Paper Title:

Revisiting the Middle Class Myth:

Evidence from a Cross-Country Analysis of African Social Progress

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Abstract

We analyse the relationship between the notable expansion of middle class in African countries and the social progress they have made. We pay particular attention to two key analytical aspects of this relationship. First, we account for material and non-material aspects of social progress and explicitly avoid relying on GDP as the evaluative space of national performance. Second, we consider four different absolute measures of middle class size adopted in the international development literature, in order to investigate the extent to which the way middle class is defined matters. We study 48 African countries using a newly developed cross-country panel dataset. We show that expanding both developing and higher middle classes contributes greatly to the material aspect of progress; we find far less significant effects on non-material aspects of progress. We also show that there are upper limits to the expansion of middle class, as structural social, political and economic characteristics in Africa seem to prevent these groups of people to be effective catalysts of social progress.

1. Introduction

The expansion of the middle class in developing Africa has become a central subject to discussions of inclusive economic growth, poverty reduction and overall progress at a national level. The size of middle class has risen substantially over the recent years to include 34 % of population in 2010 up from 27 percent in 1980, which represents a growth rate of 3.1 % per year (Ncube, Lufumpa, & Kayizzi-Mugerwa, 2011). Meanwhile, taking real GDP growth as the indicator of progress, Africa's good performance has quickened in recent years. Between 2000 and 2008, the average annual growth was 4.9%, which more than doubles its average evolution in the 80's and 90's (Leke et al., 2010). The positive dynamic of the material aspect of national progress has often been associated to resource booms (upsurges in prices of the continent's export commodities) and positive structural changes that have resulted in increasingly stable macroeconomic conditions and the end of many armed conflicts (see e.g. Badiane and McMillan, 2015).

Interestingly, while real GDP growth has positively evolved in the region taken as a whole, there are still many other aspects that are of paramount importance to people's lives that have progressed, at best, as a slower pace. One of the main challenges facing the continent are related to ill-health and dealing with epidemics such as HIV. In general, health issues are considered a great threat to Africa's sustained growth and development. Besides, poor governance manifested in lack of transparency, accountability and misallocation of public resources is also known to be a major impediment for development. As suggested by Ncube et al., (2011), in the specific case of African countries, the upsurge of middle class in terms of size has had positive but moderate effects on economic growth, better accountability and governance of public affairs. However, in Easterly & Levine (1997) it is even argued that that economic growth in Sub Saharan African countries is positively correlated with low schooling levels, political instability and insufficient infra structure), Hence, GDP growth alone is clearly not sufficient for fighting poverty, achieving sustainable development and ultimately, improving livelihoods of Africans (Sako & Ogiogio, 2002).

To the best of our knowledge, studies on the relationship between the facts that we have just described the size of middle class in Africa are very scarce. Notable exceptions are Shimeles & Ncube (2015) and Ncube et al. (2011) who argue that the expansion of middle class is a key driver for economic growth and poverty reduction in Africa and the improvement of other non-material aspects of progress. We make the case that much emphasis is given in the literature to the study of the relation between national progress and the evolution of middle class size in developing Asia and Latin America as well as the developed countries (Banerjee & Duflo, 2008; Chun, Hasan, & Ulubasoglu, 2011). Thus this paper aims to bridge this analytical gap by focusing exclusively on Africa and assesses the relation between the size of its middle class and a multidimensional vision of its socioeconomic performance. Our work draws inspiration from the aforementioned studies and takes a step further in an attempt to prove that the expansion of middle class in Africa may be a key driver not only for the material aspect of economic performance, but also for a much wider concept of social progress, in which non-material outcomes should not be perceived only as 'desirable spillovers' of economic growth.

We believe that the intuitive justification of our study is quite evident; middle class is a group of people characterized by levels of income and skills, as well as a set of values that enable them to be economically secure and minimize their vulnerability to economic shocks. Thus expanding middle class has a potential role in promoting governance and demanding more transparent and effective government capable of delivering better quality of public services.

The objective of this paper is to examine the effect of middle class size in Africa on its social progress conducting a cross-country analysis. One the main focus here is a wider measurement of socioeconomic progress in lieu of the narrow definition of economic growth. We make the case that this is particularly important in developing countries, where growth has been sometimes important but insufficient to address basic human needs, improve the quality of life, and provide equal opportunities for all. Thus we aim explicitly at moving beyond the use of GDP per capita as an indicator of economic progress as is the case in several studies (Chun, 2010; Chun et al., 2011).

We believe that the main contribution of the paper to the literature on political economy of African economic development is two-fold. _First_: it builds upon a new dataset that contains information on three dimensions of social progress; basic human needs, foundations of human being and

opportunities for all citizens to live the lifestyle that they have reason to value. The social progress index (SPI) includes data on 133 countries covering 94% of the world's population, plus 28 countries with partial data. *Second*: we present rigorous and novel empirical evidence for the assessment of the relationship between the expansion of middle class and Africa's progress in different dimensions, thus complementing the existing literature on this matter.

The paper is structured as follows: Section 2 presents the theoretical framework that guides us through our analysis, including a discussion on precise definitions of middle class and social progress as well as a review of the literature on the political and economic role of the middle class. Section 3 describes the data and the methodology used for our empirical approach. Section 4 presents our estimation results and their interpretation and section 5 concludes.

2. Theoretical Framework

Three theoretical elements are of paramount importance for our study, namely precise definitions and indicators of middle class and social process, as well as sound theoretical linkages between these two concepts. Let us now present brief discussions for each one of these elements.

2.1. Measuring the size of middle class

The conceptual roots of the definition of middle class are first introduced in political science in the work of Karl Marx and Max Weber. On the one hand, Marx's approach defined the middle class with respect to their structural position in the production process. As the industrialization process took place in European countries aiming to change the structure of the economy, it divided the economy into two main classes: the workers and the capitalists. On the other hand, the Weberian theory defined the middle class as those individuals whose values, skills and education are sufficient to let them earn income and determine their opportunities in competitive market (López-Calva & Ortiz-Juarez, 2014; Birdsall et al., 2000; Weber, 1947; Wright, 1979).

Thus people in the middle class may be considered as the catalysts to any country's inclusive economic growth and overall social progress. The positive effect of middle class is due to the fact that its members are characterized by a certain level of income, values and skills that do not only help them to exit out of poverty and improve their standard of living, but that of others as well.

Moreover, middle class may have a strong influence on public policies and may demand government accountability that improves democratic outcomes.

Recently, the role of middle class in the economy has been extensively brought up in political economy debates due to its important implications on potential growth and social progress in the middle and lower income countries. However, one important issue is that multiple measurement methods are currently used to identify the size of middle class and little consensus is reached on a precise definition in the literature. Essentially, there are two main approaches in defining the middle class: the relative terms and absolute terms. The relative approach defines middle class in terms of income distribution within a specific country, whereas the absolute approach establishes monetary internationally comparable thresholds to identify members of the middle class.

On the one hand, building upon the relative approach, a vein of economists defines middle class as those people who earn an income between 75% and 125% of the median income in their respective country (Birdsall, 2010; Birdsall et al., 2000). Moreover, Easterly (2001) refers to the middle class as people who find themselves between the 20th and the 80th percentile of income distribution or as people whose level of income lies within the three middle income quintiles. On the other hand, the absolute approach also yields an array of monetary thresholds for the definition of middle class. Milanovic & Yitzhaki (2002) define the middle class as people who live between the mean income of Brazil and Italy, a range that is estimated to be between $12-$50 per day (2000 PPP$). Banerjee & Duflo (2008) define the middle class as those people whose daily consumption lies $2-$10 per day (2005 PPP$). Ravallion (2010) argues that the person is considered to be a member of the middle class if they live in a household where the consumption per capita lies between the median poverty line of developing countries ($2) and the US poverty line ($13) per day (2005 PPP$). Kharas & Gertz (2010) define middle class people belonging to households with daily expenditures of $10-$100 per person (2005 PPP$). The lower bound is chosen to be the average poverty line of Portugal and Italy as they have the strictest definition of poverty, while the upper bound is chosen to be twice the median income of Luxembourg, which is the richest advanced country. Birdsall (2007) defines the middle class as people who either live at a minimum $10 per day in 2005 or they belong to percentile of income distribution that is lower than the 90th

percentile. Bussolo, De Hoyos, & Medvedev (2009) define the middle class as people with an average daily income between \$10 and \$20 (2005 PPP\$).

Clearly, a strand of the literature, in which we inscribe this document, tends to favour the absolute approach to the definition of middle class for cross-country comparisons (Banerjee & Duflo, 2008; Kharas & Gertz, 2010a; Ravallion, 2010). There are several justifications for this choice; the most intuitive one is that by adopting the absolute approach, people in the middle class of different countries may be comparable, as they possess the same international purchase power. Indeed, it is important to acknowledge that economic security for people in developing countries is increasingly shaped by both external and internal economic, social and political shocks due to globalization. In that sense, consumption standards are increasingly set at global prices (Birdsall, 2010). Building upon this idea, in the quest of an identification of middle class profiles in African countries drawing upon the absolute approach, middle class is defined by Chun (2010) and Ncube, Lufumpa, & Kayizzi-Mugerwa, (2011) as people with an average daily consumption within the range \$2-\$20 (2005 PPP\$). Furthermore, three different types of middle class are suggested by these authors: *Struggling middle class*, which are people who live with an consumption level lying between \$2 -\$4 per day, which enables them to consume necessity goods; the *developing world middle class*, which are people with consumption level lying between \$4-\$10 per day, which enables them to save and consume non-necessity goods; and finally, *higher middle class*, which are people with a level of consumption per person lying between \$10-\$20 per day, which expands their options for consumption of non-necessity goods.

2.2. Social progress as the evaluative space of African countries' performance

Undoubtedly, there is a very strong tradition in mainstream economics to rely on one-dimensional approaches to assess progress at an aggregate level, and GDP outstands today as a standard measure of national economic performance (see e.g. Hall et al., 2010). As stressed by Stiglitz, Sen & Fitoussi (2009), policymakers around the world legitimately target economic growth and poverty reduction as desired objectives in the quest to improve their people's livelihoods, but of course, they are also permanently asked to pay careful attention to overall quality of life assessing it through the lens of a pluralistic and multidimensional approach (see e.g. Fleurbaey, 2007; Krishnakumar & Nogales, 2015). Important elements of a desirable state of affairs include growth

sustainability, distributive justice, freedoms, equality of opportunities and respect to human rights, all of which are gaining the spotlight in current dialogues on development agendas, such as the 2013 Rio+20 summit, the 2014 Beyond 2015 meeting of CSO's in South Africa and the UN's High Level Panel on post-2015 Development Agenda. Meanwhile, it is clear that these and other aspects of this wider conception of progress are completely absent in the GDP rationale.

In this sense, it is now widely accepted that progress transcends material considerations and that it cannot only be linked to monetary aspects (see e.g. Sen, 1999, Alkire & Foster, 2011). No doubt material poverty is still an issue of primary concern, but ignoring the other aspects of wellbeing and deprivation would be taking a narrow view on the subject (Comim, 2011). An indicator that accounts for this pluralistic and multidimensional approach to national progress and is gaining increasing attention in academic and political spheres is the Social Progress Index (SPI; Porter, Stern & Greene, 2015). This index combines material and non-material aspects of progress at a national level, aiming to grasp the extent to which a country holds the capacity to meet the basic needs of its people, as well as to sustainably enhance the quality of their lives.

The SPI, originally proposed by the Social Progress Imperative network in 2013 (Porter, Stern & Loria, 2013) is a composite index that depicts the equally weighted average score of a country's performance in three dimensions of social progress (Stern, Wares & Hellman, 2016). This dimensions are i) the Basic Human Needs dimension, which aims to evaluate how well a country provides people with essential needs including nutrition and basic medical services, water and sanitation, access to adequate shelter and personal safety; ii) the Foundation of well-being dimension, which indicates whether or not citizens have access to basic knowledge (education), information and communication, health and wellness services and quality of environment; and finally iii) the Opportunity dimension, which measures the extent to which people may fulfill their potential to live good lives, taking into account the personal rights that they have, their freedoms, voice and choice, the level of tolerance and inclusion and the access to advanced education and knowledge.

In this document we adopt this theoretical body for the definition of social progress, stressing the need to adopt a wide and rich view of this concept by explicitly analyzing material and non-material aspects of the countries' performances.

2.3. Middle Class Size and Social Progress: a Literature Review

Here we bring together different strands of empirical and theoretical literature to provide a sound explanation for the role of middle class, through several channels, on the wide conception of social progress for which we make the case in this document, which includes economic, political and social outcomes.

A first channel stresses the positive contribution of middle class to human capital. Perotti (1996) argue that societies with high inequality tend to be politically and socially unstable. This may result in a small size of middle class and lower investment in education and slower economic growth. Persson & Tabellini (1994) argue that countries that suffer from distributional conflicts, their political decisions are more likely to introduce conflicting interests into public policy. Thus in this countries, resources may divert from human capital accumulation, which ultimately results in poor economic growth. Sokoloff & Engerman (2000) postulated that differences in economic growth across Latin American countries are due to factor endowments and the way economic institutions work on offering economic opportunities to the public. On the other hand, when institutions have full control over factor endowments and provide only limited access to economic opportunities for the rest of the population, the elite or privileged group is less likely to invest more on education for fear to be displaced.

A *second* strand of literature attempts to link the ethnic divisions and poor quality of government services to small size of middle class. Easterly & Levine (1997) suggest that economic growth in African countries is always accompanied with low levels of schooling, poor infrastructure, and political instability and distorted exchange rate (if it is market-driven). This is due to ethnic fragmentation and the small size of middle class. LaPorta, Lopez-de-Silanes, Shleifer, & Vishny (1999) argue that nations with ethnic divisions have poor government performance compared to nations with homogenous ethnolinguistic and common law, and consequently the first tend to have a small size of middle class. Svensson (2000) argue that foreign aid is always correlated with corruption and rent seeking. This leads to reduce productive public spending and contracts the size of middle class. Knack & Keefer (1997) suggest that nations with an equitable distribution of income and an ethnically homogenous society, tend to have stronger trust and norms which highly matters for social capital and higher economic growth. Easterly (2001) suggests that a high share

of income to the middle class and lower ethnic divisions are positively correlated with better provision of public goods, more democracy and growth.

A third channel investigates the influence of middle class endowments, values, consumption and preferences on economic growth. Galor & Zeira (1993) suggest that middle class is less vulnerable to credit market imperfections that prevent the poor from spending on human capital accumulation and thus move up to middle class. Föllmi & Zweimueller (2006) argue that expanding the middle class is associated with higher demand on new and better goods and services, which in turn leads to large markets for such goods and services. This promotes industrialization in such countries. In addition, as industrialization grows, this situation is associated with a decline in the aristocracy class and emergence of middle class in jobs that require more skills and experience (Doepke & Zilibotti, 2008;Doepke & Zilibotti, 2005).

A fourth vein of literature examines the linkage between the size of middle class and institutional outcomes. This linkage is first rooted in the modernization hypothesis (Epstein, Bates, Goldstone, Kristensen, & O'Halloran, 2006; Lipset, 1959), which suggests that a more affluent middle class would lead to reduce conflicts over factor endowments and drive the economy to institutional reforms including demand for property rights and government accountability in return to taxes paid (Ansell & Samuels, 2010; Benhabib & Przeworski, 2006; Glaeser, La Porta, Lopez-De-Silanes, & Shleifer, 2004). Moreover, Chun, Hasan, Rahman, & Ulubaşoğlu (2016) argue that a 10 percentage point increase in the size of middle class in developing countries increases democracy by 1.3 units as measured by polity (IV) database. Loayza, Rigolini, & Llorente (2012) find that increasing the size of middle class is correlated with better delivery of public goods as education and health and more public participation in democratic process with low corruption levels. Besides, middle class population encourages more market-oriented policies on trade and finance. Acemoglu & Robinson (2003) revealed that expanding middle class is considered the driving force for democracy that favored the poor being included in the political arena.

Finally, the fifth vein of literature identifies the causal relationship between the size of middle class and economic growth. China's middle class is still insufficient to sustain its rapid economic growth if exports start to decline. Countries with small size of middle class may get stuck in the middle class trap and are unable to move into the set higher income countries (Chun, 2010; Kharas,

2010; Kharas & Gertz, 2010b). Ozturk (2015) finds that innovation, FDI and productivity have a diminishing marginal effect on economic growth of emerging countries. Besides, he proves that middle class is very effective in avoiding the problem of middle income trap which impedes further growth.

Also, Banerjee & Duflo, (2008) argue that there are three legitimate ways for a larger middle class to drive economic growth. First, as the majority of entrepreneurs belong to the middle class, they are able to create employment and raise productivity. Second, middle class members are able to save and may be considered as a source of human capital accumulation (Doepke & Zilibotti, 2005). Finally, middle class consumers may focus more on the quality of goods and services that they demand, and thus give better and more useful indirect feedback to the production sector, to marketing strategies and, finally foster diversification (Murphy, 1989).This idea is also supported by the work of Desdoigts & Jaramillo (2009), who find that expanding middle class encourages the flow of goods and services, and influences the patterns of production in BRIC countries., Birdsall (2010) and Ravallion (2010) argue along the same line of thought, as they find that a large size of middle class in developing countries has a crucial role in poverty reduction. Also, López-Calva & Ortiz-Juarez, (2014) find that middle class is less likely to fall in poverty, which was clearly observed in Latin America in late 2000s. The composition of middle class is not only conducive to economic growth and social cohesion but also promote institutional measures. Birdsall (2007) argue that the expansion of the middle class accompanied with macro policies are core drivers of sustainable development particularly in three areas: fiscal discipline, fair tax and redistribution system and forming business friendly exchange rate.

3. Data and Methodology

We use panel data combining three sources of information that allow us to assess the effect of middle class size not only on material aspects of social progress, but on the broader and more comprehensive approach to this concept for which we make a case throughout this document.

First, we use absolute measures of middle class size drawn from the WorldBank´s PovcalNet; these data allow us to gauge the size of the four 'types' of middle class. We draw inspiration from to

Chun, 2010 and Ncube et al., 2011 for the definition of three of these types: i) struggling (2$ - 4$ a day, 2005 PPP), ii) developing world (4$ - 10$ a day) and iii) higher middle class (10$ - 20$ a day). The fourth type, namely iv) a traditional definition of middle class (2$ - 10$ a day), is commonly use in cross-country analyses (see e.g. Banerjee & Duflo, 2008). Thus we explicitly account for different absolute measures of middle class size in order to investigate the extent to which the adopted definition of middle class may lead to different conclusions.

Second, as stated before, we measure social progress by means of the Social Progress Index (SPI). Not only do we account for the overall performance as measured by the SPI, but we also conduct separate analyses of the relationship between middle class assize and each of the three dimensions that compose this Index, namely i) the Basic Human Needs, ii) the Foundation of well-being and iii) the Opportunity. Third, we use data from the International Monetary Fund to control for other aggregate socioeconomic characteristics that are potential social progress-drivers (Chun, Hasan, & Ulubasoglu, 2011; López-Calva & Ortiz-Juarez, 2014; Ncube et al., 2011).

Turning to data availability and the construction of indicators for the various concepts in our analytical framework, let us mention that at present, the SPI dataset is publically available only for 2014 and 2015, thus defining two periods of observation for one our main variables of interest. At the outset, let us state that one element of our identification strategy, which we discuss in detail later on, consists of including only lagged values (i.e. prior to 2014) of potential drivers of social progress, including middle class size. Availability indicators of these drivers yield a panel dataset that is too heavily unbalanced if we consider yearly time intervals, as distribution of available data defines quite uneven time gaps for the different countries considered in our analysis. Thus we define six periods in time in which yearly information is collapsed into their mean observed value in that particular period:

- $t=1$: observation between 1980 and 1990

- $t=2$: observation between 1991 and 2000

- $t=3$: observation between 2001 and 2010

- $t=4$: observation between 2011 and 2013

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- t=5: observation in 2014

- t=6: observation in 2015

Note that time periods have been defined as three decades going from 1980 to 2010 and a three-year timespan between 2011 and 2013, prior to the first observation of the SPI. The advantage of treating data this way is twofold. First, it yields a more balanced panel which allows reducing potential bias due to omitted variables in the econometric treatment of this information and second, we make the case that it is one appropriate way to use most of the available data, given the restriction of available indicators. Thus we end up with panel data that is rich enough to consider 48 African countries in our study.

3.1. Descriptive statistics

Between 2014 and 2015, the considered set of African countries shows a 1.2% average increase in terms of overall social progress (See Figure 1 and Table 1). Although progress has taken place, it was uneven between countries. While Chad's social progress outstands compared to other countries (5.3%), the Republic of Congo and Liberia have actually made leaps backwards (-0.8% and -0.4%, respectively). These figures, however, depict only a partial view of the true complexity of the matter at hand. If we take a look at each one of the three dimensions of the SPI, in fact, we find that all of the considered countries have made progress in terms of Foundations of Wellbeing, with notable performances by The Gambia and Mozambique (3.2% each). However, our data show that the other two dimensions of social progress, namely Basic Human Needs and Opportunity have evolved quite differently. Chad's remarkable overall progress is entirely due to its outstanding progress in these two dimensions (more than 9% in each case). In contrasting fashion, 15 out of 48 countries have actually regressed in the Opportunity dimension, with Burkina Faso and Liberia registering the highest drawbacks (-0.3% and –0.24%, respectively). Similarly, 14 out of 48 countries have regressed in the Basic Human Needs dimension, with Mali registering the most notable setback (-0.3%).

Figure (1): Distribution (Kernel estimates) of the evolution of SPI and its components
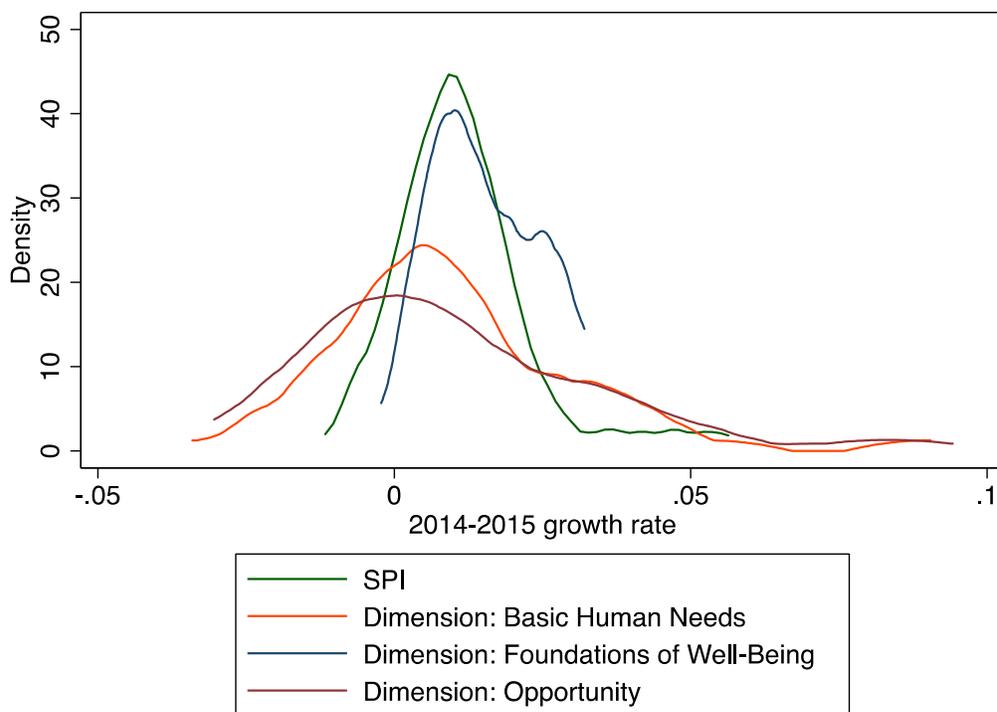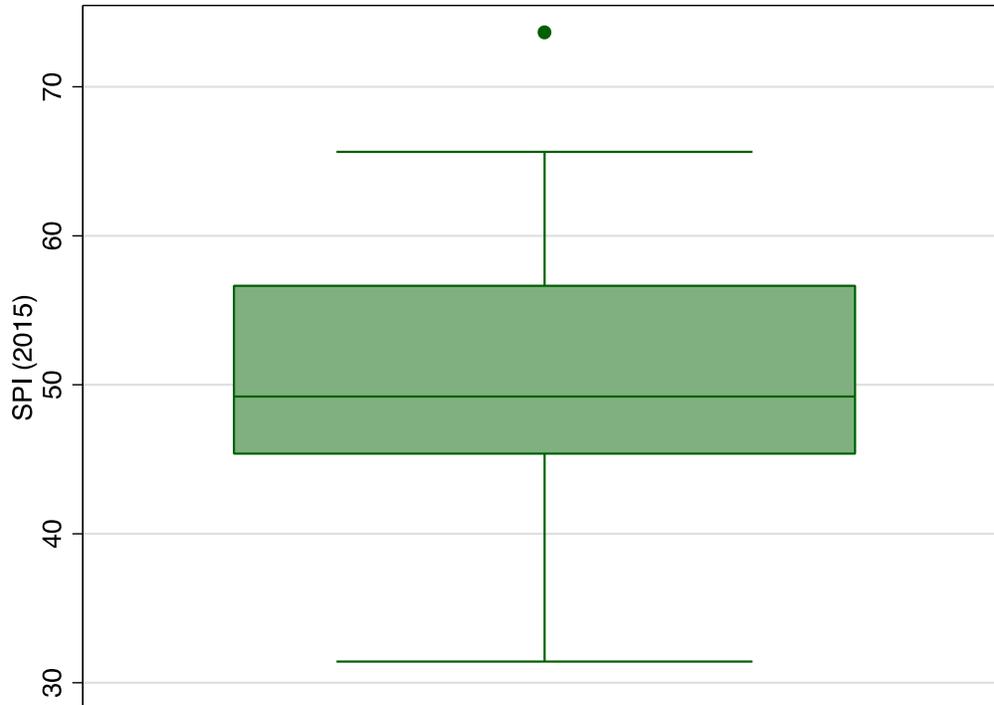
Table (1): Descriptive statistics of the evolution of SPI and its components

2014-2015 growth rate of:	Mean	Minimum	Median	Maximum
SPI	1,2%	-0,8%	1,0%	5,3%
Dimension: Basic Human Needs	1,0%	-3,4%	0,7%	9,0%
Dimension: Foundations of Wellbeing	1,6%	0,3%	1,3%	3,2%
Dimension: Opportunity	1,0%	-3,0%	0,5%	9,4%

Source: authors' calculations

Turning now to the *level* of social progress attained as of 2015, the set of countries in our analysis has a mean of 50.5 points (in a 0-100 scale) with 9.2 points of standard deviation (see Figure 2). At the most disadvantaged extreme, Guinea, Chad and Central African Republic registered the lowest levels of social progress (below 40 points); at the most advantaged extreme, Tunisia, Botswana and South Africa enjoyed remarkable high levels of social progress (above 65 points), but Mauritius highlights as an uncommonly good performer being the only country that enjoyed a level of social progress above 70 points.

Figure (2): Levels of 2015 SPI

In light of the figures at Table 2, the differences in the level of social progress attained by the countries that we study are, indeed, related to the average middle class size between 1980 and 2013. Higher middle class and Developing world middle class are positively correlated to the overall level of social progress as well to each one of its dimensions. This preliminary descriptive information tells us that these correlations are strongest when we take into account the monetary and tangible dimension of social progress, namely Basic human needs. An upsurge in terms of size of traditional middle class is also positively correlated with the material dimension of social progress and through that, with the level of SPI. We believe that these figures constitute preliminary empirical evidence of the fact that higher middle class may indeed be correlated with better governance, greater gender equality and more investment in higher education (Ncube et al., 2011). In contrasting fashion, the size of Struggling middle class does not seem to have a correlation with social progress that is as strong as other types of middle class. We wish to interpret this correlation as a reflection of the fact that the latter definition of middle class is the most

vulnerable one and its members are more likely to fall into poverty in the event of negative exogenous shocks,

Table 2: Pearson correlation coefficient matrix

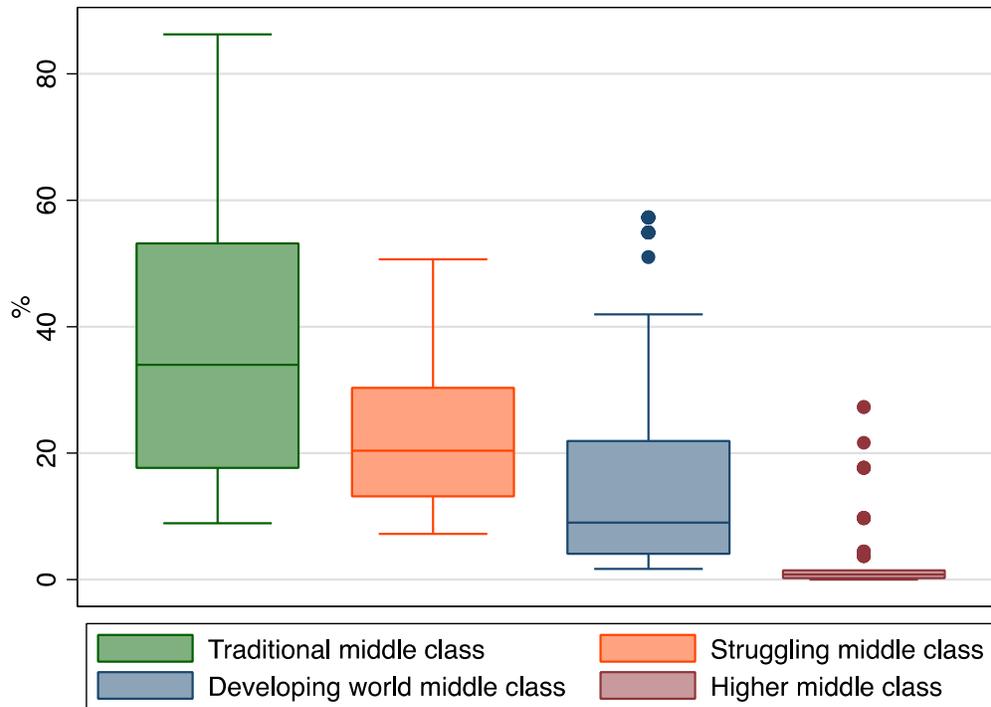|	Middle class size by type			
	Traditional	Struggling	Dev. World	Higher
SPI	0.5710***	0.0430	0.7923***	0.8525***
Dimension: Basic Human Needs	0.7537***	0.2979*	0.8857***	0.8447***
Dimension: Foundations of Wellbeing	0.3004*	-0.0280	0.4539***	0.5283***
Dimension: Opportunity	0.1994	-0.3035	0.4881***	0.6844***

* p-value < 0.1
** p-value < 0.05
*** p-value < 0.001
Source: Own

These facts show that a deeper analysis of the relation between social progress and middle class size is required and we go on to do so in this study. Even if higher middle class size bares the highest positive correlation with all dimensions of social progress, the part of the population that enjoys being in this position is still very low. The average size of Higher middle class in period 1980-2013 is lower than 1.5% for 75% of the countries in our study; the countries with the most sizeable higher middle class are Mauritius and Seychelles (18% and 27%, respectively), while this type middle class is practically inexistent in Nigeria and Ethiopia (<1%). As we are studying countries in a developing regions, less wealthy definitions of middle class make this part of the population more sizeable (see Figure 3). Developing world middle class might go up to 57%, as in Mauritius and Struggling middle class may be as large as 51%, as in Iraq. As Traditional middle class is a combination of the two previous definitions, it covers the largest part of the population compared to all the other definitions of middle class that we consider; traditional middle class may me as large as 86%, which is the case in Jordan.

Figure (3): Average size of middle class in period 1980-2013, according to various definitions

At this point, let us briefly make the case for the usefulness of our concentration on the relation between middle class size and the SPI as well as its three dimensions as measures of social and economic development instead of more traditional one-dimensional viewpoints on development based solely on GDP growth or aggregate consumption, as is the case in Chun et al. (2011). In Table (3) we present the Pearson correlation coefficients between the latter measure of aggregate economic performance and the SPI as well as its three dimensions:

Table (3): Pearson correlation coefficients with GDP growth, using 2015 data

Variable	SPI	Basic Human Needs	Foundations of wellbeing	Opportunity
Correlation	0.72	0.71	0.58	0.47

As expected, the overall SPI is tightly correlated with GDP growth, as well as its most tangible and material-related dimension, i.e. Basic Human Needs. However, our data show that GDP

growth is much less correlated with the non-tangible dimensions of the SPI and thus it may be considered only as an imperfect proxy of the dimensions of Foundations of Wellbeing and Opportunity (Chun et al., 2011; Mankiw, Romer, & Weil, 1992). This leads to conclude that the descriptive statistics and (cor)relations that we have just presented may not be deeper and more thoroughly studied using GDP growth as a one-dimensional proxy of social progress, which transcends purely material considerations that are not the only focus of our study.

3.2. The econometric framework

Based on our preceding discussion, we postulate the following econometric model for the analysis of the relations between social progress and middle class size:

$$y_{it} = \alpha_i + \lambda_t D + \beta_1 MC_{i,t-s} + \beta_2 MC^2_{i,t-s} + x'_{i,t-s} \gamma + \varepsilon_{it} \quad i=1...48; t=1,2; s=1...4$$

where y_{it} is a measure of social progress, i.e. the SPI or one of its dimensions; α_i and λ_t depict country-specific fixed effects and time period-specific fixed effects, respectively. The latter effects are activated by means of dichotomous variables, D_t, which take a unity value when the observation corresponds to period t and zero otherwise. The presence of time and individual fixed effects allow us to reduce potential bias caused by omitted variables and better grasp the relations between middle class size and social progress.

Vector x_{it} contains control variables including the part of the population that has access to internet, to potable water and the part of the population that has experienced improvements in sanitation facilities over the last year (water closets, cooking fuel, drinking water and used-water disposal systems).

Coefficients β_1 and β_2 are of particular importance as they capture the impact of middle class size, denoted as MC, observed prior to the observation of the SPI. Let us recall that MC may contain fort different measures of middle class, i.e. struggling middle class, developing world middle class, higher middle class or 'traditional' middle class. Drawing inspiration from Chun et al. (2011), we postulate a non-linear effect of middle class size. The inclusion of a quadratic term in equation allows us to investigate the existence of decreasing returns of the size of the middle class with

respect to its potential to bring about social progress. Furthermore, in presence of decreasing returns, this non-linearity allows us to calculate the size of the middle class that corresponds to the situation in which social progress stops increasing due to a bulking of middle class members while other economic characteristics of the country remain constant. We propose to interpret this situation as the existence of an 'upper limit' to the middle class size in terms of their contribution to social progress. Let us denote this upper limit middle class size as MC^*. In reminiscence of an optimization of social progress with respect to the size of the middle class, an estimator of MC^* may be calculated as:

$$\hat{MC^*} = -\frac{\hat{\beta_1}}{2\hat{\beta_2}}$$

provided that both coefficients in the calculation above are significant.

Finally, ε_{it} are idiosyncratic error terms with standard stochastic properties, i.e. they have zero mean and individually-specific full variance-covariance matrix, allowing for correlation over time only when the residual is related to the same country, while postulating null correlation over time in the vector of residuals if they are related to different countries.

At this point, let us briefly discuss the identification strategy that we adopt in this study. This is a particularly important issue as social progress and middle class size are likely to be determined by similar underlying economic, political and social processes (Loayza et al., 2012). First, we build upon Arellano and Bond's (1991) procedure for the choice of instruments and include only lagged values of the potential drivers of SPI and its components. We are well aware of the fact that, on its won, using lagged values of explanatory variables as instruments of contemporary potential drivers of the SPI and its components may be an imperfect way of going about endogeneity bias; absence of serial correlation in the idiosyncratic error terms is a technical condition needs to be fulfilled as well. Thus we do not omit to test for the absence of serial correlation in the idiosyncratic residuals in all our (within-type) estimations in order to provide technical arguments supporting the credibility of our chosen instruments (see e.g. Roodman, 2006). Second, still following Arellano and Bond's procedure, we favour the inclusion of fixed country-specific effects in lieu of random effects, as we admit that unobservable country-specific characteristics such as culture, quality of

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institutions and 'stocks of social capital' are likely to be correlated with middle class size and other control variables (Banerjee & Duflo, 2008; Chun et al., 2011; Easterly, 2001) .

4. Empirical results

We estimate four versions of our model. The first one considers the level of SPI as the dependent variable and the other versions consider each one of the SPI dimension as dependent variables, one at a time. Thus the second version considers Basic Human Needs, the third version considers Foundations of Wellbeing and the fourth version considers Opportunity. In turn, each one of these models accounts for four different measures of middle class size: i) Struggling middle class, ii) Developing world middle class, iii) Higher middle class and iv) the traditional middle class, i.e. the combination of struggling middle class and developing world middle class. The results of our estimation are presented in Tables 2 through 5, where lags have been selected for each model individually on the basis of the Akaike Information Criterion.

In general, we find that increases in size of the middle class tend to promote the expansion and improvement of overall social progress as measured by the SPI. A word on the goodness of fit; in light of the different measures of R-squared, differences within countries in terms of their social progress are better grasped by the proposed models, in comparison to differences between countries, for which our explanation power is relatively lower.

Among the different 'types' of middle class, we find that only the developing world, the higher and the traditional middle classes have a positive effect on overall social progress; the size of the struggling middle class bares no significant effect. Higher middle class has a positive effect that is about 1.45 times that of developing world and traditional middle classes. This result is in line with e.g. Banerjee & Duflo, 2008 and Chun et al., 2011, and it may be due to the fact that members of the higher middle class are wealthier, have more consumption power and contribute, indirectly, in greater extent to public efforts for the expansion of social progress through their payment of taxes and consumption activities. It is important to mention that data do not show any upper limit to the size of this particular 'type' of middle class in terms of its contribution to social progress. One plausible explanation for this result may be the fact that African countries, in general, have not yet attained such an upper limit, thus it may not be inferred from currently available data.

Developing world middle class size, however, has a very significant positive effect on overall social progress, but we also found that there is an upper limit to it. Holding everything else constant, we find that social progress is at maximum when, on average, 18% of the population belongs to this particular type of middle class. A similar result is obtained regarding the traditional middle class, but we find that the positive effects of this type of middle class diminish at a lower rate compared to the developing world middle class; overall social progress is at maximum when, on average, 34% of the population belongs to this type of middle class. We argue that the existence of upper limits to positive contributions of middle class size to social progress is the reflection of several pending social issues in Africa. According to the World Bank report on 'sharing properity' (2013), economic growth in Africa is associated with poor governance, conflict, poverty and less trickling down to the bottom segment of the population. It seems that material progress in Africa is associated with rising inequality and it coexists with limited access to opportunities for the marginalized. This argument is supported by Lakner & Milanovic, (2015) who stress that global inequality has not been changed over the past 20 years; even worse, in Sub Saharan African, excluding both South Africa and Seychelles, income inequality has raised continuously. In cases of North African countries where there is high concentration of middle class among their population, such as Tunisia (89.5%) , Morocco (84.6%) and Egypt (79.7%), these people actually belong to the Struggling middle class (Ncube et al., 2011).

We believe that these findings bare important implications for the effectiveness of policymaking. At first glance, it is coherent to state that increases in the size of middle class lead to gains in terms of social progress, and that this positive effect is stronger by adopting a 'wealthier' definition for middle class. However, the proven empirical pertinence of a non-linear effect of middle class size on social progress shows that this positive effect may vanish in absence of effective policymaking for the promotion of capacities to meet increasing needs and demands of a bulkier middle class. If appropriate policies are not set up, the gains of increases in middle class size are more likely to turn into a burden that are more likely to lead towards higher levels of unemployment as well as continuous unmet pressures on education and health services, financial inclusion and investment decisions, all of which may lead, in turn, to a decline in terms of social progress (Bloom, Canning, Fink, & Finlay, 2007; Bloom, Canning, & Sevilla, 2001; Nayab, 2008)

Digging deeper into our results, it is important to stress that the positive effects of middle class size on social progress that we present here are due to the promotion of only two out of the three dimensions, namely basic human needs (see table 2) and opportunity (see table 4). Interestingly, we do not find any significant effects of any definition of middle class size over the foundations of wellbeing dimension (see table 3). These results are in line with, e.g. Birdsall (2010), where it is argued that the upsurge of the middle class in terms of size and economic command is correlated with wealth creation and productivity gains, which makes these people more resilient and self-sustained. Furthermore, it enables them to demand more and better policies leading to environmental and institutional quality, to more and better access to advanced knowledge, such as internet services and it may increase press freedom.

The size of all three types of middle class has a positive effect on the Basic Human Needs dimension of social progress. The wealthier the definition adopted for the middle class, the greater is its positive effect on the basic human needs dimension of social progress. Once again, we find upper limits for these positive contributions, which ranges between 23% and 27% of the population. These results go in line with our above discussion on the potential of a sizeable middle class to become a 'burden'. We reemphasize that these results may show that if increases in the size of middle class are not coupled with appropriate policies and a favourable institutional context, African countries in general may lose the opportunity of having better educated and healthier people. Undoubtedly, increases in middle class size exert considerable political pressure for access to sanitation, paved roads and safe drinking water, among other (Bloom et al., 2007)

Regarding the Opportunity dimension of social progress, we find that the highest positive effect is caused by the size of developing world middle class, for which we also find an upper limit size of 13%. As stated in Eastly, 2001, a sizeable middle class may tend to be coupled with fewer revolutions, coups and fewer 'drastic' constitutional reforms. However, negative effects in terms of the opportunity dimension may manifest if a sizeable middle class is not able to find appropriate institutional support for the respect and expansion of their rights and freedoms.

5. Conclusion

The paper attempts to shed new and useful light on the contribution of the middle class size to African progress. We simultaneously accounted for two key aspects for the assessment of this relationship that, in our perspective, remain currently understudied in the related literature, namely i) a pluralistic and multidimensional view of progress that includes material and non-material considerations and ii) the effect of the adopted definition for middle class on the assessment of its relationship with multidimensional progress.

For this, on the one hand, we have explicitly avoided to rely on GDP growth as the evaluative space for social progress, favouring the wider and more comprehensive approach embedded in the Social Progress Index (SPI) rationale, which includes three dimensions of social progress. The first one, namely, Basic Human Needs allows us to account for the material aspects of progress, while the second and third dimensions, namely Foundations of Wellbeing and Opportunity, allow us to supplement our analysis to include non-material aspects of progress.

On the other hand, our analysis builds upon four 'types' of middle class identified following the absolute approach to its definition. These types are i) struggling ($2-$4 per person per day), ii) developing world ($4-$10), iii) higher middle class ($10-$20) and iv) traditional middle class ($2-$10).

Based on data availability, our analysis is conducted for a set of 48 developing African countries using unbalanced panel techniques and appropriate identification strategies to effectively gauge causal relations between middle class size and social progress.

Let us now reflect on our main findings, their implications and possible ways for future research. In a nutshell, our results show that the wealthier the definition of middle class, the more important is its contribution to the expansion of overall social progress. In fact, we do not find evidence for the fact that an expansion of Struggling middle class would be an effective driver of overall social progress. This may be due to the fact that members of this type of middle class are in a vulnerable position with high probability to fall into poverty in the event of negative exogenous shocks.

Developing World and Higher Middle classes are found to be effective drivers of overall social progress. Comparing the effect of these types of middle class on material and non-material aspects progress, we find that the positive effect is strongest on the former. We believe that these results

are the reflection of the fact that wealthy middle class members are more likely drive material progress in their countries by virtue of their willingness to save and consume more quality goods and services, thus contributing to the creation and expansion of markets as well as the promotion of private investments. Furthermore, our results support the arguments in Chun, 2010; Chun et al., 2011 and Ncube et al., 2011, stating that the expansion of middle class has a positive effect on governments' accountability and financial ability to provide people with basic needs such as access to nutrition, basic health care, personal safety and adequate shelter. In fact, very similar analytical conclusions have been reached in Shimeles & Ncube, 2015 while analysing demographic and health surveys of 37 African countries.

We want to highlight that we find very weak evidence to support the positive role of middle class size for the expansion of non-material aspects of progress. Our results may be an indication of the fact that, although material progress has been made and basic human needs have been increasingly met, an upsurge of African middle class in terms of size has not succeeded in promoting wider access to information, communication or people's potential to fulfill their potential to live good lives, making full use of their freedoms, voice and choice. Structural characteristics that may be common to many African countries, such as relative absence of freedom of choice, lacking social integration, deficiencies in quality education and need for better governance in public services delivery seem to have prevented a sizeable middle class to be catalysts of such non-material aspects of progress, even if this group of people tend to be increasingly related to progressive values that are conducive to gender equality, personal rights and freedom of choice. This is such an important issue that it deserves a deeper and thorough analysis on its own; we intend to build upon our current findings and dig deeper into this particular matter in future research.

Another noticeable finding that we present here is the non-linear effect of middle class size on the different dimensions of social progress. We argue that this results may be somewhat related to the aforementioned seemingly persistent African economic, social and political structures that limit the extent to which increasingly sizeable middle classes are able to be effective catalysts of social progress. The positive effect of middle class shows a decreasing rate, depicting a limit for the positive contribution of size of the middle class.

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Table 2: Results for SPI as explained variable

Variables	Coefficients		Coefficients			Coefficients			Coefficients		
	Stand.	Regular	Stand.	Regular		Stand.	Regular		Stand.	Regular	
Struggling middle class size (2$ - 4$), Lag=2	0.301	0.226									
Squared struggling middle class size, Lag=2	-0.308	-0.004									
Developing world middle class size (4$ - 10$), Lag=2			0.276	0.169	**						
Squared developing world middle class size, Lag=2			-0.391	-0.005	***						
Higher middle class (10$ - 20$), Lag=2						0.374	0.245	*			
Squared Higher middle class, Lag=2						-0.394	-0.005				
Traditional def. of middle class size (2$ - 10$), Lag=2									0.468	0.169	**
Squared traditional def. of middle class size, Lag=2									-0.563	-0.003	*
Optimum middle class size				18%						34%	
Upper IC 95%				27%						46%	
Lower IC 95%				10%						23%	
Control Variables		Yes		Yes			Yes			Yes	
Country-Specific effects		Yes		Yes			Yes			Yes	
R Squared :											
Within		0.6684		0.6739			0.6871			0.7129	
Between		0.5371		0.582			0.494			0.5609	
Overall		0.5398		0.5595			0.4975			0.5634	

   * p-value<0.1; ** p-value<0.05; p-value<0.001

Table 3: Results for Basic Human Needs as explained variable

Variables	Coefficients		Coefficients		Coefficients		Coefficients	
	Stand.	Regular	Stand.	Regular	Stand.	Regular	Stand.	Regular
Struggling middle class size (2$ - 4$), Lag=2	0.297	0.366 **						
Squared struggling middle class size, Lag=2	-0.308	-0.007 *						
Developing world middle class size (4$ - 10$), Lag=2			0.259	0.260 ***				
Squared developing world middle class size, Lag=2			-0.295	-0.006 ***				
Higher middle class (10$ - 20$), Lag=2					0.349	0.376 **		
Squared higher middle class, Lag=2					-0.366	-0.007 *		
Traditional def. of middle class size (2$ - 10$), Lag=2							0.356	0.226 **
Squared traditional def. of middle class size, Lag=2							-0.439	-0.003
Optimum middle class size		25%		23%		27%		
Upper IC 95%		35%		32%		36%		
Lower IC 95%		18%		14%		19%		
Control Variables		Yes		Yes		Yes		Yes
Country-Specific effects		Yes		Yes		Yes		Yes
R Squared								
Within		0.7332		0.7561				
Between		0.0379		0.0534				
Overall		0.0492		0.0429				

* p-value<0.1; ** p-value<0.05; p-value<0.001

Table 4: Results for Foundations of Wellbeing as explained variable

Variables	Coefficients		Coefficients		Coefficients		Coefficients	
	Stand.	Regular	Stand.	Regular	Stand.	Regular	Stand.	Regular
Struggling middle class size (2$ - 4$), Lag=2	0.178	0.114						
Squared struggling middle class size, Lag=2	-0.241	-0.003						
Developing world middle class size (4$ - 10$), Lag=2			-0.114	-0.059				
Squared developing world middle class size, Lag=2			0.332	0.003				
Higher middle class (10$ - 20$), Lag=2					0.187	0.105		
Squared higher middle class, Lag=2					-0.260	-0.003		
Traditional def. of middle class size (2$ - 10$), Lag=2							-0.115	-0.038
Squared traditional def. of middle class size, Lag=2							0.154	0.001
Optimum middle class size								
Upper IC 95%								
Lower IC 95%								
Control Variables	Yes		Yes		Yes		Yes	
Country-Specific effects	Yes		Yes		Yes		Yes	
R Squared								
Within	0.8643		0.8623		0.8613		0.8643	
Between	0.2677		0.2485		0.2659		0.2677	
Overall	0.2275		0.2106		0.2257		0.2275	

* p-value<0.1; ** p-value<0.05; p-value<0.001

Table 5: Results for Opportunity as explained variable

Variables	Coefficients		Coefficients		Coefficients		Coefficients	
	Stand.	Regular	Stand.	Regular	Stand.	Regular	Stand.	Regular
Struggling middle class size (2$ - 4$), Lag=2	0.253	0.202						
Squared struggling middle class size, Lag=2	-0.206	-0.003						
Developing world middle class size (4$ - 10$), Lag=2			0.470	0.306 **				
Squared developing world middle class size, Lag=2			-0.914	-0.012 ***				
Higher middle class (10$ - 20$), Lag=2					0.371	0.258		
Squared higher middle class, Lag=2					-0.344	-0.004		
Traditional def. of middle class size (2$ - 10$), Lag=2							0.775	0.318 **
Squared traditional def. of middle class size, Lag=2							-1.035	-0.005 **
Optimum middle class size				13%				33%
Upper IC 95%				20%				41%
Lower IC 95%				6%				25%
Control Variables		Yes		Yes		Yes		Yes
Country-Specific effects		Yes		Yes		Yes		Yes
R Squated								
Within		0.2499		0.3826		0.2726		0.4436
Between		0.0071		0.0485		0.0076		0.0011
Overall		0.0003		0.0916		0.0005		0.0008

* p-value<0.1; ** p-value<0.05; p-value<0.0