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The middle muddle: Conceptualizing and measuring the global middle class

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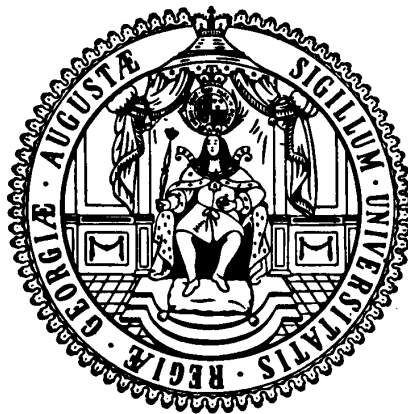
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Discussion Papers

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**The Middle Muddle: Conceptualizing and
Measuring the Global Middle Class**

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The Middle Muddle: Conceptualizing and Measuring the Global Middle Class

Arjun Jayadev, Rahul Lahoti and Sanjay Reddy

October 18, 2015

Abstract

Interest in the emergence of a global middle class has resulted in a number of attempts to identify and enumerate who belongs to it . Current research provides wildly different estimates about the size and evolution of the global middle class because of a lack of consensus on appropriate identification criteria for a person to be deemed to be middle class. We identify three competing and often conflated understandings in the literature on the subject. We further argue that for at least two of these understandings, the literature has been using inappropriate thresholds for identification. Using data from the Global Consumption and Income Project, we provide estimates of the size, composition and evolution of the global middle class for three competing understandings and contrast these to existing estimates.

1 Introduction

Simply put, the American middle class is under great strain today, and the outlook for major improvements in the near future is somewhat grim unless we take action. This is a matter of great concern for our country. The middle class is the backbone of America's economy and its democracy. So the state of the middle class is in many ways a proxy for the state of the union.

Joseph E Stiglitz, Testimony to Congress, February 24, 2015

For Joseph Eugene Stiglitz, whose extraordinary contributions to intellectual enquiry and the pursuit of social justice we honor in this article, the condition and prospects of the middle class have always been topics of great interest. From his earliest work on credit and labor markets to his most recent work on the often savage costs of inequality, the economic and social condition of the middle class has always been an urgent intellectual and political concern, underpinned by his personal origins in Gary, Indiana¹. In this, as with other topics, Joe's insights have contributed immensely to clarifying problems and solutions and to opening lines of enquiry.

The pivotal role of the middle class has, of course, been a long-standing theme in social theory and political analysis, from Aristotle's description of the ideal state as comprising a large middle grouping that moderates political extremes² to modern considerations of the median voter theorem in political and economic decision making. Furthermore, there may be economically instrumental reasons to be concerned about the middle class as the grouping that generates new entrepreneurs, emphasizes economically "useful" values such as education and thrift and is the main source of consumption and aggregate demand for goods and services.

Changing patterns of income and consumption distribution within and across countries have brought these concerns to contemporary popular consciousness. Thus, for example, anxieties about the disappearance of a middle class, increasing job and income polarization and the attendant impacts on social and political stability and on aspirations for individual and collective progress have been an important theme in academic and popular discourse, especially in the U.S. where the 'American Dream' has been seen as being at stake³. At the same time, increased global trade and

¹On the relevance of these origins to his subsequent intellectual trajectory see his Nobel Prize biography, at http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2001/stiglitz-bio.html

²As he put it in his *Politics* "...a city ought to be composed, as far as possible, of equals and similars; and these are generally the middle classes. Wherefore the city which is composed of middle-class citizens is necessarily best constituted in respect of the elements of which we say the fabric of the state naturally consists. And this is the class of citizens which is most secure in a state, for they do not, like the poor, covet their neighbors' goods; nor do others covet theirs, as the poor covet the goods of the rich; and as they neither plot against others, nor are themselves plotted against, they pass through life safely. Wisely then did Phocylides pray- 'Many things are best in the mean; I desire to be of a middle condition in my city?'. Thus, it is manifest that the best political community is formed by citizens of the middle class, and that those states are likely to be well-administered in which the middle class is large, and stronger if possible than both the other classes, or at any rate than either singly; for the addition of the middle class turns the scale, and prevents either of the extremes from being dominant? (See Benjamin Jowett's translation, Book Four, Part XI, <http://classics.mit.edu/Aristotle/politics.4.four.html> .

³Some representative academic explorations of the disappearing middle class, very far from exhaustive, include (Frank, 2007; Esteban and Ray, 1994; Duclos et al., 2004; Pressman, 2007; Stiglitz, 2012; Autor et al., 2008; Wolfson, 1994) . For a characteristic meditation on the impact of the thinning of the middle class on politics and society Ed Luce, 'It's Still the Middle Class, Dumbo', Financial Times, October 4th, 2015

international financial integration, accompanied by reductions in the cost of communication and transportation have resulted in increases in economic interdependence. As one consequence there has been substantial interest in the emergence of a “global middle class”. This grouping, it has been suggested, is a new social formation of world-historical importance, its emergence portending huge implications, for consumption, growth, political dynamics within and between countries, cultural flows and norms, and the ecological health of the planet. The undoubtedly critical changes in the structure of the world economy, in particular in terms of the growing role of the developing countries and of newly affluent populations within them (with the developing countries beginning to account for the majority of global growth beginning in the first decade of the current century), have given great relevance to this question.

Nevertheless, we have a tenuous and contested understanding of the size, composition and evolution of the middle class within given societies and the world as a whole. This is despite great improvement in the availability and quality of relevant data from across the world in the last two decades.

The primary reason for this is that the middle class is a complex and contested concept and one that defies easy conceptual clarity and measurement although this is not always acknowledged. Surveys in the US show a large fraction of people in the upper 10th and the bottom 10th of the distribution often self-identify as ‘middle-class’ (Cashell, 2008; Taylor et al., 2008). . Although this may be an especially pronounced phenomenon in the US, in light of the role within it of the republican ideal of social equality (commented on by early observers such as Alexis de Tocqueville) it is indicative of the difficulties involved in empirical analysis of social concepts that have both “objective” and subjective elements ⁴. Similarly, very small fractions of the population identify as lower or upper class. Even if one were to eschew subjective identification in favor of objective, measurable categories, it is unclear what characteristics to take into account. An individual’s race, education, income, wealth, consumption patterns, family background, manners and habits, and ability to engage in social and political life can all be components of perceived or actual belonging to the middle class and it is certainly not clear how to integrate these different considerations into a single concept.

If identifying a middle class is difficult within a country, problems of identification multiply when trying to capture the middle class in a global context. Even if one were to find broad agreement on the characteristics of middle class living in the US, say, it would not be clear that these ought to be made the same when applied to other high income countries and it would be even less so for other countries. The appropriate criteria to use when going beyond individual countries to determine membership in a cross-national global middle class, spanning diverse social, cultural and political contexts, is all the more obscure. In particular, criteria relating to command over resources may be compatible with separate country-by-country assessment, but criteria relating to the ability to participate in a common social, cultural and political sphere of global interactions, require the identification of the requirements of such participation globally⁵.

⁴Here, of course the distinction between a class-for-itself and a class-in-itself from Lukács and Lukács (1971) is relevant

⁵This is not a simple matter of absolute and relative classification. A given absolutely defined capability (e.g. to be able to participate meaningfully in the sphere of cultural production of consequence to one’s society) may depend on commodity requirements that are relative in the space of commodities and dependent upon specified contextual boundaries. For instance, whereas previously it may have required knowledge of and ability to relate and modify an oral tradition in one’s own language, in today’s global context it might require access to a computer and knowledge of the English language or another prevalent tongue.

Perhaps in light of the difficulties associated with conceptualizing and operationalizing broader sociological interpretations of class efforts by economists aimed at measuring the size of the middle class have usually relied on purely income-based definitions.⁶ These measures include ranges based on absolute income or consumption, incomes relative to the median or to the mean, incomes relative to the poverty line or to a specified percentile or proportion of the income distribution (for example, the middle 40%).

While using an income-based measure within a country may be reasonable for certain purposes and given certain constraints (in particular the severe limitations of internationally comparable data on the intra-national distribution of non-income attainments) doing so in a global context is fraught with conceptual difficulties. A review of the academic and policy literature and the popular press suggests at least three competing definitions of an emerging global middle class that are often inappropriately conflated in the economic literature. Indeed, these may be at the source of the somewhat elusive and seemingly chimerical quality of the global middle class.

First, when speaking about the the emerging global middle class a researcher may be using a purely relative concept, referring to “middle” of the global income or consumption distribution (see for example (Easterly, 2001; Quah, 1996)). This perspective has the most apparent straightforwardness but is not very easy to justify in the global context. It corresponds to absolutely very low thresholds, which might not suffice for even basic attainments, let alone the conditions for meaningful participation in world society.

Second, and more commonly, the emerging global middle class is defined according to absolute income thresholds, as a grouping that enjoys a certain standard of living (e.g. those who now enjoy income levels in their home countries which enable them to be free from severe economic deprivation and to spend their income in ways that reflect broader aspirations as a result of growth) without rising above the threshold of affluence. This idea might be given a justification involving, for instance, freedom from certain forms of material lack combined with discretionary resources for various purposes or the requirements for being perceived as a certain sort of “respectable” consumer or citizen. Absolute money thresholds can still therefore ultimately be linked to contextual considerations. Although economic, social and cultural considerations are complexly linked in relation to this concern, for simplicity we refer to absolute thresholds based on these motivations as corresponding to a “sociological” conception of the middle class.

Third, and perhaps most obscurely, the emerging global middle class is sometimes viewed as a category of persons responsible for constituting a consumer market possessing certain quantitative or qualitative features (e.g. in terms of its contribution to global aggregate demand or the demand of specific industries). We can think of this as involving the idea of middle class as mover (whether or not prime mover). Although these ideas can overlap descriptively and be connected causally, they are distinct.

In what follows we refer to these as Global Middle Class Concept 1, Global Middle Class Concept 2 and Global Middle Class Concept 3 (with apologies to Branko Milanovic) (Milanovic, 2006). These are certainly not the only ways of identifying members of the middle class using economic data but they are prominent in the literature and so we focus on them in order to provide clarification. A

⁶(Bardhan, 1999, 1984) uses broader Marxian categories to analyze Indian class formations. The work of social theorists and others, although enormously influential in sociology, appears not to have much impact in economics (Bourdieu, 2011; Aron, 1950; Parsons, 1940; Runciman, 1974). Some thoughtful recent exceptions include (Atkinson and Brandolini, 2011; Blank, 2010)

focus on any one of these concepts must be suitably justified and moreover what follows, or doesn't, from a specific choice must be understood in order to use them as a basis for generating thresholds for operationalization and measurement.

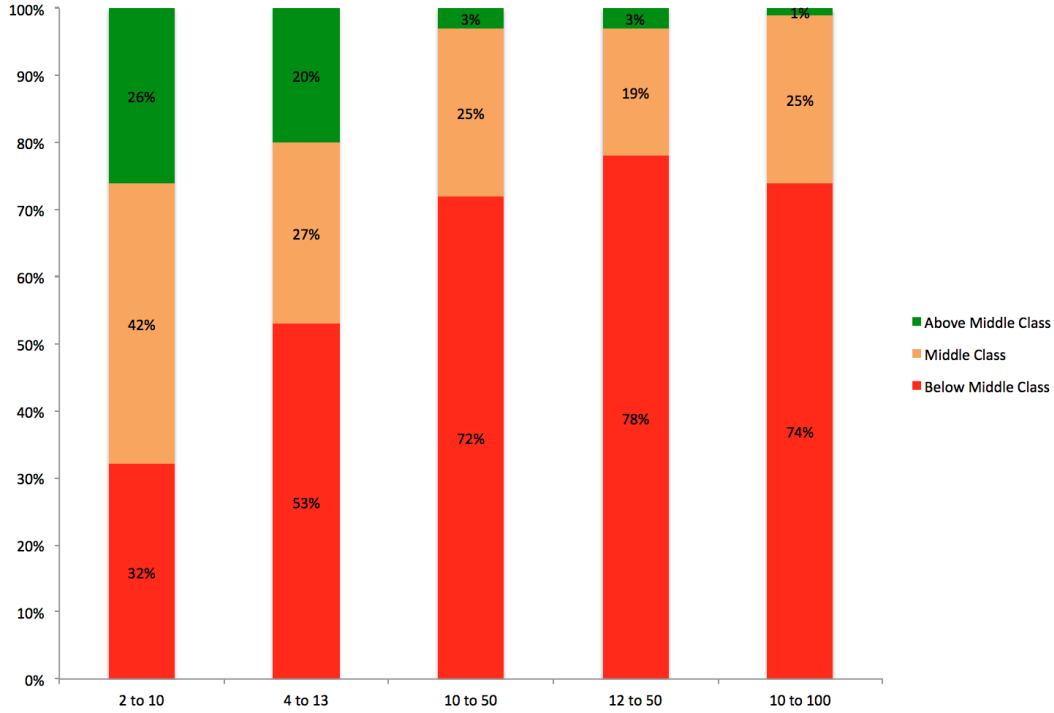
The conceptual underpinnings are important because they form the basis for deciding the thresholds for operationalization and measurement. Perhaps in part because the underlying motivations of the exercise have been both conflated and left unclarified, researchers have employed wildly differing income or consumption thresholds in defining the global middle class. It is interesting in this regard to note that the first two empirical examinations of the global middle class employ income intervals (defined by lower and upper thresholds) that have no overlap! Thus (Banerjee and Duflo, 2008) defines these thresholds as occurring between \$2 PPP and \$10 PPP (in 2005 PPP terms) per day on the grounds that this corresponds to those who are not defined as poor by the World Bank's poverty line thresholds while not being wealthy⁷, while (Milanovic and Yitzhaki, 2002) define the threshold as between \$12 PPP and \$ 50 PPP (in 1993 PPP terms) per day on the basis of the average incomes of Brazil and Portugal respectively. In the recent past, there have been more entrants and contestants in the definition of this group: (Kharas, 2010; Kharas and Gertz, 2010; Lopez-Calva and Ortiz-Juarez, 2014) use \$10 as the lower cutoff for the middle class; with the latter defending this on the basis that at that level, the non-poor in Latin America have only a one in ten chance of returning to poverty (Ferreira et al., 2012). At the upper end, the two differ- with Kharas and Gertz setting it at \$100 PPP per day (The upper bound is chosen as twice the median income of Luxemburg, the richest advanced country) while Lopez-Calva and Ortiz-Juarez set it at \$50 PPP (which excludes only the top 5% of Latin American households) . Ravallion (2010) defines the middle class group as possessing incomes between \$2 PPP and \$13 PPP across the developing world. Nancy Birdsall (Birdsall, 2010) uses a hybrid definition, again choosing \$10 PPP as absolute lower threshold and using a relative cut-off at the upper end by excluding the richest 5 percent of individuals within any country. Researchers from the ILO specify cutoffs of \$4 PPP to \$13 PPP per day (Kapsos et al., 2013). Finally, there are other approaches which eschew dollar values altogether and use indicators such as car consumption (Dadush and Ali, 2012) to identify the global middle class.

Unsurprisingly, these different approaches and intuitions give rise to wildly differing estimates and understandings of the global middle class. Figure 1 shows that the global middle class in 2013 could be as large as 42% of the global population or as small as 19% depending on which of the extant definitions we use. . One might be forgiven for seeing these results as reflecting something of a free for all. There is almost no overlap between the Banerjee-Duflo, Ravallion and ILO definitions on the one hand and the Milanovic-Yitzhaki, Kharas, Birdsall and Lopez-Calva/Ortiz-Juarez definitions on the other. Thus using the (Kharas, 2010) definition suggests that the global middle class includes 1.5 billion people while the (Banerjee and Duflo, 2008) definition would peg it as 2.9 billion. In addition, middle class definitions based on relative incomes add another layer of confusion. As (Birdsall, 2012) notes: "Depending on your point of view, the middle class in Brazil includes everyone in the three middle quintiles (Easterly, 2001) about 114 million people in 2009 or everyone with per capita daily income between \$10 and \$50 (World Bank, 2012) about 61 million people, with an overlap in the case of Brazil in 2009 of only 36 million people." It is of no surprise then that popular articles describe the global middle class as 'elusive' and researchers often dismiss attempts to define it as 'arbitrary'. Needless to say, not only the level but also the regional and national composition and trend over time of the number of persons in the middle class can be greatly affected by the choice

⁷This definition is also used by (Sumner, 2012) in his analysis of the global middle class

of identification criteria, so this is no mere distinction without a difference⁸. If it matters to assess the membership of the global middle class at all, then these sizable variations ought to give reason for concern.

Figure 1: Different Estimates of the Size of the World Middle Class



2-10 (2005 PPP): Banerjee and Duflo (2008) cut offs based on ‘Developing world Middle class’
 10-50 (2005 PPP): Lopez-Calva and Ortiz-Juarez (2014) cut offs based on ‘Latin American Middle Class’
 12-50 (1993 PPP) Milanovic and Yitzhaki (2002) cut offs based on Brazil and Italy comparison
 10-100 (2005 PPP) Kharas (2010) definition based on ‘Developing World Middle Class’

Our purpose in this paper is to suggest that these somewhat pessimistic conclusions are primarily due to an unhelpful conflation of understandings of the global middle class. We wish, therefore, to accomplish two interrelated objectives. First, we seek to clarify possible definitions and understanding of the middle class based on the three categories we have outlined above. All three have a potentially valid underlying motivation, but they are distinct conceptions which direct us to pay attention to different data in different ways.

We will argue that the literature has thus far been using conceptually inappropriate thresholds, especially with regard to Global Middle Class Concept 2 and Global Middle Class Concept 3. For

⁸This dependence of patterns upon thresholds is well-known in the case of poverty assessment, where for instance the choice of a higher global poverty line leads to a much less favorable trend of poverty reduction for recent years (within the prevailing money-metric approach) precisely because it affects the regional composition of poverty and different regions have had very different trends of poverty reduction. See for instance (Jayadev et al., 2015).

Global Middle Class Concept 1, based on population-based relative criteria, we will discuss possible choices of threshold and their motivation, and argue that some are better founded than others. For Global Middle Class Concept 2, based on absolute criteria, we do similarly, and argue that we ought to more carefully identify substantively meaningful ‘middle class-specific consumption baskets’ to obtain a better understanding of its size and evolution across the world over time. Finally, for Global Middle Class Concept 3, after surveying the considerations involved, we suggest that it may not be appropriate to use PPP rates at all and that the appropriate comparison would be to use market exchange rates . Using preferred definitions for each of the concepts, we use material from the newly developed Global Consumption and Income Project to identify the size and composition of the global middle class and its evolution over time based on thresholds that we consider more plausible, although they should still be viewed as highly tentative.

The Global Consumption and Income Project (GCIP) consists of two linked databases- the Global Income Dataset and the Global Consumption Dataset, which together allow for a more detailed portrait of consumption and income of persons over time, within and across countries around the world, than has previously been available. The benchmark version estimates the monthly real consumption and income (in \$ 2005 PPP) for quantiles of the population (a consumption/income profile) of the vast majority of countries in the world (around 145) for every year for more than half a century (1960-2013). For a detailed discussion of the relative strengths and limitations of the dataset, see (Lahoti et al., 2014) . Because of the coverage and flexibility of the dataset, we are able to generate portraits using standard PPP comparisons, but also market exchange rates and other concepts, as discussed in section 4.

2 The Global Middle Class as the Middle of the Global Consumption Distribution

One plausible definition of the global middle class is that it literally involves those who comprise the middle of the global consumption or income distribution. (We focus on consumption here, although our argument also apply to income). The thought experiment here is to treat the world as a country and to identify bounds around a median. This is in essence the approach espoused by Easterly (Easterly, 2001) who takes the middle to refer to those in the middle three expenditure quintiles. The Palma ratio, which can be used to identify the relatively poor as those below the 40th percentile and the relatively rich as those above the 90th percentile, can be used similarly to identify a middle class specified in relative terms as those with expenditure between the 40th and 90th percentile. A third approach associated with Lester Thurow (Thurow, 1987) and subsequently Birdsall et al. Birdsall et al. (2000) is to define the middle as 75% to 125% of the median.

Table 1 identifies the evolution of the global middle class, and the regional contributions to this grouping at three points in time: 1990, 2000 and 2010 as defined by the Thurow criterion. A few points bear mentioning at the outset.

First, when one uses this definition of the ‘global middle class’, the bounds are narrow and more importantly low, from between \$1.23 to \$2.05 in 2005 PPP terms in 1990 to between \$1.47 to \$2.45 in 2000 to \$2.22 to \$3.69 in 2010. Put another way, even in 2015, the vast majority of the world’s population live on less than \$4 in 2005 PPP terms. This has enormous implications for

the global poverty debate. Because this is such a low level of consumption, it seems strange to call someone who has attained it a member of the middle class.⁹ The difficulties of a purely relative interpretation of the middle class in the global context, where this entails very low absolute levels, are made stark.

Second, in an exercise of this kind involving relative ranking, East Asia and the Pacific plays the starring role in terms of movement into the middle class, reflecting (primarily) the very rapid growth of China. While in 1990, 56% of the East Asian/Pacific region was below the middle class defined according to these thresholds (stringent in absolute terms), by 2010, only 33% was below, with the majority (48%) actually being above the global middle class. South Asia's relative ranking had fallen, with 75% being below the threshold of the global middle class in 2010 as compared to 64% in 1990. Seen another way, the East Asia Pacific Region has managed to reduce the absolute numbers of people considered below the world middle class (from 980 million in 1990 to 700 million in 2010), while in South Asia, the reverse has occurred, with 1.2 billion people in 2010 being considered below the world middle class compared to 720 million in 1990. The relative rise of East Asia and the Pacific has come at the expense of all non-OECD regions: only 10% of the Sub-Saharan population is above the middle class threshold in 2010 compared with nearly a quarter in 1990, in the Middle-East and North Africa over 20% of its population in 2010 were considered below the threshold for the middle class compared to only 4% in 1990 and in Latin America, while 83% were over the global middle class threshold in 1990, that number is only 70% in 2010. Interestingly, the share of East Asia and the Pacific in the global middle class has remained the same (around 40% in the global middle are from the region), but the proportion above and below the global middle class has reversed (with 40% above the middle and 20% below in 2010 compared with 20% above and 40% below in 1990). The use of a purely relative thresholds implies that movement into the middle class (in this case of China in particular) necessarily implies that others (such as those living in South Asia and in the Middle East and North Africa or Latin America) must move out of it, either by falling beneath the relative thresholds or rising above them. This could be true even if their incomes had not changed at all, which may seem a somewhat implausible implication of the choice of purely relative thresholds.

Third, despite anxieties as to the Chinese ascent, the relative position of Europe and North America in the global order has barely budged. The whole population of North America has enjoyed and continues to enjoy consumption and income levels above the global middle, while about 90% of Europe and Central does. These numbers have not changed over the entire period under consideration.

Second, since this involves relative rankings, East Asia and the Pacific has been the major mover at the expense of all the other non industrialized regions, reflecting (primarily) the very rapid growth of China. While in 1990, 56% of the East Asian/Pacific region was below the middle class, by 2010, only 33% was below, with the majority (48%) actually being above the global middle class. South Asia's relative ranking has fallen with 75% below the threshold of the global middle class in 2010 compared to 64% in 1990. Seen another way, the East Asia Pacific Region has managed to reduce the absolute numbers of people considered below the world middle class (from 980 million in 1990 to 700 million in 2010), while in South Asia, the reverse has occurred, with 1.2 billion people in 2010 being considered below the world middle class compared to 720 million in 1990. The relative rise of East Asia and the Pacific has come at the expense of all non-OECD regions: only 10%

⁹(see Reddy and Lahoti (2015)<http://ineteconomics.org/ideas-papers/blog/1-90-per-day-what-does-it-say> for detailed explanation of exactly how low this is)

of the Sub-Saharan population is above the middle class threshold in 2010 compared with nearly a quarter in 1990, in the Middle-East and North Africa over 20% of its population in 2010 were considered below the threshold for the middle class compared to only 4% in 1990 and in Latin America, while 83% were over the global middle class threshold in 1990, that number is only 70% in 2010. Interestingly, the share of East Asia and the Pacific in the global middle class has remained the same (around 40% in the global middle are from the region and can), but the proportion above and below the global middle class has reversed (with 40% above the middle and 20% below in 2010 compared with 20% above and 40% below in 1990).

Third, despite the anxieties in the West as to the Chinese ascent, the relative rankings of Europe and North America have barely budged. The whole population of North America enjoys consumption and income levels above the global middle, while about 90% of Europe and Central does. These numbers have not changed over the entire period under consideration.

Taken as a whole then, the story of the global middle class (understood as the middle of the global distribution) in the last 3 decades has been the rapid rise of the (from this point of view, truly) middle kingdom. This can also be seen in the relative positions of distributions as in the Figure 2. The major mover between 1980 and 2010 is China. In 1980, the entire distribution was below every other country depicted. By 2010, nearly the entire Chinese population is ranked higher than the populations of India, Indonesia and Nigeria, and around half its population enjoys a ranking higher than the lower third of Brazil's population. This noted, the entire Chinese population, based on percentile data, is still ranked below the entire population of the US.

3 Global Middle Class Membership as a Sociological Category

Assigning membership to the middle class is a difficult task, but one can certainly imagine some common attributes, sociologically understood, that might broadly inform such a definition: e.g. income of a sufficient level, some income security, ownership of durable goods deemed useful for freeing one from drudgery or for providing social status, some disposable income that can be applied to discretionary consumption and leisure activities, access to technology, some level of school education, the perception of being respectable, the ability to participate with a degree of confidence in the life of one's society and so on.

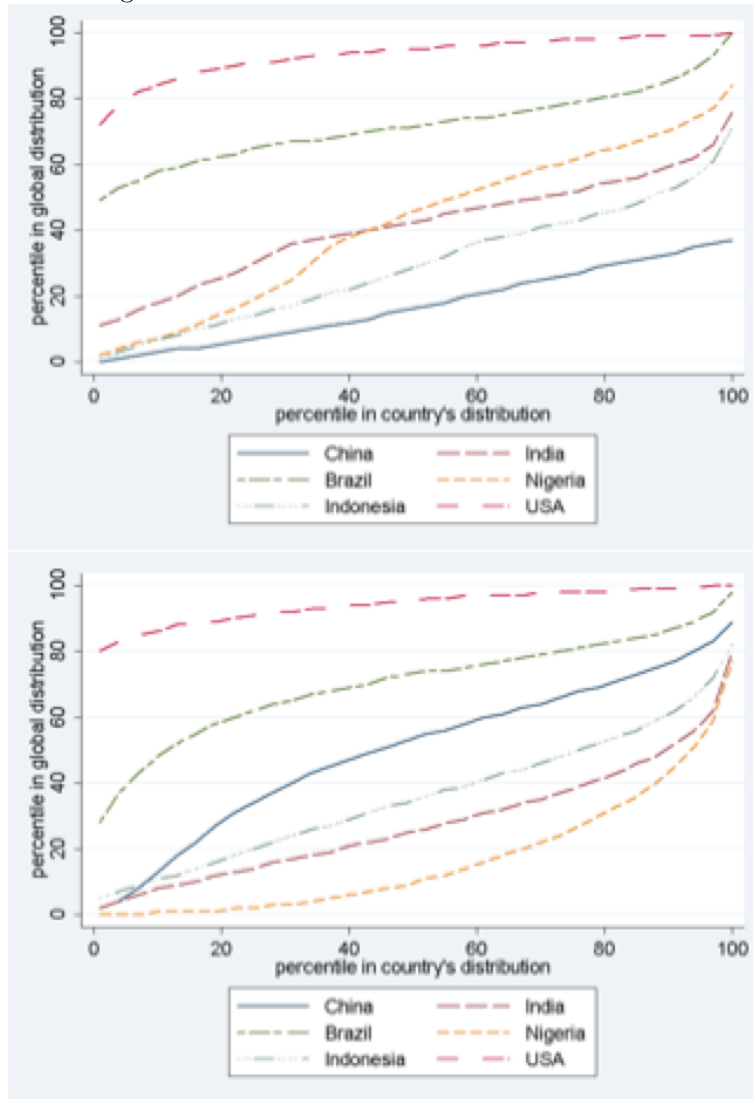
Conceiving of the middle class as a sociological category with an attendant set of economic attributes, without reducing one to the other, is a plausible approach. Indeed, it is at the core of some of the attempts to describe the global middle class. However, trying to do so using a money-metric at the outset, without first attempting to assess what the relevant achievements are (as most studies do) is bound to lead to some difficulties.

This can be made clear by a very simple example. Consider first the lower threshold for membership in the global middle class used by several researchers (\$ 10 PPP per day). This threshold, as noted earlier was chosen because it represented the lowest required level of income to ensure some level of economic security in Latin America according to the researchers concerned. However, think now of that threshold as applied to the numeraire country, the U.S (since the international dollar used to define standard PPPs is deemed by definition to be equal in purchasing power to the U.S dollar).

Table 1: World Middle Class as Defined by 75% to 125% of Global Median

	Below Middle	Middle	Above Middle	Share Below	Share Middle	Share Above	Pop. Below	Pop. Middle	Pop. Above
1990 [1.23-2.05]									
East Asia & Pacific	0.56	0.18	0.26	0.48	0.41	0.2	980334464	315107520	455155264
Europe & Central Asia	0.03	0.04	0.93	0.01	0.04	0.33	24843076	33124102	770135424
Latin America & Caribbean	0.06	0.11	0.83	0.01	0.06	0.15	25751196	47210528	356224896
Middle East & North Africa	0.04	0.19	0.77	0	0.06	0.07	8957002	42545760	172422288
North America	0	0	1	0	0	0.12	0	0	277414016
South Asia	0.64	0.24	0.12	0.35	0.35	0.06	726384896	272394336	136197168
Sub-Saharan Africa	0.55	0.21	0.24	0.13	0.13	0.05	270326624	103215616	117960720
World	0.4	0.15	0.45	1	1	1	2054281984	770355776	2311067136
2000[1.47-2.45]									
East Asia & Pacific	0.44	0.2	0.36	0.36	0.41	0.27	865491200	393405056	708129152
Europe & Central Asia	0.07	0.07	0.86	0.03	0.06	0.28	60196996	60196996	739563136
Latin America & Caribbean	0.07	0.13	0.8	0.01	0.07	0.16	35643844	66195712	407358240
Middle East & North Africa	0.07	0.22	0.71	0.01	0.06	0.07	19211896	60380244	194863520
North America	0	0	1	0	0	0.12	0	0	312932096
South Asia	0.71	0.18	0.11	0.41	0.26	0.06	981358912	248795232	152041536
Sub-Saharan Africa	0.67	0.17	0.16	0.18	0.12	0.04	432635004	109777728	103320256
World	0.4	0.16	0.44	1	1	1	2380606208	952242432	2618666752
2010 [2.22-3.69]									
East Asia & Pacific	0.33	0.19	0.48	0.25	0.4	0.35	700288960	403196608	1018602176
Europe & Central Asia	0.04	0.05	0.91	0.01	0.04	0.27	35475544	44344436	807068608
Latin America & Caribbean	0.12	0.18	0.7	0.03	0.1	0.14	69446688	104170040	405105696
Middle East & North Africa	0.21	0.26	0.53	0.02	0.08	0.06	68326240	84594392	172442416
North America	0	0	1	0	0	0.12	0	0	343331584
South Asia	0.75	0.16	0.09	0.44	0.26	0.05	1205129216	257094272	144615456
Sub-Saharan Africa	0.77	0.13	0.1	0.23	0.11	0.03	645700288	109014328	83857200
World	0.41	0.15	0.44	1	1	1	2747739648	1005270656	2948793856

Figure 2: Relative Rankings of Countries and Percentiles in the World Distribution: 1980 and 2010



The Chinese catch up: Upper panel: Distribution in 1980. Lower Panel: Distribution in 2010. All figures in \$2005 PPP authors' calculation.

Those living on \$10 a day in the U.S cannot conceivably be called middle class. If one presumes a forty hour working week at minimum wage, an individual with \$10 PPP income a day would be making eight times less than the prevailing federal minimum wage, and would be make about a third of of the \$12,071 poverty line specified by the census bureau (not to mention much less than unofficial estimates of the living wage)! It is not a defense, as might be thought of at first, to argue that such a comparison is wrongly using Latin American standards to apply to the US case. While it is certainly true that if a US individual earning \$10 a day were somehow able to teleport to Nicaragua and use the PPP equivalent in local currency, he or she could conceivably have a (low) middle class life (as defined by income security), this is not the counterfactual being considered?we are interested in the number of people enjoying income security *wherever they happen to be in the world*. In addition, it can be shown that the minimum cost of nutritional adequacy alone in the US approaches \$4-5 per person per day (in \$2005 PPP)¹⁰ The remainder in the \$10 assumed adequate for middle class membership could hardly suffice for all the other purposes required.

That this kind of identification problem is not simply the result of inappropriately applying developing country patterns to developed counties can be seen by the application of some of these thresholds to other developing countries. Birdsall’s hybrid definition (Birdsall, 2010) suggests that India has **no**middle class at all (since the entire population whose consumption is above \$10 PPP per day is in the top 5% of the population and hence excluded by her definition). And yet it is evident that there are several dozens of millions of people who enjoy some level of income security, leisure, possess consumer durables; whose children go to school and who have aspirations to a better life and career.¹¹.This tells us, among other things, that there is something wrong not only with the thresholds used but the PPPs.

Why do these thresholds lead to such troubling anomalies? The answer is simply that the cost structures for obtaining a ‘middle class life’ differs from country to country. \$8 PPP in India may be sufficient to generate income security, allow an individual to obtain some consumer durables and attain other capabilities associated with being middle class; but in order to do this, \$10 PPP may not be sufficient in Latin America, and certainly insufficient in the US or elsewhere. The key point is one that has been made with respect to the poverty line debate (see, among others

This presumes, at the first place, however, a careful assessment and definitions of the capabilities associated with the status of middle class, and while this can certainly be contested, it is necessary to do prior to identifying thresholds. Such exercises have in fact been undertaken in different contexts (Atkinson and Brandolini, 2011; Blank, 2010) seeking to identify how individuals could achieve middle class status given different demographic and cultural factors. Another approach that may not require as much deliberation would be to follow the lead of (Deaton and Dupriez, 2011) who use an Engel curve methodology to identify poverty specific PPPs.

Given the computational and deliberative difficulty of these two approaches, we propose here a rough and ready alternative, primarily as a proof-of-concept providing an initial demonstration of what might be done more carefully in the future. Specifically, we define a basic set of goods and services required for entering the ‘middle-class’ life and use an online dataset (Numbeo) (www.numbeo.com) to identify the cost of these goods and services across the world in 2015. Numbeo is a “crowdsourced”

¹⁰see The Thrifty Food plan :http://www.cnpp.usda.gov/sites/default/files/usda_food_plans_cost_of_food/TFP2006Report.pdf.

¹¹Birdsall calls the grouping of Indians who possess incomes of between \$4 and \$10 PPP per day a ‘catalytic class’ which is neither poor nor middle-class

online database that collects self-reported data on a bundle of goods and services from different cities in the world. The database is generated from approximately 2 million self-reported observations across cities in about 130 countries. Data are reported only if there is a sufficient number of observations and outliers (defined as prices that are above the 80th percentiles and below the 20th percentile of all observations for a city) are dropped. Despite these safeguards, given that the data are entirely self-reported their reliability is therefore potentially questionable. In addition, they are likely to be biased upwards given that individuals likely to input data are typically higher income. While Numbeo is not the only dataset that compares a market basket across cities and countries, others available are either proprietary or have much more limited coverage.

Having noted this, we conducted a Spearman rank correlation test of the most expensive cities in the world as defined by the Numbeo cost of living index on the one hand and two proprietary datasets : the Mercer cost of living database and the UBS cost of living database respectively. (We will extend this in subsequent work to the UN International Civil Service Commission Post Adjustment database). The Spearman rank correlation coefficient was 0.63 between Numbeo and the first and an impressive 0.92 between Numbeo and the second, and the test of independence was decisively rejected in both cases. Despite reasonable misgivings therefore, in our judgment there is no a priori reason to reject the data on the basis of quality.

Since our task is to define a middle-class level of material attainment, we begin by defining the floor for the middle class as the threshold at which a person can cover food and living expenses at a certain level. Specifically, we use the Numbeo data for the cost of an ‘Asian’ Food basket required to obtain a day’s consumption (2300 calories) , translate this to monthly costs and add the cost of renting a one bedroom apartment and utilities shared between 2 people. We take the average cost for the living and food basket as specified across all the cities in the Numbeo database to get a country wide estimate of the lower end threshold.

At the other end, to be considered as having achieved middle class status but not to belong to the upper class (i.e. to have not surpassed the middle class ceiling), in our definition a person needs to not be able to afford more than the following market basket of goods: First, a ‘western’ market basket of goods that yields 2300 calories (Numbeo provides this data) for a person for 30 day period. Second, rent and basic utilities for a 3 bedroom apartment in the city center/2 (on the assumption that two people share this three bedroom apartment). Third, the person should be able to afford entertainment defined as a meal at a mid-range restaurant/2 (since the meal in Numbeo is for 2 people) per week and 1 movie ticket per week to an international release for 4 weeks each. Fourth, the person should be able to afford a monthly transportation pass. We use the average across all the cities in each country to generate the average cost of this basket of goods. Anyone whose income is higher than this threshold is considered above the middle class. No provision is made for saving or any other expenditures, and so this is a very conservative range.

The result is that for each country we get a different range in current USD exchange rates associated with the thresholds. This is as we should expect if we are interested in the actual achievements (as we are). The estimates we obtain for the US lead, for example to an interval between \$ 27 per person per day and \$63 per person per day. For India, by contrast, the estimates suggest that to be in this category requires one to have income in an interval between Rs. 345 (at current exchange rates) and Rs. 830. In Germany, the thresholds correspond from 17.4 Euro to 47.6 Euro per person per day at current (2015) market exchange rates.

A few points should be noted. First, the range of thresholds to achieve middle class status as defined

Table 2: Middle Class Threshold as Defined by Numbeo Basket Cost: Selected Countries

Country	Floor(\$)	Ceiling (\$)	% Below	% in Middle	% above
India	5.3	12.7	98.6%	1.2%	0.2%
Pakistan	6.0	15.1	99.2%	0.7%	0.1%
Egypt	6.6	20.8	95.6%	3.9%	0.5%
Bangladesh	6.6	16.4	99.2%	0.8%	0.0%
Uganda	7.7	19.9	99.3%	0.6%	0.1%
Turkey	8.2	20.7	62.4%	31.8%	5.7%
Brazil	8.6	23.4	74.4%	22.0%	3.6%
Mexico	8.9	24.1	78.2%	18.5%	3.3%
Romania	9.0	20.4	90.1%	9.9%	0.0%
Malaysia	9.5	21.8	82.6%	15.4%	2.0%
Kenya	10.4	34.0	98.8%	1.1%	0.1%
South Africa	10.7	25.9	94.8%	3.6%	1.6%
Thailand	11.0	31.0	92.2%	7.3%	0.6%
Portugal	11.9	31.0	35.8%	49.8%	14.4%
Greece	11.9	27.1	21.7%	55.5%	22.8%
Russian Federation	12.4	34.5	91.1%	8.9%	0.0%
Peru	12.7	30.7	91.0%	8.0%	1.1%
Ecuador	13.0	27.3	93.3%	5.5%	1.2%
China	14.1	43.2	92.7%	7.3%	0.0%
Nigeria	15.6	58.8	99.8%	0.2%	0.0%
Spain	15.8	37.2	33.5%	53.7%	12.8%
Germany	19.5	53.4	12.4%	66.4%	21.2%
Sweden	19.7	56.7	12.3%	71.2%	16.5%
Italy	20.0	50.8	40.8%	51.5%	7.6%
France	21.4	52.9	18.5%	64.3%	17.2%
Canada	22.0	48.7	14.3%	51.4%	34.3%
New Zealand	22.1	55.2	0.0%	23.3%	76.7%
Netherlands	22.7	59.6	24.0%	64.1%	11.9%
Denmark	23.0	65.7	7.5%	68.4%	24.1%
Belgium	23.3	57.0	22.2%	62.0%	15.8%
Korea, Rep.	23.4	61.9	57.4%	39.1%	3.5%
Japan	24.4	67.0	31.1%	61.1%	7.8%
Australia	26.3	66.4	12.6%	57.8%	29.6%
United Kingdom	27.5	66.7	18.9%	58.5%	22.7%
United States	27.7	62.3	17.7%	50.0%	32.3%
Norway	31.4	82.7	25.3%	64.4%	10.2%

by the market basket of goods is very wide between countries and within them, when compared at market exchange rates . Second, industrialized countries have a substantial proportion of their population in this middle class (from around 50% in the US to 71%in Sweden). Interestingly, the Anglo-saxon countries have smaller middle classes than continental Europe, but a larger proportion that is above. Another important consideration is that by this measure poorer countries do not have a meaningful middle class to speak of-with only 1 to 2 % of the population enjoying consumption levels that would put them in this range. This is not surprising however, given that the countries are, indeed poorer—but it is also likely partly the artifact of the data collection procedure, since the data are generated from cities which will likely underestimate the number of people who have a middle class lifestyle in countries with larger rural populations. There are also reasons to think that survey data in developing countries may generally underestimate middle and upper class consumption and income, perhaps severely in many cases.

Partly in response to this, we undertake a rudimentary adjustment and define the lower threshold to be .5 times the floor market basket of goods to account for the middle class who are not in cities or who are otherwise under-represented by survey data. This multiplicative factor is admittedly arbitrary and further refinements can certainly be made. Note in particular that for richer countries in which the population does live in cities, this has the effect of including people who are below the threshold required for a middle class basket of goods in urban areas . This measure may underestimate the urban poor in developing countries, potentially counting some of them as belonging to the urban middle class (if we take the view that falling beneath the lower threshold for middle class membership makes one poor, which is a separate taxonomic decision and is not a necessary one; one might, for instance think of some people who are just above the poverty line still not having attained the requirements for ‘respectable’ middle class membership).

At the other threshold, given that people have disposable income for vehicles or clothing or other goods as well as some savings and still be broadly middle class but not affluent according to prevailing perceptions (consider, for instance, a middle-tier civil servant living on her official salary alone), we suggest an expanded threshold of 1.5 times the ceiling required. This multiplicative factor is arbitrary too, but the range of the [0.5 floor basket of goods-1.5 ceiling basket of goods] provides an expanded middle class definition which we think roughly plausible, and informative.

Using this expanded understanding of the middle class, we arrive at another set of estimates by country for 2015 as in table 3:

Predictably, the adjustment leads to a sharp fall in the number of people considered to be below middle class in advanced industrialized countries (often to zero) while expanding the proportion of the middle class in lower income countries. This may be too expansive a definition for advanced countries, but on the other hand may be more effective in capturing the middle class in less urbanized and poorer countries.

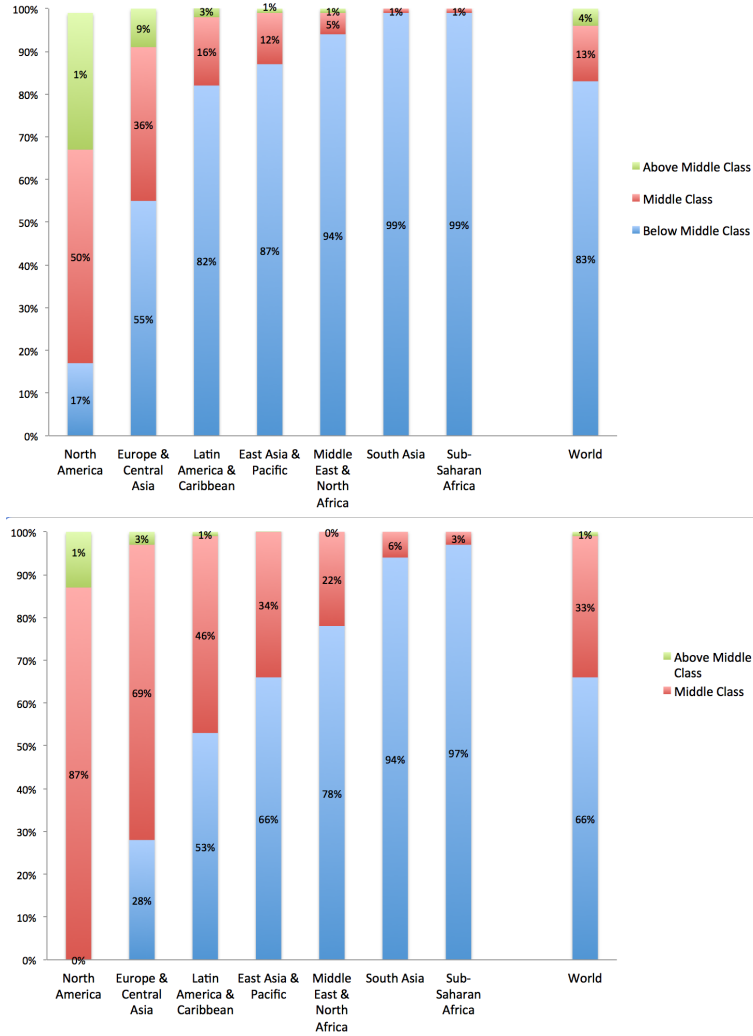
Finally, we can repeat the exercise we did with PPP rates that shows the size and contribution of various regions to the global middle class in 2015 using this achievement based definition of the middle class. The results are in figure 3 below.

The urban middle class thresholds provided by Numbeo suggest a widely variant membership across the world. Overall, only about 13% of the world’s population enjoy this status. Unsurprisingly, North America (with 50% of its population) and Europe with 33% have the largest numbers, while South Asia and Sub-Saharan Africa have very small numbers (on the order of 1%) who attain this

Table 3: Expanded Middle Class Threshold as Defined by Numbeo Basket Cost: Selected Countries

Country	Floor(\$)	Ceiling (\$)	% Below	% in Middle	%above
India	2.7	19.0	93.6%	6.3%	0.1%
Pakistan	3.0	22.6	95.3%	4.7%	0.0%
Egypt	3.3	31.2	83.3%	16.5%	0.2%
Bangladesh	3.3	24.7	95.3%	4.7%	0.0%
Uganda	3.9	29.9	97.2%	2.8%	0.0%
Turkey	4.1	31.0	25.2%	72.6%	2.2%
Brazil	4.3	35.1	39.3%	59.2%	1.5%
Mexico	4.4	36.2	44.6%	53.9%	1.5%
Romania	4.5	30.6	45.0%	55.0%	0.0%
Malaysia	4.8	32.7	41.8%	57.9%	0.3%
Kenya	5.2	51.1	95.0%	4.9%	0.1%
South Africa	5.3	38.9	87.0%	12.1%	0.9%
Thailand	5.5	46.5	70.2%	29.7%	0.0%
Portugal	6.0	46.4	7.1%	87.1%	5.8%
Greece	6.0	40.7	1.2%	91.1%	7.7%
Russian Federation	6.2	51.7	57.3%	42.7%	0.0%
Peru	6.4	46.0	63.0%	36.7%	0.3%
Ecuador	6.5	41.0	74.1%	25.5%	0.4%
China	7.1	64.8	68.9%	31.1%	0.0%
Nigeria	7.8	88.2	98.5%	1.5%	0.0%
Spain	7.9	55.8	6.3%	89.8%	3.9%
Germany	9.7	80.1	0.0%	93.0%	7.0%
Sweden	9.9	85.1	0.0%	95.0%	5.0%
Italy	10.0	76.3	8.0%	89.7%	2.3%
France	10.7	79.4	0.9%	94.8%	4.2%
Canada	11.0	73.0	0.0%	87.2%	12.8%
New Zealand	11.0	82.8	0.0%	48.9%	51.1%
Netherlands	11.3	89.3	0.3%	96.2%	3.6%
Denmark	11.5	98.5	0.0%	92.3%	7.7%
Belgium	11.7	85.6	0.0%	94.8%	5.2%
Korea, Rep.	11.7	92.9	10.4%	88.5%	1.1%
Japan	12.2	100.6	0.0%	97.5%	2.5%
Australia	13.2	99.7	0.0%	89.8%	10.2%
United Kingdom	13.7	100.1	0.0%	92.1%	7.9%
United States	13.9	93.4	0.0%	87.2%	12.8%
Norway	15.7	124.1	0.5%	96.5%	3.0%

Figure 3: Global Middle Class with Numbeo Basket, Basic and Expanded



Upper panel: Distribution for Numbeo Basket. Lower Panel: Distribution for 0.5 lower basket-1.5 upper basket. Authors' calculation.

consumption level. Even if one were to use more generous bounds (as in the second panel), this does not greatly improve the portrait for those two regions. By contrast, with the more expansive bounds, majorities in Europe and North America achieve such a status, while sizeable groups in East Asia, Latin America and the Middle East and North Africa do as well.

4 The Global Middle Class as Consumers of an International Basket of Goods

We move finally to the third, consumer market specific definition of the global middle class. This is a notion that is the staple of the business press: the global middle class defined as those who demand international goods and services¹². Attempts to measure the size of this group in different countries have been varied and use different approaches and regional foci, but all aimed to examine the size of the global consuming middle class (Corrales et al., 2006; Court and Narsimhan, 2010; Dadush and Ali, 2012; Kamakura and Mazzon, 2013).

This is certainly a valid grouping to be concerned with, but it is not entirely clear how to measure their size. If the global elite and possibly the global middle class increasingly consume very similar things, even more similar perhaps than the various "subsistence" levels around the world, then the correct strategy is not to use PPP adjusted measures but simply use exchange rates and identify those who achieve a certain level of consumption of an international basket of goods. If the goods are tradable, one should not expect vast differences in the international cost of these goods across countries. Given that the major interest is in the ability to purchase goods and services that could be afforded by OECD, we estimate the global middle class defined as the middle of the OECD distribution (the middle 40%) of OECD consumption, this time using market exchange rates rather than PPP values. This is in table 4 below.

The startling point to note here is the fact that the (only) movement are within the wealthy countries. Latin America has only about 3% of its population in the OECD middle class; East Asia and the Pacific has only about 7% of its population, while Sub-Saharan Africa and India have none, whether one is using 1990 exchange rates or 2010 exchange rates to compare the relative distributions. Across the world, only 12% enjoy consumption levels of the middle class of the OECD.

The breathless anticipation of the new consumer global order centered in China and other emerging economies, endlessly repeated in the business press then, may be a case of willful self-delusion. But the implications go beyond the fact that multinationals will not find as large markets as the business press has suggested exists in emerging markets. The critical issue from the macroeconomic perspective is that at least in the medium term, one cannot expect any replacement from the rest of the world for consumer demand from the OECD. Given this, if one needs to conceive of sources of global aggregate demand, the consumer in the OECD remains the key element in any sort of rebalancing of demand.

¹²An academic, when interviewed notes for example that "There is a demand argument, and if I were at VW, Nestle, Dunkin' Donuts or Ikea, that's what I would be interested in" (Christian Meyer quoted in (Rosenbaum, 2013)).

Table 4: Global Middle Class as Defined by Exchange Rates

Year	bounds	Below Middle	Middle	Above	Share Below	Share Middle	Share Above	Middle	Share Above	Middle
Year 1990	(bounds \$13.31 to \$25.58 1990 US\$)									
	East Asia & Pacific	93%	5%	2%	37%	21%			11%	
	Europe & Central Asia	46%	30%	24%	9%	60%			64%	
	Latin America & Caribbean	97%	2%	1%	9%	2%			1%	
	Middle East & North Africa	87%	8%	5%	4%	4%			4%	
	North America	22%	41%	37%	1%	28%			33%	
	South Asia	100%	0%	0%	26%	0%			0%	
	Sub-Saharan Africa	98%	0%	2%	11%	0%			3%	
	World	86%	8%	6%	100%	100%			100%	
Year 2010	(bounds \$25.31 to \$48.60 2010 US\$)									
	East Asia & Pacific	93%	4%	3%	33%	18%			19%	
	Europe & Central Asia	65%	23%	12%	10%	43%			32%	
	Latin America & Caribbean	97%	2%	1%	10%	2%			2%	
	Middle East & North Africa	98%	1%	1%	5%	1%			1%	
	North America	19%	40%	41%	1%	29%			42%	
	South Asia	100%	0%	0%	27%	0%			0%	
	Sub-Saharan Africa	98%	0%	2%	14%	0%			5%	
	World	88%	7%	5%	100%	100%			100%	

Table 5: Middle Class using Various Thresholds

Country	GMC1			GMC2			GMC3		
	Below	Middle	Above	Below	Middle	Above	Below	Middle	Above
Brazil	7.8%	16.3%	75.9%	74.4%	22.0%	3.6%	93.9%	4.5%	1.6%
China	35.7%	19.4%	44.9%	92.7%	7.3%	0.0%	100.0%	0.0%	0.0%
France	0.0%	0.0%	100.0%	18.5%	64.3%	17.2%	22.3%	49.5%	28.2%
Germany	0.0%	0.0%	100.0%	12.4%	66.4%	21.2%	25.1%	47.7%	27.2%
India	79.2%	14.3%	6.5%	98.6%	1.2%	0.2%	100.0%	0.0%	0.0%
South Africa	49.0%	18.0%	33.0%	94.8%	3.6%	1.6%	97.6%	1.4%	1.0%
Sweden	0.0%	0.0%	100.0%	12.3%	71.2%	16.5%	21.9%	49.4%	28.8%
United Kingdom	0.0%	0.0%	100.0%	18.9%	58.5%	22.7%	21.6%	44.6%	33.8%
United States	0.0%	0.0%	100.0%	17.7%	50.0%	32.3%	19.4%	40.4%	40.2%

GMC 1: PPP Middle Class (\$ 2005 PPP) for 2010

GMC 2: Numbeo Middle Class (2015)

GMC 3: OECD based global middle class (\$2010 ER, 2010)

5 Conclusion

Joseph Stiglitz has spent a substantial amount of time emphasizing a concern with what really happens in people’s lives and in measuring the quality of life correctly (Stiglitz et al., 2009). We see our attempt in this article as doing precisely that, and trying to disentangle a muddle that has been created by an inappropriate conflation of the many relevant and competing definitions of the global middle class. In doing so we identified three major definitions: the global middle class as the middle of the global income distribution, the global middle class as a sociological category of people who enjoyed some level of common achievement of goods and services and the global middle class as consumers of an international basket of goods. For the second, undertook an analysis which fixed a set of achievements but which allowed a relevant implicit substantive interpretation. This elides some of the problems associated with the use of PPPs. For the third, we showed that the rest of the world still does not have a substantial proportion of people who can replace the OECD middle class as consumers of a global basket of goods when looked at (as is appropriate) with market exchange rates.

That these distinctions have very strong material impacts on the measurement of the middle class within and between countries can be seen in table 5. Depending on the definition for example, the US has anything between 60 and a 100% of its population enjoying an income or above that of the global middle class.

Moving forward, it is important that we obtain more disaggregated and spatially differentiated PPPs and that we fully examine the relevant basket of goods to achieve a middle class status across contexts. Joseph Stiglitz’s concern with a just society has always been a global one. Correctly identifying and understanding the global middle class may be a necessary step therefore to achieving this.

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