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# Consumption patterns and the black middle class: The role of assets<sup>1</sup>

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## ABSTRACT

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Black consumption patterns differ from those of whites, even when considering income levels and household size. This applies particularly to the black middle class, the subject of intense public interest. This paper postulates that this difference results not from cultural differences in taste for middle class goods, but from an asset deficit experienced by blacks. We test this hypothesis using regression analysis based on the 2000 Income and Expenditure Survey. Once assets are considered, consumption of middle class goods by blacks even exceeds those of whites. One would then expect blacks to exhibit, compared to whites, (i) an asset deficit, (ii) an asset preference in purchases (to reduce the deficit), and (iii) a lag in consuming other middle class goods (if the asset deficit is not considered). Descriptive evidence, mainly graphical, from the All Media and Products Survey (AMPS) of 2004 provides support for the main hypothesis.

This implies that, for black accruals to the middle class, a stage of asset accumulation would precede a stage of middle class consumption. But once assets have been acquired, the shift in consumption may be quite rapid. There may therefore remain two distinct groups of black middle class consumers: The established middle class (currently still quite small), who have accumulated assets and whose consumption patterns therefore would resemble those of whites; and the new middle class, who may prefer spending to acquire assets..

Keywords: Consumer behaviour, Inequality, Assets  
JEL codes: D3, D12, D63, J15



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# Consumption patterns and the black middle class: The role of assets

## ***1. Introduction***

Although the phenomenon of the rising black middle class has received much public attention in South Africa in recent years, it has generated surprisingly little economic research. This paper compares the consumption behaviour of the emergent black middle class to the middle class of other population groups. The paper therefore provides information on differences in consumption patterns across population groups and, for black households, also across expenditure quintiles and deciles, given that growing intra-group inequality amongst blacks is an important feature of recent South African economic development.<sup>2</sup> In contrast to a view that the black middle class is culturally distinctive and therefore has less taste for goods conventionally associated with middle class consumption, as Simpson (Unilever Institute 2006) postulates, this paper attempts to demonstrate that black consumption of goods commonly consumed by the middle class is not all that different from that of their counterparts from other race groups, *once one controls for historical deficits in assets that still hold back black consumption*. The empirical analysis will show that, if anything, blacks have an even *greater* taste for middle class goods than whites (though less than coloureds and Indians), once the asset deficit has been brought into consideration.

The next section of the paper motivates the focus on black household consumption patterns and also briefly discusses previous consumption studies. Section 3 uses the Income and Expenditure Survey (IES) of 2000 to explore differences in consumption behaviour and living standards for relatively affluent black households, compared to other population groups, and investigates the hypothesis that part of the racial differences in consumption behaviour, given expenditure levels, could be attributed to the historical deficit in assets that even more affluent blacks experienced, given South Africa's racial past. Section 4 then turns to more recent AMPS data (2004) to investigate whether it provides supporting evidence on black consumption to confirm that from the older and somewhat suspect IES 2000 datasets. Section 5 concludes.

In this paper, the term "black middle class" is not defined. Instead, a somewhat arbitrary income or expenditure threshold is used from which the analysis can depart.

## ***2. Background***

### ***2.1 Why focus on black consumption?***

There are numerous reasons why black consumption patterns warrant separate attention. Firstly, little attention has been given to the consumption patterns of the vast majority of the population. Pre-1993 South African Income and Expenditure Surveys conducted by predecessors of Statistics South Africa to determine weights for the consumer price index were focused on metropolitan areas, thus excluding the majority of the black population.<sup>3</sup> As whites dominate total consumption, a focus on aggregate consumption patterns ignores important differences in consumption behaviour between white and black.

A second reason for the focus on black consumption is that consumption patterns may also differ systematically by population group *at a given income or expenditure level*, either because tastes between population groups differ, or because groups have a different history, e.g. of urbanisation or asset accumulation. Most urban blacks urbanised more recently than their white counterparts, or due to apartheid era restriction have not yet accumulated assets (e.g. houses) of a value commensurate with their income levels. Such factors may explain systematically different spending patterns.

Thirdly, a focus on black consumption patterns provides insight into the emerging black middle class, a

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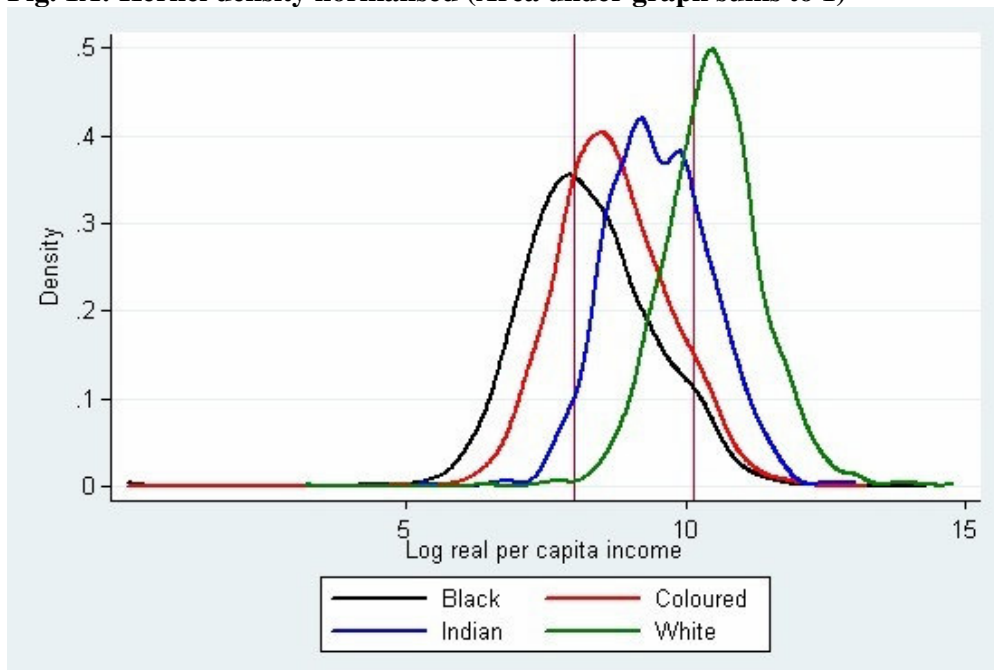
<sup>2</sup> May (2000) and Bhorat, Leibbrandt, Maziya, Van der Berg & Woolard (2001) have shown that the considerable intra-group inequality makes a growing contribution to overall inequality in South Africa.

<sup>3</sup> Price indices were thus also biased, reflecting only price movements as they affected the metropolitan population, despite the fact that rural price movements may be quite different, particularly in the shorter term.. See Bhorat & Oosthuizen (2002) in this regard.

phenomenon drawing much interest from analysts and commentators. Figure 1 shows density curves reflecting the per capita expenditure distribution of blacks and whites, as obtained from IES2000. Figure 1A shows all the kernel densities normalised, i.e. the area below each curve is set to sum to one (integral is one). In this graph, the relative shape and location of the curves for the different groups can best be seen. In contrast, Figure 1B shows the same density curves, but now scaled to population size. This allows a better perspective of the relative size of the different groups, including the numbers in the various income categories. Using R3000 per capita per annum expenditure in 2000 Rand as a poverty line<sup>4</sup>, the vertical line on the left in both figures, 47% of the black population and 1% of the white population is classified as poor. Even though the proportion of whites that are affluent is large and that of blacks is still small, the far larger size of the black population group means that their presence amongst the affluent – here taken to be a per capita income of R25 000 per year, shown by the vertical line on each of the graphs to the right –, is increasingly felt, as Figure 1B shows. This reflects both the gradual shift to the right of the density curve for blacks over time (i.e. an increase in mean income), and inequality amongst blacks, as the shape of the density curve for blacks shows (the slight hump on the right, widening the curve). Removal of restrictions on black upward mobility and affirmative action in employment practices have boosted incomes amongst some black households and stimulated the emergence of a more affluent black class.

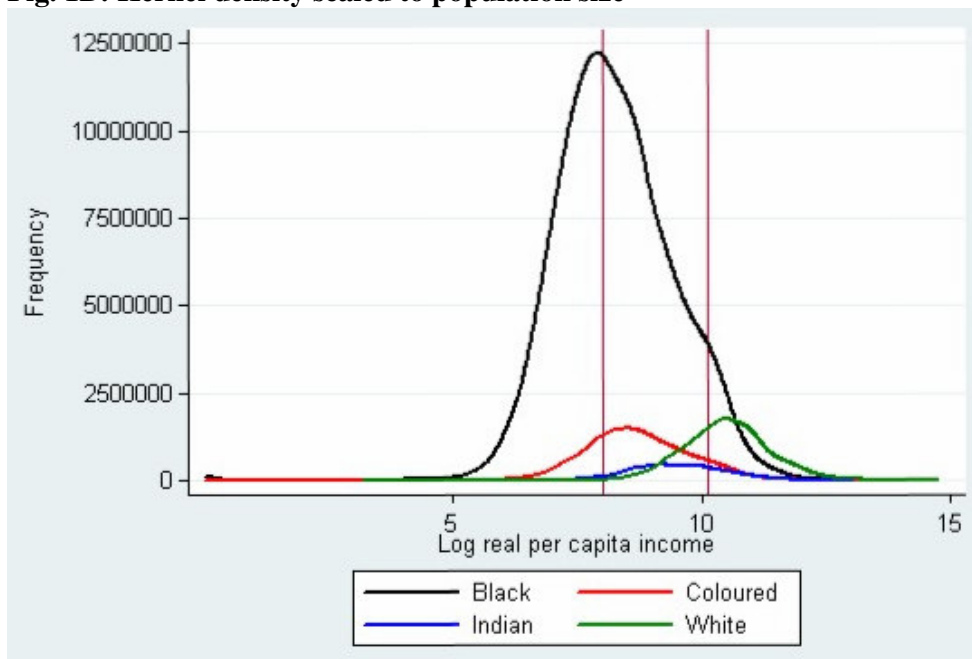
**FIGURE 1: Kernel density functions of per capita income by race, 2000**

**Fig. 1A: Kernel density normalised (Area under graph sums to 1)**



<sup>4</sup> Approximately \$423 per capita per annum at average exchange rates for 2000, 18% higher than the “dollar per person per day” poverty line often used internationally.

**Fig. 1B: Kernel density scaled to population size**



Based on estimates using inter alia AMPS data from different years, the number of blacks in households with a per capita income greater than R40 000 per capita in 2000 Rand-values tripled – approximately half the increase within this income decile – between 1994 and 2004. There was a significant movement of blacks into the per capita income group above R25 0000 per annum, with blacks making up a third of the population in this category in 2004 compared to only 21% 10 years earlier (Van der Berg, Burger, Burger, Louw & Yu 2005). This pace and extent of economic progress thus allows for higher consumption levels, which should be reflected in both increased expenditure and a change in the goods mix.

A number of recent studies undertaken largely from the perspective of the business world highlight the emergence of a black middle class. A report by Merrill Lynch (2004) mentions potential positive economic effect of increased spending amongst black South Africans on the economy and especially on industries servicing the consumption of this group. The report identifies increased economic affluence amongst blacks as one factor driving recent economic growth and giving impetus to the present economic expansion. While Deutsche Bank (2005) agrees that increased expenditure by blacks contributes to the sustained economic growth in South Africa, they contend that it is a lesser factor compared to structural changes in the economy and cyclical factors. Deutsche Bank (2005) nonetheless acknowledges the role of black consumption expenditure in maintaining levels of economic growth. Two studies referred to as the Black Diamond research by Research Surveys for the Unilever Institute generated further attention on issues concerning the emerging black middle class. They identified the black middle class as approximately 2 million well-educated, employed and well-salaried adults of age 18 years and older who collectively commanded 22% of buying power in South Africa (Research Surveys 2006). They also made much of differences in consumption patterns between this group and other middle class consumers, arguing that exploiting this market required a special focus and a different approach. Their perspective that the black middle class has fundamentally different tastes than their counterparts is a view that this paper takes issue with.

Schlemmer (2005) undertakes a more fundamental investigation into the role of the new black middle class, arguing that: “Social organisation and a self-confident middle class are the underpinnings of the socioeconomic and political pluralism that gives society the flexibility to adapt to economic challenges.” (Schlemmer 2005: 113) He shows that the middle class is still relatively small, unless one defines them to include what he considers to be the lower middle class. However, the rate of growth of this middle class has been spectacular, at over 21 percent per year over the decade to 2003, which may even have accelerated since. (Schlemmer 2005: 120)

From the perspective of this paper, though, two of Schlemmer’s insights are particularly useful. *Firstly*, he points out that this middle class is “not yet consolidated and secure in terms of assets, status, and self-image”

(Schlemmer 2005: 126), a point that reverberates with one made later regarding assets in this paper. This group is of “very recent origin” and “clearly the product of very rapid and recent occupational mobility” (Schlemmer 2005: 133). This, in part, explains their “feelings of economic vulnerability” (Schlemmer 2005: 137), which may lie behind efforts to consolidate their status within the middle class, inter alia by asset acquisition, as this paper argues. *Secondly*, Schlemmer points out that the black middle class is being augmented by “rapid accruals” (Schlemmer 2005: 133) of new entrants all the time, so that it may take some time for them to develop an own identity. This links with another point later made in this paper, that the black middle class is likely to have two distinct sub-groupings for some time to come, those who have recently joined and those who are longer established in the middle class; consumer patterns are likely to reflect this, as will be argued.

While consumption expenditure has increased amongst blacks in South Africa, it will be shown that consumption patterns in this group are in some respects inconsistent with patterns in other race groups, specifically white households, with similar income levels. While expenditure on certain goods is higher amongst black households, the existence of an asset deficit may explain the expenditure inconsistencies and lower levels of expenditure for certain middle class items. Can the deferment of expenditure on middle class items perhaps be explained by expenditure directed to establishing an asset base commensurate with their income levels? If so, what are the differences in the asset base?

## 2.2 Past studies

To the authors’ knowledge, the only extensive analysis of South African consumption patterns yet undertaken based on any of the three major expenditure surveys (the 1993 LSDS, IES1995 and IES2000; these surveys are further discussed in Section 3 below) was by Anne Case (1998), in work that has thus far remained unpublished. As in this study, she also concentrated on black consumption patterns, basing her work on data from the LSDS, the only survey to incorporate some price data. She found that blacks bought lower quality foods, thus they faced far lower average prices (Case 1998: 2-3). This indeed raises a question about the assumption later employed in this paper, that the law of one price holds.

Case’s results regarding mean expenditure share, expenditure (income) elasticities and price elasticities for blacks and whites are presented in Table 1.<sup>5</sup> Note, however, that her elasticity estimates were not simple Engel curve relationships, but were obtained within a linear expenditure system that included price data and are thus not strictly comparable to those in this paper. Case’s study emphasised the high expenditure share of food for blacks (52.2%, versus 20.9% for whites) and of housing for whites (30.0%, versus 11.1% for blacks). She found no evidence of inferior goods amongst blacks in the items she investigated, whilst only fuel was an inferior good for whites. Amongst wealthier blacks, food, fuel and schooling displayed the characteristics of necessities (expenditure or income elasticity below 1). Demand was only price inelastic for the three items where the expenditure share was much higher for blacks – food, fuel and alcohol/tobacco.

**TABLE 1: Expenditure shares, expenditure and price elasticities for selected items for blacks and whites, 1993 – as estimated by Case**

|                  | Blacks            |                        |                  | Whites            |                        |                  |
|------------------|-------------------|------------------------|------------------|-------------------|------------------------|------------------|
|                  | Expenditure share | Expenditure elasticity | Price elasticity | Expenditure share | Expenditure elasticity | Price elasticity |
| Food             | 52.2%             | 0.66                   | -0.88            | 20.9%             | 0.73                   | -0.84            |
| Fuel             | 5.3%              | 0.34                   | -0.43            | 0.2%              | -0.32                  | -0.36            |
| Housing          | 11.1%             | 1.61                   | -1.79            | 30.0%             | 1.10                   | -1.14            |
| Alcohol/Tobacco  | 4.2%              | 0.67                   | -0.84            | 2.7%              | 0.62                   | -0.7             |
| Clothing         | 4.6%              | 1.04                   | -1.28            | 3.4%              | 0.86                   | -0.95            |
| Personal items   | 3.1%              | 1.28                   | -1.57            | 5.4%              | 0.93                   | -1.01            |
| Transport        | 5.5%              | 1.43                   | -1.71            | 7.2%              | 1.03                   | -1.14            |
| Medical expenses | 0.7%              | 1.48                   | -1.83            | 2.8%              | 1.10                   | -1.21            |
| Savings          | 2.0%              | 1.57                   | -1.91            | 3.4%              | 1.28                   | -1.41            |
| Insurance        | 1.0%              | 2.53                   | -3.05            | 8.8%              | 1.34                   | -1.43            |
| Schooling        | 2.4%              | 1.46                   | -1.79            | 3.0%              | 1.50                   | -1.64            |
| Entertainment    | 0.3%              | 1.97                   | -2.45            | 1.2%              | 0.98                   | -1.08            |
| Others goods     |                   | 0.98                   | -1.1             |                   | 0.99                   | -1.02            |
| N                | 6 410             | 4 801                  | 4 801            | 1 337             | 838                    | 838              |

Source: Case 1998: Tables 1 & 2

<sup>5</sup> Case did not estimate these magnitudes for coloureds and Indians, probably due to the small size of these samples.

Case used non-parametric methods to estimate elasticities, thus enabling her to estimate separate expenditure elasticities over the full range of incomes. In this regard she concluded that for three items – food, fuel and transport – the differences in budget share between population groups appeared to be explained almost entirely by differences in the log of income per household (Case 1998: 5).

Koch (2005) used IES2000 data to apply an Almost Ideal Demand System (AID) and a Modified Almost Ideal Demand System (MAID). His results were confined to single person households (to reduce the effect of heterogeneity) and he focused on the white and black population groups only. He concluded that the distributional assumptions for applying such models were violated in the South African context. Interestingly was the evidence of a bimodal distribution of expenditure shares, which “...implies two different populations, which may have very different behavioural properties” (Koch 2005: 13). Furthermore, the gains from such an approach were reduced by the high level of aggregation necessary for the restrictions in an expenditure system to hold and to give better results than a simple single-equation (Engel curve) model as used in this paper. (He classified expenditure into either four or six commodity groups.). Nevertheless, his results were suggestive: There appeared to be systematic differences in the expenditure elasticities of consumption expenditure between whites and blacks for the expenditure categories identified (see Koch 2005: Table 4, but also see Tables 2 and 3).

### 3. Evidence from the Income and Expenditure Survey of 2000

Most analysis of South African consumption patterns has been driven by marketing needs rather than a desire for economic understanding of the factors influencing consumption behaviour. The Bureau for Market Research has generated many datasets for these purposes, often focused on particular population groups and cities or regions. Earlier official income and expenditure surveys, conducted to determine weights for the calculation of consumer price indices, were confined to metropolitan areas. The income data obtained as a by-product of these surveys were analysed by economists interested in income distribution, but expenditure patterns received limited separate attention. However, in recent years the usefulness of expenditure data has become clearer. Three important surveys contributed to this: the 1993 Living Standards and Development Survey, conducted with World Bank involvement; and both the 1995 and the 2000 Income and Expenditure Surveys (hereafter IES95 and IES2000) by Statistics South Africa (StatsSA), replacing the old metropolitan IES and linked respectively to the 1995 October Household Survey and the 2000 Labour Force Survey.

Two datasets are used in this paper, viz. the merged Income and Expenditure Survey 2000 and Labour Force Survey 2000 (IES/LFS2000) and the All Media and Products Survey 2004 (AMPS 2004). The IES/LFS2000 provides the most recent expenditure data for South Africa<sup>6</sup> and is half a decade more recent than IES95, thus it is the preferred dataset for anyone interested in current consumption patterns. This is all the more true where interest lies in black consumption, which is likely to have evolved considerably since the political transition in 1994. IES2000 is a sample survey of about 30 000 households, with detailed information on demographic aspects, work status and actual expenditures for households. It also contains limited information on the presence of certain goods in the household. The AMPS2004 dataset has a different focus, and will be discussed in Section 4 below.

We now turn to the somewhat older but more detailed IES2000 data. As part of the focus on living standards and consumption patterns in *black* households, a comparison is made between black households and their counterparts in other race groups, specifically white households, for certain goods. Table 2 below shows the demographic profile, income and expenditure per capita, consumption patterns and assets for each of the four population groups from the IES2000 dataset. For a deeper understanding of expenditure patterns in black households, the data for black households is also divided into expenditure quintiles, with the upper quintile (the affluent) then further disaggregated into two upper deciles. This allows for a quantitative representation of the consumption of certain goods across income groups within black households. There are clear patterns in terms of socio-economic indicators and consumption patterns across black expenditure groups, with the richest two deciles exhibiting income and expenditure levels per capita more in line with the established middle class in other groups. Despite the similarity in per capita expenditure *levels*, however, the top black quintile's expenditure *patterns* differ considerably from that of average Indian and coloured households and also display greater

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<sup>6</sup> Research on this dataset brought to the fore considerable problems, which have been documented elsewhere (Van der Berg et al. 2005). However, using various methodologies to deal with potential measurement error, this analysis showed that, provided the analysis is at a high enough level of aggregation, measurement error did not invalidate the conclusions drawn from simple OLS regressions on the data.

divergence from white expenditure than households from these other two groups do.

Note that the richest two black deciles show higher levels of urbanisation than for other blacks, a greater prevalence of single households, fewer female-headed households, and that their income and expenditure levels lie somewhere between the means for coloureds and Indians. There are, however, a significantly larger proportion of single households within the black affluent groups. This may be indicative of young, well-educated professionals postponing marriage to pursue an improved standard of living without wishing to dilute their incomes over more household members by setting up own households. Car ownership is surprisingly low amongst affluent blacks with fewer than 22% reporting ownership of such an asset compared to 23% of all coloured households, 60% of all Indian households and 86% of all white households. The black food expenditure ratio declines consistently across the income spectrum, in accordance with Engel's law, but unlike the findings of Case referred to earlier, the housing expenditure ratio rises across the black economic spectrum. Clothing is one expenditure category where black expenditure patterns appear to be particularly different from that of other groups. For the individual clothing categories shown, the expenditure ratio rises over the black income spectrum and then even exceeds that of other population groups. For clothing spending as a whole, however, there is first a rise and then a decline amongst blacks, implying a changing mix of clothing spending across the spectrum. Car ownership and access to grid electricity rise with socio-economic status, as expected, but the asset indices (discussed below) are only higher in the top quintile, or in the top two quintiles in the case of the broader general asset index that also includes education as human capital asset.

This raises the question of what lies behind the apparently distinct consumption behaviour of more affluent blacks compared to their counterparts from other population groups. Various factors may account for different consumption patterns:

- Socio-economic status, reflected in aggregate expenditure levels per capita, would be reflected in Engel equations showing patterns of consumption changing with expenditure (or income).
- Household size may also have played a role, but as with socio-economic status, this should be captured in Engel curve relationships (see Section 4.2 below).
- Possible differences in tastes could be captured in a race dummy showing a different intercept of Engel curves for blacks than for other groups.
- Black expenditure patterns may also differ systematically from those of other population groups at comparable levels of expenditure, not primarily because of differences in tastes, but because blacks have accumulated an asset deficit under apartheid which still influences their expenditure *patterns* even when taking into consideration their expenditure *levels*. This is intimated by values for the asset indices in Table 2 showing that even the richest quintile of blacks experience an asset deficit compared to the mean for coloureds and Indians, who have similar per capita income or expenditure levels. This possibility, that the pattern of consumption differs by race, but that differences in historical factors (an asset deficit) rather than differences in culturally determined taste largely explains surprisingly low black expenditure on certain middle class goods, is the central hypothesis that will be tested in this paper.

Further investigation of differential consumption patterns using Engel curve analysis had found clothing, car fuel, cereal and telephone calls to be luxury goods for the entire population (Nieftagodien 2005). These goods' estimated income elasticities were also higher for the black population. We thus postulate that the heterogeneity in expenditure patterns between black and white households in the same income categories may result from an asset deficit in black households – in an attempt to reduce the deficit, black household may now be establishing an asset base. Hence black consumption patterns may not be consistent with that of other race groups at similar income levels. While racial and cultural differences that affect taste may also contribute to observed differences in expenditure at higher income levels, the hypothesis to be tested is that the explanation for differences may be largely sought in historical factors such as asset ownership. In more concrete terms, and because the interest here lies in explaining behaviour of the *black middle class*, the hypothesis is formulated as follows: *Blacks consume less middle class goods than members of other race groups with similar incomes and other household characteristics, but largely because*



*they experience an asset deficit.*

To formally test this hypothesis, it is first necessary to construct an index of asset holdings, in order to test whether assets affect luxury consumption, and then to identify a set of middle class goods. An *asset index* and a *financial asset index* were constructed for the full population and for each race group using the iterated factor principal method<sup>7</sup> employed by Filmer and Pritchett (2001) and Sahn and Stifel (2000). By using these indices in regression analyses, further insight can be gained into the effect of assets (or the lack thereof) on expenditure patterns across race. The asset index was constructed using 61 dummy variables created from assets within the dataset. These variables include cellular telephone ownership, car ownership and materials from which the dwelling was constructed. The financial asset index includes dummy variables for having insurance policies and retirement policies.<sup>8</sup> The values of the mean asset index and financial asset index generated indicate that blacks were indeed experiencing a deficit in terms of the assets measured by the index. While the upper black decile's asset base was similar to that of coloured households and their financial asset index much higher, they were still lagging far behind white and Indian households with respect to both.

The “middle class goods” item included in Table 2 is an aggregation of all expenditure on goods disproportionately purchased by whites (i.e. with an expenditure share in excess of 39.59%, the aggregate white expenditure share). Thus, the “middle class goods” are those where whites, the most established middle class groups, dominate expenditure to a greater degree than the average. In total, 189 such items were identified. These items include food and beverage items, cellular telephone contracts, computers and various recreational activities and equipment.<sup>9</sup> As the purpose of this categorisation is to aid in identifying expenditure patterns between race groups whilst controlling for the asset base, *durables items were not included in the middle class goods list*, i.e. there was no overlap between the goods identified as middle class goods and the asset index. Given the economic backlog amongst black South Africans, it is expected that their pool of assets are not similar to their counterparts within the same income levels.

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<sup>7</sup> See Van der Berg et al (2003) for a concise description of the technique.

<sup>8</sup> See Appendix Tables A1 and A2 for list of variables used.

<sup>9</sup> See Appendix Table A3 for list of selected variables used.

**Table 2 – Selected socio-economic data and expenditure ratios by race and black expenditure quintiles, 2000**

|  | Black        |              |               |               |               |               | Black         | Coloured      | Indian        | White         |
|--|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|  | Quintile 1   | Quintile 2   | Quintile 3    | Quintile 4    | Decile 9      | Decile 10     |               |               |               |               |
| Share of population                        | 20.00%       | 20.00%       | 19.98%        | 20.02%        | 9.99%         | 10.01%        | 76.32%        | 8.00%         | 2.43%         | 13.05%        |
| Urban                                      | 23%          | 36%          | 53%           | 64%           | 72%           | 69%           | 49%           | 79%           | 97%           | 91%           |
| Single households                          | 15%          | 14%          | 11%           | 11%           | 21%           | 37%           | 16%           | 3%            | 2%            | 2%            |
| Female headed households                   | 56%          | 52%          | 41%           | 33%           | 22%           | 16%           | 40%           | 30%           | 18%           | 17%           |
| Mean Expenditure                           | 5649         | 10098        | 14180         | 20793         | 35080         | 69994         | 20659         | 41085         | 69635         | 149615        |
| Std deviation of mean of total expenditure | 3204         | 5457         | 9139          | 15691         | 26944         | 87458         | 35389         | 48784         | 65943         | 246215        |
| Car ownership                              | 0.6%         | 1.8%         | 4.4%          | 8.8%          | 13.5%         | 29.3%         | 7.4%          | 23.0%         | 59.6%         | 85.5%         |
| Grid electricity                           | 34.3%        | 45.9%        | 53.9%         | 51.2%         | 50.6%         | 55.9%         | 47.7%         | 72.1%         | 79.1%         | 87.3%         |
| <b>Mean asset index</b>                    | <b>-0.91</b> | <b>-0.68</b> | <b>-0.39</b>  | <b>-0.10</b>  | <b>0.26</b>   | <b>0.54</b>   | <b>-0.33</b>  | <b>0.58</b>   | <b>1.15</b>   | <b>1.37</b>   |
| <b>Mean financial asset index</b>          | <b>-0.59</b> | <b>-0.50</b> | <b>-0.38</b>  | <b>-0.26</b>  | <b>-0.07</b>  | <b>0.35</b>   | <b>-0.312</b> | <b>0.163</b>  | <b>0.96</b>   | <b>1.579</b>  |
| <b>Expenditure share:</b>                  |              |              |               |               |               |               |               |               |               |               |
| Food                                       | 56.75%       | 48.76%       | 40.84%        | 31.35%        | 21.78%        | 11.90%        | 27.52%        | 23.67%        | 19.42%        | 10.34%        |
| Housing                                    | 1.48%        | 2.28%        | 3.85%         | 6.56%         | 11.21%        | 15.00%        | 9.15%         | 12.86%        | 14.71%        | 13.94%        |
| Clothing                                   | 3.86%        | 4.34%        | 4.71%         | 4.51%         | 4.01%         | 2.75%         | 3.81%         | 3.19%         | 2.47%         | 1.39%         |
| All other exp                              | 37.90%       | 44.62%       | 50.59%        | 57.58%        | 63.00%        | 70.35%        | 59.53%        | 60.27%        | 63.41%        | 74.39%        |
| Electricity                                | 2.44%        | 2.96%        | 3.35%         | 2.82%         | 2.13%         | 1.46%         | 2.31%         | 3.13%         | 3.59%         | 2.12%         |
| Maize                                      | 11.84%       | 6.73%        | 3.71%         | 1.96%         | 0.97%         | 0.42%         | 2.52%         | 0.39%         | 0.15%         | 0.10%         |
| Grain                                      | 24.23%       | 17.96%       | 12.98%        | 8.57%         | 5.18%         | 2.34%         | 8.26%         | 4.67%         | 3.65%         | 1.47%         |
| Cereal                                     | 0.01%        | 0.03%        | 0.10%         | 0.14%         | 0.18%         | 0.14%         | 0.12%         | 0.25%         | 0.27%         | 0.18%         |
| Meat                                       | 7.96%        | 8.84%        | 8.71%         | 7.44%         | 5.39%         | 2.87%         | 5.88%         | 6.46%         | 4.57%         | 2.60%         |
| Men's clothing                             | 0.56%        | 0.89%        | 1.34%         | 1.59%         | 1.69%         | 1.31%         | 1.36%         | 1.04%         | 0.94%         | 0.47%         |
| Women's clothing                           | 0.92%        | 1.24%        | 1.51%         | 1.59%         | 1.27%         | 0.81%         | 1.19%         | 1.31%         | 0.97%         | 0.64%         |
| Boys clothing                              | 1.05%        | 1.04%        | 0.88%         | 0.64%         | 0.47%         | 0.32%         | 0.60%         | 0.37%         | 0.25%         | 0.13%         |
| Girls clothing                             | 0.95%        | 0.86%        | 0.68%         | 0.50%         | 0.42%         | 0.24%         | 0.48%         | 0.34%         | 0.23%         | 0.12%         |
| Car fuel                                   | 0.09%        | 0.25%        | 0.72%         | 1.62%         | 2.08%         | 3.04%         | 1.84%         | 2.47%         | 4.14%         | 3.44%         |
| Private telephone calls                    | 0.17%        | 0.30%        | 0.44%         | 0.53%         | 0.46%         | 0.39%         | 0.42%         | 1.23%         | 1.42%         | 1.04%         |
| Paraffin                                   | 3.05%        | 2.60%        | 1.95%         | 1.12%         | 0.46%         | 0.11%         | 1.03%         | 0.17%         | 0.01%         | 0.00%         |
| <b>Middle class goods</b>                  | <b>4.17%</b> | <b>6.34%</b> | <b>10.77%</b> | <b>16.66%</b> | <b>23.45%</b> | <b>31.12%</b> | <b>20.22%</b> | <b>30.39%</b> | <b>40.96%</b> | <b>39.05%</b> |

Source: Calculated from IES/LFS2000

## 4.2 Estimating Engel equations

Engel's pioneering work found that the proportion of household consumption income spent on food decreases as income increases. This has become known as Engel's law and its validity has been confirmed by subsequent empirical work.<sup>10</sup> This behavioural relationship has become such an established part of conventional wisdom that the Engel curve is even sometimes used to construct poverty lines, on the assumption that the food expenditure ratio provides a good indication of the economic status of households.<sup>11</sup>

Typically, Engel equations are formulated as below:

where  $Q_i$  is expenditure on the  $i$ -th group of items,  $Y_i$  is total expenditure<sup>12</sup> (or income) of the household and  $H_i$  is household size. Although the double log form as employed in this paper is not without its pitfalls, Houthakker (1957) believed it generally to be best suited to the analysis.<sup>13</sup>

This relationship between aggregate expenditure (or income) and expenditure on a good has become known as an Engel curve, even when applied to a good other than food (and thus not referring to Engel's Law). Previous analysis fitted a large number of Engel curves and found that, after controlling for per capita expenditure and household size, black and white consumption patterns indeed differed considerably. This same relationship is now again tested, but this time the focus is on consumption of middle class goods, an aggregation of a number of goods fitting the definition provided above. The results are reported in Table 3.

**Table 3: Regressions for expenditure on "middle class goods", 2000**

| Dependent Variable: Ln (Expenditure on "Middle class goods") | Regression No. | Constant      | Ln(Total Expenditure) | Ln( Household Size) | Black dummy   | Coloured dummy | Indian dummy | Asset index  | Financial Asset Index | Interaction: Black*Asset Index | Interaction: Black*Financial Asset Index |
|--|----------------|---------------|-----------------------|---------------------|---------------|----------------|--------------|--------------|-----------------------|--------------------------------|--|
| Full sample  | 1              | -18.46        | 2.59                  | -0.88               | -.91          | 1.38           | 1.25         |              |                       |                                |  |
|  |                | <i>-55.01</i> | <i>91.62</i>          | <i>-18.75</i>       | <i>-7.84</i>  | <i>8.89</i>    | <i>5.40</i>  |              |                       |                                |  |
| Non-white population only                                    | 2              | -18.37        | 2.72                  | -0.90               | -2.14         |                |              |              |                       |                                |  |
|  |                | <i>-55.70</i> | <i>89.33</i>          | <i>-18.05</i>       | <i>-18.53</i> |                |              |              |                       |                                |  |
| Full sample  | 3              | -14.77        | 2.04                  | -0.52               | 0.77          | 1.83           | 1.09         | 1.73         |                       |                                |  |
|  |                | <i>-43.21</i> | <i>65.07</i>          | <i>-11.28</i>       | <i>6.33</i>   | <i>12.09</i>   | <i>4.81</i>  | <i>37.19</i> |                       |                                |  |
| Non-white population only                                    | 4              | -14.19        | 2.15                  | -0.54               | -.81          |                |              | 1.71         |                       |                                |  |
|  |                | <i>-41.34</i> | <i>63.38</i>          | <i>-10.80</i>       | <i>-6.80</i>  |                |              | <i>34.91</i> |                       |                                |  |
| Full sample  | 5              | -16.73        | 2.32                  | -0.91               | 0.25          | 2.30           | 1.62         |              | 0.92                  |                                |  |
|  |                | <i>-47.78</i> | <i>71.05</i>          | <i>-19.63</i>       | <i>1.87</i>   | <i>14.04</i>   | <i>6.97</i>  | <i>16.49</i> |                       |                                |  |
| Non-white population only                                    | 6              | -15.45        | 2.40                  | -0.94               | -1.69         |                |              |              | 1.10                  |                                |  |
|  |                | <i>-42.23</i> | <i>68.55</i>          | <i>-18.91</i>       | <i>-14.39</i> |                |              | <i>17.90</i> |                       |                                |  |
| Full sample  | 7              | -12.59        | 2.07                  | -0.47               | -1.69         | 0.36           | 0.69         | -0.18        |                       | 2.16                           |  |
|  |                | <i>-34.76</i> | <i>66.36</i>          | <i>-10.18</i>       | <i>-9.08</i>  | <i>2.1</i>     | <i>3.07</i>  | <i>-1.53</i> |                       | <i>17.41</i>                   |  |
| Full sample  | 8              | -14.04        | 2.28                  | -0.91               | -1.75         | 0.30           | 0.76         |              | -0.47                 |                                | 2.19                                     |
|  |                | <i>-38.16</i> | <i>70.16</i>          | <i>-19.91</i>       | <i>-10.77</i> | <i>1.62</i>    | <i>3.25</i>  | <i>-5.54</i> |                       | <i>21.94</i>                   |  |

(*t*-statistics are reported below the coefficients)

Source: Estimates based on IES/LFS2000

<sup>10</sup>For a list of early studies, consult Houthakker (1957). Ravallion (1996) contains references to more recent work.

<sup>11</sup> See Ravallion (1996) in this regard. Woolard & Leibbrandt (2001) constructed such poverty lines for South African and compared them to alternative poverty lines.

<sup>12</sup> Expenditure data is used as a proxy for income as it is assumed that under-reporting is less likely in expenditure data than in income data.

<sup>13</sup> The Working-Leser reformulation presents the equation in linear budget share form, typically of the form  $w_i = a + \beta \log y_i + \gamma \log h_i + \epsilon$ , where  $w_i$  refers to the budget share of the commodity in the household's total income or expenditure. For ease of interpretation (elasticities can be read off directly from the fitted regression), the preference in this paper remains for the double log form.

The negative relationship between the black household dummy and expenditure on middle class goods in Regression 1 of Table 3 confirms that black households are spending significantly less than other race groups on middle class goods, given levels of aggregate per capita expenditure and household size. Note that the dummies for coloureds and Indians are positive, indicating an apparent greater taste for such goods than whites, who are the reference group. To take the comparison between blacks, coloureds and Indians further, Regression 2 shows the same model, but this time only applied to the sample of households other than white. Again, the black dummy is negative: Compared to the reference groups in this instance (coloureds and Indians), black households spend less on middle class goods, if only their per capita consumption and household size are considered.

Taken at face value, Regressions 1 and 2 could be interpreted as evidence that blacks have less taste for such middle class goods. However, the inclusion of the asset index (Regression 3) shows that it has a significant impact on consumption of middle class goods and services. In this regression, the black dummy also turns positive – indicating, firstly, that asset ownership is a determinant of expenditure on middle class items, and secondly, that black taste for luxuries is actually *above* that of the population as a whole, once assets are considered. Stated differently, while black households have a strong taste for middle class goods, expenditure on such goods in black households is being held back by the asset deficit these households experience. A weaker but similar effect is observed when the financial asset index variable rather than the general asset variable is included as an independent variable (Regression 5). Regressions 4 and 6 show that, when compared to coloured and Indian households only, even when assets or financial assets are included, blacks still lag behind somewhat behind these two groups in their consumption of middle class goods, i.e. they have less taste for these goods than these two groups. But this should be seen in the context that Regressions 3 and 5 have shown black demand for such goods to exceed those of whites, once their per capita expenditure, household size and assets (or financial assets) have been considered.

The inclusion of interaction variables between assets and race (Regressions 7 and 8) seems to point to racially distinct patterns between middle class consumption and assets holdings. At low levels of asset holdings, blacks may still under consume such goods compared to whites (though the asset variable itself is not significant in this case), but the positive sign and significance of the asset variable interacted with the black dummy in Regression 7 (or of the financial asset variable interacted with the black dummy in Regression 8) indicate that higher asset levels more strongly stimulates black consumption of middle class goods. One possible interpretation is that middle class blacks may still feel economically vulnerable and tend to postpone consumption of middle class goods in the absence of assets, but that once they have established an asset base, this backlog is quickly reversed.

## ***5. Evidence from the AMPS data***

### ***5.1 Respects in which black consumption behaviour may differ***

If the hypothesis of this paper holds, and the evidence of the previous section supports such a view, three behavioural patterns should be observed in consumption:

- There exists a black asset deficit, i.e. at each per capita income level, blacks are less likely to own certain assets than their white counterparts.
- Because there is such a deficit, blacks would be more likely to spend their money on acquiring assets, i.e. they would exhibit an asset preference in their purchases.
- Due to their concentration on acquiring assets, blacks would lag in consumption of middle class goods at given levels of income (if asset levels are ignored).

The term *assets* is defined very broadly in this section, to include durable consumer goods, which are used, and accumulated, over a long period.

This section turns to a second dataset, AMPS2004, for descriptive evidence that each of these three behaviour patterns regarding black consumption hold, i.e. the asset deficit (Section 5.2 below); the asset preference (Section 5.3); and the middle class consumption backlog (Section 5.4).

AMPS data are collected annually by the South African Advertising Research Foundation. AMPS2004 contains information on 24 500 adults (16 years or older), each from a different household, and specifically contains much information on products associated with a more affluent lifestyle. The survey includes information on *asset*

*ownership* and also on recent *purchases* of a wide variety of goods, but not on the *value* of such purchases. Actual income data is recorded in 34 income categories, thus this provides a relatively fine level of differentiation. The per capita income of a household was taken to be the midpoint of the income category indicated, divided by household size. The midpoint for the top, open income category was estimated using a Pareto function for each race and household size category. Given the lack of expenditure data, the focus is on *purchase* (regarding expenditure patterns) or *ownership* (regarding assets) of certain goods, without any amounts attached to these. The implicit assumption here, as in the previous section, is thus that the law of one price holds, i.e. that all households face the same prices and that the goods are not differentiated (Lewbel 2006). This is an unrealistic assumption, but one often made in economic analyses of this kind where price data are unavailable (cf. Koch 2005). Moreover, differences in consumption patterns between groups are often so large that this assumption is unlikely to invalidate the conclusions.

In using the AMPS2004 data, the focus is on patterns of ownership amongst the upper income categories. The dataset is thus divided into deciles of the *whole* population; Table 4 shows the racial representation in each decile. AMPS also provides information on the presence of certain durable goods and whether a household asset has been acquired within the last year, thus making it possible to explore patterns of ownership and purchases in the last year across the income spectrum. Drawing on research such as that by Gregg, Waldfogel and Washbrook (2005), who found a positive relationship between increased income and ownership of certain durable goods in low-income households in the United Kingdom over a six year period, the focus is on durable household goods and assets that one would ordinarily expect to find in middle income households (such as a microwave, freezer, washing machine and motor vehicle).

Table 4 below shows data by per capita *monthly* income decile for AMPS 2004. Amongst the affluent, the white population still dominated. Only 7% of the black population were part of the top two deciles compared to 75% of the white population. In Decile 9, 49% of the population was white and only 37% black, and in Decile 10, 77% of the population was white and only 16% black. But even with this continued skewness in the distribution of income by population group, the black presence in the top two deciles (37% in decile 9, and 16% in decile 10) is already substantial.<sup>14</sup> The small sample size of the white population in the poorest four deciles renders analysis at those levels unreliable, thus for comparison purposes, and because the focus here falls on the more affluent part of the population, the graphical analysis that follows omits the bottom four deciles.

**Table 4: Number of households in each per capita income decile by race, and mean, highest and lowest per capita incomes per month in each decile, AMPS2004**

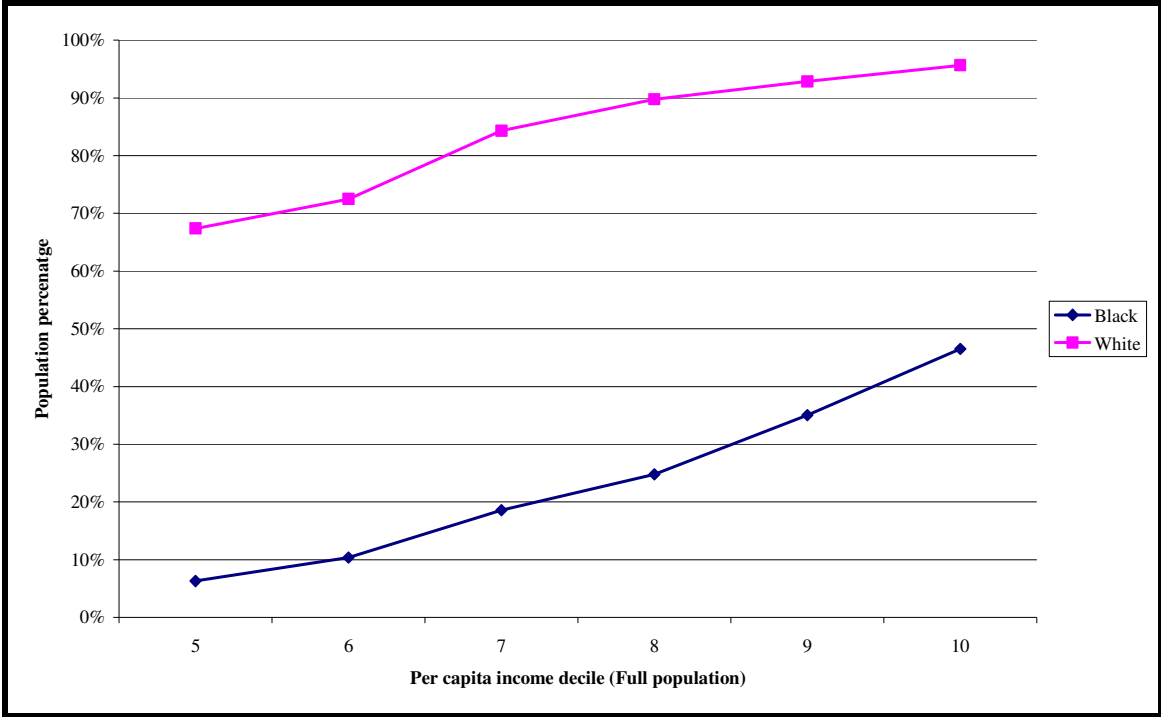
| Decile       | Population shares |                |                |                  |                 | Per capita income (Rand per month) |              |               |                |
|--------------|-------------------|----------------|----------------|------------------|-----------------|------------------------------------|--------------|---------------|----------------|
|              | Black             | Coloured       | Indian         | White            | Total           | Black share                        | Mean income  | Lowest income | Highest income |
| 1            | 981 665           | 27 223         | 1 657          | 4 779            | 1 015 324       | 96.7%                              | R78          | R4            | R119           |
| 2            | 1 207 187         | 50 870         | 2 419          | 2 399            | 1 262 875       | 95.6%                              | R159         | R121          | R188           |
| 3            | 822 637           | 54 596         | 5 420          | 2 880            | 885 533         | 92.9%                              | R225         | R190          | R250           |
| 4            | 818 614           | 77 285         | 7 575          | 6 756            | 910 230         | 89.9%                              | R306         | R257          | R360           |
| 5            | 964 383           | 93 802         | 14 376         | 15 863           | 1 088 424       | 88.6%                              | R428         | R375          | R500           |
| 6            | 949 134           | 134 080        | 35 833         | 66 276           | 11 85 323       | 80.1%                              | R650         | R525          | R750           |
| 7            | 573 672           | 103 671        | 40 438         | 92 509           | 810 290         | 70.8%                              | R975         | R773          | R1125          |
| 8            | 559 540           | 128 939        | 53 535         | 220 407          | 962 421         | 58.1%                              | R1510        | R1150         | R1875          |
| 9            | 370 095           | 88 455         | 59 604         | 496 813          | 1 014 967       | 36.5%                              | R2707        | R1900         | R3600          |
| 10           | 161 817           | 42 161         | 32 863         | 770 774          | 1 007 615       | 16.1%                              | R7018        | R3750         | ..             |
| <b>Total</b> | <b>6 427 079</b>  | <b>773 859</b> | <b>252 063</b> | <b>1 674 677</b> | <b>9 127678</b> | <b>70.4%</b>                       | <b>R1386</b> | <b>R4</b>     | <b>..</b>      |

### 5.2 Evidence of an asset deficit:

<sup>14</sup> Based on national account estimates of current income, as much as thirty percent of all income may not be captured, probably due to underreporting. If that were equally distributed and the national accounts estimates were indeed correct, it would imply that these income Figures should all have been adjusted upwards by almost half.

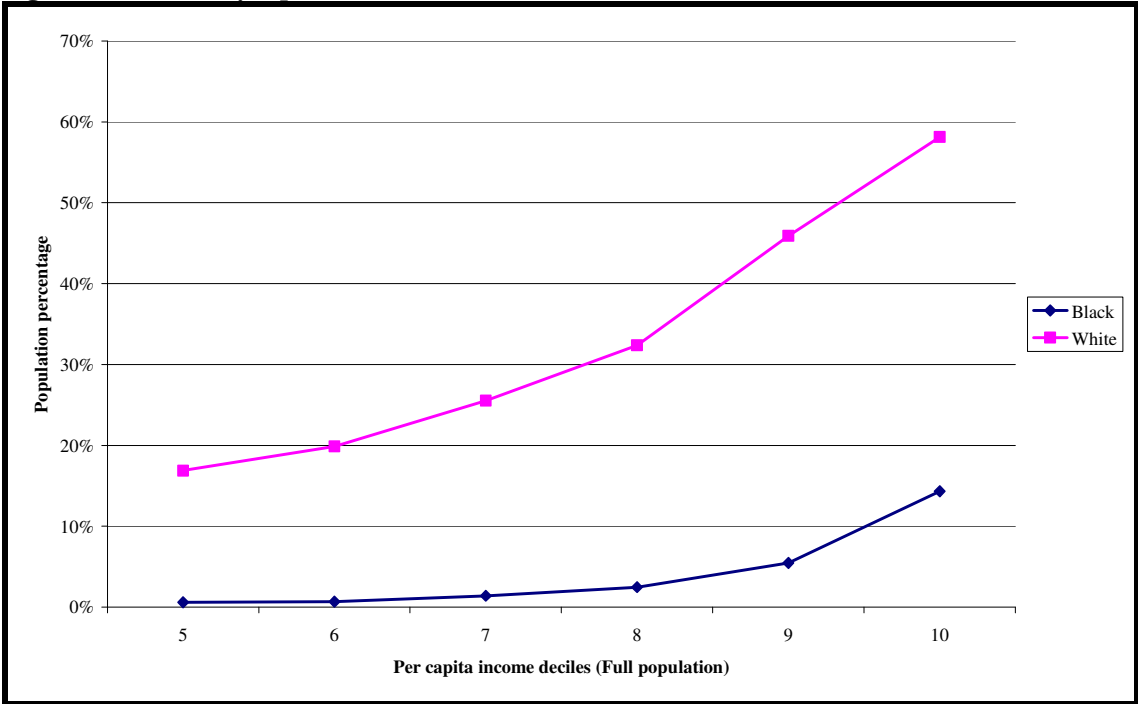
Figures 2 and 3 below illustrate that black households at all income levels still lag behind white households in ownership of washing machines and tumble dryers. As income levels increase, the gap in ownership does, however, shrink. Nonetheless, even in the top decile twice the proportion of white households (96%) owns a washing machine compared to their black counterparts (47%) (Figure 2). Only 5% of black households in the 9<sup>th</sup> decile own a tumble dryer compared to 46% of white households, and in the richest decile, only 14% of black households own one versus 58% of white households (Figure 3). In Figure 4 it can be seen that white households also still dominate ownership patterns of microwave ovens. However, the gap between the race groups is much smaller than those observed in the previous Figures, perhaps because this is not a high-cost item.

**Figure 2: Washing machine present in household, 2004**



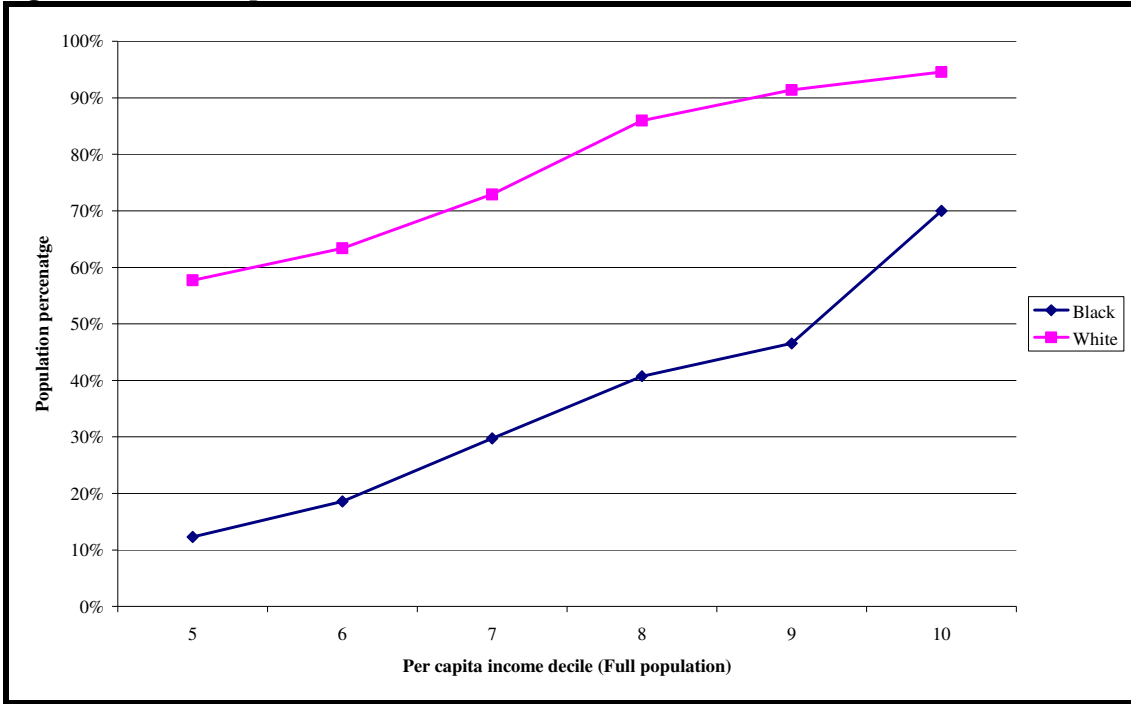
Source: AMPS 2004

**Figure 3: Tumble dryer present in household, 2004**



Source: AMPS 2004

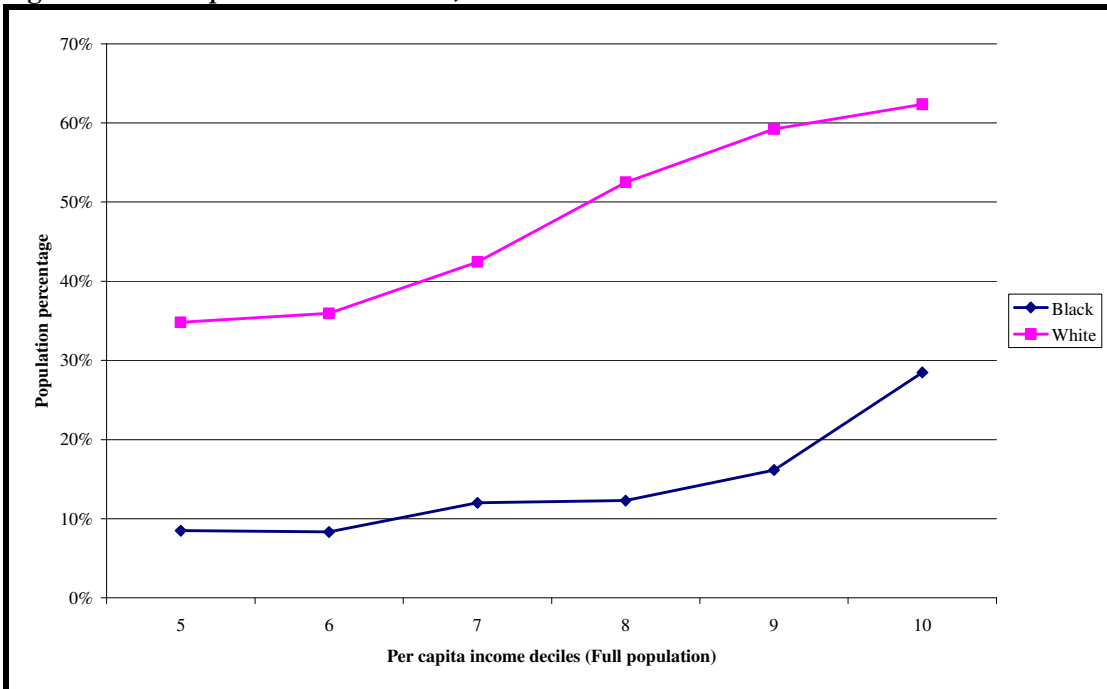
Figure 4: Microwave present in household, 2004



Source: AMPS, 2004

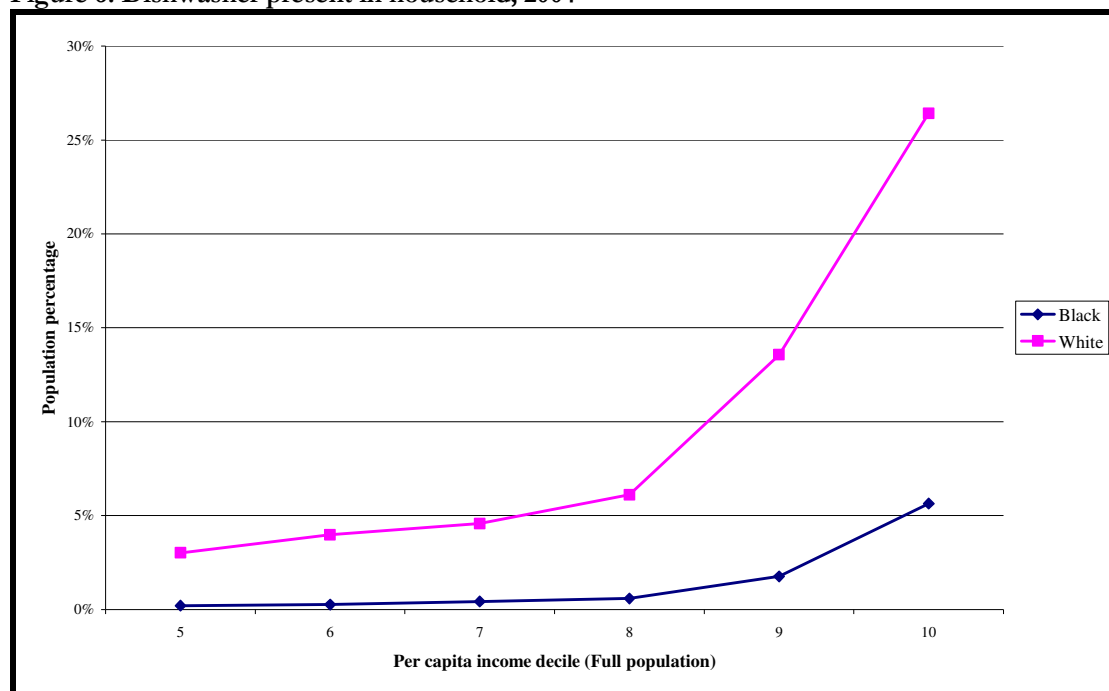
A free-standing freezer and a dishwasher may be considered relatively luxurious household assets. Both race groups have relatively low ownership of a freezer (Figure 5). As income rises to decile 10, the gap between white and black households widens. This could perhaps be the result of the deferral in acquisition of this asset by blacks whilst other less expensive household assets are being acquired. Once other assets (such as microwaves, washing machines, etc.) have been acquired, more luxurious household durables such as a freezer may perhaps be purchased. In the case of dishwashers (Figure 6), amongst lower decile households a low proportion of both race groups own this asset. However, the percentage ownership increases significantly in deciles 9 and 10; but more so for white than for black households.

Figure 5: Freezer present in household, 2004



Source: AMPS, 2004

**Figure 6: Dishwasher present in household, 2004**



Source: AMPS, 2004

Turning to car ownership, Table 5 illustrates that more than double the proportion of white households own a vehicle than black households. Given that white households have had a head start in establishing an asset base, one would expect that a significant proportion of white households also own more than one vehicle. This is indeed the case, with more than twice the proportion of white households in decile 10 and more than three times the percentage of white households in decile 9 owning two vehicles compared to their black counterparts. A similar ratio is observed for ownership of three or more vehicles in a household.

**Table 5: Number of vehicles in household for selected per capita household income deciles, 2004**

| Per capita income deciles (Full population) | Vehicle present in Household |       | 1 Vehicle |       | 2 Vehicles |       | 3 Vehicles |       |
|---|------------------------------|-------|-----------|-------|------------|-------|------------|-------|
|   | Black                        | White | Black     | White | Black      | White | Black      | White |
| Decile 5                                    | 9%                           | 44%   | 8%        | 26%   | 1%         | 6%    | 0%         | 12%   |
| Decile 6                                    | 10%                          | 51%   | 12%       | 45%   | 2%         | 6%    | 0%         | 4%    |
| Decile 7                                    | 15%                          | 55%   | 19%       | 47%   | 3%         | 18%   | 1%         | 7%    |
| Decile 8                                    | 23%                          | 72%   | 29%       | 53%   | 6%         | 22%   | 1%         | 6%    |
| Decile 9                                    | 36%                          | 81%   | 30%       | 46%   | 10%        | 36%   | 3%         | 10%   |
| Decile 10                                   | 42%                          | 92%   | 43%       | 34%   | 19%        | 46%   | 7%         | 16%   |

Source: AMPS 2004

### 5.3 Evidence of a black asset preference in purchases

We now turn to purchases of assets in the past year, and find that at higher income levels, blacks do seem to be more prone to purchase such assets. Purchases of durable consumption goods (one form of assets), such as refrigerators (Figure 7) and microwaves (Figure 8) are indeed greater amongst black people at higher income levels than amongst their white counterparts.<sup>15</sup> This should be no surprise, as this is the group of blacks who are most behind their white counterparts in ownership of such assets. It is a simple process of normalisation, as the

<sup>15</sup> As the frequency of durable assets is low, these graphs have been derived from fitting simple Engel curve functions with an interaction term between the black race dummy and per capita income. Functions take the form of a simple OLS equation:

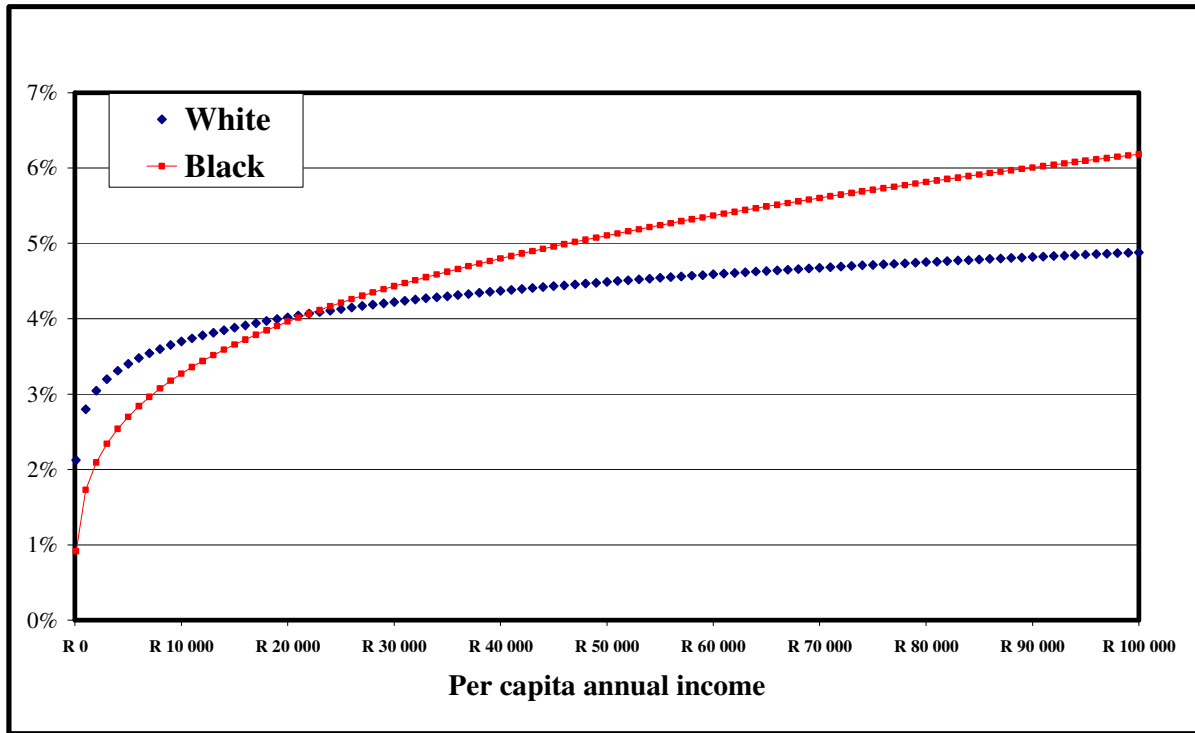
$$\text{Probability of Purchasing Good} = \beta_0 + \beta_1 \ln(\text{percapincome}) + \beta_2 * \text{black} + \beta_3 * \text{black} * \ln(\text{percapincome}).$$

These functions have been confined to the sample of white and black households only, thus white households act as the reference or omitted category.



new economic situation of many blacks now for the first time allows them to become full participants in the upper echelons of the consumer market. For television sets (Figure 9), right across the income spectrum higher levels of purchases are apparent for blacks, as even poorer blacks try to catch up with acquiring this asset.

**Figure 7: Proportion of black and white households purchasing refrigerators in past 12 months by household per capita annual income, AMPS2004**



**Figure 8: Proportion of black and white households purchasing microwaves in past 12 months by household per capita annual income, AMPS2004**

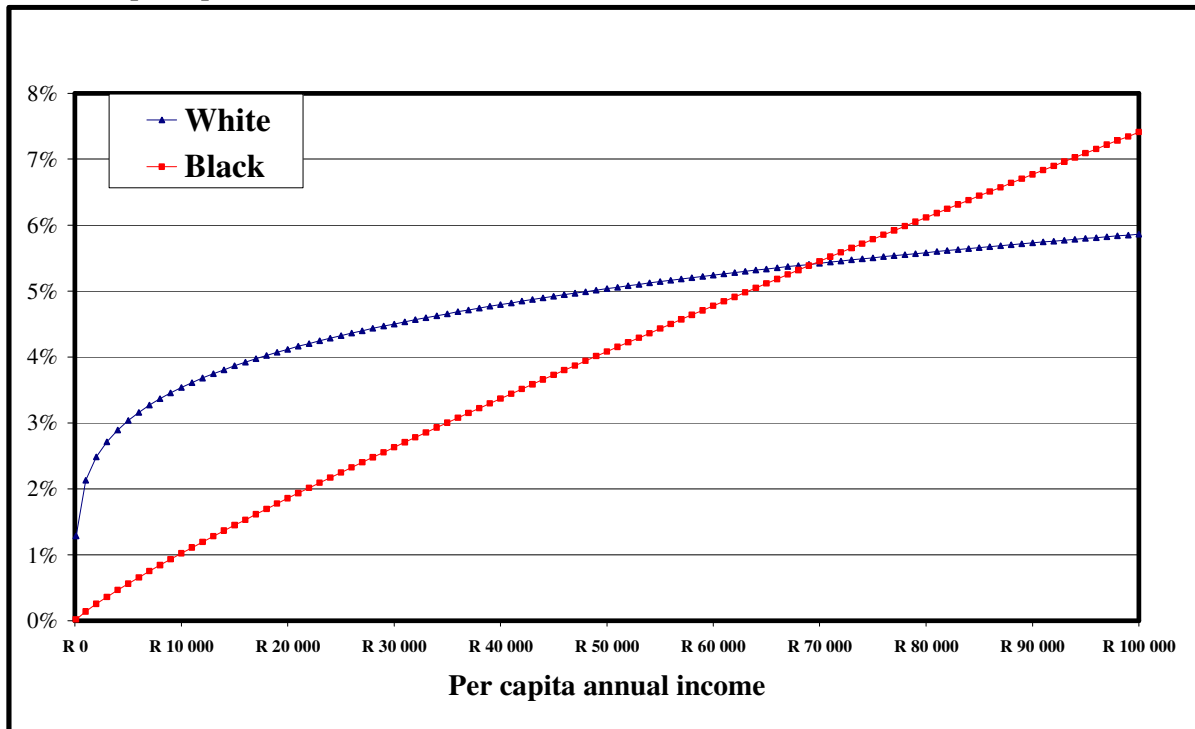
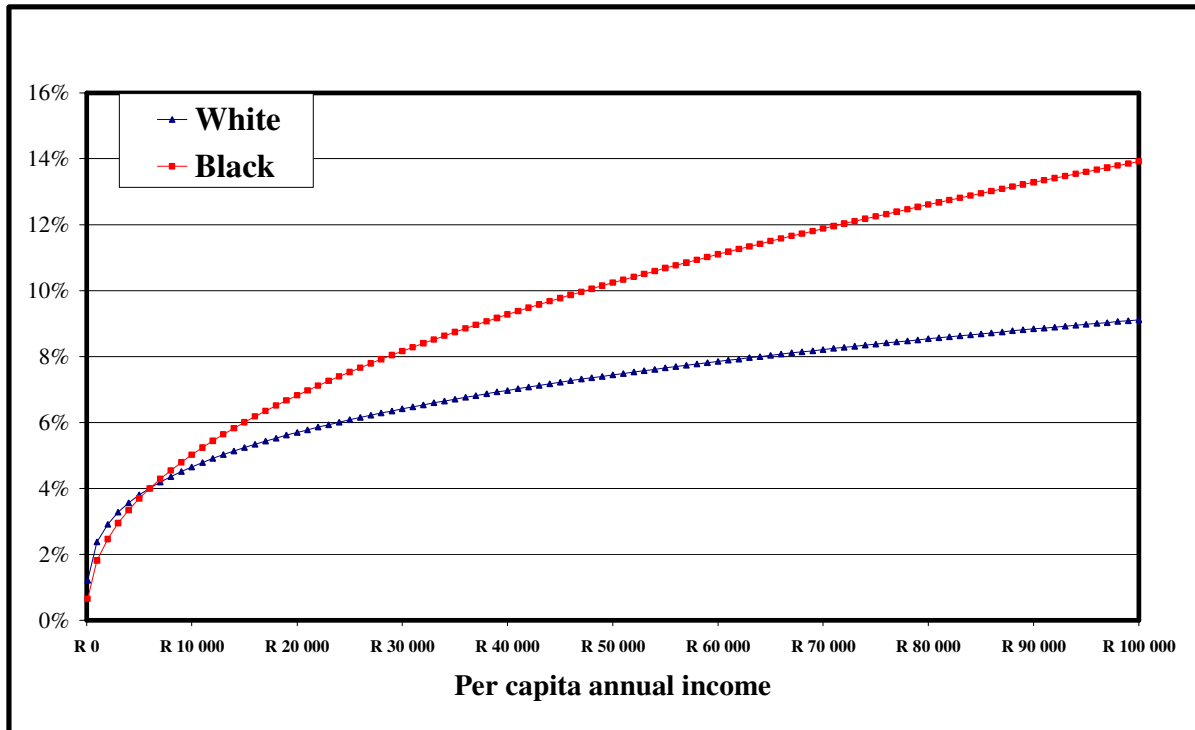


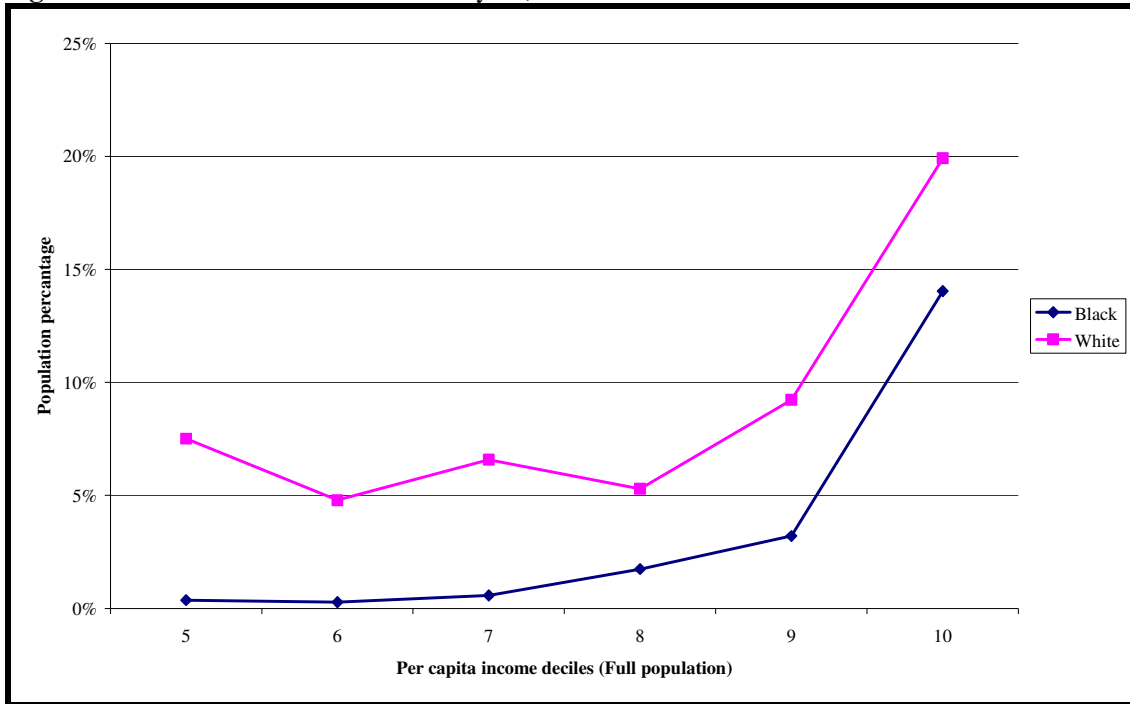
Figure 9: Proportion of black and white households purchasing television set in past 12 months by household per capita annual income, AMPS2004



#### 5.4 Evidence of a lag in black consumption of middle class goods

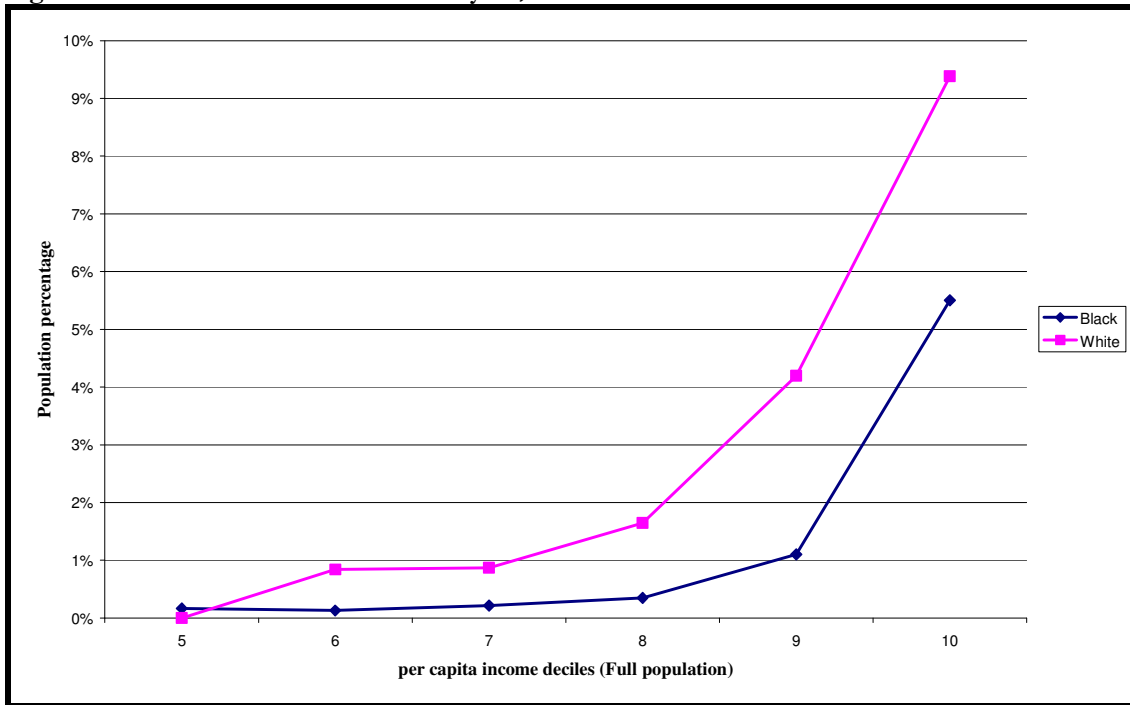
If their consumption shows a preference for purchases of assets, then one would expect blacks to lag behind in some other areas of consumption compared to their white counterparts with similar income. This is indeed the case: In areas such as tourism and travel, for instance, the backlog is clear. Air travel, both domestic and international, was analysed to further explore disparities in the consumption of middle class goods between black and white households. As expected, Figure 10 shows that even the most affluent black households lag far behind much poorer whites in domestic air travel, and a similar differential also applies to international air travel (Figure 11). Data not shown indicates that this also applies to going on vacation or even taking weekend trips.

Figure 10: Domestic air travel in the last year, 2004



Source: AMPS, 2004

Figure 11: International air travel in last year, 2004



Source: AMPS, 2004

## 6. Conclusion

The analysis above provides evidence of a unique process that is underway in a part of black society, where households and individuals are moving into the middle class and start to establish themselves there. Differences in consumer patterns between whites and blacks in these higher income groups are not so much driven by culture (although there are likely to be cultural manifestations, e.g. preferences in types of music, or in holiday destinations). Rather, the economic behaviour of blacks in this group also reflects other economic influences apart from income, and the asset deficit that most blacks still experience as a result of South Africa's history is

clearly one important candidate. Other factors that could also differentially affect white and black middle class consumer behaviour may be more recent urbanisation, more recent access to water and electricity in the home, and historical differences in urban settlement patterns. This paper has presented strong evidence that the asset deficit is an important factor.

What are the implications of this analysis? Firstly, it means that consumption patterns of blacks joining the middle class would go through stages: A stage of asset accumulation would precede a stage of middle class consumption. The latter process may thus be somewhat delayed, but once the black middle class shifts into consuming more tourism, etc., the shift may be quite rapid, albeit from a very low base. But for new accruals to the middle class, the asset preference of the first stage would still initially dominate; so on average differentials in middle class consumption between more affluent white and black consumers would remain for quite long. Amongst black middle class consumers, there may therefore remain two distinct groups with different consumption patterns: The *established middle class* (currently still quite small), who have had the opportunity to accumulate assets and whose consumption patterns therefore resemble those of whites; and the *new middle class*, whose first spending priority still may be to acquire assets.

If this analysis is correct, then views that black consumers consume different goods because they are different (the cultural dominance view), may be mistaken. Marketers wishing to target middle class blacks naturally do need to be sensitive to cultural factors, but that does not mean that overall consumption behaviour is culturally determined, as some popular analyses seem to imply.

Given the argument of this paper, the LSM categories used by the South African Advertising Research Foundation (SAARF) in its AMPS survey is a useful way of classifying consumers, for consumption indeed depends on both incomes and assets. But separating these two factors may sometimes provide more useful information. A household whose assets lag behind its income is more likely to exhibit an assets preference in its purchases than another household with similar asset levels and lower income. For this reason, users of AMPS data would gain from analysing the data in more detail themselves rather than depending on the summarised information. Also, *per capita* household income gives a better indication of a household's consumption status and possibilities than *total* household income does. Thus it would be useful if *household size* is also routinely available in the AMPS survey data (which is presently not the case).

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## Appendix

**Table A1: Asset variables and their descriptions**

| Variable     | Variable description   |
|--------------|--|
| dwelling_f~1 | Formal dwelling is a dummy which is 1 when the household indicated that the lived in one of the following:<br>Dwelling/house or brick structure on a separate stand or yard or on a farm<br>Flat or apartment in a block of flats<br>Town/cluster/semi-detached house (simplex, duplex or triplex)<br>Unit in retirement village<br>Dwelling/house/flat/room in backyard<br>Room/flatlet |
| dwelling_i~1 | Informal dwelling is a dummy which is 1 when the household lived in either an informal dwelling/shack in backyard<br>an informal dwelling/shack not in backyard, e.g. in an informal/squatter settlement or on a farm  |
| dwelling_t~1 | Traditional dwelling is a dummy which is 1 when the household lived in a traditional dwelling/hut/structure made of traditional materials  |
| dwelling_o~r | Other dwelling is a dwelling which is 1 when the household reported that they lived in a caravan/tent or another type of dwelling not included in the questionnaire categories   |
| roof_bricks  | Dummy is 1 when roof made of bricks  |
| roof_cement  | Dummy is 1 when roof made of cement block/concrete   |
| roof_zinc    | Dummy is 1 when roof made of corrugated iron/zinc  |
| roof_wood    | Dummy is 1 when roof made of wood  |
| roof_plastic | Dummy is 1 when roof made of plastic   |
| roof_cardb   | Dummy is 1 when roof made of cardboard   |
| roof_mudcem  | Dummy is 1 when roof made of a mixture of mud and cement   |
| roof_watdaub | Dummy is 1 when roof made of wattle and daub   |
| roof_tile    | Dummy is 1 when roof made of tiles   |
| roof_mud     | Dummy is 1 when roof made of mud   |
| roof_tatch   | Dummy is 1 when roof made of thatching   |
| roof_asbes~s | Dummy is 1 when roof made of asbestos  |

|                 |   |
|-----------------|---|
| walls_bricks    | Dummy is 1 when walls made of bricks  |
| walls_cement    | Dummy is 1 when walls made of cement block/concrete   |
| walls_zinc      | Dummy is 1 when walls made of corrugated iron/zinc  |
| walls_wood      | Dummy is 1 when walls made of wood  |
| walls_plas~c    | Dummy is 1 when walls made of plastic   |
| walls_cardb     | Dummy is 1 when walls made of cardboard   |
| walls_mudcem    | Dummy is 1 when walls made of a mixture of mud and cement   |
| walls_watd~b    | Dummy is 1 when walls made of wattle and daub   |
| walls_tile      | Dummy is 1 when walls made of tiles   |
| walls_mud       | Dummy is 1 when walls made of mud   |
| walls_tatch     | Dummy is 1 when walls made of thatching   |
| walls_asbe~s    | Dummy is 1 when walls made of asbestos  |
| house_~dpaid    | Dummy is 1 when indicated that house is owned and fully paid off  |
| house_~tpaid    | Dummy is 1 when reported that house is owned, but not fully paid off                                    |
| pipewatho~e     | Dummy is 1 when indicated that there was piped (tap) water in dwelling                                  |
| pipedwayard     | Dummy is 1 if piped (tap) water available on site or in yard  |
| pipedpubtap     | Dummy is 1 if household used a public tap   |
| tankerbore~e    | Household's main source of water is water-carrier / tanker / borehole or rainwater tank on site         |
| stream          | Household's main source of water is flowing water / stream / dam/ pool / stagnant water / well / spring |
| waterclose      | Dummy is 1 if water is available closer than 100m   |
| waterlesskm     | Dummy is 1 when water available within 1 km   |
| watermorekm     | Dummy is 1 when water not available within 1 km   |
| flush toilet    | Flush toilet  |
| chemtoilet      | Chemical toilet   |
| pitlatrine      | Pit latrine with or without ventilation pipe  |
| bucket          | Bucket toilet   |
| no toilet       | No toilet   |
| toiletinhome    | Toilet in house   |
| toilet on site  | Toilet on site  |
| toilet off-site | Toilet off-site   |
| separate toilet | Household has separate toilet   |
| street lighting | Street lighting   |
| landline        | Household has landline  |
| mobile          | Household has mobile  |
| elec            | Dummy variable indicating any payment for electricity bill or electricity cards                         |
| havecar         | Household has expenditure on car running cost > 0   |
| investtotd      | Household has an investment   |
| retirementd     | Household has a retirement fund   |
| insurpold       | Household has an insurance policy   |
| edu7            | Household head has primary school education   |
| edu12           | Household head has high school education  |
| edumore         | Household head has tertiary education   |
| skillstr        | Household head has received skills training   |
| readd           | Household head can read   |
| writed          | Household head can write  |

**Table A2: Financial asset variables and their descriptions**

| Variable | Variable description   |
|----------|------------------------|
| landline | Household has landline |
| mobile   | Household has mobile   |

|             |   |
|-------------|---|
| elec        | Dummy variable indicating any payment for electricity bill or electricity cards |
| havecar     | Household has expenditure on car running cost > 0                               |
| investtotd  | Household has an investment   |
| retirementd | Household has a retirement fund   |
| insurpold   | Household has an insurance policy   |

**Table A3: Selected list of “luxury” good variables, 2000 (using proportion of consumption of the good by whites as a yardstick)**

| <b>Variable</b>  | <b>Variable description</b>                 |
|------------------|---|
| cost_seafood     | Cost of seafood bought                      |
| cost_Pasta       | Cost of pasta bought                        |
| cost_sweetener   | Cost of sweetener bought                    |
| water_restaurant | Cost of water bought in restaurant          |
| wine_restaurant  | Cost of wine bought in restaurant           |
| cigars           | Cost of cigars bought                       |
| serviettes       | Cost of serviettes bought                   |
| pmt_secervices   | Cost of security services at home           |
| clothes_hire     | Cost of clothing hire                       |
| garden_furn      | Cost of garden furniture bought             |
| sleepbags        | Cost of sleeping bags bought                |
| therap equip     | Cost of physical therapy equipment bought   |
| cell_con         | Cost of cellular telephone contract         |
| univ_self        | Cost of university tuition paid for by self |
| mags_year        | Cost of magazines bought in the last year   |
| books_year       | Cost of books bought in the last year       |
| swimming         | Cost of swimming equipment bought           |
| camp             | Cost of camping equipment bought            |
| tours            | Cost of tours taken                         |
| pet_care         | Cost of pet care products bought            |
| film             | Cost of camera film bought                  |
| gym              | Cost of gym membership bought               |