growth in average income and GDP over the past three decades, is also one of the most redistributive countries. A counterexample is New Zealand

in the 1970s and 1980s, which had high redistribution and low growth both in GDP and income, especially for the poor. This led to the mid-to-late-1980s "Rogernomics" reforms.

The connection between productivity and wages seems clear and has been documented recently by Stansbury and Summers (2017) and at a more disaggregated level by Lazear (2019). If it is necessary to raise productivity in order to raise wages, particularly the wages of the poor, which systems are more likely to lead to productivity growth? Acemoglu and Robinson (2012) argue that the Soviet Union was successful in producing economic and productivity growth by having a powerful central state that allocated resources toward industry. The major failing, as a result of deficient incentives, was innovation in industry, which led to stagnation. Yet the Soviet Union used its command structure to direct resources to specific activities and innovated in both defense and space technology. Rusmich and Sachs (2004) argue that the failings of the socialist system have to do with the lack of feedback mechanisms that allow inefficient organizations to fail. The absence of the natural selection that capitalism ensures results in low growth, less change, slower productivity growth, and therefore stagnant wages.

China, another prominent socialist economy, is the best evidence for a successful transition from a complete command economy to a more market-oriented economy. During the twenty-five years between 1985 and 2010, average income rose at an unprecedented annual rate of 9.6 percent. The Fraser index of economic freedom, described in more detail below, uses an average of other measures such as private ownership, small government, low taxes, and property rights, which matches the dictionary definition of capitalism given below. The highest-ranking countries on the index are Hong Kong, Singapore, New Zealand, Switzerland, Ireland, the United States, and the United Kingdom. At the low end are modern-day Venezuela, pre-reform China, Algeria, Republic of Congo, Central African Republic, Syrian Arab Republic, Libya, and Argentina. The index, which has a scale of 0 to 10 and a mean level of 6.54, rates China as 3.59 in 1980 and 6.42 in 2017. Several authors have examined the Chinese transition to middle-income status and have contrasted it with experiences in Eastern Europe. Nolan (1995) focuses on the more gradual nature of the transition in China. Tsai (2007) discusses the ability of China to grow economically and to become capitalist without becoming democratic. Wu and Treiman (2007) examine intergenerational mobility in China, which they argue is artificially high because the registration system in China has resulted in a small proportion of a large number of rural residents moving to the cities and obtaining higher incomes.

II. 3. Scandinavia

The Scandinavian experience is important and is sometimes viewed as a middle ground. Some proponents of socialism point to Scandinavia as what they have in mind. Indeed, Scandinavia has had high growth, has high standards of living, but also has a large government sector, sometimes viewed as a defining feature of socialism.[6] Scandinavia is known not only for the size of the state but also—and perhaps primarily—for its welfare programs like generous child care benefits in Sweden and "flexicurity" in Denmark.[7] The Scandinavian countries are in the top 20 percent of countries in terms of transfers and subsidy payments according to the Fraser index.[8] They share this characteristic with other wealthy European countries, the highest of which are Austria, Belgium, Germany, France, and the Netherlands, countries which rank even higher than Scandinavia on the amount of transfers and subsidies.[9]

Others might deny that Scandinavia is socialist on a number of grounds. Non- Scandinavian countries, specifically, France, Belgium, Austria, Greece, and Italy, have comparable or larger state sectors as measured by government expenditures as a share of GDP.[10] Sweden, Finland, and Denmark have less state ownership than the median country in the world and all the Scandinavian countries rank high (in the top fifth of all countries) for general economic freedom.

The Scandinavian and larger European experience suggests that transfers are an important issue to consider when evaluating systems. It may be that inherently capitalist economies choose low transfers while inherently socialist ones choose high transfers. It might also be expected that transfers have effects on the distribution of living standards within a country as well as growth. That is studied below.

III. Data

There are two main sources of data. The primary dependent variables relate to the income distribution across countries and over time within a country. For this purpose, data from the Global Consumption and Income Project (GCIP) are used.[11] The data go back in some cases as far as the early 1960s and cover as many as 161 countries, although there are many missing observations for given countries in particular years. The income data harmonize national surveys to present real (2005 PPP) monthly income data for all deciles of the population.

Interpolation is used in years between national surveys to estimate mean level of income for every decile in the country-year. In non-survey years, the income profile is estimated by using the appropriate per capita growth rate figures from the World Development Indicators. For the purposes here,

only survey years are used to avoid understating the standard errors. The Global Income Dataset draws on several sources of data, mainly the EU-SILC database, the Luxembourg Income Study, the SEDLAC database, and the UNU-WIDER World Income Inequality Database. All measures of income are per-capita.

A few checks suggest that the income data are reasonable. A ranking of countries by median income makes sense. The richest countries in 2015, in order, are Luxembourg, Norway, Hong Kong, Switzerland, Canada, New Zealand, the United States, Sweden, Austria, and Iceland. The poorest countries are Madagascar, Malawi, Congo, Mozambique, Zambia, Nigeria, Mali, Senegal, Niger, and Tanzania. Internal inequality measures are also consistent with other sources. Within the ten richest countries, the United States has one of the highest levels of inequality as measured by the difference in the log of top decile income and log of bottom decile income, with Iceland, Norway, and Sweden having the lowest.[12]

The other key data component relates to measures of governmental form, the primary source being the Fraser Institute indexes on economic freedom. The indexes are available for 162 countries for various time periods, with most available at least from 1980 through 2017. Many metrics are provided, ranging from those that most directly define capitalism and socialism, namely state ownership of capital, to regulatory structure. The index is divided into five major topics: (1) size of government, (2) legal system and security of property rights, (3) sound money, (4) freedom to trade internationally, and (5) regulation. Within each of the major areas are forty-two subcomponents which come from various third-party sources such as the International Country Risk Guide, the Global Competitiveness Report, and the World Bank's Doing Business project. The subcomponents are scaled from zero to ten to reflect the distribution of the underlying data. Within each major area, components are then averaged to give an area rating. These ratings are again averaged to arrive at the overall economic freedom summary index, with values closer to ten representing more open and free economies. The five areas of the index are weighted equally to obtain the summary economic freedom index.

A similar index that is used to validate some of the findings is compiled by the Heritage Foundation: the Heritage Index of Economic Freedom.[13] It is based on twelve quantitative and qualitative factors, broadly grouped into four categories: (1) rule of law, (2) government size, (3) regulatory efficiency, and (4) open markets. After being graded from zero to one hundred on each factor, a country receives an overall score equal to the unweighted average of the twelve indicators. A higher score indicates a higher level of economic freedom. The data are available annually between 1995 and 2019 and

cover around 180 countries. Because the Heritage index covers a shorter period that sometimes misses important changes from one government form to another, the Fraser index rather than the Heritage index is used as the primary measure. An appendix table compares results obtained using the Fraser index to those using the Heritage index and shows that they are qualitatively similar. The data from both the Fraser Institute indexes and the Heritage Foundation index are summarized in the appendix, table A3.

There are other indexes that might be used to define capitalism and socialism. The World Economic Forum compiles an index of business competitiveness which covers the period from 2007 through 2018 for more than one hundred countries.[14] Also available, roughly biannually starting in 2012, is the rule of law index, produced by the World Justice Project.[15] It covers about one hundred countries. Except for checking for consistency, neither index is used as a primary part of the analysis because the time of availability does not cover the relevant period.

IV. Defining Capitalism and Socialism

A key to exploring the relation of system to income is settling on common definitions of socialism and capitalism. Merriam-Webster defines socialism as "any of various economic and political theories advocating collective or governmental ownership and administration of the means of production and distribution of goods" and secondarily as "a. a system of society or group living in which there is no private property and b. a system or condition of society in which the means of production are owned and controlled by the state." Conversely, capitalism is defined by the same source as "an economic system characterized by private or corporate ownership of capital goods, by investments that are determined by private decision, and by prices, production, and the distribution of goods that are determined mainly by competition in a free market."

A variety of measures of free-market capitalism are used. Initially, and most frequently, the metric that is closest to the dictionary definitions given above is the Fraser Institute variable that measures state ownership of capital on a ten-point scale, where ten is the highest degree of private ownership and the lowest level of state ownership.[16] Countries with zero values include the Soviet bloc countries before the fall of the Soviet Union, China in 1970, Vietnam and Laos in 1980, and Mozambique in 1975 and 1980. The countries with the least state ownership include the United States, Switzerland, Germany, and modern-day Lithuania.

Also corresponding to the dictionary definitions of socialism and capitalism is the Fraser index of economic freedom, which

is an average of a number of other indicators, including those that measure state ownership, rule of law, the size of government, and the amount of transfers. The Fraser indexes provide information for most countries over a significant period of time. The data go back as far as 1970 and up through 2017 for over fifty countries, but there is information on more than one hundred countries from 1980 to the present.

The Heritage Foundation index also corresponds to Webster's definitions of socialism and capitalism but is available over a shorter period of time than the Fraser index. The correlation between the Heritage economic freedom index and the Fraser economic freedom index is .85 over all countries and all years for which both are available.

The World Justice Project (WJP) rule of law index, used only for verification purposes, is not necessarily related to capitalism or socialism per se because a country with state ownership of capital and government-administered prices could adhere to the rule of law and protect individual civil liberties. As an empirical matter, however, the WJP index correlates strongly with having low state ownership. The World Economic Forum business competitiveness index, also used primarily as a check on other indexes, purports to measure the openness of business to market forces and absence of government interference in markets, which conforms to Webster's definition of capitalism. It is strongly correlated with both Fraser and Heritage indexes of overall economic freedom as well as with the WJP rule of law index.

Taken as a whole, the set of indexes, their correlations and definitions, support the view that the Fraser state ownership index and economic freedom index are good summary measures of capitalism and socialism. High values of the indexes correspond to private ownership and free markets and low values of the index correspond to state ownership and government- controlled markets.

V. Results

The panel income and index data are used to analyze the relation of income to economic form. The analysis separates lowest decile, median, and highest decile incomes. Most of what follows examines the levels of those measures, taken independently, but there is some analysis of the relation of the various income deciles to one another, which is more closely related to inequality per se.

V. 1. Income variations and state ownership

A number of measures of free-market capitalism and socialism have been suggested. The analysis starts by examining the metric that most closely matches the dictionary definition of socialism, namely, the amount of state ownership of capital as measured by the Fraser index, described above. Recall that a high number refers to high levels of private ownership and a zero value implies complete state ownership. The index seems to capture significant variation in countries in a consistent way. For example, in 1980 a value of 4.26 was reported for Poland and zero for Russia. It is well-known that Poland had a significant amount of private ownership, even as part of the Soviet bloc.[17] But in Russia, the state nationalized virtually every activity outside of the black market.

The basic approach in this section is to examine the relation of income of three groups to state ownership. The three dependent variables are the logs of mean income of the lowest decile, log of median income, and the log of mean income of the highest decile. The data consist of an unbalanced panel so that the results use information on 147 countries for a period potentially as long as 1970 through 2015. Standard errors are clustered at the country level.

There are three sets of regressions for each dependent variable, shown in table 1 as columns 1–3, 4–6, and 7–9, respectively. The dependent variable is income ten years in the future rather than contemporaneous income.[18] There are at least two reasons for relating future income to state ownership at a point in time. First is a concern about reverse causation. It is possible, for example, that as countries get wealthier, they demand less state involvement. This argument makes more sense in the context of human rights and rule of law, analyzed later, but it is worth considering even here. One way to reduce that concern is to exploit the timing. If state ownership changes first, say ten years earlier, then it is unlikely that it changed in response to income changes that occurred the next decade. Of course, even that is a possibility were the future income changes anticipated, but that is much more of a stretch.

Additionally, from a logical point of view, it makes sense that it would take some time for changes in state ownership to show up in incomes. That provides another reason to relate income ten years in the future to levels today.

Columns 1, 4, and 7 show the relation of income ten years hence to state ownership of capital for the poorest, median, and wealthiest members of the economy. Higher index values reflect more private ownership and less state ownership. All coefficients on the state ownership index are positive, strong, and statistically significant. For example, using the coefficient in column 4, a one standard deviation increase in private ownership increases median income by about 19 percent of the mean value of the log of median income. Also interesting is that the lowest income groups benefit as much or more from private ownership as the highest income groups (compare coefficients in columns 1, 4, and 7).

An obvious concern is that other omitted factors may be correlated with state ownership and that the state ownership index may pick the effect of those other factors on income. The inclusion of country fixed effects addresses some of those worries. Results from regressions that include country fixed effects are contained in columns 2, 5, and 8. Qualitatively, the results are similar to those without fixed effects, but the magnitudes of the coefficients are generally lower when country fixed effects are included.

Columns 3, 6, and 9 use an alternative specification to examine whether today's level of state ownership affects the income growth of the various groups over the subsequent ten years. Country fixed effects are included to allow for different levels of development and other factors that might affect income growth directly. The effect of low state ownership on income growth is marginally positive for the lowest decile, positive for the median, and essentially zero for the highest decile.

The cross-country correlation between private ownership and income ten years in the future is positive and strong. It is also true that median income seems to rise over time within a country as the country moves toward more private ownership and less state ownership. The results are less clear-cut for bottom and top deciles within a country over time. The within- country intertemporal effects are less clear-cut for the lowest and highest income deciles.

V. 2. Income variation and other measures of economic form

As described in the data section, there are a large number of measures that might be construed as relating to capitalism and socialism. The measures tend to be highly correlated with one another, both within a given index compiler and also for similar named measures across index compilers.[19] For example, the correlation between the WJP rule of law index and the Fraser law and rights index is .91. Already mentioned is that the Fraser Institute summary measure correlates strongly with the Heritage economic freedom index.

Neither the Fraser nor Heritage summary indexes of economic freedom are measures of capitalism or socialism per se, but the sub-indexes tend to use metrics that are consistent with the dictionary definition of capitalism. The United States has a mean level of the Fraser index over all years equal to 8.24. The corresponding value for the four Scandinavian countries is 7.5 and the mean across all countries is 6.54. The value for pre-1985 China was 3.59 and the value from 1985 on is 5.95. At least in relative terms, the index seems to correspond closely to intuitive definitions of free-market capitalist and socialist economies.

Both the Fraser economic freedom index and Heritage economic freedom score are averages of all the individual indexes tracked by the organization. The Fraser index is based on all the subcomponents; but a regression of the economic freedom index on the subcomponents reveals that variation in the summary measure is driven primarily by indexes of state ownership, law and rights, and a limited regulatory environment. For the Heritage economic freedom score, the most important drivers are indexes of well-defined property rights (there is no Heritage index of state ownership, per se), low government spending, and a free monetary regime.

There is simply insufficient power to include every possible metric of free-market capitalism and socialism so some choices must be made. In this section, the summary measure provided by Fraser is used. It is chosen over Heritage because it covers a longer period of time and appears to have higher explanatory power. Appendix table A1 compares results from using the two indexes. Qualitatively, conclusions are the same, independent of the choice between Fraser and Heritage summary indexes. Table 2 shows a pattern that is very similar to that of table 1. Table 2 uses the same specifications as found in table 1, but simply replaces the state ownership index with the summary economic freedom index. The results with the summary measure parallel—but are stronger than—those found using the state ownership index.

It is particularly important to look at effects today on income in the future as opposed to contemporaneous income when relating income to economic freedom. In this case, reverse causation is a potentially serious issue. It is reasonable that citizens of wealthier countries will demand more personal rights. As countries become wealthier, the demand for personal rights, reflected in the economic freedom index, might well increase. Using the future value of income and relating that to changes that occur today is helpful in that regard. It is possible, but less likely, that changes in economic freedom occur in anticipation, but not yet the realization, of high income in the future. The country fixed effects regressions provide further comfort that other omitted characteristics are not driving the correlation between the economic freedom score and income.

Columns 2, 5, and 8, as well as 3, 6, and 9 of table 2, provide evidence on how within-country changes in freedom affect the incomes of various groups. Using the country fixed effect regressions of column 2, each change in the economic freedom index raises the income of the poor by .19 log points. In 2015, Mexico is the median country and Singapore is the most free according to the economic freedom index. Changing freedom from the Mexico level to the Singapore level is predicted to raise the income of the poor by about 40 percent. All income groups benefit from the change, but the change typically helps the poor more than other income groups as reflected in the higher coefficient in column 2 than in column 8.

One additional measure of socialism was used, specifically, words in the country names that denote socialism. Not all socialist countries have names that indicate socialism, but some do, including the words "socialist," "democratic," or "people" in the country's name. A dummy was created for whether, at each point in time, the country self-declared itself as socialist by including one of these terms in its name. About 15 percent of the sample has a socialist name by this criterion. The levels regression shown in table 2 with and without country fixed effects were repeated but the economic freedom index was dropped and replaced by a dummy for having a socialist name. The results are shown in appendix table A2. Having a socialist name is negatively associated with all income levels but, unsurprisingly, the existence of a socialist name is most pronounced on its relation to the highest income group. The fixed effects regressions, which exploit within-country changes in the name over time, show an increase in income of .18 log points for the lowest decile and almost .49 log points for the highest decile when changing the name from socialist to nonsocialist, which happens thirty-nine times across countries and over time, or in the opposite direction, which happens eighteen times.

V. 3. Rule of Law

Others, for example Barro (1991), Hall and Jones (1999), and Acemoglu and Robinson (2012), have found a more complex relation of institutions to growth. That literature is related to this research but not the same for two reasons. First, economic growth is not the same as income levels or growth and especially not the same as income of the lowest decile. Second, the literature concerns itself with a variety of institutions, e.g., institutions formed under colonialism, and usually not the direct comparison of socialism and capitalism. Still, it is instructive to pay attention to the lessons of this sophisticated and extensive literature and to heed its findings. A primary finding is that the rule of law is a key determinant of growth.

Once again, there is nothing that precludes a socialist country from having the rule of law nor guarantees that a capitalist country possesses or adheres closely to the rule of law. Chad in the 2000s, Guatemala in the 1980s, and Haiti and Madagascar now are characterized by high levels of private ownership, consistent with capitalism, but very low adherence to the rule of law by the Fraser indexes.

It is possible to provide some generalizations. One approach is to compare countries that self-declare themselves as socialist by having a socialist name to those without socialist names. The Fraser and World Justice Project indexes of rule of law are negatively related to socialist names—statistically so in the case of the World Justice Project index. Additionally, the correlation between the Fraser low state ownership index and

law and rights values is positive and statistically significant. Countries and time periods that have less state ownership also rank higher in adherence to the rule of law.

Because of the attention the rule of law has received in the prior literature, it is treated separately from other indicators here. Unfortunately, there is almost no overlap between the income data and the World Justice Project index so only the Fraser law and rights measure is used. Table 3 contains the results of including both the state ownership index used in table 1 and the Fraser law and rights index.

Interesting here is that when country fixed effect are excluded, the law and rights coefficient is very large and significant. But when country fixed effects are included, the coefficient shrinks, is sometimes insignificant, and the relative importance of the state ownership index increases. This suggests that reverse causation is an issue as it affects rule of law. Those countries that are wealthy demand more rights. There is, however, some support of causation running from rule of law to income growth found in the country fixed effects regressions in columns 2, 5, and 7. However, those results are not supported by specifications that examine changes in income over the subsequent ten years and relate that to rule of law today, which finds no effect. Decreases in state ownership are more closely associated with higher incomes ten years later than is the rule of law.

V. 4. Transfers and Taxes

Some might define socialist economies as merely being those that have high levels of redistribution, meaning high taxes and transfers. This definition is most consistent with thinking of the Scandinavian countries as socialist. It is certainly true that the Scandinavian countries have higher taxes and transfers than non-Scandinavian countries over the period measured according to the Fraser indexes. They are not alone. Other high-transfer countries include Belgium, France, Germany, and Austria, all countries which have values for other metrics of socialism, namely private ownership of capital, that are inconsistent with standard definitions of socialism. In each of these countries—Belgium, France, Germany, and Austria, plus the four Scandinavian countries (Denmark, Finland, Norway, and Sweden)—the state ownership index and economic freedom index, where high values correspond to more private ownership and less state involvement, have above country-average readings. Figure 3 shows that the Scandinavian countries all have low state ownership index values (taken over the entire period) and high values of the economic freedom index. The values for Scandinavia look much more like those for the United States than they do for pre-1985 China or post-2000 Venezuela. At the same time, figure 4 shows that Scandinavian countries have low values on the low top tax rate index and on the low transfers
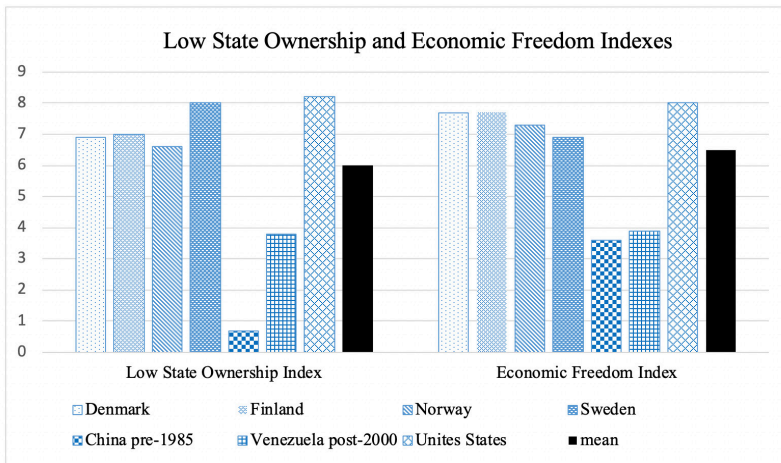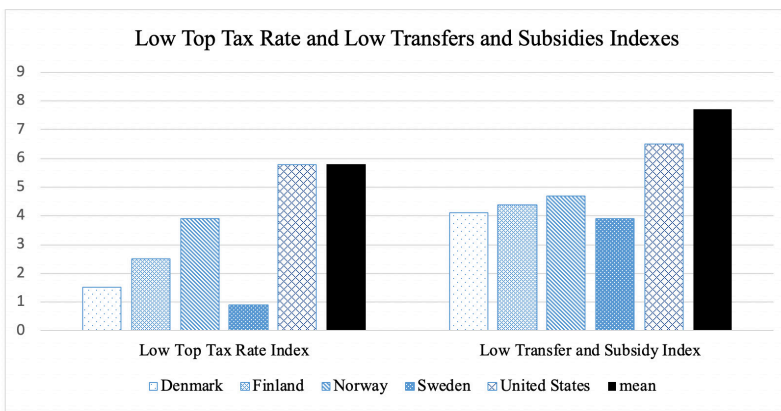
Figure 3

Low State Ownership and Economic Freedom Indexes

Legend: Denmark, Finland, Norway, Sweden, China pre-1985, Venezuela post-2000, Unites States, mean

Figure 4

Low Top Tax Rate and Low Transfers and Subsidies Indexes

Legend: Denmark, Finland, Norway, Sweden, United States, mean

and subsidies index (again, taken over the entire period).[20] Perhaps a more accurate description of Scandinavia is that the countries rely primarily on private ownership and markets but have chosen to have a large government transfer program, which implies not only high transfers but also high taxes. Evidently, having private capital, rule of law, and other aspects of economic freedom are not inconsistent with having high levels of transfers and taxes.[21]

The relation of income to transfers and taxes is somewhat complex. Forces work in two directions, particularly as transfers for the lowest decile. For a given country at a point in time, increasing transfers to the poor must result in higher incomes (after transfers) among the poor, almost definitionally. In the long run, however, it is possible that the adverse general effects on the economy more than outweigh the effects of transfers and the poor end up worse off. This is investigated here.

Richer countries have higher transfers in general. The correlation between the average transfers index value for a given country (where a high value is a low transfer) and median income (averaged for a given country over the entire period) is -.70. Countries having the lowest transfers are Myanmar, Burkina Faso, Chad, Sierra Leone, Tanzania, and Swaziland,

all of which are among the world's lowest-income countries. Countries having the highest transfers are Belgium, France, Austria, Germany, the Netherlands, and Sweden, all of which are high-income countries. The average level of the low transfer index for the poorest 20 percent of countries (as measured by average median income over all survey years) is 2.1 below that for non-poor countries on a scale with an overall mean of 7.8. The ability to generate revenue and redistribute to the poor seems to be a luxury that only rich countries can afford or are willing to undertake.

Among high-income countries, defined as in the top quintile by median income, transfers tend to be positively related to income over time. For a given country, transfers tend to be low when those countries are poorest and high when those countries are richest.[22] Median income in countries that rank in the top half for transfers is about 2.5 times as high as median income in countries that rank in the bottom half for transfers.

With that in mind, table 4 presents some results that bear on the issue. Columns 1 through 3 examine the contemporaneous relation of income of the lowest decile, median, and highest decile to transfers as measured by the Fraser transfer and subsidy index. A high value of the transfer index corresponds to low transfers. The coefficients on transfers and subsidies is negative for all three groups, although the magnitude declines as income rises. Low-income individuals are helped more by transfers than are high-income individuals, which makes sense given that transfers are generally redistributive. The surprise is that high-income individuals are helped at all. It is possible that high transfer countries transfer to all and simply tax at high rates to pay for it. Child care in Sweden is an example of this kind of subsidy. Although possible for some countries like those with generous benefits at all income levels, the interpretation of reverse causation is at least as plausible. High-income countries, as measured by income of the lowest decile, median, or highest decile individual, tend to engage more in large transfers and subsidies. The same pattern was observed before and is seen here again with respect to adherence to rule of law. Richer countries tend to demand more rule of law and also tend to have larger amounts of redistribution.

Columns 4, 5, and 6 report the same analysis, but include country fixed effects. As before, the specification used relates values of the independent variables today to income ten years in the future. The results are similar across the three income groups but tend to be stronger for the top income group than for the bottom. Within a given country, low taxes today relate to higher income in the future. As reported above, stronger

adherence to the rule of law today is associated with higher income in the future. The amount of transfer today does not relate to income of any group in the future. Because of the lag structure, the reverse causation running from income to the independent variables is less of a concern.

Table 4 implies that the poor benefit from higher transfers at a point in time.[23] That is the point, of course. Nor does it appear that transfers today have lasting effects on the economy independent of the taxes that they require to finance the transfers. It is possible that a transfer environment is so detrimental to work incentives that future income growth is adversely affected. There is little evidence that the effect of transfers is adverse for any income group. However, high taxes generally go along with transfers, the correlation between the two indexes being .37. It is also true, as columns 5 and 6 imply, that most income earners see lower future income when a country adopts high top tax rates today.

There is evidence elsewhere that having a larger government sector reduces growth .[24] This is true even for quite successful countries like Denmark and Finland during the past decade. To the extent that lower growth reduces the income of all, the poor of the future may be adversely affected by large transfers made to today's poor.

There is nothing that precludes a country that would be defined as capitalist by other measures from having significant transfers. For example, Germany is a high-transfer country, ranking fourth out of 150 countries on the transfer and subsidy index over all years and above all of the Scandinavian countries. Yet Germany ranks about as high as the United States, Japan, and Switzerland for lack of state ownership and an abundance of economic freedom. None of those three countries have high transfers given their income levels. The United States, Japan, Switzerland, and Germany have among the lowest values of the state ownership index and highest levels of economic freedom. Nor does a regression of the country-mean levels of the transfer index on median income, state ownership, and economic freedom index produce a significant coefficient for anything other than median income, with the strong result that richer countries have higher transfers. Some rich and otherwise capitalist countries, like the United States, have chosen low transfers and subsidies, while others, like Germany and the Scandinavian countries, have chosen high transfers and subsidies despite having economic freedom and state ownership levels that align them more closely with otherwise capitalist countries.

V. 5. Income of the Poor and Inequality

The introduction made the point that China, and India to a lesser extent, have experienced large increases in inequality while at the same time witnessing dramatic growth in the incomes of a substantial fraction of the poor. Is this specific to those countries? Or is it generally the case that income growth among the poor is correlated, positively, with growing inequality? This seems unlikely because inequality is the difference between the (log) incomes of the rich and the poor so an exogenous shock to the income of the poor would seem to imply a reduction in inequality unless that same shock increased the incomes of the rich by more.[25]

It is possible that the general pattern resembles that of China, where growing inequality is also associated with growing incomes of the poor. It is also possible that the reverse is true and that China (and India) are anomalies. Although conceptually straightforward, this is a statistical challenge because any error that is incorporated into measurement of the income of the lowest decile will be reflected, negatively, in the measure of inequality since inequality is measured as log (income of top decile) - log of (income of bottom decile). Nor is there a ready instrument available to address this issue.

Instead, a more indirect approach is taken. Evidence has already been presented that bears on this question. Tables 1 and 2, in particular, provide estimates of what happens differentially to income when state ownership or economic freedom changes. The comparisons among columns 2, 5, and 8 and among 3, 6, and 9 show the relation of various groups' income to changes in metrics of socialism and capitalism within a country. There is no clear pattern one way or the other. Neither high income nor low income groups unambiguously benefit more from moving to less state ownership or more economic freedom. Inequality may be a consequence of some rapid development, as in the case of China, but as a general phenomenon, moves toward more capitalism as measured by the two indexes do not clearly favor the rich over the poor or vice versa.

Table 5 relates income of the lowest and highest decile to median income across countries and over time in columns 1 and 2 and within countries over time in columns 3 and 4, which include country fixed effects. Incomes of both the lowest and highest deciles tend to move with the median across countries and within countries over time. The movement of the lowest decile with the median tends to be greater than the movement of the highest decile with the median.

Columns 5 and 6 address whether incomes of the top and bottom deciles are complements or substitutes. It is clear that in both specifications, with and without fixed effects, the bottom tends to prosper when the top prospers.[26] It may be the case that the top can enhance its income at the expense of the bottom, but these data provide no support for that view. Columns 5 and 6 are more consistent with a rising tide lifting all boats, although not necessarily at the same rate.

Inequality and income growth are addressed directly in Table 6. Column 1 simply regresses inequality (the difference in the log incomes of top decile and bottom decile) on median income and includes country fixed effects so that the focus is on within-country changes. The coefficient is negative, implying reduced inequality with income growth, but is not statistically significant. The second column uses an instrumental variables approach, forecasting the log of median income using a first stage that regresses log of median income on the Fraser economic freedom index. The sign of the coefficient changes but, again, the relationship is not statistically significant. Columns 3 and 4 repeat the exercise but use per-capita GDP as the measure of economic growth rather than median income. The coefficients are positive, but again not statistically significant. The message of table 6 is that there is no obvious, strong, and country-invariant relation of inequality to income growth over time. As will be shown in the next section, there are some countries where growth was accompanied by large increases in incomes of the poor but, at the same time, large increases in inequality.[27] There are other countries where substantial income growth occurred during the move from socialism to capitalism without much permanent change in inequality.

V. 6. Transitions

Not all transitions are alike. Compare figure 5 to figure 2. In China, shown in figure 2, the transition toward a market economy was marked by almost uninterrupted upward progress in the income of the lowest decile. In contrast, figure 5 shows the average income in Soviet bloc countries during the 1980s and the 1990s transition to the market. Both the richest and poorest suffered substantial declines in income but the lowest decile's fall was much larger than that

Figure 5

Income of the highest and lowest deciles during the Soviet Bloc transition
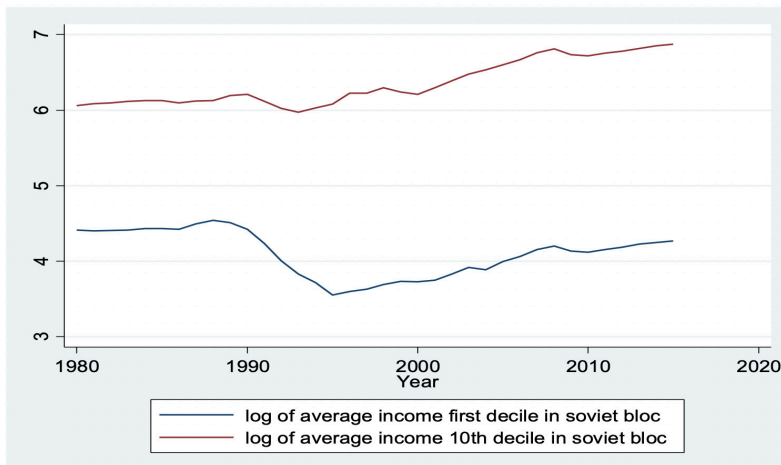
Note: Income is monthly per capita at 2005 PPPs.

of the highest decile. The Eastern European transition was particularly hard on the poor. There were a number of ways that this came about. One mechanism involved pensioners. In the late 1990s, Russia's finances were in ruins, which led to defaults and nonpayment of pension obligations. Pensioners are creditors. They exchange their labor for current wages and a promise of future pension flows, which is implicitly a loan to the government. When Russia defaulted on creditors during its financial crisis, pensioners were among them, which imposed significant hardship as Kovacheva and Niu (2012) document.

Figure 6

Income of the highest and lowest deciles in Chile
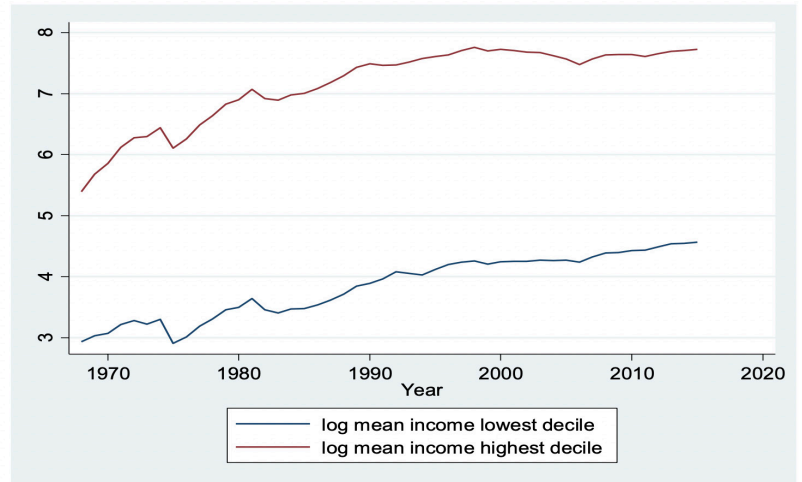
Note: Income is monthly per capita at 2005 PPPs.

Chile provides an interesting example of a transition from an elected socialist government to a market economy. Salvador Allende, a Marxist physician, became president in 1970 and was ousted in a military coup in 1973. He was succeeded by the controversial and eventually indicted Augusto Pinochet. Pinochet's economic advisers were University of Chicago-trained market-oriented economists (the "Chicago boys"). Inflation fell from over 500 percent in Allende's last year to below 10 percent by 1981.[28] It is well known that Chile had an extremely successful growth period with GDP growth averaging over 5 percent annually from 1977 to 2000.[29] Figure 6 displays income growth for the lowest and highest deciles. There was a transition period, immediately after the coup, where income for both groups declined. That was reversed around 1977 and by 1978 income of the lowest decile reached its previous peak.

Income declined again in the early 1980s, but always remained above 1973 levels and then grew, virtually uninterrupted, throughout the following period. Inequality, measured as the difference in the log of top decile income to log of the income of the bottom decile, grew initially, but declined from the mid-1990s

on. Inequality is now slightly greater than it was during the Allende period. The difference in log of top and bottom income deciles is 3.16 now and was 3.0 in 1972.

Chile's transition was more gradual than China's and inequality did not rise very much during the transition, in contrast to the Chinese situation, where the level of income of the poor rose dramatically, but at a substantially lower rate than for the top decile. The rate of income growth of the poor during Chile's transition was about 60 percent as rapid as that of the poor in China. In Chile, however, the rate of growth of the upper decile was just slightly higher than that of the lowest, while in China, the top grew 65 percent faster than the bottom.

Figure 7

Income of the highest and lowest deciles in the Republic of Korea
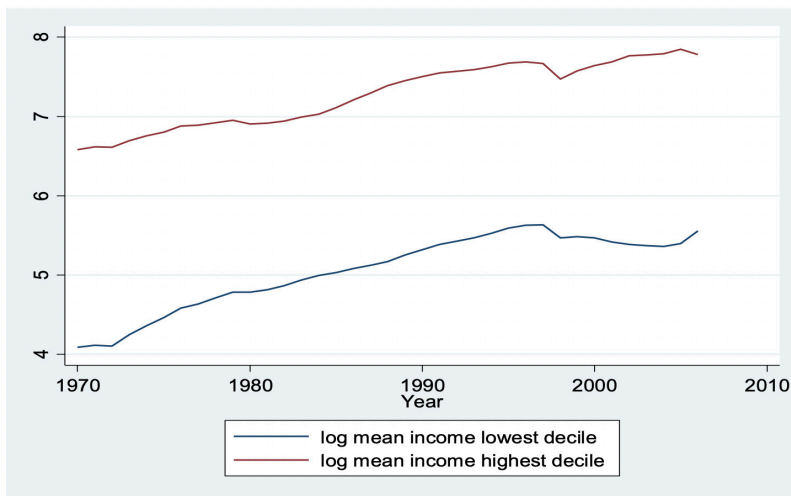
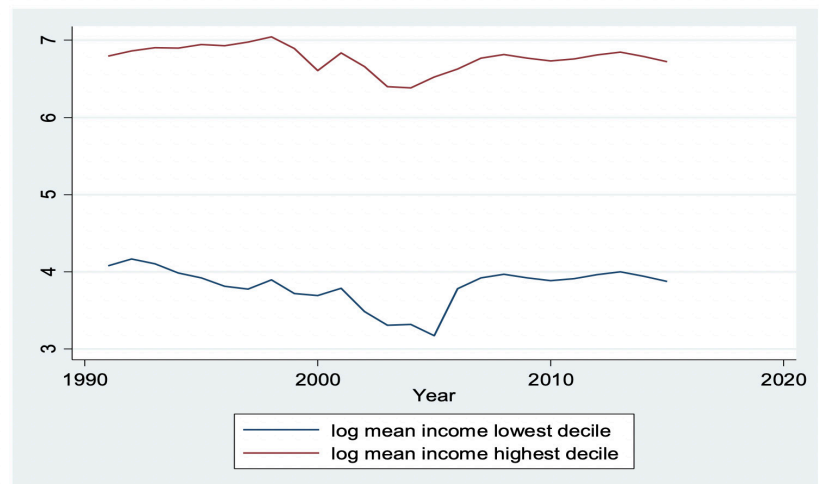Note: Income is monthly per capita at 2005 PPPs.

China, the Eastern European transition, and the Chilean experience mark moves from socialism toward capitalism, but not all transitions are of that form. Incomes in South Korea, a successful Asian Tiger, grew dramatically in the late twentieth century as figure 7 shows. South Korea did not move from socialism to capitalism, but South Korea improved its openness over time. It now ranks ahead of Italy and about even with Sweden, Norway, and Austria on the Fraser economic freedom index. The score rose from 5.74 in 1970 to 7.59 in 2017. Much of this was driven by reforms that improved the business climate and provided incentives for investment and innovation.[30] Over the 1970 and 2007 period (the first and last survey year), median income rose almost five-fold. South Korea's inequality declined as economic freedom grew, with income inequality being somewhat lower in the last year than in the first of the survey period.

One feature that South Korea shares with the Soviet bloc economies is worth noting. As figure 7 shows, the 1990s Asian financial crisis and subsequent recession hurt the lowest decile more than it did the top decile and it took longer for the poor to recover from that shock. This suggests that it is not transitions per se but economic shocks that have adverse consequences on the lowest income earners, the Soviet bloc transition being but one example. This same phenomenon is commonly observed in developed economies like the United States. During the recession that followed the 2008 financial crisis, unemployment rates about tripled for those with less than high school education, but only doubled for those with college or more.[31] Chile's experience was similar. The mid-1980s was a recession period. The lowest decile's income fell by more than that of the upper decile and recovery was slower for the lowest decile. Transitions are more likely to be associated with shocks. But it appears to be the shock, not the transition per se, that affects low-income earners most negatively.

Venezuela represents a transition, one of the few in recent times, that goes in the other direction. Socialist Hugo Chavez was elected president in February 1999. The country quickly launched into a regime of increased state ownership and control, nationalizing major industries in oil, agriculture, finance, gold, steel, telecom, communications, and power.[32] Private ownership declined from 5.9 in 1995 to 2.0 today as measured by the Fraser index of state ownership. Economic freedom fell from 4.3 to 2.6 on the Fraser index of economic freedom. Chavez's stated goal was to bring about the democratization of Venezuela and improve the conditions of the poor.[33] By the inequality measure, he was slightly successful. The difference in the log of the top decile's income and the log of bottom deciles

Figure 8

Income of the highest and lowest deciles in Venezuela

Note: Income is monthly per capita at 2005 PPPs.

income was 3.2 in 1999 and now is 2.8. But income of the poor has not grown, as figure 8 shows. The transition under Chavez brought declining income across the board and the poor suffered more than the rich, again suggesting that shocks are borne disproportionately by low-income groups. The rise in oil prices in the late 2000s helped Venezuelan income, but neither today's poor nor rich have reached the peak level of income that they had attained in the 1990s. The poor are just slightly better off than they were in 1998, just before Chavez took power, while the top decile's income today is 72 percent of what it was in 1998. Venezuela has succeeded in bringing income of the top group down but has not succeeded in bringing income of the bottom group up.

VI. Conclusion

The past century witnessed transitions from capitalism to socialism and back again. The historical record provides evidence on how countries have fared under the two extreme systems as well as under intermediate cases, where countries adopt primarily private ownership and economic freedom but couple that with a large government sector and transfers. The general evidence suggests that both across countries and over time within a country, providing more economic freedom improves the incomes of all groups, including the lowest group. As countries liberalize their economic environment, incomes, including those of the lowest decile, grow. The evidence supports the view that moves away from socialism and toward free-market capitalism may affect the rich and poor differentially. There are some examples of this, the most important of which is China since the 1980s, where income of the poor rose dramatically but, at the same time, inequality skyrocketed.

The Chinese case is evidence that growing inequality does not imply falling incomes among the poor. Beyond China, there is general evidence on the issue derived from many countries and over a number of years. The results of that analysis can be summarized.

First, there is no evidence that, as a general matter, high-income groups benefit more from a move toward capitalism than low-income groups. The effect of changing state ownership and economic freedom on income is not larger for the rich than for the poor. Second, income growth is positively correlated across deciles. The situation is closer to a rising tide lifting all boats than to the fat man becoming fat by making the thin man thin. Finally, there is no consistent evidence across the large number of countries and time periods examined of any strong and widespread link between income growth and inequality. There are examples, like China, where income growth was coupled with large increases in inequality, but others like Chile, where strong income growth came about

without much change in inequality, and South Korea, where inequality declined slightly as economic freedom and income grew over time.

Transfers and redistribution present the most complex picture of state involvement. Transfers from rich to poor through the tax system are a luxury that only rich countries seem to be able to afford and are not a product of socialism per se. There is a very high correlation (-.67 in 2010) between contemporaneous median income and the low transfer index across countries. High transfer countries like those in Scandinavia and other rich parts of Europe have primarily private ownership and economic freedom more like what prevails in the United States than in socialist countries. The poor definitely—and unsurprisingly—seem to benefit from higher transfers at a point in time. But the high taxes that generally go along with transfers do result in low income growth for median and high-income groups within a given country over time.

A similar pattern exists with respect to rule of law. The contemporaneous relation of rule of law to income is strong, but this seems to reflect the fact that countries that are wealthy demand rule of law rather than the reverse. Low state ownership at a point in time is a more consistent predictor of income growth within a country over the following decade than is rule of law at that same point in time.

Finally, not all transitions are alike. The Eastern European countries and the former Soviet Union saw large transitory declines in incomes for all groups during their transition to the market and the poor were more adversely affected than the rich. In China, and to a lesser extent India, market reforms brought about almost uninterrupted income growth. Venezuela provides an opposite example, moving from a more market-oriented economy to a socialist one. Inequality fell slightly, but income growth was low for all groups and the poor have not regained the income levels that they had at the peak during the 1990s. The evidence suggests that it is economic shocks rather than transitions that disproportionately affect the poor. Transition from a command structure to the market is but one example of such a shock.

In sum, most income groups benefit from moves away from socialist command structures to free-market capitalism, but transfers can at least in the short run improve the well-being of those worst off.

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Endnotes

[1] For income source, see Lahoti, Jayadev, and Reddy (2016). More details on measures of market are below, but one summary measure is provided by the Fraser Institute. Its index of economic freedom goes from 3.5 in the 1980s to 6.5 now on a scale of 0 to 10.

[2] See appendix figures A1 and A2.

[3] The Fraser economic freedom index rises from 4.7 in the late 1980s to almost 7 in the most recent data.

[4] Schumpeter (1942), who is known for his analyses of entrepreneurship and creative destruction, also believed that capitalism would fail because monopolies would prevent the entrepreneurship necessary to drive the capitalist economy.

[5] Most important is the point that the rate of return to capital has not exceeded the growth rate of the economy. Indeed, many, e.g. Summers (2015) and Eggertson, Mehrotra, and Summers (2016), argue that the low real rate of interest is evidence of secular stagnation. Acemoglu and Robinson (2015) and Martin Feldstein of the *Wall Street Journal* ("Piketty's Numbers Don't Add Up, May 14, 2014, https://www.wsj.com/articles/martin-feldstein-pikettys-numbers-dont-add-up-1400098414) take issue with measures used and claim that the evidence used on wages and profits is either misleading or incorrect. Auten and Splinter (2017) dispute the findings on rising income share of the top 1 percent reported in Piketty and Saez (2003).

[6] See Barth, Moene, and Willumsen (2014), who argue that success hinges on a strong complementarity between Scandinavian nonmarket institutions and capitalist dynamics. Kumlin and Rothstein (2005) document the high level of social capital in Scandinavia and suggest that the welfare-state institutions have the ability to create as well as destroy social capital. Einhorn and Logue (2010) claim that Scandinavian firms are not disadvantaged by high tax burdens because at the same time they face low health insurance costs and benefit from a well-trained, flexible labor force.

[7] "Flexicurity" is a term coined in the 1990s by then Danish prime minister Poul Nyrup Rasmussen. It allows for employment flexibility, which gives employers rights to hire and fire freely but protects workers with training and generous benefits during periods of unemployment.

[8] Scandinavian countries as defined here include Denmark, Finland, Norway, and Sweden. Some references to Scandinavia exclude Finland and some include Iceland, the latter having a population that is less than one-tenth of the smallest of the other four.

[9] See Fraser Institute indexes for 2010.

[10] OECD (2018, 2019a, 2019b).

[11] Lahoti, Jayadev, and Reddy (2016).

[12] One concern is that monetary indexes of income, even after adjusting for purchasing power parity, may not accurately reflect living standards. Jones and Klenow (2016) show the importance of including leisure time and life expectancy in adjusting real incomes. These adjustments are important cross-sectionally but are less likely to be important over a short time span within a country.

[13] Heritage Foundation, "2019 Index of Economic Freedom," https://www.heritage.org/index/about.

[14] Shwab (2019).

[15] "WJP Rule of Law Index 2019," World Justice Project, https://worldjusticeproject.org/our-work/research-and-data/wjp-rule-law-index-2019.

[16] The Fraser Institute creates the state ownership index based on data from the Varieties of Democracy project (V-Dem.net), which constructs a measure by having a group of five or more experts with deep knowledge of a country and political institutions code responses to a particular question, in this case the degree to which the state directly owns or controls important sectors of the economy. Fraser's description of the state ownership variable follows: This component is based on ratings from the Varieties of Democracy (V-Dem) database on "State Ownership of the Economy," which "gauges the degree to which the state owns and controls capital (including land) in the industrial, agricultural, and service sectors. It does not measure the extent of government revenue and expenditure as a share of total output; indeed, it is quite common for states with expansive fiscal policies to exercise little direct control (and virtually no ownership) over the economy." The rating for this component is designed to mirror the actual distribution of the raw data but on a zero-to-10 scale. The rating is equal to: $(V_i - V_{min})/(V_{max} - V_{min})$ multiplied by ten. The V_i is the country's state ownership score while the V_{max} and V_{min} were set at 2.5 standard deviations above and below the average, respectively. The 1990 data were used to derive the maximum and minimum values for this component. Countries with greater government ownership of assets get lower scores.

[17] Giovarelli and Bledsoe (2001) report that approximately three-fourths of agriculture was privately owned in Poland during the Soviet-dominated period.

[18] Results are generally qualitatively similar when the dependent variable in columns 1, 2, 4, 5, 7, and 8 are replaced by their contemporaneous values.

[19] See Fraser Institute, "Economic Freedom of the World: 2018 Annual Report," https://www.fraserinstitute.org/studies/economic-freedom-of-the-world-2018-annual-report; and Heritage Foundation, "2019 Index of Economic Freedom," https://www.heritage.org/index/about.

[20] Data for top tax and transfers were not available for pre-1985 China. Venezuela and China are so much poorer than Scandinavia and the United States that they are not appropriate comparisons, as is discussed in the text.

[21] To see the positive correlation between transfers and high taxes across OECD countries and over time, see Edward Lazear, "Government Spending Discourages Work," *Wall Street Journal*, February 26, 2018, https://www.wsj.com/articles/government-spending-discourages-work-1519689547.

[22] A regression of the low transfer index on log of median income with country fixed effects for the richest quintile countries yields a negative and statistically significant coefficient.

[23] Lazear, "Government Spending Discourages Work."

[24] This result parallels that of Squire (1993), who finds that countries with high levels of expenditure growth saw sharp declines in poverty headcount. Similarly, Van de Walle (1992) for Indonesia and Hammer, Nabi, and Cercone (1992) for Malaysia find that allocating more resources to health and education has beneficial effects on the poor. Additionally, Nelson (2004) finds that for six wealthy countries, social insurance provided to the middle class also increases welfare of poorer deciles of the population.

[25] Some cross-country and cross-state analysis within the United States suggests that health and social problems are positively correlated with income inequality. See Wilkinson and Pickett (2009).

[26] The coefficient being less than one in the fixed effects specification may be meaningful but also reflects measurement error that biases the coefficient toward zero.

[27] This evidence is consistent with the review by Bourguignon and Verdier (2000), which concludes that there is no uncontroversial finding for or against the idea that equity and growth are complements. A contrary conclusion is reached by Ostry and Berg (2011), who find that longer growth spells are associated with more equality in income.

[28] Inflation.eu (2019).

[29] "GDP growth (annual %)—Chile," World Bank, 2019, https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=CL.

[30] Ana Maria Santacreu and Heting Zhu, "How Did South Korea's Economy Develop So Quickly?" *On the Economy* (blog), Federal Reserve Bank of St. Louis, March 20, 2018, https://www.stlouisfed.org/on-the-economy/2018/march/how-south-korea-economy-develop-quickly.

[31] US Bureau of Labor Statistics, 2019, "Unemployment rates for persons 25 years and older by educational attainment."

[32] "Factbox: Venezuela's Nationalizations under Chavez," Reuters, October 7, 2012, https://www.reuters.com/article/%20us-venezuela-election-nationalizations/factbox-%20venezuelas-nationalizations-under-%20chavez-idUSBRE89701X20121008.

[33] Jones (2007) reports Chavez's swearing in statement: "I swear before God and my people that upon this moribund constitution I will drive forth the necessary democratic transformations so that the new republic will have a Magna Carta befitting these new times."

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Supporting Tables

Table 1
Income and State Ownership

VARIABLES	(1) Log lowest decile income 10 years ahead	(2) Log lowest decile income 10 years ahead	(3) Change in log lowest decile income 10 years ahead	(4) Log median income 10 years ahead	(5) Log median income 10 years ahead	(6) Change in log median income over future 10 years	(7) Log top decile income 10 years ahead	(8) Log top decile income 10 years ahead	(9) Change in log top decile income over future 10 years
Fraser Institute Index of state ownership (high values imply more private, less state ownership)	0.195***	0.0556	0.0776*	0.191***	0.0742***	0.0544**	0.129***	0.0793***	0.00169
	(0.0548)	(0.0367)	(0.0433)	(0.0447)	(0.0215)	(0.0241)	(0.0323)	(0.0194)	(0.0120)
Constant	2.807***	3.735***	-0.272	4.102***	4.878***	-0.126	6.171***	6.499***	0.212***
	(0.383)	(0.243)	(0.287)	(0.311)	(0.143)	(0.160)	(0.231)	(0.129)	(0.0797)
Observations	517	517	517	517	517	514	517	517	517
R-squared	0.079	0.964	0.458	0.113	0.972	0.570	0.100	0.945	0.694
Notes	Clustered at country level	Clustered at country level; country fixed effects	Clustered at country level; country fixed effects	Clustered at country level	Clustered at country level; country fixed effects	Clustered at country level; country fixed effects	Clustered at country level	Clustered at country level; country fixed effects	Clustered at country level; country fixed effects

Note: *** p<0.01, ** p<0.05, * p<0.1. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016).

Table 2
Income and Fraser Economic Freedom Index

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Log lowest decile income 10 years ahead	Log lowest decile income 10 years ahead	Change in log lowest decile income over future 10 years	Log median income 10 years ahead	Log median income 10 years ahead	Change in log median income over future 10 years	Log top decile income 10 years ahead	Log top decile income 10 years ahead	Change in log top decile income over future 10 years
Fraser Institute economic freedom index (higher implies more economic freedom)	0.718***	0.190***	0.124**	0.632***	0.186***	0.0752***	0.414***	0.141***	0.00392
	(0.0724)	(0.0368)	(0.0604)	(0.0611)	(0.0292)	(0.0273)	(0.0492)	(0.0412)	(0.0280)
Constant	-0.525	2.968***	-0.581	1.308***	4.256***	-0.271	4.378***	6.185***	0.159
	(0.486)	(0.244)	(0.400)	(0.417)	(0.193)	(0.181)	(0.345)	(0.273)	(0.185)
Observations	433	433	433	433	433	431	433	433	433
R-squared	0.374	0.971	0.427	0.434	0.980	0.542	0.374	0.956	0.602
Notes	Clustered at country level	Clustered at country level; Country Fixed Effects	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016).

Table 3
Income, State Ownership and Rule of Law

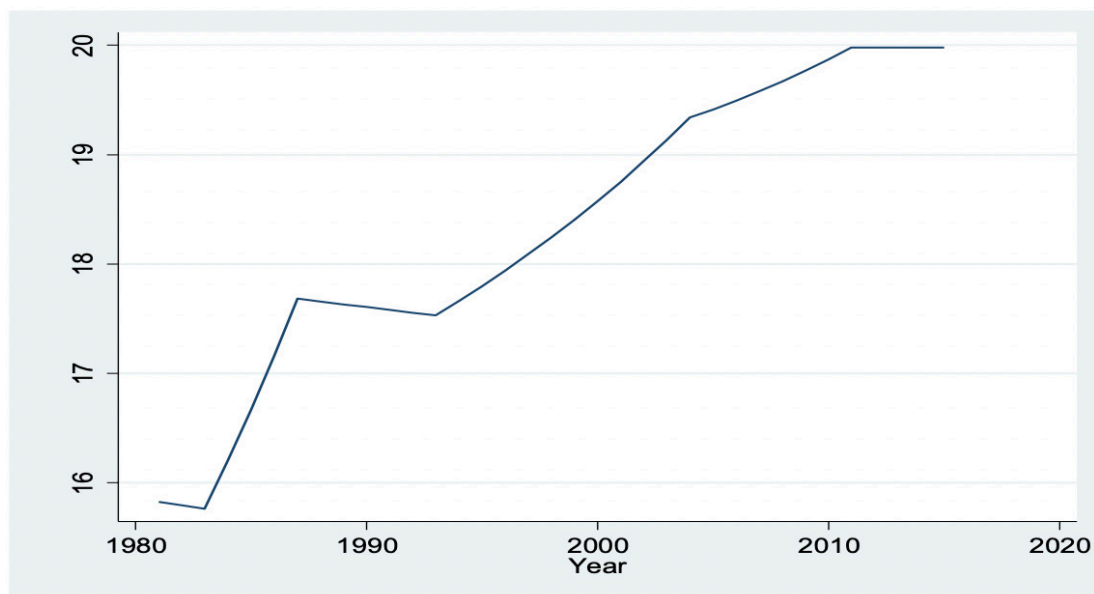| VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Log lowest decile income 10 years ahead	Log lowest decile income 10 years ahead	Change in log lowest decile income over future 10 years	Log median income 10 years ahead	Log median income 10 years ahead	Change in log median income over future 10 years	Log top decile income 10 years ahead	Log top decile income 10 years ahead	Change in log top decile income over future 10 years
Index of state ownership (high values imply more private, less state ownership)	0.0875**	0.0952***	0.103**	0.0899***	0.0904***	0.0663***	0.0424	0.0704**	0.0101
	(0.0412)	(0.0323)	(0.0422)	(0.0309)	(0.0204)	(0.0222)	(0.0327)	(0.0269)	(0.0244)
Index of strong legal system (high values imply better functioning system)	0.522***	0.0605**	0.0198	0.438***	0.0480**	-0.0120	0.271***	0.0372	0.00596
	(0.0308)	(0.0305)	(0.0371)	(0.0246)	(0.0240)	(0.0232)	(0.0224)	(0.0249)	(0.0273)
Constant	0.705**	3.218***	-0.587	2.418***	4.586***	-0.173	5.310***	6.418***	0.0837
	(0.351)	(0.269)	(0.372)	(0.251)	(0.165)	(0.160)	(0.285)	(0.237)	(0.173)
Observations	438	438	438	438	438	436	438	438	438
R-squared	0.590	0.969	0.434	0.646	0.977	0.561	0.481	0.955	0.596
Notes	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects

Note: *** p<0.01, ** p<0.05, * p<0.1. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016).

Table 4
Income, Transfers and Taxes

VARIABLES	(1) Log lowest decile income	(2) Log median income	(3) Log top decile income	(4) Log lowest decile income 10 years ahead	(5) Log median income 10 years ahead	(6) Log top decile income 10 years ahead
Index of state ownership (high values imply more private, less state ownership)	0.0728**	0.0708**	0.0395	0.0984**	0.0758**	0.0531
	(0.0323)	(0.0306)	(0.0292)	(0.0414)	(0.0322)	(0.0369)
Index of top marginal tax rate (high value implies lower top rate)	-0.0159	0.000565	0.00205	0.0164	0.0269**	0.0233**
	(0.0216)	(0.0199)	(0.0172)	(0.0161)	(0.0122)	(0.0112)
Index of government transfers and subsidies (high value implies fewer transfers and subsidies)	-0.249***	-0.185***	-0.0683***	0.00677	0.00239	-0.0168
	(0.0330)	(0.0257)	(0.0196)	(0.0307)	(0.0259)	(0.0243)
Index of strong legal system (high values imply better functioning system)	0.370***	0.340***	0.248***	0.0361	0.0241	0.0331
	(0.0497)	(0.0359)	(0.0291)	(0.0326)	(0.0228)	(0.0231)
Constant	3.405***	4.318***	5.872***	3.375***	4.836***	6.669***
	(0.493)	(0.390)	(0.353)	(0.415)	(0.300)	(0.312)
Observations	927	927	927	373	373	373
R-squared	0.724	0.741	0.546	0.975	0.982	0.965
Notes	Clustered at country level	Clustered at country level	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016).

Table 5
Incomes Move Together

VARIABLES	(1) Log lowest decile income	(2) Log top decile income	(3) Log lowest decile income	(4) Log top decile income	(5) Log lowest decile income	(6) Log lowest decile income
Log median income	1.145***	0.676***	1.047***	0.889***		
	(0.0280)	(0.0195)	(0.0519)	(0.0621)		
Log top decile income					1.233***	0.541***
					(0.0715)	(0.0482)
Constant	-1.985***	3.298***	-1.481***	2.191***	-4.434***	0.273
	(0.139)	(0.115)	(0.270)	(0.322)	(0.496)	(0.328)
Observations	1,985	1,985	1,985	1,985	1,985	1,985
R-squared	0.911	0.782	0.966	0.947	0.617	0.931
Notes	Clustered at country level	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects

Note: *** p<0.01, ** p<0.05, * p<0.1. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016).

Table 6
Income and Growth

VARIABLES	(1) Difference between log 10th and log 1st decile income	(2) Difference between log 10th and log 1st decile income IV	(3) Difference between log 10th and log 1st decile income	(4) Difference between log 10th and log 1st decile income IV
Log median income	-0.158			
	(0.108)			
Log median income predicted by economic freedom index		0.228		
		(0.314)		
Log GDP per capita			0.170	
			(0.109)	
Log GDP per capita predicted by economic freedom index				0.164
				(0.226)
Constant	3.671***	1.667	1.440	1.436
	(0.563)	(1.704)	(0.951)	(2.022)
Observations	1,985	1,028	1,790	1,028
R-squared	0.803	0.905	0.832	0.905
Notes	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects	Clustered at country level; Country fixed effects

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016). First-stage of IV uses Fraser Economic Freedom Index and country fixed effects as exogenous variables to predict income and GDP per capita, respectively, in that country year.

Appendix

Figure A1
Income Inequality in India

Note: Income is monthly per capita at 2005 PPPs.

Table A1
Income and Fraser versus Heritage Indexes of Economic Freedom

VARIABLES	(1) Log lowest decile income 10 years ahead	(2) Log lowest decile income 10 years ahead	(3) Log median income 10 years ahead	(4) Log median income 10 years ahead	(5) Log top decile income 10 years ahead	(6) Log top decile income 10 years ahead
Fraser Institute economic freedom index (higher implies more economic freedom)	0.718***		0.632***		0.414***	
	(0.0724)		(0.0611)		(0.0492)	
Heritage Foundation economic freedom index (higher implies more economic freedom)		0.0652***		0.0607***		0.0458***
		(0.0111)		(0.00939)		(0.00746)
Constant	-0.525	0.190	1.308***	1.739***	4.378***	4.293***
	(0.486)	(0.690)	(0.417)	(0.591)	(0.345)	(0.476)
Observations	433	642	433	642	433	642
R-squared	0.374	0.217	0.434	0.276	0.374	0.314
Notes	Clustered at country level	Clustered at country level	Clustered at country level	Clustered at country level	Clustered at country level	Clustered at country level

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Income data are from The Global Consumption and Income Project, Lahoti et. al (2016).

Figure A2
Economic Freedom Index in India
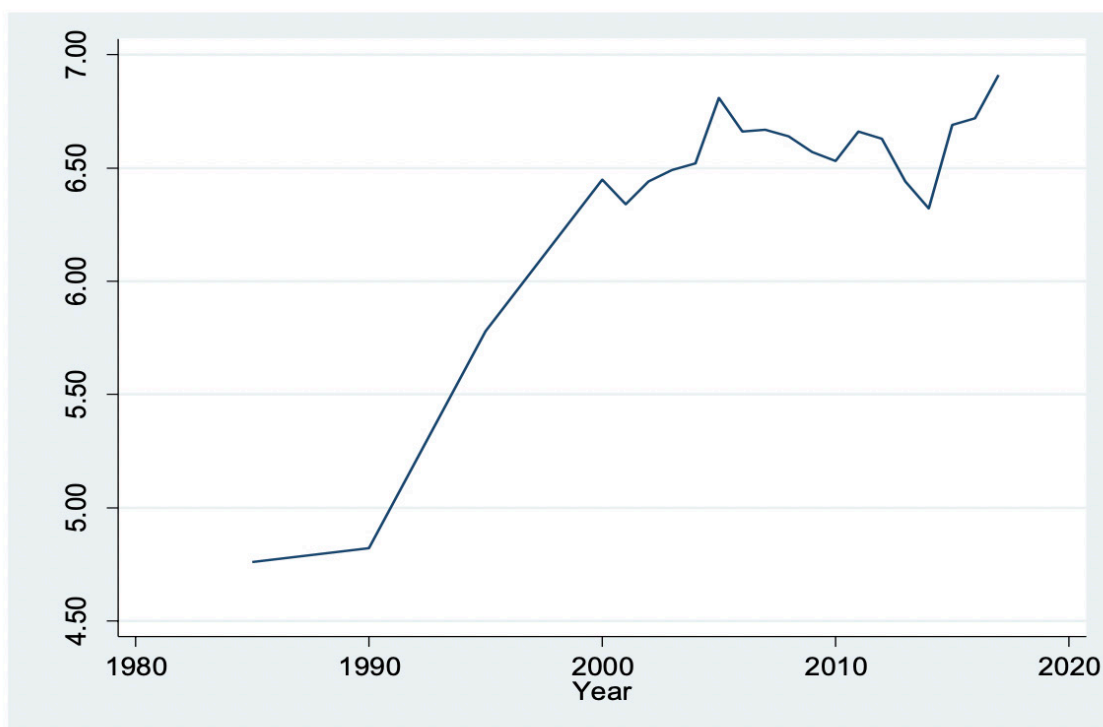
Table A2
Income and Socialist Country Name

VARIABLES	(1) Log lowest decile income 10 years ahead	(2) Log lowest Decile income 10 years ahead	(3) Log median income 10 years ahead	(4) Log median income 10 years ahead	(5) Log top decile income 10 years ahead	(6) Log top decile income 10 years ahead
Socialist name dummy (= 1 if "people," "democratic," or "socialist" in country name in year i)	-0.227	-0.175**	-0.469***	-0.294***	-0.806***	-0.490***
	(0.226)	(0.0839)	(0.177)	(0.0729)	(0.110)	(0.0936)
Constant	4.023***	4.015***	5.311***	5.283***	6.999***	6.949***
	(0.137)	(0.0133)	(0.114)	(0.0115)	(0.0799)	(0.0148)
Observations	1,347	1,347	1,347	1,347	1,347	1,347
R-squared	0.003	0.946	0.021	0.953	0.109	0.905
Notes	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects	Clustered at country level	Clustered at country level; Country fixed effects

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Unit of observation is a country-year. Robust standard errors in parentheses. Unbalanced panel. Earliest income data is 1962. Country names taken from various standard online sources, primarily Wikipedia. Income source: Global Consumption and Income Project (Lahoti, Jayadev, and Reddy 2016).

Table A3
Summary Statistics

VARIABLES	N	mean	sd	min	max	Source
Income						
Mean income of decile 1	8,805	80.72	131.8	0.282	1,293	Lahoti et al., (2016)
Median income	8,805	216.7	289.2	2.917	1,668	Lahoti et al., (2016)
Mean income	8,805	308.7	364.7	8.136	2,690	Lahoti et al., (2016)
Mean income of decile 10	8,805	1,068	1,812	16.90	27,312	Lahoti et al., (2016)
Log mean decile 1 income	8,805	3.282	1.568	-1.266	7.165	Lahoti et al., (2016)
Log median income	8,805	4.600	1.273	1.071	7.419	Lahoti et al., (2016)
Log mean income	8,805	5.149	1.088	2.096	7.897	Lahoti et al., (2016)
Log mean decile 10 income	8,805	6.436	0.993	2.827	10.22	Lahoti et al., (2016)
Log median income predicted from economic freedom index	3,132	5.361	0.201	4.569	5.807	Lahoti et al., (2016)
Log GDP per capita (2010 USD)	9,592	8.351	1.582	4.431	12.16	United Nations (2018)
Log GDP per capita predicted from economic freedom index (2010 USD)	3,132	8.861	0.279	7.761	9.481	United Nations (2018); Lahoti et al., (2016)
1-year change in log first decile income	8,644	0.0137	0.146	-2.697	3.183	Lahoti et al., (2016)
1-year change in log top decile income	8,644	0.0174	0.0971	-1.414	1.342	Lahoti et al., (2016)
Change in log first decile income over future ten-year period	7,225	0.120	0.493	-3.959	3.195	Lahoti et al., (2016)
Change in log median income over future ten-year period	7,210	0.149	0.351	-2.291	1.940	Lahoti et al., (2016)
Change in log top decile income over future ten-year period	7,225	0.170	0.346	-2.291	2.368	Lahoti et al., (2016)
Ratio of mean 10th decile earnings to mean 1st decile earnings	8,805	42.51	78.48	2.739	1,090	Lahoti et al., (2016)
Log top decile income - log bottom decile income	8,805	3.154	1.048	1.008	6.994	Lahoti et al., (2016)
Economic Indexes						
Economic freedom summary index	3,132	6.544	1.154	1.990	9.110	Fraser institute (2018)
Mean of economic freedom index across years for a given country	8,863	6.526	0.891	4.105	8.828	Fraser institute (2018)
Lack of state ownership of assets index	3,671	6.026	2.234	0	10	Fraser institute (2018)
Average of state ownership index for a given country	9,233	6.057	1.834	1.548	9.512	Fraser institute (2018)
Stronger legal system index	3,097	5.268	1.768	0.956	9.278	Fraser institute (2018)
Lack of transfers and subsidies index	2,924	7.703	2.108	0	10	Fraser institute (2018)
Average of transfers and subsidies index for a given country	8,707	7.817	1.956	2.893	9.965	Fraser institute (2018)
Low top marginal tax rate index	2,806	5.849	2.635	0	10	Fraser institute (2018)
Mean of low top marginal tax rate for a given country	9,183	6.003	2.101	0.896	10	Fraser institute (2018)
Heritage economic freedom index	4,029	59.50	11.75	1	90.50	Heritage Foundation (2019)
Rule of law index (1 is highest)	633	0.565	0.141	0.280	0.900	World Justice Project (2019)
Global competitiveness index (1 is lowest, 7 is highest)	1,492	4.211	0.668	2.577	5.858	Klaus, S. (2019)
Socialist name dummy (=1 if country has 'people', 'democratic,' or 'socialist' in name during year)	9,439	0.158	0.365	0	1	Wikipedia

Note: All income variables are per capita in monthly 2005 PPPs unless otherwise indicated.
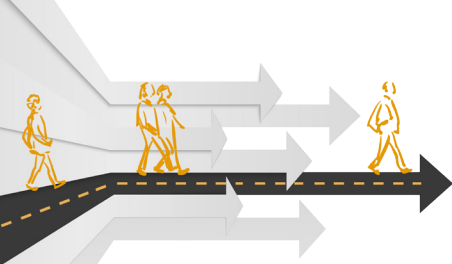
SOCIALISM AND FREE-MARKET CAPITALISM:
THE HUMAN PROSPERITY PROJECT
AN ESSAY SERIES FROM THE HOOVER INSTITUTION

Over the last century, free-market capitalism and socialism have provided the dominant interpretations, and conflicting visions, of political and economic freedom.

Free-market capitalism is characterized by private ownership of the means of production, where investment is governed by private decisions and where prices, production, and the distribution of goods and services are determined mainly by competition in a free market. Socialism is an economic and political system in which collective or governmental ownership and control plays a major role in the production and distribution of goods and services, and in which governments frequently intervene in or substitute for markets. Proponents of capitalism generally extoll the economic growth that is created by private enterprise and the individual freedom that the system allows. Advocates of socialism emphasize the egalitarian nature of the system and argue that socialism is more compassionate in outcomes than is the free market. The Hoover Institution's *Socialism and Free-Market Capitalism: The Human Prosperity Project* is designed to evaluate free-market capitalism, socialism, and hybrid systems in order to determine how well their governmental and economic forms promote well-being and prosperity.