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The role of middle class in democratic diffusion

Natalie Chun^a, Rana Hasan^a, Muhammad Habibur Rahman^b, Mehmet A. Ulubaşoğlu^{b,*}^a Asian Development Bank, Manila, Philippines^b Deakin University, Melbourne, Australia

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ABSTRACT

The modernization hypothesis and the democratic domino theory have been at the forefront in explaining the democratization around the globe. This paper empirically investigates the 'middle class-driven modernization' hypothesis and the 'middle class-driven democratic domino' effect in a panel of 145 countries over the period 1985 to 2013. Using several middle class measures and a dynamic panel estimator, we show that the 'middle class-driven modernization' hypothesis finds strong empirical support in the sample of developing countries excluding Eastern Europe and Central Asia, while the 'middle class-driven democratic domino' effect finds support in the sample of developing countries excluding East Asia and the Pacific.

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1. Introduction

The rapidly declining poverty rates around the world have led to dramatic changes in the income distribution and economic stratification of many countries. Ravallion (2010), using household survey data from 117 countries, estimates that about 1.2 billion people in the world joined the middle class ranks over the period 1990–2005 (see also Sumner, 2012, and Edward and Sumner, 2014).¹ This fact is observed against a background of the substantial growth rates experienced by several economies, most prominently, by China and India. Ravallion (2010) argues that the developing world is divided into two groups of countries; those with a large middle class and those with a relatively smaller one.

Mounting evidence suggests that the growing size of the middle class is conducive to better economic and political outcomes. This argument is supported by historical anecdotes on the role of bourgeois in European democracies, as well as extant cross-country literature on the nexus between the size of middle class and economic and political conditions (Moore, 1966; Barro, 1999; Easterly 2001; Easterly et al. 2006; Banerjee and Duflo, 2008; Solimano, 2009; Amoranto et al., 2010; Loayza et al., 2012; and Wietzke and Sumner 2014).²

The theoretical background of the relationship between greater size of middle class and better economic and political conditions is rooted in the 'modernization hypothesis' (Moore, 1966; Lipset, 1959; Feng and Zak, 1999; Rosendorff, 2001; Epstein et al., 2006; Acemoglu et al. 2014). This hypothesis predicts that higher levels of living standards drive demand for higher levels of democracy. Several commentators suggest that a larger middle class is both a precursor for higher living standards and is likely to be a strong driver of democratic demands in a country. Theoretically, one can link the size of middle class with the modernization hypothesis in at least three ways. First, an affluent society is typically characterized by a larger size of the middle class earning

* Corresponding author at: Department of Economics, Deakin University, 70 Elgar Rd, Burwood VIC 3125, Australia. Tel.: +61 3 9244 6592; fax: +61 3 9244 6283. E-mail address: mehmet.ulubasoglu@deakin.edu.au (M.A. Ulubaşoğlu).

¹ Defined as those between the median poverty line of developing countries of \$2 per person per day and the US poverty line of \$13 (2005 PPP).

² The nexus between inequality and quality of institutions is well established in the political economy literature. See, for instance, Alesina and Rodrik (1994), Alesina and Perotti (1996), Keefer and Knack (2002), and Persson and Tabellini (2009).

higher wages³; such higher incomes may reduce conflict over wealth distribution (Benhabib and Rustichini, 1996; Benhabib and Przeworski, 2006), which is conducive to democratic institutions (see Glaeser et al., 2004). Second, once the size and the relative income of the middle class are larger, the redistributive costs of democracy for the elite go down. In such case, the elite is likely to loosen the barriers to democracy (see, for instance, Huber, Rusechemeyer and Stephens, 1993). Third, an increase in income level of the middle class may create higher demand for individual property rights as well as government accountability in return for their tax dollars, which may, over time, force the ruling elite into a series of concessions; this may, in turn, improve democratic outcomes (Ansell and Samuels, 2010; and Wietzke and Sumner, 2014). All of these reinforce the hypothesis that the middle class is likely to act as a distinct pro-democratic agent in the political sphere of the economy.

An alternative and compelling hypothesis of democratization is the democratic domino theory. This theory postulates that change in democratic conditions in one country can spread to the neighboring countries and radically change the levels of democracy in its neighbors (see Starr, 1991; Simmons et al., 2006; Leeson and Dean, 2009; Zhukov and Stewart, 2011).⁴ The link between democratic domino theory and the size of middle class is likely to be predicated on the “demonstration” effect, in which the neighbors’ middle class may trigger a wave of democratization when they contest the incumbent government for improved democratic conditions in their own countries. Such actions of the neighbors’ middle class can induce the majority – the proportion of population consisted of both the lower- and middle classes – of the domestic country to contest the political power. The recent case of Arab Spring, which started in Tunisia and later spread to Libya, Egypt, and Syria, epitomizes a prominent example of this “demonstration effect”. Indeed, several academic and policy circles have argued that one of the principal driving forces behind the recent mass uprisings on the Arab streets is the rising middle class in those countries (see, for instance, El-Naggar and Slackman, 2011; and Remnick, 2011).

This paper empirically tests the “middle class driven modernization” hypothesis and “middle class-driven democratic domino” effect in a unified framework. In doing so, we investigate whether a country’s own middle class or its neighbors’ middle class is the major driver of changes in its own democracy. We interpret the increased democratic standards in a country due to an increase in its size of middle class as a support for the “middle class-driven modernization” hypothesis, and increased democratic standards in a country due to increase in the size of its neighbors’ middle class as evidence for the “middle class-driven democratic domino” effect. In our analysis we use a rich panel dataset of 145 countries observed in four-yearly periods over 1985 to 2013. Our panel includes several measures of middle class, including an absolute measure (i.e., the proportion of population living on PPP\$2–\$10 per day) and two relative measures (i.e., the proportion of population falling between 75% and 125% of the median expenditure, and the share in the total expenditure of the middle 60% of the consumption distribution). Neighbors’ middle class is measured by the size-weighted average of a country’s neighbors’ middle class, where size refers to neighbors’ population or land area. We use a dynamic panel estimator to address the endogeneity in the size of the middle class and to control for unobserved country-specific heterogeneities in the estimation.

This paper makes two key contributions to the literature on the political economy of economic development. First, unlike many other studies that have focused on per capita income as the main indicator of modernization and had hitherto been criticized for over-aggregation, this paper highlights the middle class as a key driver of higher living standards, which brings about higher demands for democracy as a result. Second, moving away from the narrow focus on a country’s own middle class, we show that the size of a country’s neighboring middle classes can start an impetus for higher levels of domestic democracy. Taken together, this paper bridges several lines of research in the political economy literature, including the relationship between economic development and the middle class, the association between the middle class and democracy, and the nexus between neighbors’ middle class and domestic polity. Our aim is to formally document the role of the neighbors’ middle class in waves of democratizations and as one whose democratic demands are not to be ignored in a globalizing world.

Our results identify three major conclusions concerning the effect of middle class on democratic standards in the medium-term horizon (i.e., four-year intervals). First, the absolute indicator of middle class, the proportion of population living on PPP\$2–\$10 per day, and the relative indicator representing the proportion of population that fall between the 75% and 125% of the median, strongly affects the level of democracy in a country. Importantly, this effect is prevalent in the sample of developing countries, but not in the global sample that is inclusive of developed countries. Second, using the absolute measure above, the ‘middle class-driven modernization’ hypothesis finds strong empirical support in developing countries excluding Eastern Europe and Central Asia. The related coefficient suggests that a 10 percentage-point increase in the size of the middle class increases the democracy score in a country, as measured by Polity IV database, by 1.3 units in the range of [–10, 10]. Third, using the same measure, the ‘middle class-driven democratic domino’ effect finds empirical support in developing countries excluding the East Asia and the Pacific. Our coefficient estimate suggests that each additional 10 percentage-point increase in the neighbors’ middle class size raises the democracy score in a country by approximately 1 unit in the range of [–10, 10]. Our empirical analysis indicates that the extent of democracy in a country is relatively more sensitive to the size of its own middle class than its neighbors’ middle class in affecting its democratic conditions. Overall, our findings suggest that the middle class plays a significant role in democratizations around the world by improving the level of democracy in both their own country and in their neighbors.

The paper proceeds as follows. Section 2 describes about the sources as well as the construction of our dataset. Section 3 discusses the estimation methodology. The empirical findings are discussed in Section 4, and Section 5 concludes.

³ Solimano (2009) shows that the relative sizes of the middle class in countries with higher income are larger than the share of the middle class in low income countries. This suggests a positive association between economic development and the size of middle class. Generally, the middle class serves as entrepreneurs, and they save and invest in education and health that are the main threads for promoting economic growth (see Banerjee and Duflo, 2008; and Easterly, 2001).

⁴ See Leeson and Dean (2009) for a recent analysis of the domino theory. Persson and Tabellini (2009) ascertained that democratic capital (i.e., countries’ historical experience with democracy, and the incidence of democracy in their neighboring nations) not only reduces exit rates from democracy but also raises exit rates from autocratic regimes.

2. Data and measurement

2.1. Measuring the size of the middle class

Defining the group of individuals that forms the middle class is far from obvious, and encompasses a complex set of characteristics related to earnings, consumptions, occupations, education, political power, and moral values (see, for instance, [Mulgan 1977](#); [Stein and Charters 1990](#)). Even if we restrict our attention to economic definitions based on income or expenditure, there is little consensus on the definition of middle class.

More recently, the consumption role of the middle class has been highlighted in the literature. [Schor \(1999\)](#) stated that it is a “new consumerism” that defines the middle class: a constant, “upscaling of lifestyle norms; the pervasiveness of conspicuous, status goods and of competition for acquiring them; and the growing disconnect between consumer desires and incomes.” Likewise, [Murphy, Shleifer and Vishny \(1989\)](#) indicate that the willingness of the middle class to pay a little extra for consuming quality goods and services is significantly higher than the lower-class. Hence, greater importance is attached to consumption expenditure in defining the middle class group in the economics literature.

But there is more to middle class than just consumption. The production aspect is also important – especially the production of modern goods where economies of scale and productivity growth are key characteristics. Consider a country that is able to expand consumption because of remittances, but this higher consumption comes through imported products. This scenario, for example, nicely describes the situation in the Philippines. Without boost in domestic production, the power of the middle class to drive growth will be muted.⁵

Past studies have varied in defining the middle class. There are two main ways to define the middle class: in relative terms, as the middle income range of each country; or in absolute terms, using a fixed band for all countries. Even within the class of absolute measures, there is little agreement on what the appropriate thresholds should be to differentiate between different classes. For instance, [Ravallion \(2010\)](#) defines the middle class in developing countries as households with expenditures between \$2 and \$13 per person (in 2005 consumption PPP dollars). The lower cut-off of \$2 is standard in the literature and represents the median value of the national poverty line from a sample of 70 developing countries, while the upper cut-off of \$13 represents the US poverty line in 2005 PPPs. Importantly, Ravallion argues that these bounds can be thought of as encompassing those who are not deemed poor by the standards of developing countries, but are still poor by the standards of rich countries. In contrast, [Kharas and Gertz \(2010\)](#)⁶ use thresholds of \$10 and \$100 per person to define the middle class, while [Milanovic and Yitzhaki \(2002\)](#) define the middle class as those living between the mean incomes of Brazil and Italy, which is roughly between \$10 to \$20 per day in 2005 PPPs. This definition is also used by [Bussolo et al. \(2007\)](#) and [Bussolo et al. \(2009\)](#). [Banerjee and Duflo \(2008\)](#) defines the middle class as those living on \$2 to \$10 per day.

Others rely on relative measures of middle class in an attempt to draw a closer connection between political consensus and inequality. A common approach is to define the middle class as those falling between 75% to 125% of the median income as in [Thurow \(1987\)](#) for the US, and [Birdsall et al. \(2000\)](#) for developing countries. On the other hand, [Easterly \(2001\)](#) uses the expenditure/income share of the middle 60% as a measure of the middle class. Given there is a correlation of 0.90 between this variable with the Gini coefficient, this middle class measure is very similar to a measure of inequality.

In this paper, we use both absolute and relative measures of middle class to examine how it affects democratic outcomes. In particular, we focus on three sets of middle class definitions: (i) an absolute measure – referred to as ‘middle class \$2–\$10’ – representing the share of the population living on \$2–\$10 per day in 2005 PPP dollars; (ii) a relative measure – referred to as ‘middle class 75% to 125% of the median’ – representing the share of population that has expenditures at least above \$2 per day and within 0.75%–1.25% of the median expenditure of the country⁷; and (iii) a relative measure – referred to as ‘middle 60% consumption share’ – representing the share of the total consumption expenditure accruing to the middle 60% of the expenditure distribution.

2.2. Constructing the middle class data

We obtain our data primarily from [Chun \(2012\)](#). [Chun \(2012\)](#) constructs the data on the size of the middle class using a variety of data sources. For developing countries, her primary source for the consumption distribution data is the [World Bank’s \(2010\)](#) PovcalNet database. This database provides detailed distributions of either income or household consumption expenditures by different percentiles based on actual household survey data. In addition, it provides the survey means for household per capita income or consumption in 2005 PPP dollars.⁸ For OECD and high-income countries in Asia, [Chun \(2012\)](#) uses decile and quantile distributions from the World Income Inequality Database Version 2.0c as compiled by the United Nations University – World Institute for Development Economics Research ([UNU-WIDER, 2008](#)). In all cases, if the median household per capita income or expenditures of the survey was reported, then this value was used; otherwise, the mean of the survey was used in deriving the distribution. In cases where neither the median of the survey nor the mean of the survey were reported in the database, the ratio of survey mean to national

⁵ Access to domestic and international markets is key to translate production into higher growth for the poor and for the middle class. For evidence, see [Emran and Hou \(2013\)](#) and [Kamal, Lovely and Ouyang \(2012\)](#).

⁶ Note that [Kharas and Gertz \(2010\)](#) substitute consumption levels obtained from household expenditure survey data with national accounts data.

⁷ See [Chun \(2012\)](#) and [Chun et al. \(2011\)](#) for a detailed explanation on the thresholds of middle class classification.

⁸ This allows constructing the entire distribution based on Lorenz curve parameterizations, as detailed in [Datt \(1998\)](#) and [ADB \(2009\)](#). Notably, the PovcalNet database provides distributions based on consumption except in the instances where only income measures exist. At lower levels of income the difference between consumption and income is small. However, these differences tend to grow with wealth and thus are considered a potential measurement error in the analysis. Still these differences are expected to be relatively minor as there is a high correlation between income and consumption especially at lower levels, and thus should have little effect on overall computations.

accounts mean was taken and then interpolated or extrapolated based on years in which both information existed. This interpolated or extrapolated ratio was then used to back out the survey mean for the missing year based on the reported national account means. These survey means were then converted into 2005 PPPs using reported PPP values obtained from the Penn World Tables database 7.1 developed by the International Comparison Program. For the purposes of this paper we have updated Chun's (2010) dataset by extending the relevant data for one or two years in the period 2010 to 2013 depending on the data availability in the PovCal and UNU-WIDER datasets. The full sample of countries used in our analysis is listed in [Appendix A1](#), with the sizes of the various groups according to each of the three definitions of middle class.

Our neighbors' measure of middle class exploits geographic linkages across countries. In doing so, we identify the neighboring countries along with their geographical size for each country in our sample. In particular, to develop this indicator, let ω_{ij} denotes the country sizes by a $N \times N$ matrix of domestic and its associated neighboring nations in our sample, where N is the total number of countries. More precisely, ω_{ij} is the size of neighboring country j for domestic country i . The size-weighted neighbor's middle class for a country is then defined as: $\sum_{j=1, j \neq i}^N \omega_{ij} MC_j$. We use two alternate measures of neighbors' size: population or land area based on [World Bank \(2014\)](#).⁹

2.3. Data on democracy

Our measure of democracy is the revised combined Polity IV project score ([Marshall and Jaggers, 2005](#)). This measure represents the competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the executive. This score ranges from -10 to $+10$, with higher values indicating higher level of democratic conditions. Though this data come with several caveats, it is by far the best of the political outcome measure used in the literature (see [Glaeser et al., 2004](#)). See [Appendix A2](#) for data sources and descriptions.

3. Estimation method

In order to investigate the “middle class driven modernization” hypothesis and the “middle class-driven democratic domino” effect in a unified empirical framework, we estimate the following regression model:

$$\text{Polity2}_{it} = \gamma_1 \text{Polity2}_{it-1} + \gamma_2 MC_{it} + \gamma_3 N_MC_{it} + \alpha_i + v_{it} \quad (1)$$

where *Polity2* is the level of democracy in country i at time t , *MC* is the size of the middle class for country i , *N_MC* is the (size-weighted average of) country i 's neighbors' middle class, α_i is the country-specific fixed effect, and v is the disturbance term.

As indicated in [Section 2](#), our dataset is an annual unbalanced panel, with some missing observations over the period 1985 to 2013. Hence we employ linear interpolation to generate the missing data, which minimizes the loss of observations across countries. The dynamic panel estimation is appropriate for panels with relatively large number of countries and with smaller number of time periods (see [Roodman, 2006](#)). Therefore, we transform the annual panel into four-yearly averages for each variable. This approach yields seven time periods; 1985–1988, 1989–1992, 1993–1996, 1997–2000, 2001–2004, 2005–2008, 2009–2013,¹⁰ with each country having potentially seven observations in the panel.

In presence of the lagged dependent variable on the right hand side and country-specific fixed effects, OLS estimation of Eq. (1) would deliver biased and inconsistent estimates. Therefore, we use system-generalized method of moment (GMM) estimator to estimate the regression (see [Blundell and Bond, 1998](#)).¹¹ The system-GMM estimation is based on the differenced and the levels version of Eq. (1) being estimated jointly in a system framework, exploiting several moment conditions. The system-GMM approach controls for several time-invariant effects, such as ethnic fractionalization, religion, and geography, which might play important roles in shaping democracy.

An important concern in the estimation is the endogeneity of the middle class size, which would arise due to reverse causation and time-varying omitted variables. For example, the extent of democracy might help middle class flourish, which suggests a reverse causation. There could be some time-varying variables that could affect both the level of democracy and the size of the middle class simultaneously, constituting an omitted variables problem. Neighbors' middle class size could also be endogenous due to mainly time-varying omitted variables. For example, regional shocks of economic and political nature (e.g., wars, natural disasters, or economic crises) might both affect the neighbors' middle class size and the level of democracy in a country. The system-GMM estimation can address this problem through instrumentation from within the model. In particular, endogenous variables in the ‘difference’ equation are instrumented with the levels of the explanatory variables, while those in the ‘levels’ equation are instrumented with the differences of the explanatory variables. The intuition behind instrumenting the ‘difference’ equation with ‘levels’ variables is connected to the ‘convergence’ idea in the growth literature. In other words, larger levels of middle class size are likely to be associated with smaller changes in the middle class size, and vice versa. This relationship could arise due to diminishing returns to physical capital which feeds the development of middle class in a country. That is, it becomes increasingly difficult to expand the middle class size at higher levels of middle class because

⁹ In addition to land size and population, we use GDP of neighboring countries to weight neighbors' middle class. This approach provides similar results, and thus we do not present those results in this paper.

¹⁰ The terminal interval has been extended to cover 2013.

¹¹ ‘System GMM’ estimator – is appropriate where the explanatory variables in the model are not strictly exogenous, but no suitable external instruments are available; this criterion exactly match with our estimation strategy employed in this paper. For further reference, see [Roodman \(2006\)](#).

marginal productivity of capital, which helps the size of the middle class expand, diminishes such that the growth of the middle class slows down. This mechanism is expected to be unrelated to the dependent variable, the level of democracy, at least in the short-run. The system-GMM estimation utilizes the “levels equation” (which is instrumented with changes) to increase the efficiency of the estimation.

In order to check whether time-varying controls could have any effect on our results, we augment Eq. (1) with government size, trade openness, depth of financial system and urbanization. Adding these controls (unreported) does not change the thrust of our findings on the role of middle class. The controls themselves are estimated to be mostly insignificant across the models we consider.¹² This result is not surprising because our estimation includes a lagged dependent variable, which captures most of the effects that these variables would embed, leaving small room for them to make a difference within the four-year time window we analyze. Thus, we do not pursue the models with these controls to keep the specification parsimonious.

Estimation of system-GMM requires there be no autocorrelation in the disturbance, and that the country-specific effects be uncorrelated with the first difference of the first observation of the dependent variable. To ensure this, we report the [Arellano and Bond \(1991\)](#) test statistic for second-order serial correlation in the first-differenced errors. The system-GMM estimator is consistent only if the moment conditions are valid. Thus, we test the validity of the over-identifying moment conditions using the Hansen test of over-identifying restrictions. To ensure that the model is not over-fitted, we follow the ‘rule of thumb’ that number of instruments are in the ballpark of the number of countries. Following [Windmeijer \(2005\)](#) we estimate the system in two steps to account for cross-equation correlations and correct the standard error.

An important feature of our analysis is that we make use of both the full sample and the sub-sample of developing economies in estimation. As mentioned, some middle class measures such as the proportion of people living on PPP\$2–\$10 per day may not be applicable to developed economies. We also consider regional heterogeneities in the estimations, because neighboring countries might be disproportionately larger than the domestic country in size measures. For example, China and India might be extremely large compared to their neighbors such that they might drive the average relationship into a certain direction.

4. Results

We begin by presenting the descriptive statistics for the main variables in [Table 1](#). The upper panel refers to the descriptive statistics for our full (i.e., global) sample, while the lower panel to the sample of developing countries. We observe that the average democracy measure of Polity2 score is 2.7 and 1.3 in the full and developing countries samples, respectively. In terms of the absolute measure of middle class, PPP\$2–\$10 per day, an average of 39.3% in the full sample are middle class; for developing countries this average is 46.8%. Using the relative measure, we observe that 42.1% of people on average fall in the middle class group within the developing countries.

[Table 2](#) displays the correlations among the key variables in the unbalanced panel. In particular, it reports the correlations among the different middle class indicators, both domestic and neighbors', within the full sample as well as within developing countries. The correlations between ‘middle class PPP\$2–\$10’ and ‘middle class 75%–125% of the median’ are 0.14 and 0.85 for the samples of full and developing countries, respectively (Panels A and B). This correlation shows that those who live on PPP\$2–\$10 per day in developing countries are typically those around the median of the consumption distribution, while they are likely to be far below the median in developed countries. While the ‘middle 60% share’ in the full sample and the developing countries sample is highly correlated with the ‘middle class 75%–125% of the median’ it is not highly correlated with the absolute measure of ‘middle class PPP\$2–\$10’. Overall, [Table 2](#) points to a highly skewed consumption distribution, where the median consumption is probably among those who live on \$2–\$10, and the middle 60% has much higher consumption levels than those who live on \$2–\$10 and, to some extent, than those around the median consumption.

In terms of the correlation among domestic middle class and neighbors' middle class measures, each domestic middle class measure has a relatively high correlation with the respective measure of its neighbors. Further, these correlations are relatively higher for the sample of developing countries than for the full sample. For instance, among developing countries, the correlation between domestic ‘middle class PPP\$2–\$10’ and neighbors' ‘middle class PPP\$2–\$10’ is 0.53, while for ‘middle class 75%–125% of the median’, the same correlation is 0.73. This suggests that developing countries are generally located among countries with similar characteristics of middle class. All in all, these features of the data imply that there is an important room for democratic spillovers due to the similarities in the middle class sizes among neighboring countries.

4.1. Global sample

[Table 3](#) reports the regression results for the effect of the absolute measure of domestic middle class and neighbors' middle class on the level of democracy. The first five columns (1–5) are based on the full sample of 145 countries, while the last five columns (6–10) utilize the sample of 91 developing countries. Before proceeding with the coefficient estimates of interest, the diagnostics panel underneath the table shows that all models pass the Hansen's as well as the AR(2) tests. In addition, the number of instruments is similar to the number of countries; hence the models pass the standard requirements for a credible dynamic panel estimation. All the models estimate the lagged democracy with strongly significant coefficients, where the coefficient estimates lie

¹² We treat these variables endogenous in our system-GMM estimation.

Table 1
Descriptive statistics*.

Variable	#Country	#Obs	Mean	Median	Std. dev.	Min	Max
<i>Panel A: full sample</i>							
Polity2 score	161	1222	2.65	5	6.75	−10	10
Middle class \$2–\$10 2005PPP	145	713	39.27	40.51	26.29	0	92.91
Neighbors' middle class \$2–\$10 2005PPP	157	1006	41.09	41.37	21.83	0.30	92.59
Middle class 75% to 125% of the median	145	713	24.73	24.97	13.02	1.64	56.27
Neighbors' middle class 75% to 125% of the median	157	1023	23.12	22.31	11.64	1.64	51.87
Middle 60% cons. share	145	713	47.36	48.36	5.87	26.31	57.32
Neighbors' middle 60% cons. share	157	1023	47.06	48.09	5.49	26.50	56.43
<i>Panel B: sample of developing countries</i>							
Polity2 score	116	873	1.25	2.25	6.16	−10	10
Middle class \$2–\$10 2005PPP	111	512	46.79	50.71	23.16	4.01	91.64
Neighbors' middle class \$2–\$10 2005PPP	111	730	42.10	41.90	19.41	4.01	86.04
Middle class 75% to 125% of the median	111	512	19.91	20.72	11.40	1.64	54.78
Neighbors' middle class 75% to 125% of the median	111	730	19.18	18.22	10.45	1.64	51.87
Middle 60% cons. share	111	512	45.60	46.14	5.55	26.31	56.37
Neighbors' middle 60% cons. share	111	730	45.74	46.82	5.49	26.50	56.43

* See [Data and Measurement](#) section for detailed definitions of the variables.

between 0.30 and 0.51, with the developing countries sample featuring relatively lower coefficient estimates, hence pointing to relatively lower (but still significant) persistence in the level of democracy.

As to the middle class and neighbors' middle class variables, we estimate model variations that include only own-middle class, as well as own-middle class together with neighbors' middle class jointly, where the alternate weighting variable for neighbors' middle class is either area or population of the respective country. The full sample in columns 1 to 5 delivers altogether insignificant coefficients for own-middle class and neighbors' middle class across all the columns. This result is not entirely surprising because the middle class concept captured by our indicators may not be applicable to developed countries.

By contrast, in [Table 3](#), the developing countries sample in columns 6 to 10 point to several important findings. Column 6 shows that own-middle class is insignificant when included in the model singly. Columns 7 and 8 report that when area and population-weighted neighbors' middle class are respectively included in the regression individually, both are strongly significant. The estimated coefficients are 0.24 and 0.18, with respective t-statistics of 2.97 and 2.55. These coefficients suggest that for each additional 10 percentage-point increase in the size of the neighbors' middle class, the polity2 score increases by around two units in the range of [−10,10].

Our primary regressions of interest are those that include both own-middle class and neighbors' middle class in the model jointly. [Table 3](#), columns 9 and 10 report the results of these models. Own-middle class is estimated to be significant with a positive coefficient of 0.08 to 0.10 depending on which weighting variable is used for the neighbors' middle class measure. These coefficients roughly suggest that for each additional 10 percentage-point increase in the own-middle class size, the polity2 score increases by approximately 1 unit in the range of [−10,10]. Importantly, the neighbors' middle class variables are estimated to be positive in these columns, but with the coefficient estimates reduced drastically to 0.57 and t-statistics to around 1.2. The

Table 2
Correlations matrix.

	Polity2	Middle class \$2–\$10 2005PPP	Middle class 75%–125% of the median	Middle 60% cons. share	Neighbors' middle class \$2–\$10 2005PPP	Neighbors' middle class 75%–125% of the median	Neighbors' middle 60% cons. share
<i>Panel A: full sample</i>							
Polity2	1						
Middle class \$2–\$10 2005PPP	−0.16*	1					
Middle class 75%–125% of the median	0.38*	0.14*	1				
Middle 60% cons. share	0.16*	−0.21*	0.65*	1			
Neighbors' middle class \$2–\$10 2005PPP	−0.09*	0.56*	0.17*	−0.00	1		
Neighbors' middle class 75%–125% of the median	0.32*	0.001	0.81*	0.63*	0.32*	1	
Neighbors' middle 60% cons. share	0.09*	−0.18*	0.59*	0.77*	−0.12*	0.60*	1
<i>Panel B: sample of developing countries</i>							
Polity2	1						
Middle class \$2–\$10 2005PPP	0.19*	1					
Middle class 75%–125% of the median	0.12*	0.85*	1				
Middle 60% cons. share	−0.14*	0.16*	0.45*	1			
Neighbors' M \$2–\$10 2005PPP	0.09*	0.53*	0.53*	0.20*	1		
Neighbors' middle class 75%–125% of the median	0.08	0.60*	0.73*	0.45*	0.71*	1	
Neighbors' middle 60% cons. share	−0.19*	0.15*	0.39*	0.69*	0.01	0.45*	1

* Significantly different from zero at 95% level of confidence.

Table 3

Absolute measures of domestic middle class and neighbors' middle class: any role in democracy?

	Full sample					Developing countries' sample				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2
Polity2, t-1	0.47*** (3.91)	0.52*** (6.00)	0.51*** (6.19)	0.49*** (3.76)	0.51*** (3.96)	0.41** (2.31)	0.30** (2.53)	0.38*** (3.92)	0.33** (2.38)	0.34*** (2.66)
Middle class \$2-\$10 2005PPP	-0.0063 (0.24)			0.018 (0.59)	0.023 (0.85)	0.046 (0.68)			0.095*** (2.60)	0.084** (2.35)
Neighbors' Area-weighted Middle class \$2-\$10 2005PPP		0.032 (0.80)		-0.020 (0.80)			0.24*** (2.97)		0.057 (1.01)	
Neighbors' Population-weighted Middle class \$2-\$10 2005PPP			0.050 (1.09)		-0.0026 (0.08)			0.18** (2.55)		0.057 (1.19)
Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	586	797	797	546	546	424	587	587	399	399
AR2, p-val	0.72	0.21	0.29	0.18	0.25	0.63	0.89	0.90	0.33	0.39
Over-ID Test, p-val	0.71	0.20	0.27	0.57	0.54	0.83	0.79	0.84	0.98	0.99
Number of instruments	138	159	159	138	138	105	118	118	106	106
Number of countries	128	149	149	123	123	95	108	108	91	91

Note: The estimation method is Two-step System-GMM; below each coefficient estimates, robust t-statistics are reported in parentheses. All variables are based on the average of 4-year period observations. All equations contain constants, but they are not reported.

* Significantly different from zero at 90% confidence.

** 95% confidence.

*** 99% confidence.

reduced coefficients and t-statistics in this model might be due to multicollinearity problem, as indicated by the relatively high pairwise correlation (i.e., 0.56) between own-middle class and neighbors' middle class in Table 2. An additional potential complication is that own-middle class becomes significant in columns 9 and 10 when neighbors' middle class is included in the model, though when considered individually, it was insignificant in column 6. However, results below that place the microscope on the regional heterogeneities show that it is too early to make a definitive conclusion about the role of neighbors' middle class with the results given in Table 3.

4.2. Regional heterogeneities

The growth rate as well as underlying characteristics of middle class across countries varies and so do their effects on democracy. Chun (2012) shows that the expansion of the middle class in developing Asia has been remarkable in recent decades, rising from 21% of the total population in 1990 to 56% in 2008. Besides, there has been a sharp decline – from 55.2% to 24% – in the share of people living in extreme poverty during the same period. Likewise, the middle classes of North America and Europe have been the source of demand, while in some East Asian and Southeast Asian countries, they have been the source of supply (see also Kharas 2010).

We check whether such regional heterogeneities exist in the sample of developing countries. We focus on heterogeneities related to Sub-Saharan Africa, South Asia, Middle East and North Africa, Latin America and the Caribbean, East Asia and Pacific, and Eastern Europe and Central Asia. Table 4 augments Eq. (1) by including the regional dummies and their interactions with own as well as neighbors' absolute middle class measure. For brevity we focus on the population-weighted neighbors' middle class measurement. As before, the diagnostics panel in the bottom of Table 4 indicate that all models pass the AR(2) as well as Hansen's over-identification tests. All of the regressions in Table 4 include the lagged dependent variable on the right-hand side, which is estimated to be strongly statistically significant across all models.

We first discuss the 'middle class-driven modernization' hypothesis. In columns 1 to 6, the non-interacted middle class variable captures the effect for developing countries excluding the regions that are in interaction. All estimates in columns 1 to 6 suggest that own middle class significantly affects the level of democracy regardless of which region is 'left out' from the 'base' group. However, the interaction between Eastern Europe and Central Asia (ECA) and own-middle class is negative and significant in column 5. The coefficient of the interaction is -0.11 , while the coefficient of for the rest of the developing countries is 0.13. This result indicates that the coefficient of the 'middle class driven modernization' effect is zero in Eastern Europe and Central Asia, such that the hypothesis finds empirical support only in the rest of the developing countries.

Moving on to the 'middle class-driven democratic domino' effect, the key finding in Table 4 is found when East Asia and the Pacific (EAP) is interacted with the neighbors' middle class measure in column 6. Although the interaction between the EAP dummy and neighbors' middle class is insignificant, the non-interacted neighbors' middle class variable, capturing the effect for all developing countries excluding the EAP, is estimated to be positive and significant at conventional levels. This result suggest that the middle class driven democratic domino theory finds empirical support in the sample of developing countries excluding the East Asia and Pacific region.¹³ To further check for the EAP effect, we estimate Eq. (1) by excluding the EAP region altogether

¹³ Indeed, column 4 shows that that the democratic domino effect is even stronger in the Latin American and the Caribbean (LAC) region, given the significant interaction term between the LAC dummy and neighbors' middle class.

Table 4

The absolute measure of middle class and democracy: identifying regional heterogeneities.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2
Polity2, t-1	0.280** (2.040)	0.370** (2.490)	0.450*** (3.550)	0.330*** (2.870)	0.240** (2.300)	0.240** (1.970)	0.23* (1.81)
Middle class \$2-\$10 2005PPP	0.070 (1.500)	0.035 (0.980)	0.052* (1.790)	0.092*** (2.590)	0.130*** (2.850)	0.110*** (2.700)	0.10** (2.54)
Neighbors' population-weighted Middle class \$2-\$10 2005PPP	-0.039 (0.740)	0.048 (0.900)	0.072 (1.450)	0.025 (0.810)	0.005 (0.100)	0.0750* (1.780)	0.077* (1.82)
Dummy for Sub-Saharan Africa (SSA)	2.710 (1.010)						
SSA * middle class \$2-\$10 2005PPP	-0.015 (0.190)						
SSA * Neighbors' Population-weighted Middle class \$2-\$10 2005PPP	0.048 (0.650)						
Dummy for South Asia (SA)		1.380 (0.200)					
SA * middle class \$2-\$10 2005PPP		0.120 (0.440)					
SA * neighbors' population-weighted Middle class \$2-\$10 2005PPP		-0.150 (0.420)					
MENA * middle class \$2-\$10 2005PPP			-0.120 (1.230)				
MENA * neighbors' population-weighted Middle class \$2-\$10 2005PPP			-0.023 (0.270)				
LAC * middle class \$2-\$10 2005PPP				-0.038 (0.630)			
LAC * neighbors' population-weighted Middle class \$2-\$10 2005PPP				0.150** (2.160)			
Dummy for Europe and Central Asia (ECA)					2.100 (1.210)		
ECA * middle class \$2-\$10 2005PPP					-0.110** (2.440)		
ECA * neighbors' population-weighted Middle class \$2-\$10 2005PPP					-0.025 (0.480)		
Dummy for East Asia and Pacific (EAP)						-1.110 (0.190)	
EAP * middle class \$2-\$10 2005PPP						-0.008 (0.140)	
EAP * neighbors' population-weighted Middle class \$2-\$10 2005PPP						-0.200 (1.200)	
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	399	399	399	399	399	399	358
AR2, p-val	0.15	0.68	0.75	0.25	0.21	0.13	0.18
Over-ID test, p-val	0.78	0.98	1.00	0.99	0.91	0.97	0.86
Number of instruments	120	120	120	120	120	120	98
Number of countries	91	91	91	91	91	91	83

Note: The estimation method is Two-step System-GMM; below each coefficient estimates, robust t-statistics are reported in parentheses. All variables are based on the average of 4-year period observations. All equations contain constants, but they are not reported.

* Significantly different from zero at 90% confidence.

** 95% confidence.

*** 99% confidence.

from the sample of developing countries. The estimation result, reported in column 7 of Table 4, uncovers that both the country's own and its neighbors' middle class significantly improve the polity measure of democracy in developing countries excluding the EAP countries. This result suggests that our insignificant estimates of neighbors' middle class found in columns 9 and 10 of Table 3 are driven by the inclusion of EAP countries in the sample, where the political institutions are mainly rigid by its non-democratic ideologies (e.g., Cambodia, China, and Viet Nam). It might also be the case that a country like China, with its large size, might be driving the global effect downwards.

To recapitulate our main findings, results in column 5 suggests that the 'middle class-driven modernization' hypothesis finds strong empirical support in developing countries excluding Eastern Europe and Central Asia. The related coefficient suggests that a 10 percentage-point increase in the size of the middle class increases the polity2 score in a country by 1.3 units in the range of [-10,10]. On the other hand, the 'middle class-driven democratic domino' effect finds empirical support in developing countries

excluding the East Asia and the Pacific, whereby each additional 10 percentage-point increase in the neighbors' middle class size raises the polity2 score in a country by approximately 1 unit in the range of [–10,10].

4.3. Alternative middle class measures

Table 5 estimates the effects of relative measures of country's own middle class and its neighbors' middle class on the level of democracy. As described in Section 2, we use two relative measures of middle class. The first is 'middle 60% consumption share', representing the share of the total consumption accruing to the middle 60% of the consumption distribution. The second is the 'population segment that falls between 75% and 125% of the median', representing the share of population that has consumption at least above \$2 per day and within 0.75 to 1.25 of the median consumption of the country. Table 5 uses own-middle class and neighbors' middle class jointly by using these measures. We focus on the sample of developing countries for comparability with the above results.

Columns 1 to 3 of Table 5 report the results for the middle 60% consumption share. The main model of interest, column 3, finds a positive effect for a country's middle class and its neighbors' middle class on its level of democracy, but both effects fall short of being significant at conventional levels. The neighbors' middle class has a t-statistic of 1.45, however. Note that this measure of middle class is highly correlated with Gini, hence, consumption inequality in a country.

By contrast, using 'middle class 75% to 125% of the median', columns 4 to 6 reveal qualitatively similar results for the 'middle class-driven modernization' hypothesis as was found in Table 3. In particular, our main regression of interest, in column 6 of Table 5, indicates that for each additional 10 percentage-point increase in the size of a country's own middle class, the polity2 score increases by around 1.7 units in the range of [–10,10]; this effect is statistically significant at 1% level. However, the median measure reveals, as we observe in column 6, no significant effect for neighbors a country's democracy. Note that it is argued that the median measure of middle class may capture the underlying process of democratization due to strengthening middle class in a country, which is confirmed by our results. However, there seem to be no spill-over from neighbors in this relationship.

Table 6 delves into the regional heterogeneities using the median measure of middle class. As before all the models pass the standard diagnostic tests expected from credible dynamic panel estimations. Columns 1 to 6 show that the above findings generally hold globally, with no significant regional heterogeneity observed in the sample.

5. Conclusions

Several arguments have been advanced to explain the surge in the democratizations around the globe in the past three decades. Two of these explanations have attracted considerable attention: the modernization hypothesis and the democratic domino theory. The modernization hypothesis predicts that improved living standards in a country would drive a democratic change, while the democratic domino theory posits that democratic demands in one country could spill over into its neighbors through a "demonstration

Table 5
Relative measures of domestic middle class and neighbors' middle class: any role in democracy?

	Sample of developing countries					
	(1)	(2)	(3)	(4)	(5)	(6)
	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2
Polity2, t-1	0.510*** (3.35)	0.540*** (6.250)	0.470*** (4.600)	0.460*** (3.180)	0.450*** (5.580)	0.340*** (3.100)
Middle 60% cons. share (easterly)	–0.088 (0.31)		0.018 (0.060)			
Neighbors' population-weighted middle 60% cons. share (easterly)		0.14 (0.83)	0.270 (1.450)			
Middle class 75% to 125% of the median				–0.040 (0.380)		0.170*** (3.150)
Neighbors' population-weighted middle class 75% to 125% of the median					0.130* (1.940)	–0.100 (1.460)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	424	587	399	424	587	399
AR2, p-val	0.97	0.17	0.37	0.87	0.27	0.13
Over-ID test, p-val	0.79	0.17	0.92	0.92	0.54	0.92
Number of instruments	105	118	106	105	118	106
Number of countries	95	108	91	95	108	91

Note: The estimation method is Two-step System-GMM; below each coefficient estimates, robust t-statistics are reported in parentheses. All variables are based on the average of 4-year period observations. All equations contain constants, but they are not reported.

* Significantly different from zero at 90% confidence.

** 95% confidence.

*** 99% confidence.

Table 6
The relative measure of middle class and democracy: identifying regional heterogeneities.

	(1)	(2)	(3)	(4)	(5)	(6)
	Polity2	Polity2	Polity2	Polity2	Polity2	Polity2
Polity2, t-1	0.29** (2.56)	0.36*** (3.50)	0.40*** (3.74)	0.36*** (3.28)	0.19* (1.71)	0.32*** (2.80)
Middle class 75% to 125% of the median	0.15** (2.52)	0.16*** (3.34)	0.087 (1.61)	0.17*** (3.19)	0.18** (2.54)	0.15* (1.95)
Neighbors' population-weighted middle-class 75% to 125% of the median	-0.14 (1.50)	-0.054 (1.09)	-0.078 (1.05)	-0.053 (0.87)	-0.15 (1.63)	-0.030 (0.32)
Dummy for Sub-Saharan Africa (SSA)	7.17** (2.34)					
SSA * Middle class 75% to 125% of the median	-0.089 (0.60)					
SSA * Neighbors' population-weighted middle-class 75% to 125% of the median	0.19 (1.28)					
Dummy for Middle East and North Africa (MENA)		5.38 (0.36)				
MENA * Middle class 75% to 125% of the median		-0.23 (1.53)				
MENA * Neighbors' population-weighted middle-class 75% to 125% of the median		-0.19 (0.30)				
SA * Middle class 75% to 125% of the median			0.46 (1.17)			
SA * Neighbors' population-weighted middle class 75% to 125% of the median			-0.45 (0.83)			
LAC * Middle class 75% to 125% of the median				-0.29 (0.94)		
LAC * Neighbors' population-weighted middle-class 75% to 125% of the median				0.084 (0.33)		
Dummy for East Asia and Pacific (EAP)					-4.08* (1.89)	
EAP * Middle class 75% to 125% of the median					-0.0081 (0.07)	
EAP * Neighbors' population-weighted middle-class 75% to 125% of the median					0.11 (0.94)	
Dummy for Europe and Central Asia (ECA)						15.0* (1.76)
ECA * Middle class 75% to 125% of the median						-0.14 (0.94)
ECA * Neighbors' population-weighted middle-class 75% to 125% of the median						0.11 (0.72)
Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	399	399	399	399	399	399
AR2, <i>p</i> -val	0.21	0.14	0.55	0.20	0.10	0.18
Over-ID Test, <i>p</i> -val	0.69	1.00	0.96	0.92	0.87	0.52
Number of instruments	120	120	120	120	120	120
Number of countries	91	91	91	91	91	91

Note: The estimation method is Two-step System-GMM; below each coefficient estimates, robust t-statistics are reported in parentheses. All variables are based on the average of 4-year period observations. All equations contain constants, but they are not reported.

* Significantly different from zero at 90% confidence.

** 95% confidence.

*** 99% confidence.

effect” leading to better democratic conditions. A number of commentators have argued that the empirical analysis of these explanations are based on too aggregate information (such as a higher per capita income being the driver of the demand for higher democratic standards) such that the mechanisms behind the democratizations cannot be well understood. On the other hand, several other scholars have argued that the middle class plays an important role in driving the demand for better democratic conditions. Nevertheless, most of these arguments have remained formally untested with elaborate data and in rigorous regression framework.

In this paper, we empirically investigate the “middle class-driven modernization” hypothesis and the “middle class-driven democratic domino” effect in a panel of 145 countries observed over the period 1985 to 2013. Our empirical approach tests whether a country's own middle class or its neighbors' middle class improves its democratic conditions. We interpret the increased democratic standards in a country due to an increase in its size of middle class as a support for the “middle class-driven modernization” hypothesis, and increased democratic standards in a country due to increase in the size of its neighbors' middle class as evidence for the “middle class-driven democratic domino” effect.

Using several middle class measures and a dynamic panel estimator that addresses the endogeneity and unobserved heterogeneity problems, our analysis yields three major conclusions. First, the absolute indicator of middle class, the proportion of

population living on PPP\$2–\$10 per day, and the relative indicator representing the proportion of population that fall between the 75% and 125% of the median, strongly affects the level of democracy in a country. Importantly, this effect is prevalent in the sample of developing countries. Second, using the absolute measure above, the ‘middle class-driven modernization’ hypothesis finds strong empirical support in developing countries excluding Eastern Europe and Central Asia. The related coefficient suggests that a 10 percentage-point increase in the size of the middle class increases the democracy score in a country by 1.3 units in the range of $[-10, 10]$. Third, using the same measure, the ‘middle class-driven democratic domino’ effect finds empirical support in developing countries excluding the East Asia and the Pacific. Our coefficient estimate suggests that each additional 10 percentage-point increase in the neighbors’ middle class size raises the democracy score in a country by approximately 1 unit in the range of $[-10, 10]$. Our empirical analysis indicates that the extent of democracy in a country is relatively more sensitive to the size of its own middle class than its neighbors’ middle class in shaping its democratic conditions.

Our finding that the middle class plays a significant role in democratization around the world by improving the level of democracy in both their own country as well as in their neighbors is important for economists, political scientists, and policymakers alike. It suggests that the increased education levels and the “new consumerism”, implying upscaling of lifestyle norms and consuming quality goods and services, which are societal traits typically associated with the middle classes, will lead to an even higher demand for democratic standards around the world in the years to come. Our finding also implies that emerging economies with growing middle classes are expected to be faced with increased demand for democratic standards both from within, and to some extent, from their developing neighbors. That these findings hold in a large panel of countries around the world means that the effect is not simply a local phenomenon but a global circumstance.

The importance of the middle class in democratic diffusion may have long-term implications for economic growth. Hence, policies that can help to foster a stronger middle class not only in absolute terms, but also relative terms may be especially important. These policies may include redistributive measures that can facilitate greater equality of opportunity in terms of health and education and explicit transfers in income. The type of policies that may be most effective in building and developing a stronger middle class that can drive democracy and ultimately economic growth therefore are important areas for future research.

Appendix A1. Middle class size in the first year of data in unbalanced panel

Country	First Year	MC (\$2–\$10)	Middle 60%	.75–1.25 Med	First Year	First Year	MC (\$2–\$10)	Middle 60%	.75–1.25 Med
ALBANIA	1997	86.56	53.49	36.78	MALAWI	1998	6.93	38.19	2.43
ARMENIA	1996	57.83	43.88	23.48	MALAYSIA	1987	67.47	42.60	24.97
BANGLADESH	1986	18.97	52.70	8.87	MALI	1989	30.52	48.98	10.94
BOTSWANA	1986	41.09	37.38	8.94	MAURITANIA	1987	35	47.12	10.31
BRAZIL	1987	52.1	34.25	17.97	MOLDOVA	1992	60.44	51.73	25.37
BULGARIA	1989	14.31	55.71	47.15	MONGOLIA	1995	57.64	52.27	21.55
BURUNDI	1992	5	50.42	2.17	MOROCCO	1991	75.28	46.93	30.12
CAMBODIA	1994	22.44	44.99	8.56	MOZAMBIQUE	1997	7.19	42.86	2.74
CAMEROON	1996	24.94	40.36	8.07	NEPAL	1996	11.9	46.44	4.7
CENT AFR REPC	1993	8.97	33.00	2.61	NICARAGUA	1993	45.92	36.98	9.5
CHILE	1987	59.47	35.16	20.77	NIGER	1992	8.98	48.33	3.86
CHINA	1987	16.92	54.09	8.6	PAKISTAN	1987	11.19	49.74	4.76
COLOMBIA	2003	55.05	34.82	18.89	PANAMA	1995	50.96	37.80	18.55
COSTA RICA	1986	75.07	55.11	29.19	PARAGUAY	1990	71.44	48.33	27.59
CROATIA	1998	19.62	54.66	41.14	PERU	1986	61.18	43.92	25.56
COTE D'IVOIRE	1986	69.46	47.35	29.44	PHILIPPINES	1988	41.89	45.70	11.66
DOMI REPUBLIC	1986	61.13	43.99	23.2	POLAND	1987	47.67	54.99	43.71
ECUADOR	1994	59.81	41.21	21.54	ROMANIA	1989	42.19	56.76	46.49
EGYPT	1991	70.65	50.50	37.65	RUSSIAN FED	1996	61.17	44.25	25.72
EL SALVADOR	1995	62.9	41.97	23.08	SENEGAL	1991	17.68	37.40	5.63
ESTONIA	1993	70.45	47.18	31.19	SLOVENIA	1993	16.81	52.06	41.71
GAMBIA	1998	17.72	40.71	5.25	SOUTH AFRICA	1993	44.59	32.70	16.26
GHANA	1988	21.51	50.34	8.5	SRI LANKA	1991	50.84	49.69	18.1
GUATEMALA	1987	27.93	34.47	7.4	SWAZILAND	1995	10.09	31.84	3.21
HONDURAS	1990	36.02	35.39	8.3	TAJIKISTAN	1999	22.76	52.20	9.8
INDIA	1988	16.74	.	7.12	TANZANIA	1992	9	50.95	3.85
IRAN	1986	66.11	42.82	24.46	THAILAND	1988	56.43	43.63	22.08
JAMAICA	1988	71.86	45.54	27.54	TRI AND TOB	1988	62.29	47.12	24.91
JORDAN	1987	78.54	49.15	31.4	TUNISIA	1990	72.25	47.74	28.53
KAZAKHSTAN	1993	78.35	52.11	33.93	TURKEY	1987	76.24	43.55	29.26
KENYA	1992	37.67	33.54	9.31	UGANDA	1989	14.16	45.12	5.01
KYRGYZ REPUBLIC	1993	56.51	40.40	19.87	UKRAINE	1992	74.59	55.74	39.99
LAO PDR	1992	15.55	50.65	6.67	VENEZUELA	1987	56.37	39.23	20.02
LATVIA	1993	86.41	53.95	39.62	VIETNAM	1993	14.54	48.18	5.63
LESOTHO	1987	34.68	37.06	7.99	YEMEN	1992	75.14	47.91	30.3
LITHUANIA	1996	75.63	51.81	36.82	ZAMBIA	1993	18.72	40.33	5.51

Appendix A2. Data and sources

Variable	Description	Source
Polity2	Polity measure of democracy: the revised combined Polity score; the maximum range of this measure is from –10 to 10; higher values indicate better democratic conditions	Polity IV database (Marshall and Jaggers, 2005)
Middle class \$2–\$10 2005PPP	Absolute measure of middle class	Chun (2012) and authors' calculations
Neighbors' Middle class \$2–\$10 2005PPP	Absolute measure of neighbors' middle class	Chun (2012) and authors' calculations
Middle class 75% to 125% of the median	Relative measure of middle class	Chun (2012) and authors' calculations
Neighbors' middle class 75% to 125% of the median	Relative measure of neighbors' middle class	Chun (2012) and authors' calculations
Middle 60% Cons. Share (Easterly)	Easterly measure of middle class	Chun (2012) and authors' calculations
Neighbors' Middle 60% Cons. Share (Easterly)	Easterly measure of neighbors' middle class	Chun (2012) and authors' calculations
Population	Total population in thousands	Penn World Tables (PWT) available at http://pwt.econ.upenn.edu/
Country Classification based on Income	Developing countries: indicator variable 1 if a country is classified under low, lower middle or upper middle income range in the World Development Indicators (WDI) dataset, 0 otherwise Developed countries: indicator variable 1 if a country is classified under high income group (both OECD and non-OECD) in the World Development Indicators (WDI) dataset, 0 otherwise	WDI available at http://data.worldbank.org/data-catalog/world-development-indicators

References

- Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. (2014). democracy does cause growth. *NBER working paper no. 20004*. ADB (2009). *Key indicators 2009: Enterprises in Asia: fostering dynamism in SMEs*. Manila: Asian Development Bank.
- Alesina, A., & Perotti, R. (1996). Income distribution, political instability, and investment. *European Economic Review*, 40(6), 1203–1228.
- Alesina, A., & Rodrik, D. (1994). Distributive politics and economic growth. *Quarterly Journal of Economics*, 109(2), 465–490.
- Amoranto, G., Chun, N., & Deolalikar, A. (2010). Who are the middle classes and what values do they hold? *Economics working paper series No 229*. Mandaluyong City: Asian Development Bank.
- Ansell, B., & Samuels, D. (2010). Inequality and democratization: A contractarian approach. *Comparative Political Studies*, 43(12), 1543–1574.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277–297.
- Banerjee, A., & Duflo, E. (2008). What is middle class about the middle classes around the world? *The Journal of Economic Perspectives*, 22(2), 3–28.
- Barro, J. R. (1999). Determinants of democracy. *Journal of Political Economy*, 107(6), 158–183.
- Benhabib, J., & Przeworski, A. (2006). The political economy of redistribution under democracy. *Economic Theory*, 29(2), 271–290.
- Benhabib, J., & Rustichini, A. (1996). Social conflict and growth. *Journal of Economic Growth*, 1(1), 125–142.
- Birdsall, N., Graham, C., & Pettinato, S. (2000). Stuck in the tunnel: Is globalization muddling the middle class? *Brookings institution working paper 14*. Washington DC: Brookings Institution.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143.
- Bussolo, M., De Hoyos, R. E., & Medvedev, D. (2009). The future of global income inequality. In A. Estache, & D. Leipziger (Eds.), *Stuck in the middle: Is fiscal policy failing the middle class?*. Washington, DC: Brookings Institution Press.
- Bussolo, M., De Hoyos, R. E., Medvedev, D., & van der Mensbrugge, D. (2007). Global growth and distribution: Are China and India reshaping the world? *World Bank Policy Research Working Paper No. 4392*, Washington, DC.
- Chun, N. (2012). The middle class in developing Asia. *Journal of Asian Business*, 25(1), 27–47.
- Chun, N., Hasan, R., & Ulubasoglu, M. (2011). The role of the middle class in economic development: What do cross-country data show? *Economics working paper series no. 245*. Manila: Asian Development Bank.
- Datt, G. (1998). Computational tools for poverty measurement and analysis. *FCND discussion paper 50*. Washington, DC: International Food Policy Research Institute.
- Easterly, W. (2001). The middle class consensus and economic development. *Journal of Economic Growth*, 6(4), 317–335.
- Easterly, W., Ritzen, J., & Woolcock, M. (2006). Social cohesion, institutions and growth. *Economics and Politics*, 18(2), 103–120.
- Edward, P., & Sumner, A. (2014). Estimating the scale and geography of global poverty now and in the future. *World Development*, 58, 67–82.
- El-Naggar, M., & Slackman, M. (2011). *Arab leaders keep a wary eye on Tunisia*. The New York Times <http://www.nytimes.com/2011/01/19/world/africa/19egypt.html>.
- Emran, S., & Hou, Z. (2013). Access to markets and rural poverty: Evidence from household consumption in China. *The Review of Economics and Statistics*, 95, 682–697.
- Epstein, D., Bates, R., Goldstone, J., Kristensen, I., & O'Halloran, S. (2006). Democratic transitions. *American Journal of Political Science*, 50(3), 551–569.
- Feng, Y., & Zak, P. J. (1999). Determinants of democratic transitions. *Journal of Conflict Resolution*, 43(2), 162–177.
- Glaeser, E., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2004). Do institutions cause growth? *Journal of Economic Growth*, 9(3), 271–303.
- Huber, E., Rusechemeyer, D., & Stephens, J. (1993). The impact of economic development on democracy. *Journal of Economic Perspectives*, 7(3), 71–85.
- Kamal, F., Lovely, M., & Ouyang, P. (2012). Does deeper integration enhance spatial advantages? Market access and wage growth in China. *International Review of Economics and Finance*, 23, 59–74.
- Keefer, P., & Knack, S. (2002). Polarization, politics and property rights: Links between inequality and growth. *Public Choice*, 111(1–2), 127–154.
- Kharas, H. (2010). The emerging middle class in developing countries. *OECD Development Centre Working Paper* (No. 285).
- Kharas, H., & Gertz, G. (2010). *The new global middle class: A cross-over from west to east*. Wolfensohn Center for Development.
- Leeson, P. T., & Dean, A. M. (2009). The democratic domino theory: An empirical investigation. *American Journal of Political Science*, 53(3), 533–551.
- Lipset, S. M. (1959). Some social requisites of democracy: Economic development and political legitimacy. *The American Political Science Review*, 53(1), 69–105.
- Loayza, N., Rigolini, J., & Llorente, G. (2012). Do middle classes bring about institutional reforms? *Economics Letters*, 116(3), 440–444.
- Marshall, M., & Jaggers, K. (2005). *Polity IV project: Dataset users' manual*. George Mason University: Center for Global Policy Available at www.cidcm.umd.edu/polity.
- Milanovic, B., & Yitzhaki, S. (2002). Decomposing world income distribution: Does the world have a middle class? *Review of Income and Wealth*, 48(2), 155–178.
- Moore, B., Jr. (1966). *The social origins of dictatorship and democracy: Lord and peasant in the making of the modern world*. Boston: Beacon Press.
- Mulgan, R. G. (1977). *Aristotle's political theory: An introduction for students of political theory*. Oxford: Clarendon Press.
- Murphy, K. M., Shleifer, A., & Vishny, R. W. (1989). Income distribution, market size, and industrialization. *Quarterly Journal of Economics*, 104(3), 537–564.

- Persson, T., & Tabellini, G. (2009). Democratic capital: The nexus of political and economic change. *American Economic Journal: Macroeconomics*, 99, 88–126.
- Ravallion, M. (2010). The developing world's bulging (but vulnerable) middle class. *World Development*, 38(4), 445–454.
- Remnick, D. (2011). *Judgment days*. The New Yorker (February 14). http://www.newyorker.com/talk/comment/2011/02/14/110214taco_talk_remnick.
- Roodman, D. (2006). How to do xtabond2: An introduction to 'difference' and 'system' GMM in Stata. *working paper 103*. Washington, DC: Center for Global Development.
- Rosendorff, P. (2001). Choosing democracy. *Economics and Politics*, 13(1), 1–29.
- Schor, J. (1999). The new politics of consumption. *Boston Review*, Summer 1999.
- Simmons, B. A., Dobbin, F., & Garrett, G. (2006). Introduction: The international diffusion of liberalism. *International Organization*, 60(4), 781–810.
- Solimano, A. (2009). Stylized facts on the middle class and the development process. In A. Estache, & D. Leipziger (Eds.), *Stuck in the middle: Is fiscal policy failing the middle class?*. Washington, DC: Brookings Institution.
- Starr, H. (1991). Democratic dominoes: Diffusion approaches to the spread of democracy in the international system. *Journal of Conflict Resolution*, 35, 356–381.
- Stein, G., & Charters, A. (1990). *Three Lives*. New York: Penguin Classics (Available: www.amazon.com/gp/search?index=books&linkCode=qs&keywords=0140181849).
- Sumner, A. (2012). Poverty, vulnerability and class: The expanding non-polar groups and development. *Public Administration and Development*, 32(4–5), 444–454.
- Thurow, L. (1987). A surge in inequality. *Scientific American*, 256, 30–37.
- UNU-WIDER (2008). World income inequality database, version 2.0c. *World Institute for Development Economics Research*Helsinki: United Nations University.
- Wietzke, F. B., & Sumner, A. (2014). *What are the political and social implications of the "new middle classes" in developing countries?*.
- Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126(1), 25–51.
- World Bank (2010). PovcalNet Database. <http://iresearch.worldbank.org/PovcalNet/>
- World Bank (2014). *World development indicators*. Washington, DC: The World Bank.
- Zhukov, Y., & Stewart, B. M. (2011). Choosing your neighbors: Networks of diffusion in international relations. *International Studies Quarterly*, 57(2), 271–287.