

The Capability Threshold: Re-examining the definition of the middle class in an unequal developing country

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Utilising Nobel Prize-winning economist-philosopher Amartya Sen's theoretical Capability Approach, this paper puts forward an alternative perspective on the definition of the middle class, characterizing this group in terms of having achieved a minimum level of economic and social capabilities.

The Capabilities Approach is proposed as an alternative basis for defining the middle class because it is recognised to be unparalleled in its ability to capture the multi-dimensionality and the conceptual complexity of vulnerability and empowerment. We also argue that this approach provides stronger and more robust linkages to the benefits ascribed to this group, such as its role as a stabilising force and an engine for economic growth. The theory of development and self-actualisation underlying this work centres on choice and opportunity, which resonates well with the theories of the middle class that depict members of this group as free, empowered and economically secure, capacitated individuals that are free to realise their own aspirations.

South Africa represents an ideal laboratory for this rival approach because the country has long lacked a substantial social core and is also plagued by extreme inequality, social polarization and political fragmentation. Inequality and poverty are pervasive, with the country having one of the highest Gini coefficients in the world.

To showcase this alternative definition and to test whether it provides more sensible answers in unequal developing country settings than existing definitions, we apply it to two large scale South African data sets, dating from before and after the country's political transition. The application to South Africa is apt because the emerging middle class is pivotal in understanding South Africa's political transition and its journey to a more integrated, dynamic and pluralistic society.

Because South Africa's legacy of apartheid and the subsequent political transition is of interest to many, our research looks towards the past in considering how the size and structure of the middle class has changed in the 15 years following the political transition. However, we also consider what these observed changes mean for the future via the analytical literature that interprets these shifts as a measure of the country's economic and political prospects (Hertova *et al* 2010; Curry-Stevens, 2008; Rivero, *et al.* 2003).

The notion of the middle class is powerful partly because it is linked to significant societal benefits. Schlemmer (2005) characterizes the middle class as one of the two vital components of any country wishing to succeed in today's dynamic and competitive global economy. In fact, he argues that "social organization and a self-confident middle class are the underpinnings of the socioeconomic and political pluralism that gives society the flexibility to adopt economic challenges" (2005: 113). A large and growing middle class is associated with a long list of economic, political and social benefits including social pacification, the support and development of market-based economic practices, growing demand and skills development (Hertova *et al.* 2010:6). In fact, according to Wheary (2009:75) it is "part consumer group and part social force, the new middle class is seen as a symbol of the steady retreat of poverty; an engine of the global economy; a creator of jobs; a new

consumer market; a spur for nations to invest in public infrastructure, roads, and schools; and an advocate for social stability, or in some cases, wholesale change.”

While the concept of the middle class is powerful, there have been considerable obstacles in applying it to developing countries. The middle class has typically been defined using income, occupation, self-identification or a vulnerability approach. Of these, income is the most widely used approach and the range of income measures employed includes percentiles, medians and double thresholds. While the use of such centrist measures clearly has a semantic basis, we argue that because societies in developing countries often lack a strong core a perfunctory analysis of a middle segment of the population (by eliminating the top and the bottom) is unlikely to yield a sensible basis for better understanding a country’s social structure and prospects. Specifically, because much of the interest in the concept of the middle class is due to the societal and macroeconomic benefits associated with a large growing middle class it is problematic that there is little empirical basis for assuming that those who find themselves in the middle of the income distribution in developing countries will for instance represent an important segment of the consumer market or identify with one another or be moderate in their political views.

Given that the notions of freedom and empowerment¹ are at the heart of much of the literature on the benefits of the middle class (Hill, 2003; Alkire and Ibrahim, 2007; Narayan, 2002; Narayan and Petesch, 2007), we propose that it may be most congruent to employ a multi-dimensional measure aimed at capturing the individual’s level of empowerment via proxies for his or her capabilities and functionings. In this regard, the important distinction is between those below and those above some threshold in terms of such capabilities and functionings, and distinguishing further amongst those above this middle class threshold between those who are in the middle and those who are at the top does not contribute much that is enlightening in terms of social and political behavior and contributing towards the perceived benefits for social stability that are associated with being middle class. Moreover, in developing countries the “top” group is by definition small, and the distinction between them and the middle class thus adds little to our understanding. We also argue that this approach offers a more substantive and appropriate definition of the middle class in a developing country context than the traditional centrist and income-based definition of the middle class, borrowed from developed countries. The approach is preferable because it has better conceptual and analytical links to the benefits associated with the middle class, but also because a multi-dimensional measure such as Sen’s Capabilities Approach (Sen, 2003) has a more inclusive information base.

Empowerment can be described as the increased control over the decisions that affect one’s life (Narayan, 2002). The literature suggests that both agency and opportunity structure are necessary to achieve empowerment. Capabilities and functionings act as the cornerstone of agency and the expansion of capabilities and functionings enhances and promotes agency (Narayan, 2002; Alkire and Ibrahim, 2007). However, agency is also affected by the presence and operation of formal and informal institutions – here defined as the opportunity structure (Alsop 2005:9).

¹ The term *empowerment* is commonly used to indicate both a process (of empowering groups or individuals) and an outcome (a person or group is empowered).

Sen makes the important conceptual distinction between *functionings* and *capabilities*. A function is something you do or don't do, or something you are or aren't. That is, *functions* are 'beings or doings'², the different states a person can achieve in their life (Robeyns, 2005; Nussbaum, and Sen, 1993). *Capabilities* represent the opportunity available to realise certain functions from a bundle of potential functions. They reflect whether an individual has the opportunity or the freedom to achieve the functionings of their choice. In this sense, while being educated is the functioning, the opportunity to receive an education is the corresponding capability (Robeyns, 2005; Nussbaum, and Sen, 1993). Functionings can be described as the realisation and capabilities as the opportunity for realisation.

1. Conceptual framework

In line with the theory, we capture empowerment as a basic level of capabilities and functionings. Opportunity structures are present implicitly in our conceptual framework.

Using the literature, we follow the guidelines of Robeyns (2003) and formulate an a priori list of four capabilities that distinguish the empowered middle class from the lower socio-economic groups and are theoretically linked to the economic and political benefits associated with a rising middle class. These four capabilities are: freedom from concern about survival and meeting basic needs; financial discretion and buying power; labour market power; access to information and the ability to process information.

Freedom from concern about survival and meeting basic needs manifests in terms of greater discretion about both time and expenditure. An increasing diversion of focus away from the immediate and the short term is expected to affect behaviour and decision making by extending the individual's time horizon. This is vital in terms of financial behaviour such as saving and investments, but also investments in human capital. Inglehart and Welzel (2009) argue that in the presence of this type of freedom, individuals have the ability to pursue higher level functionings associated with the development of self-expressive values and effective democracy.

Financial discretion and buying power empower individuals through disposable income which increases their choice set. Higher disposable income can boost entrepreneurship, consumption, savings and investment in human and physical capital (Easterly 2001).

Labour market power measures linkages to opportunities in the labour market. Wider and more equitable access to labour market opportunities is expected to enhance allocative efficiency. Additionally, because the labour market is such a crucial institution this is also an important

² Examples of the functions can range from basic to complex, and can be split into 'beings' and 'doings'. Functions of 'being' include being educated, being nourished, being employed, being safe, but can also include negatives such as being hungry, being uneducated and being unsafe. Examples of the second category of functions (the 'doings') include working, having children and taking part in societal organisations (Nayak, 2000).

measure of financial and social inclusion in South Africa's dualistic economy. As a measure of inclusion and integration it is expected to enhance social outcomes.

Access to information and the *ability to process information* influence individuals' choice set and their ability to make informed decisions. An educated and informed public encourages public accountability, which reduces the likelihood of rent-seeking and corruption and promotes good governance and effective management of public resources (Birdsall, 2010). According to Ingehart and Welzel (2009) education and access to information also increase voice and political shrewdness, which is vital for an effective democracy.

2. Empirical estimation

We use two data sets for our analysis: the Project for Statistics on Living Standards and Development (PSLSD) conducted in 1993 and the National Income Dynamic Survey (NIDS) conducted in 2008. Comparability is enhanced because both data sets were conducted by the South African Labour Development Research Unit (SALDRU) and because NIDS used the PSLSD as an outline for their survey.

In searching for empirical proxies for these four capabilities, we often had to resort to using associated functionings and endowments because these are more observable than the underlying capabilities. Based on the variables available in NIDS and PSLSD, we choose ownership of a stove and a fridge to capture buying power and access to electricity³, adequate sanitation⁴ and clean water to represent the fulfilment of basic needs, the presence of an employed person in the household to represent labour market power⁵, literacy to capture the ability to process information and TV and radio ownership to represent access to information. Following the work of Gustafsson *et al.* (2010), respondents with education of 6 years or more were considered literate.

Assuming that capabilities are complementary, we treat each of these dimensions as a necessary condition for individual agency. Consequently, failing to meet any one of the set criteria disqualifies an individual from being classified as middle class. He or she must meet all the conditions to cross the capabilities threshold. We choose this approach because we think this is the best approximation of the relationships between various capabilities, but it does have the added benefit of circumventing the debate about how to apportion weights when summing across dimensions.

There is an inherent tension between the capabilities approach that is individual and the theory of class, which looks at households. As we acknowledge that empowerment has both individual and

³ Access to electricity was defined by considering whether electricity was used for lighting. We find that even if electricity is available, households often prefer to use alternative energy sources for cooking and heating because they are cheaper or the complementary goods required to use electricity for these purposes (e.g. electric stove, or electric heaters) may for many households be too expensive to purchase.

⁴ Adequate sanitation excluded only the no sanitation category and the bucket system

⁵ We did not penalise households that consisted entirely of students and/or pensioners

social dimensions, our capability indicators include both individual level and household level variables.

As indicated earlier, in this analysis we also choose to disregard the upper class. The upper class is less interesting as a subgroup in developing countries because it is relatively thin layer and a less dynamic group, and the transition into the middle class has far more social consequences than the transition between a middle and an upper class. The low membership also introduces difficulties associated with identifying and measuring the upper class.

For the income based approach to estimating the middle class, rather than simply using an arbitrarily drawn threshold, we set the threshold to be such that the proportion in the middle class in 1993 using the income approach would be exactly the same as that which applies to the capabilities approach. We can then compare growth in the size of the middle class between 1993 and 2008 using the same initial size, thus comparing the two approaches. A third approach combines the capabilities approach with a fixed income threshold. The middle class is thus defined as those who meet all the capabilities criteria and have per capita income greater than the Rand equivalent of \$2 a day per person in 1993.

3. Empirical results

Our results show that there was strong growth in the middle class between 1993 and 2008. This pattern holds irrespective of the approach to estimating the middle class. The upward trend remains - whether we approximate middle class via our set of capabilities, income or a combination of the two (the mixed approach). Table 1 shows that based on the capability definition the share of the middle class has grown from 27.8% to 33.5%, a much steeper growth path than what is implied by either the income approach or the combined approach. Given the application of the threshold when using the income approach, as explained above, the size of the middle class in 1993 would by definition be the same under the capabilities and the income approaches. Interestingly, we see that the growth of the middle class was more rapid using the capabilities approach than the income approach (where the 1993 income threshold was maintained). The combined approach, using the capabilities plus an income threshold, applies an income threshold of \$2 per person per day, as discussed earlier, and thus generates a slightly smaller middle class in 1993, and one that grows more slowly.

Approach	1993	2008	Percentage point difference
Capabilities	27.8	33.5	+5.7
Capabilities + income	23.9	26.8	+2.9
Income	27.8	30.5	+2.7

Encouragingly, when we extend this analysis to different subgroups, as will be discussed below, our findings indicate that since the end of apartheid there has been an expansion of the middle class in subgroups that have historically been underrepresented in the mainstream and formal economy. This may suggest that social and economic processes have become more inclusive and now extend more opportunities to these sections of the population.

According to Table 2 both the capability approach and the combined approach show rapid growth in the share of rural inhabitants belonging to the middle class, from 6.2% to 15.9% and from 4.8% to 9.4% respectively. Using the income approach also leads to the conclusion that there has been an increase, but it is small. Table 3 indicates that the rural share of the middle class grew according to the capabilities and the mixed approach, but the income approach contradicts this trend by showing a dip in the rural share of the middle class.

TABLE 2 Middle class membership in rural areas in South Africa, 1993 & 2008		
Approach	1993	2008
Capabilities	6.2	15.9
Capabilities + income	4.8	9.4
Income	10.0	10.9

TABLE 3: Rural share of South Africa's middle class, 1993 & 2008		
Approach	1993	2008
Capabilities	11.1	18.9
Capabilities + income	10.2	14.0
Income	18.0	14.2

Tables 4 and 5 show that following the dismantling of apartheid era racial barriers, there has been a surge in the share of black⁶ South Africans who are middle class, but also in the black share of the middle class. The trend is found across all three of the approaches, but is less pronounced using the income approach. Thus The share of the black population who is classified as middle class according to the capability approach has increased from 12.1% to 28.2%, and there is an increase from 8.8% to 22.1% for the mixed approach, but the increase in the share of black South Africans belonging to the middle class is somewhat lower for the income approach, from 12.1% to 22.3%. Similarly, we see that the black share of the middle class has risen dramatically. Using the capability approach the proportions have risen from 32.2% to 63.1%, but the other approaches also show large increases.

⁶ In line with the definitions used in the two surveys and conventional categorisation in South Africa, the category 'black' includes African individuals and the category 'Coloured' refers to mixed race individuals.

For the Coloured population there is little change in the share of their population classified as middle class, except under the purely income approach. Due to more rapid growth of the black middle class, the Coloured share declined.

For Asians and Whites the tables surprisingly show a decrease in the share that is classified as middle class using either the capabilities or the mixef methods.

Approach	Black		Coloured		Asian		White	
	1993	2008	1993	2008	1993	2008	1993	2008
Capabilities	12.1	28.2	56.6	56.1	80.0	74.6	81.2	67.6
Capabilities + income	8.8	22.1	49.7	47.7	76.8	69.4	80.3	67.6
Income	12.1	22.3	34.5	43.9	67.5	76.7	92.7	91.3

Approach	Black		Coloured		Asian		White	
	1993	2008	1993	2008	1993	2008	1993	2008
Capabilities	32.2	63.1	17.0	14.6	7.9	3.7	42.9	18.6
Capabilities + income	27.4	58.4	16.9	15.2	8.4	4.2	47.3	22.2
Income	35.3	54.9	10.5	12.8	6.7	4.5	47.5	27.8

The steeper growth in the middle class when defined according to a multi-dimensional capabilities approach as compared to an income approach could be attributable to the significant expansion of government services over this period. Table 6 shows trends in each of these capability indicators. There has been notable growth in most of these indicators, confirming previous reports of significant social and economic development over this period.

The only indicator that did not increase over this period is media access, which fell from 89.0% prevalence levels to 87.4%. This decline may be attributable to the crowding out of these two traditional mediums in favour of new technology.

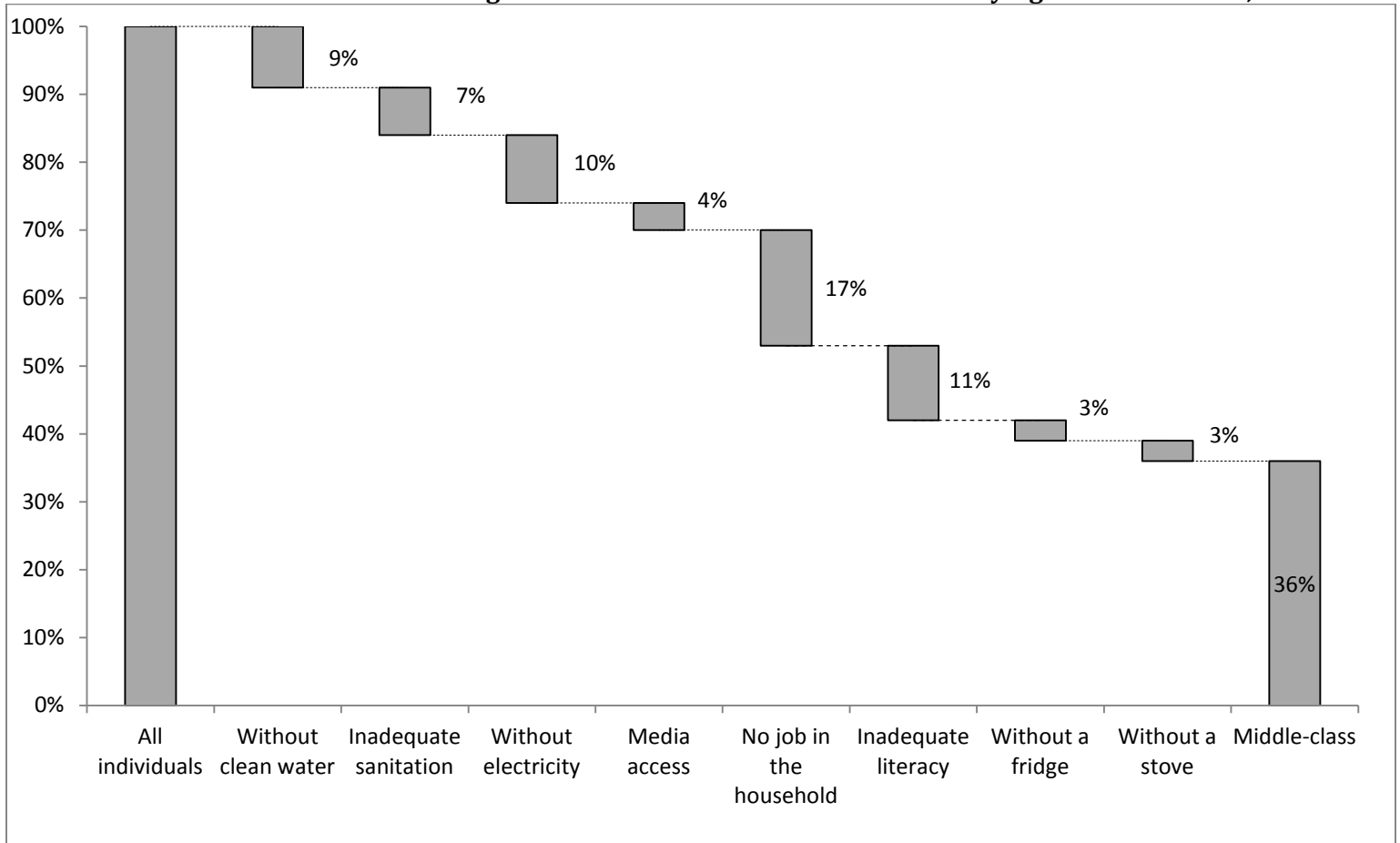
The most notable of these increases is the dramatic rise in the access to electricity from 48.1% in 1993 to 82.3% in 2008. There has also been a steep increase in the ownership of fridges from 43.9% to 60.5% and in stoves from 47.9% to 68.4%; some of this could be associated with the expansion of access to electricity.

TABLE 6: Comparison of dimensions, 1993 & 2008		
	1993	2008
Clean water	85.6%	91.9%
Adequate sanitation	83.0%	90.7%
Electricity	48.1%	82.3%
Media access	89.0%	87.4%
Labour market power	74.4%	74.7%
Basic literacy	68.9%	74.2%
Stove	47.9%	68.4%
Fridge	43.9%	60.5%

The expansion of educational attainment shows up as a rise in basic literacy levels from 68.9% to 74.2%.

The labour market power variable has hardly increased, from 74.4% to 74.7%. This modest increase in the employment indicator may help to explain the observed difference in the pace of growth of the income-based middle class and the capability-based middle class. There is a significant expansion in the middle class when using the multi-dimensional index of capability indicators due to the expanded coverage of basic services, increased literacy and improved access to a range of assets. However, we see almost no change in the likelihood that a household is successfully integrated into the labour market, which would be one of the main drivers of shifts in the income-based middle class.

GRAPH 1: Waterfall chart showing contribution of each indicator in identifying the middle class, 2008



To address concerns that one indicator may be doing most of the work in identifying the middle class, we construct a waterfall chart looking at the share of individuals eliminated through each of the indicators. We first looked at basic services and ordered the remaining indicators according to their prevalence in NIDS 2008, but we reversed the order of stove and fridge because there were no individuals without fridges who had access to all other indicators (clean water, sanitation, electricity, media, employment, literacy and stoves).

It is evident from the graph that there is a fair degree of overlap and consensus amongst the indicators. The largest losses occur through the employment access and literacy criteria, but even these jumps are within reasonable bounds and not dominant.

We also consider the alignment between the capability indicator approach to defining the middle class and the traditional income definition. In an attempt to make the income definition comparable to our capability approach we choose an income cut-off that would classify the same weighted proportion of individuals as middle class as we find with our capability approach in 2008 (33.5%) (see Table 1). There is a lower than expected overlap between the multi-dimensional capability indicator measure of the middle class and a comparable income-based middle class definition. Just over 60% of the individuals who are classified as middle class based on the capability definition are also defined as middle class when using the income definition. Similarly just over 60% of those defined as middle class based on their income are also viewed as middle class when applying the capability approach. Individuals who are members of the middle class based on the capability definition but not according to the income definition are spread over the entire income distribution, with 41% in quintile 3 and 29% in quintile 2. Similarly, amongst those who are members of the middle class based on their household income but do not qualify according to the capability approach, 30% live in households without any employed members, 30% of them do not have 6 years of education, 27% do not own stoves and more than 50% do not own fridges. The analysis shows that there is a large discrepancy between how these two approaches to classifying the middle class and consequently it is important to be cognisant of the definition employed and its assumptions and limitations.

We next use the NIDS data set to analyse the attributes and characteristics of the middle class. In line with the predictions of the literature, we find, using reported perceptions from this survey, that the individuals belonging to the middle class are significantly more likely to be more hopeful, less fearful and happier. However, Table 7 below shows that the middle class hope premiums and fear discounts are small, suggesting that other factors such as personality traits have a far more dramatic impact on the outlook of an individual. Similarly, the middle class report significantly better health, but the differences are also small – in this case presumably because of the dominance of underlying genetics and lifestyle choices. An income-based approach to the middle class fares no better and yields estimates that are surprisingly close to that of the capability indicator approach (see Appendix B).

TABLE 7: State of mind and reported health status of middle class vs. rest, 2008			
	Middle class	Others	Significance Pr>F
Frequently feel hopeful	54.0%	45.4%	0.000
Frequently feel fearful	11.4%	16.1%	0.000
Happiness/life satisfaction (1 to 10)	6.2	5.1	0.000
Self-reported health status (1 to 5)	3.9	3.4	0.000

We also consider links to the formal credit market and financial markets and find that individuals belonging to the middle class are significantly more likely to have access to a loan and insurance; here the differences are notable. Additionally, the middle class are more significantly more likely to own a car and a brick house and less likely to report hunger. These gaps are also large. Again, the income approach yields similar estimates (see Appendix B).

TABLE 8: Loans, insurance and asset ownership of middle class vs. rest, 2008			
	Middle class	Others	Significance Pr>F
Access to loans	25.2%	5.2%	0.000
Access to insurance	73.6%	42.4%	0.000
Owns brick house	71.2%	51.2%	0.000
Owns car	44.7%	9.2%	0.000
Ever went to bed hungry because of lack of food	14.5%	40.7%	0.000

We also consider the overlap between these externally imposed class categorisations and an individual's self-assessed social position. In the NIDS questionnaire all adult respondents were asked to imagine a six step ladder with the poorest people in South Africa on the bottom or first step and the richest people standing on the top or sixth step. Respondents were then asked on which rung of the income ladder they saw their household. While the terms poor and rich would conventionally be interpreted in a narrow sense as referring to income, one could argue that it is conceivable that there is room for broader interpretations, especially given the use of the ladder metaphor. We therefore compare these self-assessed positions with both our capability-based and income-based categorisation of the middle class. According to the capability-based and income-based approach the middle class would constitute the top 30.5% and 33.5% respectively, placing them on the fifth and sixth rung of the ladder.

Table 9 shows that the middle class tend to underestimate their position in society. While the middle class tend to see themselves on ladder rung two, three and four, they would in reality be on rung five and six. Black members of the middle class tend to rank themselves lower than other South Africans and this effect remains when we control for income level and education (analysis not shown here). This is in line with Khunou (2012) and Krige (2012)'s conclusion that young, educated and affluent black South Africans often still feel quite vulnerable. Similarly, Phadi and Ceruti (2011)'s research in Soweto showed that individuals were reluctant to identify themselves as rich and preferred to always see themselves as positioned in the middle of the social distribution, buffered from both sides by a more privileged and less privileged group.

According to Table 9 most members of poor and deprived households see themselves as belonging to the lower three rungs of the ladder. However, we also see that only 18.2% of the non-middle class see themselves on the bottom ladder and we would expect a 25% membership of this category (assuming an equal proportional distribution of non-middle class across the bottom four rungs of ladder). The reluctance to populate the very bottom rung of the ladder and resonates with Phadi and Ceruti (2011)'s findings.

Appendix B shows similar patterns for the income-based middle class.

Ladder rung	Middle class	Others
1 (Lower)	5.7%	18.2%
2	22.8%	41.7%
3	41.9%	30.1%
4	23.1%	8.2%
5	5.4%	1.4%
6 (Upper)	1.2%	0.3%

Due to the association of class with life chances, we investigate difference in the rung where individuals place their households now and where they expect to see their household in two years and five years to calculate measures of medium and long term ambition. We find that on average individual respondents expect to climb one rung higher in the next two years and two rungs higher over the next five years. Contrary to what we expected, we find that these ambition measures are significantly lower for the middle class – for both the medium and the long term. However, this appears to be driven by differences in self-assessed initial position. When we limit the sample to individuals who placed themselves on the 3rd and 4th rung of the ladder, we find that that the middle class tend to be more optimistic than others about their expectations regarding upward mobility.

We also investigate partial correlations between these measures of ambition, per capita income and a set of individual demographic features and geographical attributes including race, age, gender, rural location and province. We find that affluence has a significant and positive association with ambition. Also, black South Africans and the young tend to be more ambitious. This holds for both the full sample and the middle class subsample.

Worryingly, we find that individuals with lower educational attainment tend to be more ambitious. This could be an important finding because it could either represent the influence of education – either directly or indirectly via correlates such as peer effects or parental education – in shaping one’s understanding and awareness of the forces driving social mobility or it could reflect an undervaluation of the contribution of education to social mobility. If it is the latter, this would lead to an underinvestment in human capital.

Either way, this appears to be cause for concern. Capabilities reflect individual freedoms, but without accurate information about how their available choices map to imagined consequences and prospects, young South Africans will not be able to competently navigate their own futures. Surveys rarely capture information about self-advancement strategies and individual expectations of social mobility, yet inaccurate or incomplete information on choices and the pay-offs to choices may prevent many individuals from fulfilling their potential and pursuing their dreams.

Conclusion

Our research shows that there has been a strong rise in the middle class since the transition to democracy in 1993. According to our capability-based approach the middle class has increased from 27.8% in 1993 to 33.5% in 2008.

There have been significant strides in most of the individual capability indicators, including notably electricity's increase from 48.1% to 82.3%, the associated rise in the ownership of stoves from 47.9% to 68.4% and fridge ownership from 43.9% to 60.5%. There has also been sizable expansion in clean water, adequate sanitation and basic literacy. However, access to the labour market has not improved much, with only a slight increase from 74.4% to 74.7%. The flat labour market is also reflected in the more modest estimates of the expansion of the middle class when using the income-based approach. According to the income-based estimates, the middle class rose from 27.8% in 1993 to 30.5% in 2008.

Post-apartheid policies and interventions aimed at reparation appear to have had an impact. The society and the economy have become more inclusive, with rural inhabitants and blacks representing a larger share of the middle class. When employing the capability-based approach, the estimated black share of the middle class grew from 12.1% to 28.2%.

As expected, we find a very high concentration of car ownership and loans amongst the middle class and a very low prevalence of self-reported hunger. The analysis also shows that the members of the middle class are notably and significantly more likely to own a brick house and to have access to insurance. There are also differences in optimism, fear, self-reported health and happiness, with the middle class reporting higher optimism, health and happiness and lower levels of fear. However, these differences are less pronounced than the first set of results. While class and the associated life chances have an influence on emotional well-being and self-reported health, its influence is not dominant.

We also consider where those whom we categorise as the middle class view their position in society and find that they consistently underestimate their rank. However, those individuals that we classify as middle class are more likely to be optimistic about their prospects for getting ahead than individuals who are comparable in terms of the self-ranked positions. We find that black South Africans are more likely than other South Africans to underestimate their own social rank, but are simultaneously also more ambitious in their expectations for the future. It is concerning that less educated individuals tend to have higher expectations of how fast they will ascend the socio-economic ladder. This finding should be further explored because the freedom to make meaningful choices means very little if individuals do not have accurate information about how their choices map to social prospects.

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Appendix A

All answer italicized were coded as 1 and the rest were coded as 0

I. Water

PSLSD Question	Answers/ Unit
What is the source of water used most often in this household for things like drinking or bathing and washing clothes?	<ol style="list-style-type: none"> 1. <i>Piped - internal</i> 2. <i>Piped - yard tap</i> 3. <i>Water carrier/tanker</i> 4. <i>Piped - public tap/kiosk (free)</i> 5. <i>Piped - public tap/kiosk (paid for)</i> 6. <i>Borehole</i> 7. <i>Rainwater tank</i> 8. <i>Flowing river/stream</i> 9. <i>Dam/stagnant water</i> 10. <i>Well (non-borehole)</i> 11. <i>Protected spring</i> 12. <i>Other (specify)</i>
NIDS Question	Answers/ Unit
Household's main source of water	<ol style="list-style-type: none"> 1. <i>Piped(tap) water in dwelling</i> 2. <i>Piped(tap) water on site or in yard</i> 3. <i>Public tap</i> 4. <i>Water-carrier/tanker</i> 5. <i>Borehole on site</i> 6. <i>Borehole off site/communal</i> 7. <i>Rain-water tank on site</i> 8. <i>Flowing water/stream</i> 9. <i>Dam/pool/stagnant water</i> 10. <i>Well</i> 11. <i>Spring</i> 12. <i>Other</i> 13. <i>From a neighbour</i>

II. Sanitation

PSLSD Question	Answers/ Unit
What kind of toilet does the household use?	<ol style="list-style-type: none">1. <i>Flush toilet</i>2. <i>Improved pit latrine - with ventilation (VIP)</i>3. <i>Other pit latrine</i>4. <i>Bucket toilet</i>5. <i>Chemical toilet</i>6. <i>None</i>
NIDS Question	Answers/ Unit
What kind of toilet does the household use?	<ol style="list-style-type: none">1. <i>Flush toilet with onsite disposal</i>2. <i>Flush toilet with offsite disposal</i>3. <i>Chemical toilet</i>4. <i>Pit latrine with ventilation pipe</i>5. <i>Pit latrine without ventilation pipe</i>6. <i>Bucket toilet</i>7. <i>None</i>9. <i>Other</i>10. <i>Bush</i> <p>(There is no 8 in the metadata/data file)</p>

III. Electricity

PSLSD Question	Answers/ Unit
Lighting: main source	<ol style="list-style-type: none">1. Wood2. Paraffin3. Charcoal/coal4. <i>Electricity from grid</i>5. <i>Electricity from generator</i>6. Candles7. Gas from bottle8. Gas from town9. Car battery10. Dry battery11. Dung12. Other
NIDS Question	Answers/ Unit
Household's main of energy/fuel for lighting	<ol style="list-style-type: none">1. <i>Electricity from mains</i>2. <i>Electricity from generator</i>3. Gas4. Paraffin7. Candles9. Solar energy10. Other11. None <p>(There are no 5, 6 and 8 in the metadata/data file)</p>

Appendix B: Tables for Income-based definition of middle class

TABLE B1: State of mind and reported health status of middle class vs. others, 2008			
	Middle class	Others	Significance Pr>F
Frequently feel hopeful	56.9%	43.6%	0.000
Frequently feel fearful	12.41%	16.0%	0.000
Happiness/life satisfaction (1 to 10)	6.3	5.0	0.000
Self-reported health status (1 to 5)	3.8	3.4	0.000

TABLE B2: Loans, insurance and asset ownership of middle class vs. others, 2008			
	Middle class	Others	Significance Pr>F
Access to loans	27.2%	4.0%	0.000
Access to insurance	71.5%	42.8%	0.000
Owens brick house	63.3%	55.0%	0.000
Owens car	47.4%	8.3%	0.000
Ever went to bed hungry because of lack of food	12.0%	41.9%	0.000

TABLE B3: Self-perceived position in society, middle class vs. rest, 2008		
Ladder rung	Middle class	Rest
1	6.4%	18.1%
2	22.8%	41.9%
3	40.1%	30.8%
4	24.3%	7.3%
5	5.1%	1.5%
6	1.3%	0.3%