Does democratization lower consumer prices?
Regime type, prices, and the consumer–producer tradeoff

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Abstract

The booming literature on the consequences of democratization for material welfare has produced no findings on the relationship between regime type and relative consumer prices. The literature largely shows that democracies favor masses over elites, generating the expectation that democratization should lower consumer prices. Yet it also finds that democratization boosts economic growth, an outcome that is partially contingent on making consumer goods expensive relative to capital goods. We argue that democratization lowers relative consumer prices since politicians under democracy can more effectively chase votes by satisfying consumers' demands for the immediate payoff of lower prices. Our statistical analysis of 160-plus countries over 60 years shows that democratization raises consumer advantage, which is the consumer price level relative to the price level of capital goods. We also provide evidence of the policy levers that democratizing countries have used to achieve this effect.

Keywords
democratization, regime type, prices, consumer–producer tradeoff

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Published as Andy Baker and Stefan J. Wojcik (2018). "Does Democratization Lower Consumer Prices? Regime Type, Prices, and the Consumer–Producer Tradeoff." *International Political Science Review*

Any market society features a subtle struggle between consumers and producers over pricing, but states are also involved in tilting the playing field in one direction or the other. Some states favor consumers by allowing for unfettered market activity in most sectors, while others advantage incumbent producers by stifling competitors for various monopolies or oligopolies. Since states are so crucial in shaping where societies lie in this consumer–producer tradeoff, it is surely the case that political institutions, and especially the fundamental nature of a political regime, influence price levels.

To date, however, the now-booming literature on the consequences of democracy for material welfare has produced no findings on the relationship between regime type and relative consumer prices. In general, the literature finds that, relative to continued autocracy, democratization favors the masses over elites on several grounds, such as welfare state size (Brown and Hunter, 1999) and exchange rate policy (Leblang, 1999; Steinberg, 2015). One might thus expect democracies to have lower consumer prices, yet democratization also boosts the rate of economic growth (Acemoglu et al, 2014), an outcome that is partially contingent on having sufficiently *high* consumer prices. After all, economists have shown low prices on consumer goods relative to those on capital goods to be a major drag on productivity gains because low consumer prices encourage immediate consumption at the expense of investment (DeLong and Summers, 1991).

We argue and find empirical support for the hypothesis that democratization lowers relative consumer prices since politicians under democracy can more effectively chase votes by satisfying consumers' demands for the immediate payoff of lower prices. In making our argument, we introduce a new statistical measure to the literature on political institutions and economic outcomes. 'Consumer advantage', the ratio of capital goods prices to consumer goods prices, improves on previous attempts to gauge where societies sit in the consumer–producer

tradeoff. We demonstrate our argument about the consumer-friendliness of democracy to be true using time-series evidence from more than 160 countries over a 60-year period, and we provide evidence of the policy levers that democracies have used – lower barriers to entry on foreign consumer goods, foreign capital, and domestic business – to lower relative consumer prices. Through the channel of relative consumer prices, democratization thus produces a mild headwind against productivity improvements by tilting prices against producer interests, a finding that provides an important counterpoint to the mounting body of evidence that shows democracy to be beneficial for economic growth. In essence, our argument and findings resurrect Huntington's (1968) half-century-old argument that autocracies should grow more quickly than democracies because dictators could more easily suppress or ignore citizens' demands for immediate consumption, in turn forcing savings and shifting economic resources toward investment. At the same time, we note that, while Huntington's claim was fundamentally correct in its direction, it was probably exaggerated in its magnitude. Privileging consumption is clearly not fatal to economic growth since democrats can (and, according to evidence amassed elsewhere, do) pursue it via other channels.

Regime type and the consumer–producer pricing tradeoff

In every society, a quiet battle exists between consumers and producers. Consumers want low prices on goods and services, and producers of these items wish to charge high prices while paying low ones for their own inputs. Much of this implied tug-of-war takes place in the myriad day-to-day decisions that are made in the marketplace. States, however, can weigh in on one side or the other, and to do so they have a wide variety of policy levers at their disposal, such as market-entry regulations, trade policy, exchange rate regimes and levels, price controls and subsidies, and taxation (Stigler, 1971). To be sure, the struggle between consumers and

producers is not entirely zero-sum. For example, consumers benefit from a healthy investment environment, since it leads to productivity gains that eventually increase supply and lower prices. Similarly, taxation and other means of raising prices on capital goods and production are passed on, at least partially, to consumers. Despite this, a substantial divergence in short-term interests with respect to pricing remains between the two groups, and each economy, under the influence of the state and its policy levers, takes a different stance in this tradeoff.

Figure 1 illustrates this by showing how varied relative consumer prices are cross-nationally. It plots *Consumer advantage*, or what some economists call the 'relative price of capital', in 157 different countries (Collins and Williamson, 2001; Jones, 1994). Consumer advantage, which we describe in more detail below, is the (logged) ratio of the price of a basket of investment goods and services (such as capital equipment) to the price of a basket of finished consumer goods and services. The figure plots it against GDP per capita. The figure shows that countries vary widely in how they price consumption goods and services relative to investment ones. In general, the downward sloping lowess curve shows that relative consumer prices are higher in prosperous countries[1] – 'consumption is cheap in poor countries, making investment expensive' – but the strength of this correlation is moderate in size (r = -.36), as there is wide variance around this central tendency (Hsieh and Klenow, 2007: 583).

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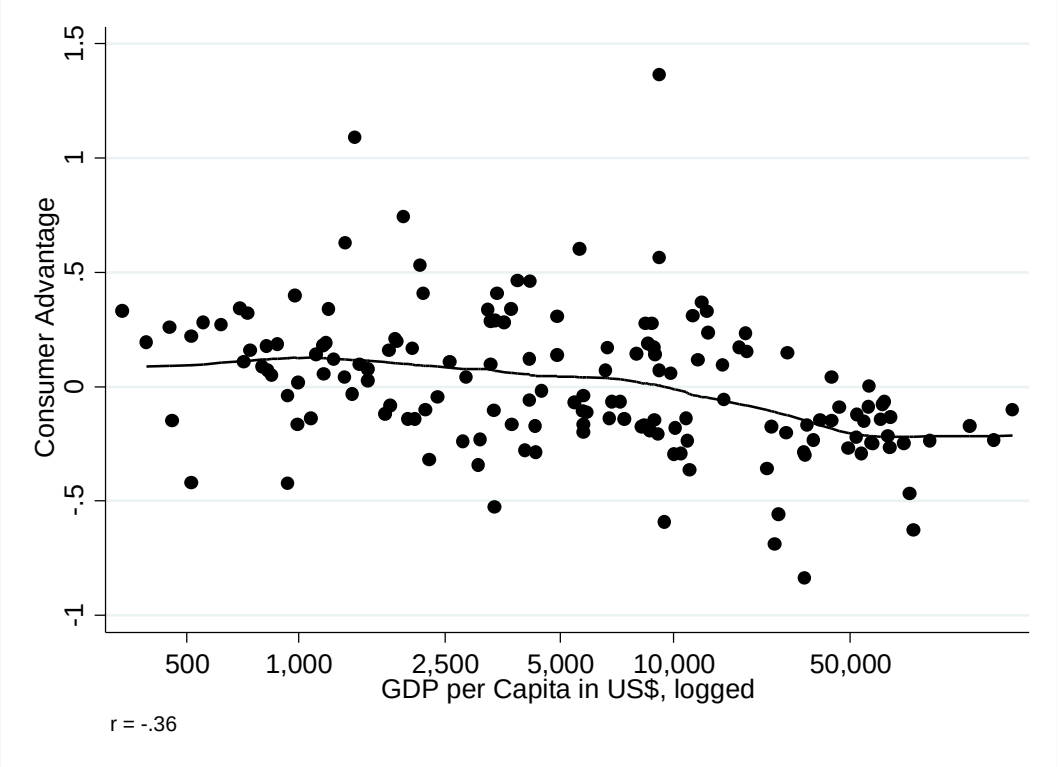
Figure 1: Consumer Advantage by GDP per capita in 157 Countries



Note: Points are country averages for the period 2000 to 2010. The black line is a lowess-estimated curve.
Source: Penn World Table (Heston, Summer, and Aten, 2012)

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What explains where a society sits in this pricing tradeoff? Because states are pulling crucial levers to tilt the balance one way or another, we argue that political institutions are a fundamental cause of consumer advantage. In particular, since regime type determines who state elites must cater to in order to survive politically, the relative pricing of consumption and investment goods surely differs as a society transitions to or from democracy. However, despite the presence of a now-enormous literature on the material consequences of democracy, scholars have yet to estimate any reduced-form relationship between regime type and relative pricing.

Does democratization favor consumers?

Does democratization favor consumers over producers by lowering prices on consumption goods and services? The theoretical and empirical underpinnings for an answer of 'yes' are seemingly strong. The canonical theoretical statement of a causal link between democracy and enhanced consumer welfare is Amartya Sen's (1981) dictum that famines only occur under autocracy. Famines, Sen claims, are caused not by a lack of production but by a lack of consumer demand in the famine-ridden areas, and democracies seek to deliver food to such areas despite weak demand.

More recently, a host of theoretical models on the instrumental benefits of democracy have posed two-player games that pit some version of capital versus labor, rich versus poor, or elites versus masses (Acemoglu and Robinson, 2006). In these games, autocracies empower elite players relative to the masses, whereas, with political voice, the masses can successfully make claims on the government for various policy benefits (Bueno de Mesquita et al., 2003). A host of empirical studies confirms that democracies are more likely to produce a variety of mass-friendly policy outcomes, such as welfare state expansion (Brown and Hunter, 1999), trade liberalization (Eichengreen and Leblang, 2008), and floating exchange rates (Leblang, 1999). One could reasonably expect from these studies that democracies favor consumers over producers by creating conditions that favor low consumer prices.

The most direct statement of a relationship between the institutional sources of political voice and pricing itself comes from a series of pathbreaking publications by Chang, Kayser, Linzer, and Rogowski (Rogowski and Kayser, 2002; Chang et al, 2011). Using a two-player consumers and producers model, they argue that 'more responsive political systems … empower consumers. The less the distribution of power responds to voter sentiment, the more powerful producers will be' (Chang et al, 2011: 223). They apply this proposition, however, not to the

democracy/autocracy divide but to the consequences within democracies of different electoral systems, arguing and demonstrating that countries with systems that magnify the effect of the median vote on seats have lower consumer price levels. Although they resist doing so (Chang et al, 2011: 50-51), it is only a short step to apply their two-player theoretical insights about electoral-system responsiveness and pricing to regime type and pricing. Since politicians in democracies need be far more responsive to citizens than those in autocracies, these authors' theoretical expectation about lower consumer prices in responsive systems should be even more applicable to regime differences than to electoral-system differences.

This case for democratization's benefits to consumers seems straightforward, yet there is an important theoretical reason that could lead one to expect otherwise. Democratic politicians need to foster economic growth to ensure their political survival, yet it is largely producers, not consumers, who hold the key to continued economic growth (Lindblom, 1977). States that keep relative prices on investment goods high delay investment and retard growth, so election-minded politicians may need to cater to producers in the pricing tradeoff. When prices for consumer goods and services are low relative to those on investment goods, resources that might otherwise go toward investments in productivity gains are diverted to consumption (de Schweinitz, 1959; Huntington, 1968). The presence of relatively expensive investment goods delays or thwarts the adoption of laborsaving technologies and (thus) growth. This fact is well-established in economics: 'the relative price of machinery is negatively related to growth' (Jones, 1994: 368; DeLong and Summers, 1991; Restuccia and Urrutia, 2001). Moreover, the relationship is a powerful one. For example, Collins and Williamson (2001) argue that the low relative price of capital overwhelmed the otherwise negative consequences of protectionism for growth during the early industrialization era (1870–1950) in countries like Japan, the UK, and the USA.

As it turns out, a bevy of recent research shows that democracies do foster growth (Acemoglu et al, 2014; Papaioannou and Siourounis, 2008).[2] Interestingly, many of these empirical findings are theoretically motivated by the two-player, elite-versus-masses models used to argue that democracy is consumer-friendly. We thus see mounting scholarly evidence that democracy is good for economic growth embedded in theory that implies that democracies should pursue a measure – low relative consumer prices – that slows it. Does democratization lower relative consumer prices to placate consumer demands for immediate consumption, or does it lower relative investment prices to boost long-term economic growth? What do democratic governments do to relative pricing in a world where they need to attract voters with low prices and growth simultaneously?

Expectations and hypotheses

Although previous theorizing generates ambivalent expectations, we agree with Chang et al (2011) that responsive political systems, in this case democracies, are more likely than less responsive (autocratic) ones to heed the immediate consumption demands of most voters: 'the more that a marginal shift in citizen preferences matters for the fate of political leaders … the more policy will be biased toward consumers (and away from producers)' (Chang et al, 2011: 5). Underlying much of the previous work is the notion that democracies do tilt the balance toward the masses when there are direct tradeoffs between the interests of masses and elite producers. For example, democracies are more willing than autocracies to raise tax burdens in order to provide public goods for the masses (Brown and Hunter, 1999). Moreover, democracies favor consumers and challenge incumbent producers by having lower barriers to market entry, both in the form of lower barriers to trade (Eichengreen and Leblang, 2008) and capital inflows (Jensen, 2006) as well as less red tape and corruption (Djankov et al, 2002). Indeed, we know that, in

many low- and middle-income democracies, the process of expanding welfare states while also relaxing state restrictions on market entry was accompanied or even preceded by democratization (Haber, 2006).

The psychology and incentives of voters and politicians under democracy also suggest that lawmakers will shift the balance of regulation in favor of lower consumer prices. In particular, psychological evidence shows that voters are exceedingly myopic, usually considering only the past year's economy when deciding how to vote (Healy and Lenz, 2014). As a result, politicians who wish to raise relative consumer prices in the interest of (at best) medium-term productivity gains do so at their peril. Besides, democracies have other ways to foster economic growth (e.g., cleaner government, better macroeconomic and regulatory policy, stronger property rights, and more human capital investment), even if they nudge consumer prices downward at the expense of investment.

Thus, our primary hypotheses, which are two sides of the same coin, are the following:

> *Research hypotheses*: Democratization and other politically liberalizing changes to a country's regime will raise consumer advantage. Democratic breakdowns and other authoritarian changes to a country's regime type will lower consumer advantage.

Our primary goal is to estimate statistically the reduced-form effect of a change in regime type on consumer advantage, and we do that with statistical modelling in the next two sections. We follow the presentation of statistical results with a brief discussion of the policy mechanisms that democratizing states have used to influence consumer advantage.

Measurement

To measure where a country stands in the economic tradeoff between consumer and producer interests, we borrow from a literature that highlights the important distinction between producer-price and consumer-price indices (Colclough and Lange, 1982). We propose to use the *Consumer advantage* (also 'the relative price of capital') variable introduced in Figure 1. For country *i* in year *t*, consumer advantage (a_{it}) is defined as follows:

$$a_{it} = ln\left(\frac{q_{it}^{K}}{q_{it}^{C}}\right), \quad (1)$$

where q_{it}^{K} is the price level of investment and q_{it}^{C} is the price level of consumption. The price level of consumption is defined as follows:

$$q_{it}^{C} = \frac{p_{it}^{C}}{P_{t}^{O} \times e_{it}}, \quad (2)$$

where p_{it}^{C} is the price in country *i* in *i*'s local currency of a standardized basket of consumer goods and services (also known as the consumer price index), p_{t}^{O} is the foreign price in US dollars of an overall (standardized) basket of goods and services, and e_{it} is the nominal exchange rate between the currency of *i* and the US dollar. The basket of consumer goods and services (*C*) includes products such as food, clothing, entertainment, furniture, domestic appliances, and personal services, and the price of each item is weighted by its quantity in the standardized basket. The overall basket of goods and services (*O*) includes these consumer products plus investment goods and services (i.e., nonresidential construction and building expenses, transportation equipment, and electrical and nonelectrical machinery) plus goods and services consumed by governments (Summers and Heston, 1991). From this, it is straightforward to define the price level of investment as well, which differs from equation 2 only in that the numerator contains the price (again, in *i*'s local currency) of the basket of investment goods (p_{it}^{K},

the producer price index). Price level variables are indexed relative to overall price levels in the USA, which are held at 100.

To give a nontechnical summary, consumer advantage is the logged ratio of two price levels – the ratio of the prices producers face to the prices consumers face. It can also be thought of as the ratio of the producer price index (PPI) to the consumer price index (CPI).[3] When the ratio is high, the prices that consumers face are low relative to those that producers face, indicative of the fact that producers are less able to pass on costs to consumers. Consumer advantage is increasing in consumer welfare, and it nicely captures where societies sit in balancing the two-player, consumer – producer tradeoff.

In so doing, this measure addresses problems that exist in previous attempts to gauge cross-national and intertemporal variation in consumer welfare. Most importantly, Chang et al (2011) rely on the overall price level (q_{it}^{O}) as their indicator on the assumption that price levels are decreasing in consumer welfare and increasing in producer welfare[4]:

$$q_{it}^{O} = \frac{p_{it}^{O}}{P_{t}^{O} \times e_{it}} \tag{3}$$

Unfortunately, this assumption does not hold. Differences in overall price levels across time and country are tightly and positively correlated with nominal wage levels because high wages get passed on to high consumer prices (Samuelson, 1964). (For example, Swiss consumers are oblivious to their country's relatively high price levels when buying Swiss-made goods and services because their incomes are already indexed to the more expensive Swiss franc.) In wealthy countries, where overall price levels tend to be higher than they are in poor countries, much of the advantage that Chang et al (2011) presume producers are getting from the higher prices are actually swallowed by the higher wages they must pay their workers.[5]

Moreover, the presumed producer advantage of high overall price levels is further negated by high producer prices, since prices on investment goods tend to be high where consumer price levels are high. (In 2010, the correlation across 157 countries between q_{it}^{C} and q_{it}^{K} was +.62.) When overall price levels are high, producers are paying high prices for their inputs, just as consumers are.[6]

For one more reason the measure has an even more fundamental problem. It is actually the case that consumers in country *i* are *better-off*, and many of *i*'s producers worse off, when *i*'s overall price levels are high. A rising overall price level indicates an appreciating currency. This hurts foreign consumers of *i*'s products but *lowers* the prices consumers in *i* pay for foreign-made products. This is, of course, the effect of exchange rates, and, in fact, q_{it}^{O} is defined in other literatures as the inverse of the real exchange rate (Iversen and Soskice, 2010). High levels indicate overvaluation, and thus cheap imports that benefit consumers and sharpen the competition felt by import-competing domestic producers. Domestic consumers should clamor for, not against, higher overall price levels, and research suggests they do (Pepinsky, 2008; Steinberg, 2015).

In sum, for these three reasons—wage levels, producer prices, and currency valuations all as confounds—we think it ill-advised to treat overall price levels as a (negatively-correlated) proxy of consumer welfare. Consumer advantage carries numerous improvements as a measure of consumer welfare and how societies are tilted in the consumer – producer tradeoff.

Methods and models

We use variables from the Penn World Table (PWT) dataset (Heston, Summer, and Aten, 2012) to test the proposition that democratization boosts consumer advantage. PWT reports the

two components (q_{it}^{C} and q_{it}^{K}) needed to calculate our dependent variable, consumer advantage, for 161 countries on an annual basis, and the maximum observed time range is 1950 to 2010. Left-censoring exists for some units due to colonialism—meaning independence occurred after 1950—or a lack of data collection efforts. Once a country enters the PWT panel, however, it nearly always remains fully observed, and the average observed *T* across the 161 units is relatively large (44.4). (See Online Appendix for a list of the observed country years.)

As our primary independent variable, we use Polity IV scores, which we label as *Democracy (Polity)*, an ordinal measure with a range from -10 (strong autocracy) to +10 (strong democracy) (Marshall and Jaggers, 2010). Other measures of regime type exist, but most use binary measures and thus entail a significant loss of information. In particular, binary measures omit crucial variation that may occur within a country even when it does not cross the crucial authoritarian/democratic divide, such as a gradual liberalization under an authoritarian regime or a coup that replaces a soft authoritarian regime with a hard one. Binary measures are also particularly prone to uncertainties surrounding precisely what year democratization or democratic breakdowns occurred in a country. (Regardless, readers who would like to see the results with the binary measures can consult the Online Appendix section.)

We choose the error correction model (ECM) as our estimation technique.[7] The ECM is a general model that does not make strong assumptions about the timing and duration of effects (De Boef and Keele, 2008). The model estimates the immediate effect of a change in an independent variable as well as the effect it levies one year later. Moreover, the model allows for a change in an independent variable to continue exerting additional effects in each year beyond a one-year delay.[8] This feature is particularly attractive since we expect shifts

toward democracy to improve consumer welfare in the present and to lay the groundwork for continued improvements in the future (Gerring et al, 2005).

We also include the full set of country-fixed effects and year-fixed effects. Cross-national comparisons of price levels, and thus consumer advantage, are confounded by important factors that vary at the country level (Deaton and Heston, 2010), so it is mandatory that country-fixed effects be employed.[9] Because we employ country-fixed effects with a lagged dependent variable, we are ultimately assessing the impact of democratization—that is, a change through time from a more authoritarian regime to a more democratic one—and authoritarian reversals on changes in consumer advantage.[10] Such a focus is less prone to omitted variable bias than a random-effects or cross-section-only specification since cross-national differences in levels of democracy are surely collinear with hundreds of omitted political, economic, and social factors.

Inclusion of year-fixed effects is also essential, although for a more technical reason. Changes in the consumer advantage ratio in a country can occur if the global cost of consumption goods rises more slowly or rapidly than that of investment goods in any given year. Shifts of this nature occur all the time due to commodity-price or innovation shocks and, in fact, there has been a worldwide trend of less expensive capital goods since 1950 due to technological advance (Greenwood, Hercowitz, and Krusell, 1997). Year-fixed effects soak up changes in relative prices that have nothing to do with domestic politics and economics in a given country.

Finally, we include a few other control variables. We include *GDP per capita* (also sourced from PWT) since it poses a potential confound with regime type. We also include dummy variable measures of *Left government*, *Right government*,[11] and *Parliamentary systems*,[12] which also may be correlated with both regime type and consumer advantage (Chang et al, 2011). The inclusion of these three variables entails a substantial loss of cases; they are compiled from the Database of Political Institutions (Keefer, 2012), whose series begin in 1975, not 1950.

As a result, we report two separate models—one without these three as covariates and one with them.

Findings

Before turning to the model-based results, Figure 2 contains a graphical description of the unconditional relationship between changes in regime and consumer advantage. The line is a lowess-smoothed representation of the relationship between year-on-year change in consumer advantage (Δa_{it}) and year-on-year change in the democracy (Polity) score. Below the line is a histogram that conveys the univariate distribution of the change in democracy. A Polity score change only occurs in 10% of the years. In other words, although our ostensible N is nearly 7,000, our effective N is $1/10^{th}$ this total because the data only provide useful information about the effect of regime change in years in which the Polity score changes. This also means that virtually all of the explanatory movement comes from the largely low- and middle-income countries that have experienced some change in their Polity score (128 of the 161 countries) since the composite measures of pricing in PWT began.

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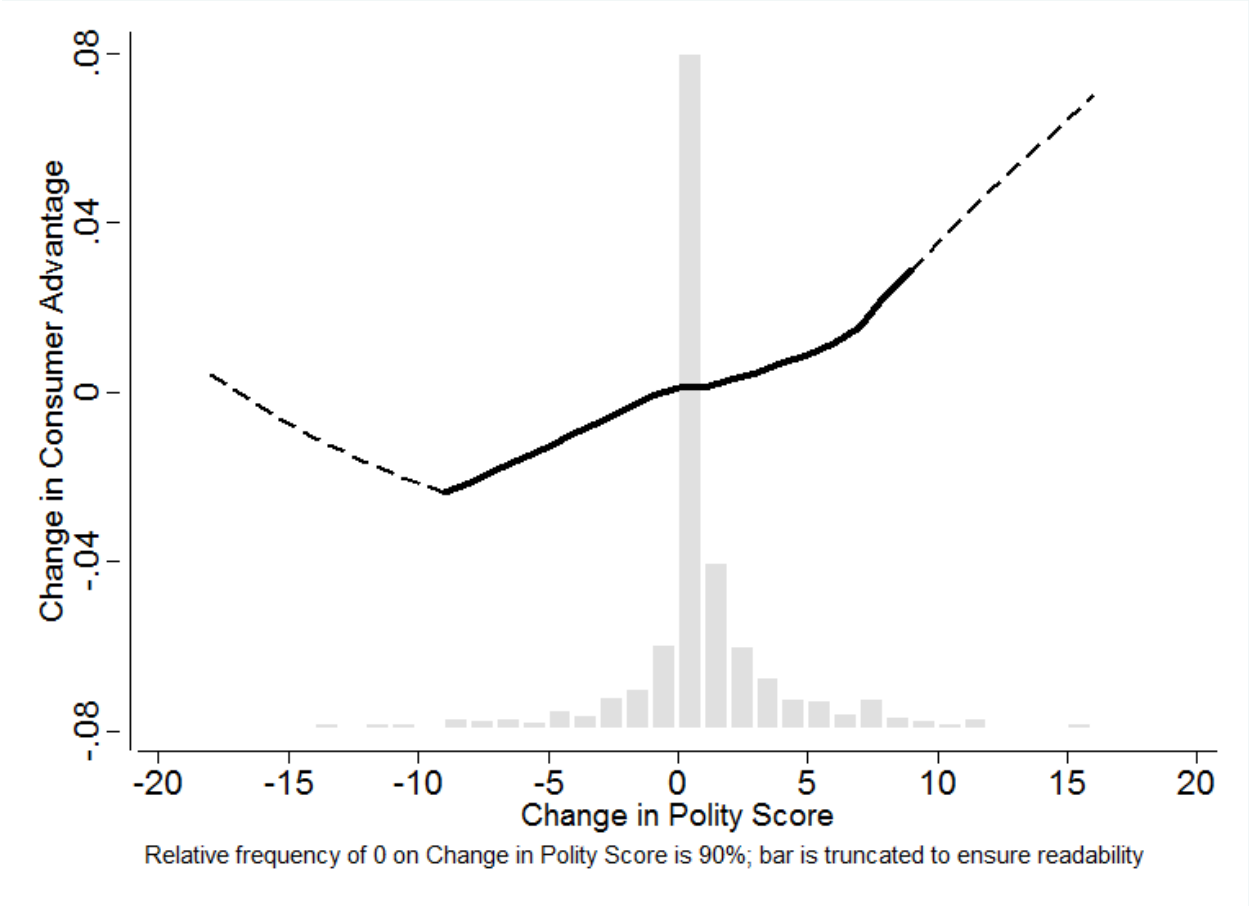
Figure 2: Δ Consumer Advantage by Δ Polity Score:
Lowess-smoothed Prediction for 161 Countries (1950-2010)



Note: N=6,975 country years. The line is a lowess-smoothed curve. The solid portion denotes where the middle 99% of observations fall. The histogram represents relative frequencies of change in Polity score.
Source: Penn World Table (Heston, Summers, and Aten, 2012) and Polity IV (Marshall and Jaggers, 2010)

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The figure suggests that a straightforward linear and positive relationship between changes in regime type and the size of changes in consumer advantage exists. Positive, democratizing changes in a country's Polity score are associated with increases in consumer advantage, while slides toward authoritarianism are associated with a deterioration in consumer advantage. Within the -10 to +10 range (solid portion of the line), where 99% of the cases lie, the lowess curve traces out an almost perfectly straight line. (The apparent nonlinearity for negative changes in regime type on the order of -11 or greater is driven by a small number of cases

(<0.5%)). Thus, the unconditional relationship is suggestive that a correlation exists, but this approach fails to account for lagged effects, potential confounds, endogeneity, and serial correlation, so we proceed to model-based results.

Table 1 reports the results of two ECMs. Throughout this paper, we focus on the long-run multiplier (LRM) as the most important and intuitive estimate of the effect of regime type on consumer advantage. The LRM is the total effect of *x* on *y*, summing up the effects exerted immediately and in all future periods, whereas individual coefficients only give estimates of effects that occur in a particular period or pair of periods. Readers may be interested in these individual coefficients, but we, like most scholars of the instrumental value of democracy, do not have specific expectations about precisely when democratizations or authoritarian reversals yield their consequences. The body of theory on the consequences of regime type are never so specific, and indeed it is surely the case that causal effects occur with different temporal delays depending on the context and indicator (Gerring et al, 2005).

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Table 1: The effect of regime type on consumer advantage: Error correction panel model results

	(1)	(2)
Δ Democracy (Polity)	.0029	.0039
	(.0015)	(.0020)
Democracy (Polity) $_{t-1}$	.0016*	.0020*
	(.0005)	(.0008)
Δ GDP per capita	.0023	-.0245
	(.0550)	(.0611)
GDP per capita $_{t-1}$	-.0032	-.0076
	(.0096)	(.0111)
Δ Left government		-.0232
		(.0161)
Left government $_{t-1}$		.0036
		(.0085)
Δ Right government		-.0174
		(.0153)
Right government $_{t-1}$		-.0002
		(.0063)
Δ Parliamentary system		.0018
		(.0305)
Parliamentary system $_{t-1}$		.0081
		(.0188)
Consumer advantage $_{t-1}$	-.1633*	-.2073*
	(.0202)	(.0237)
Constant	.0280	.0473
	(.0554)	(.0988)
LRM of Democracy	.0097*	.0097*
	(.0036)	(.0039)
N of countries	161	158
Years observed	1950-2010	1975-2010
Average *T*	43.3	30.6
N of observations	6,971	4,836

Note: Dependent variable is the first difference of *Consumer advantage*. Entries are regression coefficients with robust standard errors (corrected for clustering by country) in parentheses. All models include country- and year-fixed effects, which are not reported but are available from the authors upon request. * = p<.05.

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The ECM estimates show that changes in regime type yield the hypothesized consequences for consumer advantage. The LRM in both models is a statistically significant .0097 (p<.007, two-tailed). In other words, a one-unit positive change on the 21-point regime type scale yields a .0097 increase in consumer advantage. The timing and size of this predicted effect is depicted graphically in Figure 3. The figure plots unit response functions for a one-unit positive change in a country's democracy score. The size of the immediate effect (i.e., the height

of the curve at *t*) is larger than that of any subsequent time period, yet the one-unit democratizing shift continues to yield positive effects on consumer advantage long after it occurs.

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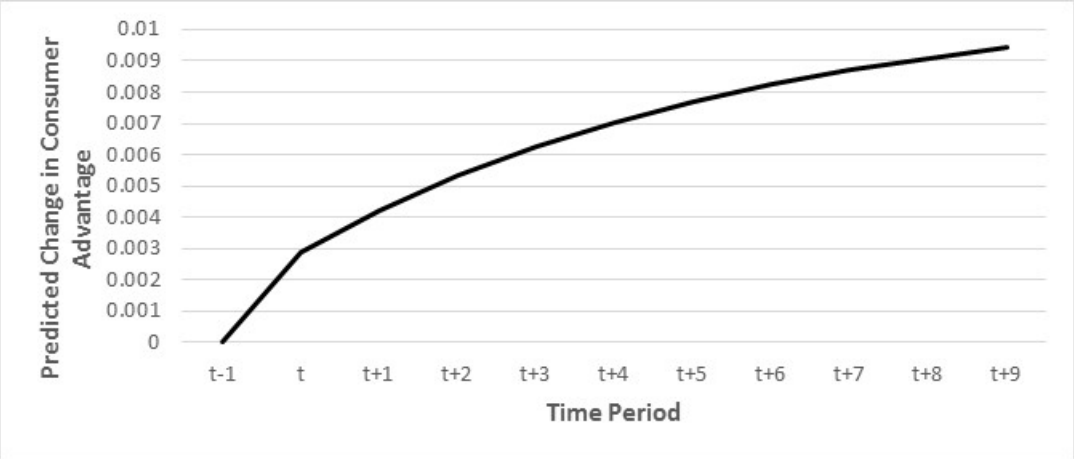
Figure 3: Effects of a one-unit positive change in polity score on consumer advantage: Unit response function plot



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This means that a 10-unit change (like that from -3 to +7 undergone by Brazil in its democratic transition year of 1985) boosts the expected value of consumer advantage by .097, roughly three-fifths of the standard deviation of Δy_{it}. An equivalently sized decrease in the expected value of consumer advantage also applies to authoritarian reversals of this magnitude, the likes of which occurred in Ghana in 1972 (the year of a military coup) and Peru in 1992 (a civilian self-coup by Alberto Fujimori). Any change in regime type yields a permanent shift in consumer advantage, and subsequent regime type changes produce further shifts. For example, between 1988 and 2000, Mexico underwent a series of four incremental increases in its democracy score, beginning at -3 and ending at +8. Since the consequence of each increment is to permanently shift the expected value of consumer advantage upward, the total effect over the period is simply the total change in democracy score (+11) multiplied by the LRM (.0097): .1067. In sum, our results lend support that is both statistically and substantively significant to

Chang et al's (2011) argument that responsive political systems favor consumers. In our case, democratization lowers consumer prices relative to prices on capital goods.

As is the case with any analysis of observational data, these results may be subject to endogeneity bias. We address this potential problem using models with an instrumental variable (the level of democracy in *i*'s world region, as proposed by Acemoglu et al (2014)) and with a longer lag structure. Due to space constraints, these results are reported in the Online Appendix, and they show that our main findings are robust.

Policy mechanisms

How do democracies tip relative prices in favor of consumers? States have multiple policy levers at their disposal, and among them is a set of usual suspects—trade policy, capital account rules, other regulations on market entry, exchange rate policy, taxation, and price controls—explained by the two-player, elite-versus-masses models described above. We identify these policy mechanisms qualitatively, as there are no datasets that come anywhere close to measuring them for all of the country-years in our Table 1 analysis.[13] Moreover, any theoretical or empirical effort to isolate a single mechanism would be futile, since there are so many ways for states to tilt relative prices. Nonetheless, previous research provides plenty of suggestive evidence, including signs that democratization is a prior cause of various mechanisms that favor consumers.

Before discussing this research, we hasten to emphasize that our consumer advantage measure compares two sets – producer to consumer – of prices. This means that the consequences of a relevant policy change must be discriminatory against one or the other, rather than an across-the-board change in prices (such as a depreciation in a country's unified exchange rate) that could affect the costs of both baskets relatively equally. The history of attempts to

industrialize in low- and middle-income countries (i.e., those that provide most of the explanatory movement in our statistical models) suggests that three different policies, all of which are different forms of restricting market entry, fit this bill: trade barriers, regulations on domestic business entrants, and regulations on foreign business entrants.

Consider first the history of protectionism in the developing world. A standard feature of the import substitution industrialization (ISI) trade regime was a system of cascading tariffs: trade taxes were lower on capital goods imports than they were on finished consumer goods. High tariffs on the latter allowed local firms to fulfill consumer demand, while relatively low tariffs on capital goods eased their ability to import the machinery they needed to do so. For example, in Indonesia in the 1970s, the effective tariff rate on intermediate and finished consumer goods was 66%, in contrast to a rate of 15% on capital goods (Pitt, 1981: 211). This pattern has been documented in other countries as varied as Argentina, Brazil, Kenya, Ivory Coast, Mexico, Nigeria, Pakistan, Tanzania, Tunisia, and Zambia (Krueger et al, 1981; Bates, 1981: 64-66), and in fact ISI has been referred as the 'universal postcolonial solvent' (Frieden, 2006).[14] Of Africa writ large, Bates (1981) writes: 'It is indicative of the efforts of African governments to create incentives for the formation of industries that … few barriers are placed on the importation of goods used by the industries but protection is given to their products' (p. 65; see also 49, 81). The relative advantage proffered to consumers of investment goods (i.e., producers) by cascading tariffs was often reinforced by a system of multiple exchange rates, in which states offered stronger exchange rates on imports of capital machinery than on imports of finished consumer goods (Haber, 2006).

Overall, because of these inherent inequities across sectors, the rush to free trade in the developing world throughout the 1980s and 1990s was tantamount to a faster decrease in consumer-goods prices than in capital-goods prices, and indeed the self-perceived benefits to

developing-world consumers of trade liberalization are well-documented (Baker, 2009). The widespread move to unify exchange rates yielded a similar effect. Research suggests these policy levers were probably a causal mediator between regime change and relative pricing. Haber attributes the inequities across sectors under ISI to the relative lack of democracy in Latin America: 'Governments granted this protection [to industrialists] because it came at virtually no political cost: the one class that stood to lose from trade protection, consumers, had no political voice' (Haber, 2006: 583). Subsequently, democratization lowered barriers to trade (Eichengreen and Leblang, 2008).

Besides trade restrictions, states can avail themselves of a host of other regulatory barriers to market entry in order to influence the relative price of capital. Incumbent businesses make demands on states to block subsequent entrants with barriers such as limits on foreign ownership as well as licensing and other forms of red tape (Stigler, 1971; Chang et, 2011). In pre-1980s developing countries, these types of barriers were also higher in consumer goods than in capital goods sectors. In the larger Latin American countries like Argentina and Mexico, multinational corporations flourished in the machinery sectors but were virtually shut out of finished consumer goods sectors such as clothing and household appliances (Haber, 2006). In Brazil in the 1970s, the machinery sector was one of the least concentrated (Baer, 2001: 129), whereas the food, beverage, and clothing sectors were far more oligopolistic, with dire consequences for consumers: 'the oligopolistic structure of much of Brazil's industry … made it easy to pass on to the consumer cost increases due to any supply shock' (Baer, 2001: 125). Domestic monopolies in finished consumer and intermediate goods sectors, maintained via restrictive licensing procedures and exclusive rights to import inputs, were common in sub-Saharan Africa: 'Under such sheltered conditions, inefficient firms survive. And consumers, including farmers, pay higher prices' (Bates, 1981: 76).[15] Moreover, the region had virtually no

homegrown capital goods firms, so industrialists and wealthy farmers purchased their inputs in highly competitive global markets, while consumers purchased their goods in highly concentrated domestic markets.

Again, previous work linking market-entry regulations to regime type suggests democratization as a first cause. For example, FDI increases in the wake of democratization (Jensen, 2006), and democracies have lower licensing and other red-tape barriers to potential domestic entrants (Djankov et al, 2002). Starting from a base, typically under autocracy in the 1970s, in which entry barriers in developing countries were higher for potential producers of consumer goods than for those of capital goods, subsequent policy shifts to encourage entry by new foreign and domestic producers disproportionately benefited consumers. For example, much of the foreign investment that flooded into Brazil during the 1990s was in consumer services (Baer, 2001: 237).

Conclusion

In establishing the regulatory infrastructure that shapes price-setting, are democratic states more likely than autocratic ones to favor consumers over producers? We argue and find that democratization lowers relative prices for consumer goods. Our statistical analysis of 160-plus countries over 60 years shows that democratization raises consumer advantage, which is consumer price levels relative to those on capital goods. We also provide evidence of the policy levers that democratizing countries have used to achieve this effect.

In arguing this, we provide a counterpoint to the growing body of literature that alleges democracy to have a positive role in promoting economic development. In introducing a new, more ambivalent economic outcome to the literature on the material consequences of regime type, our argument and findings provide a valuable corrective to the growing faith in the

instrumental wonders of democracy. As scholars learn that democracy yields positive consequences for everything from peace to education to property rights, it is crucial to keep in mind that pursuing separate outcomes often entails tradeoffs, some of which lie hidden. In our case, low consumer prices and economic growth do pose something of a tradeoff, and we find that politicians under democracy feel they can more effectively chase votes by satisfying consumers' demands for the immediate payoff of lower prices.

Acknowledgements

We are very grateful to Davis S Brown, who offered numerous ideas through the course of writing this paper. We also thank Lee Alston, David Bearce, Keith Maskus, Robert McNown, Thomas Pepinsky, Jonathon Rodden, and David Steinberg for constructive criticisms on earlier drafts. Thanks also to Daron Acemoglu, Suresh Naidu, Pascual Restrepo, and James A. Robinson for sharing their data. The Online Appendix is available at http://spot.colorado.edu/~bakerab/research.html

Funding

The authors received no funding to conduct this study.

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[1] A primary reason for this relationship lies in the familiar Balassa-Samuelson effect (Samuelson, 1964). Labor is cheaper in poorer countries, and consumption goods and services are more labor-intensive than investment goods and services.

[2] Our review of the findings on the welfare consequences of democracy is necessarily brief, but readers can find fuller literature reviews on the topic in Przeworski and Limongi (1993) and Acemoglu et al (2014).

[3] This is because denominators cancel out in taking the ratio of q_{it}^{C} to q_{it}^{K}. In the end, since the numerator of consumer advantage is the PPI and its denominator is the CPI, running separate time series models on each is strictly an exercise in explaining inflation. That is not our goal,

since there is already a large literature on this that tends to show democracies do produce lower inflation (Satyanath and Subramanian, 2007).

[4] In a case study of the USA, Chang et al (2011: 177) use a measure they call *Producer advantage*, which is the inverse of consumer advantage (unlogged), as a proxy for consumer welfare. They do this since US price levels show no variation through time; as the numeraire, they are always 100. However, they do not employ producer advantage elsewhere.

[5] This is so even when controlling for GDP per capita, since it is measured with error and is a highly imperfect indicator of the nominal wage confound (Chang et al, 2011). As a ratio of two sets of domestic prices, consumer advantage offers the benefit of minimizing wages as a confound: a change in wages that results from regime change would get passed through to both sets of prices.

[6] Rogowski and Kayser (2002) do use the price level of consumption (q_{it}^{C}) in some of their models, but for most of their analyses and subsequent work they rely on q_{it}^{O}. Even with the former, it remains the case that producer price levels are a confound, since the correlation between q_{it}^{O} and q_{it}^{K} is high (e.g., +.65 across 157 countries in 2010).

[7] In an ECM, the first difference of the dependent variable (y_{it}, where $y_{it} = a_{it}$ for our model) is regressed on the lag of y_{it}, the first difference of each independent variable (x_{it}), and the lag of each x_{it}.

[8] This is by virtue of the inclusion of the lagged dependent variable.

[9] Bias from including a lagged dependent variable with unit fixed effects is of little concern here since our average *T* length is well above 30.

[10] To address unit heteroscedasticity, standard errors are corrected for clustering by country.

[11] The omitted baseline category to which we compare the two coefficients on Left and Right governments is Centrist and ideologically unspecified governments.

[12] The zero category for the Parliamentary systems dummy variable is presidential and assembly-elected presidential systems. This includes the vast majority of all autocracies. For more details on all three of these dummy variables, see Keefer (2012).

[13] For example, the UNCTAD Trade Analysis Information System dataset contains tariff and non-tariff barriers for 150 countries, but it starts in 1988, and even after that the annual coverage in most countries is spotty. Similarly, the World Bank Doing Business dataset, which measures domestic barriers to market entry for 189 countries, starts in 2002.

[14] Collins and Williamson (2001) find a similar pattern in early industrializers like Japan, New Zealand, the UK and the USA during their more protectionist times (1870–1950): 'countries with high overall tariff rates had overall relatively low capital-goods prices' (p. 61). All told, it appears that, almost regardless of time and place, the drive to industrialize under protectionist barriers often requires some (relative) openness in capital goods sectors.

[15] Bates (1981) is often misremembered as arguing that Africa's marketing boards (under autocracy) suppressed food prices in cities to placate urban consumers. His actual assertion is that most of these efforts failed due to protectionism and weak enforcement: 'Clearly, the governments of Africa have failed to provide low-priced food by organizing the market for farm products' (p. 40). He even shows evidence of food prices growing more quickly than overall retail prices (p. 41-42).