

Recycling Behaviour Among Urban South African Households: The Role of Race, History and Social Status

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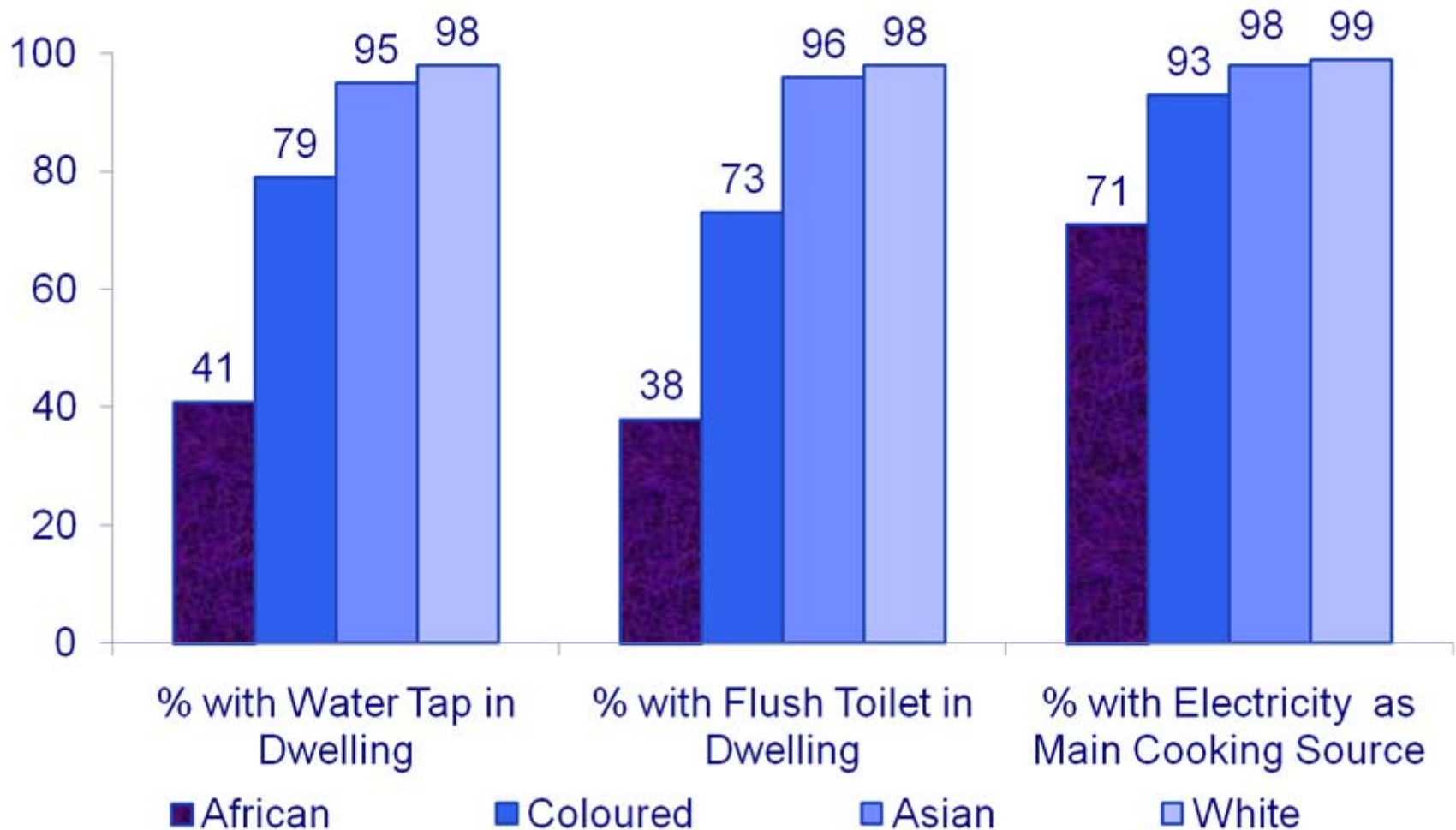
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Overview of Study

- This study examines household recycling behaviour among urban South Africans, based on the 2003, 2005 and 2006 General Household Surveys.
- Research in Europe and North America finds that recycling is more likely when it is easier for households to recycle. This was true for all South African households. Also, recycling for normative reasons (not to get money) has been found to be strongly positively related to education and is more common among older people. This was found for non-African households.
- Among African households, recycling is much less common and increases little with education. However, African households with a schoolchild are more likely to recycle, possibly to cooperate with school programs and to provide a good model for children.
- Among African households, those with older household heads are not more likely to recycle, possibly because older Africans spent more of their lives under apartheid and thus are not more motivated than younger Africans to recycle for the common good.

Characteristics of Urban Households by Population Group of Household Head, 2006



White and Asian households have similar characteristics. They are better off than Coloured households or African households. Coloured households are better off than African households.

South African Constitution and Recycling

The 1996 South African Constitution includes a comprehensive set of human rights, among which is the right of South African citizens:

- "a. to an environment that is not harmful to their health and well-being; and
- b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative acts and measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development" (Constitution of South Africa, Chap. 2. Sec. 24).

High Percent of Beverage Cans Recycled in South Africa

- South Africa has a high level of recycling of metal beverage cans, estimated as 80-90% in 2004.
- Much of this recycling is by individual entrepreneurs, rather than as a result of recycling of cans by a large proportion of households.

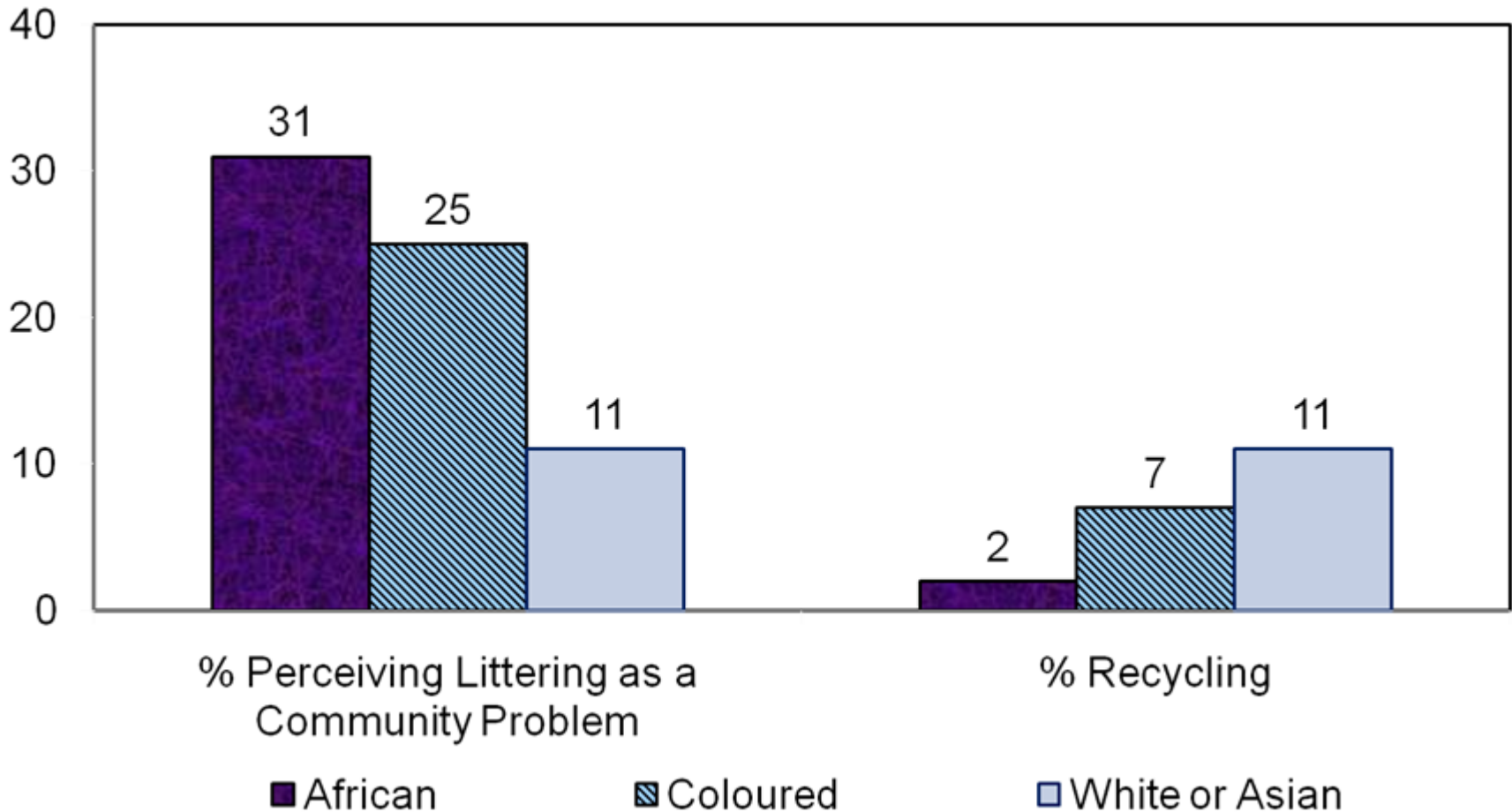
Earlier Research on Recycling

- In developed countries, higher social status has usually been found to be positively related to recycling.
- In developed countries, older people are more likely to recycle than younger people.
- Only recently has there been much research in developed countries on the level of recycling in neighborhoods with a large minority population.
- There has been little research on variations in recycling behaviour within racial or ethnic groups in relation to socio-economic status in developed countries.
- There has been little research on recycling behaviour in the developing world.

How this Study Proceeded

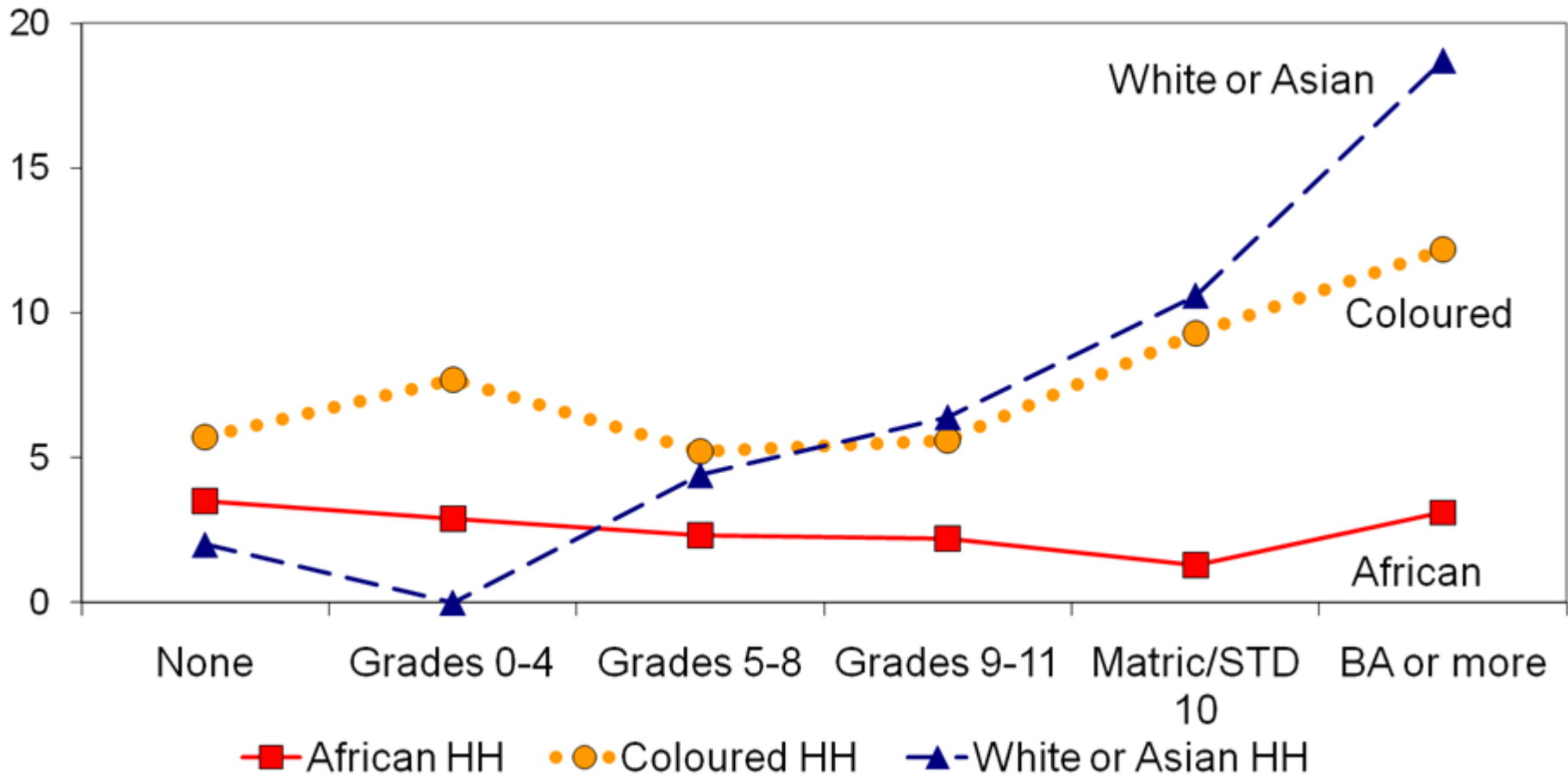
- We found questions in the South African General Household Surveys (2003, 2005, 2006) about household recycling behaviour and combined data from the three surveys to study recycling among urban South African households.
- We examined behaviour by population group: 1) African households, 2) Coloured households, and 3) White and Asian households.
- We expected that more educated households would be more likely to recycle, especially for normative (non-money) reasons.
- White and Asian households showed the expected pattern of more educated households being more likely to recycle, and Coloured households also showed this pattern to some extent.
- The results for Africans were different – there was no increase in household recycling until a very high educational level.
- We talked with African colleagues and gained insight into possible reasons why the behaviour of African households was different. These discussions focused on the legacy of apartheid and on the efforts of urban African parents to help their children succeed in school.
- We included additional variables in the analyses and obtained results for African households consistent with suggestions from African colleagues.
- We are considering pursuing systematic qualitative research in South Africa to understand more fully how urban Africans view recycling.

Percent of Urban Households Considering Littering a Community Problem and Percent Recycling by Population Group of Household Head



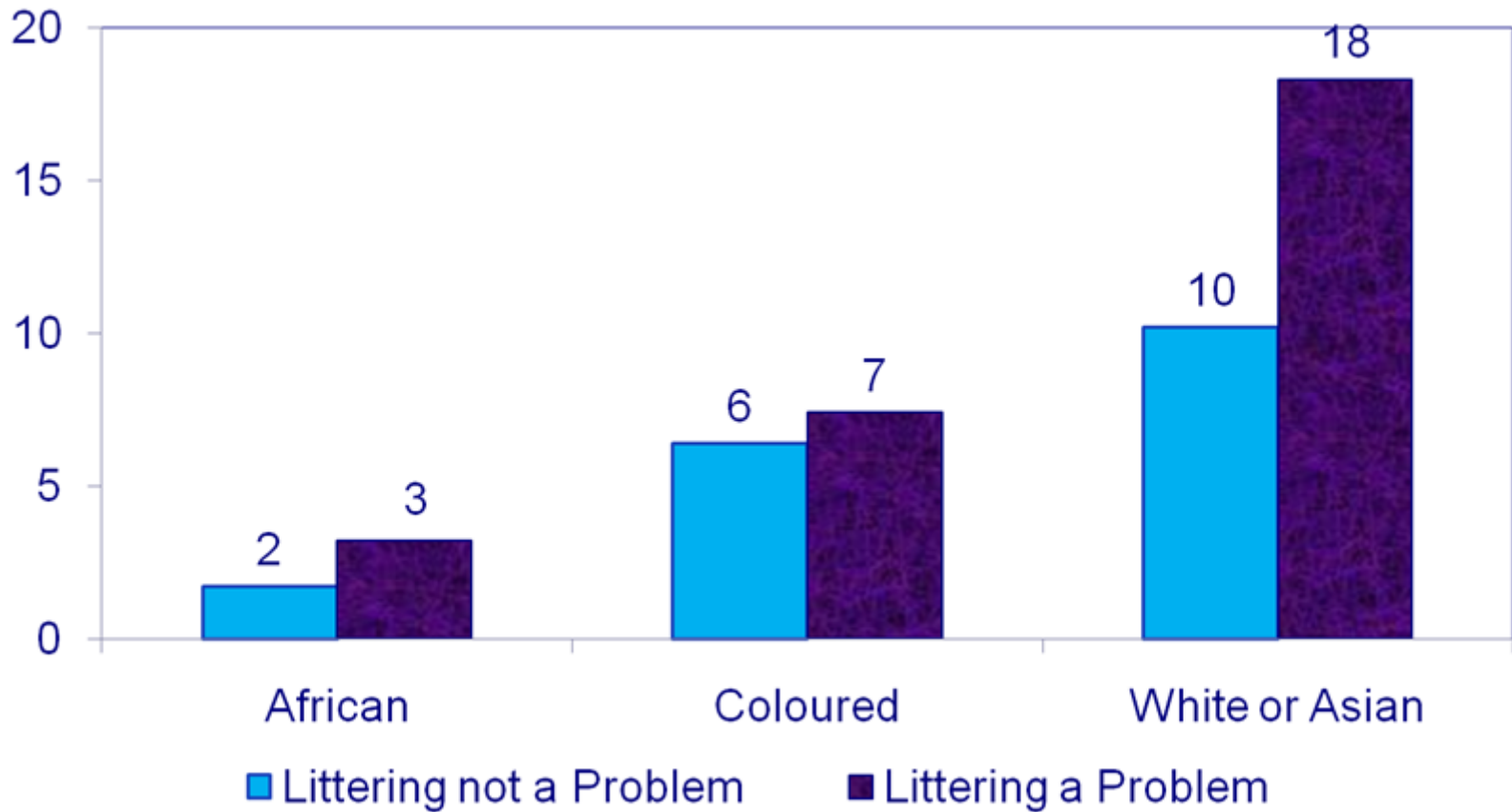
African households are the **most** likely to perceive littering as a community problem but are the **least** likely to recycle.

Percent of Urban Households Recycling by Education and Population Group of Household Head



Education is significantly *positively* related to recycling for White or Asian households, less positively related for Coloured households, and significantly *negatively* related to recycling for African households – no increase for African households until BA+ (4% of urban African household heads)

Percent of Urban Households Recycling by Whether Littering is Seen as a Community Problem



For every group, perceiving littering as a community problem is positively related to recycling, but the level of recycling is the lowest among African households, somewhat higher among Coloured households, and even higher among White or Asian households

Explanation of Variables

- ***Whether the household recycles*** is the dependent variable. (Coded 0=Household does not recycle, 1=Household recycles)
- ***Education of head of household*** is an indicator of household socio-economic status. (Higher education has higher coded value)
- ***Littering as a problem*** indicates awareness of or concern with this problem. (Coded 0=Littering not a problem, 1=Littering a problem)
- ***Local recycling program*** and ***proximity of local buyback program*** are indicators of the ease with which recycling can be carried out. (Coded 0=No local recycling program, 1=Is a local recycling program; proximity of buyback program variable has a higher value if buyback program is closer)

Results of Multivariate Analysis of Whether an Urban Household Recycles

	African	Coloured	White or Asian
Education	- -	+ +	+ +
Littering a Problem	+ +	n.s.	+ +
Local Recycling Program	+ +	+ +	+ +
Proximity to Local Buyback Program	+ +	+ +	+ +

n.s. No significant relationship

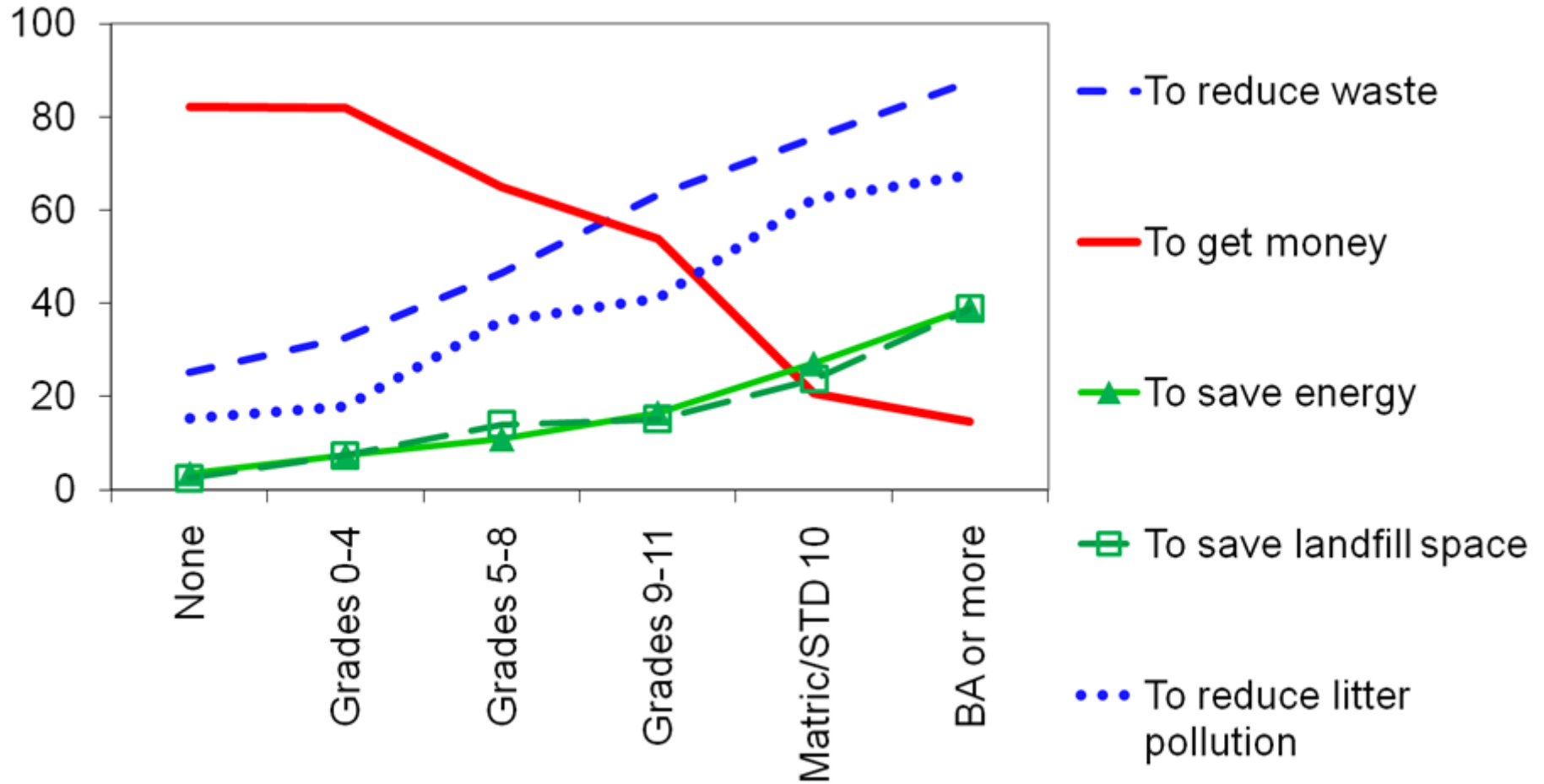
- - Negative relationship, this strong a relationship would be obtained by chance < 1% of the time

+ + Positive relationship, this strong a relationship would be obtained by chance < 1% of the time

Multivariate Results for Whether an Urban Household Recycles

- In all results, ease of access to recycling (existence of a local recycling program and proximity of a local buyback program) is *positively* related to recycling -- the easier it is to recycle, the more likely a household is to recycle.
- Among African and White or Asian households, perceiving littering as a problem is positively related to recycling -- those households that perceive recycling as a problem are more likely to recycle.
- Education is significantly *negatively* related to recycling for African households and significantly *positively* related to recycling for Coloured households and for White or Asian households. For African households, the more educated the head of household, the less likely the household is to recycle; for non-African households, the more educated the head of household, the more likely the household is to recycle.

Among Those Urban Households that Recycle, the Percent Giving Various Reasons for Recycling by Education of Household Head

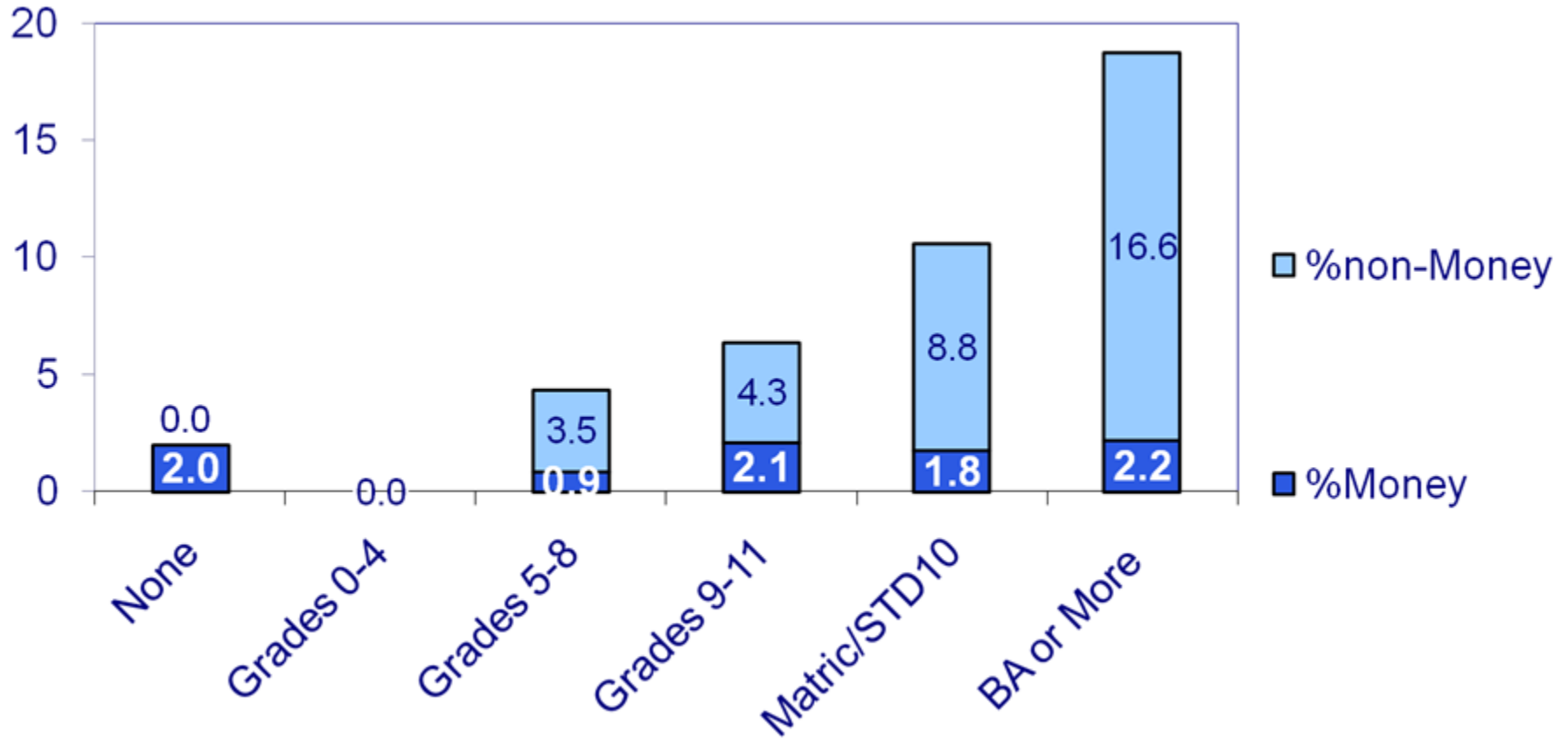


Obtaining money as a reason for recycling *decreases* with education.
Non-money reasons for recycling *increase* with education.

Recycling for Money Reasons and for non-Money Reasons

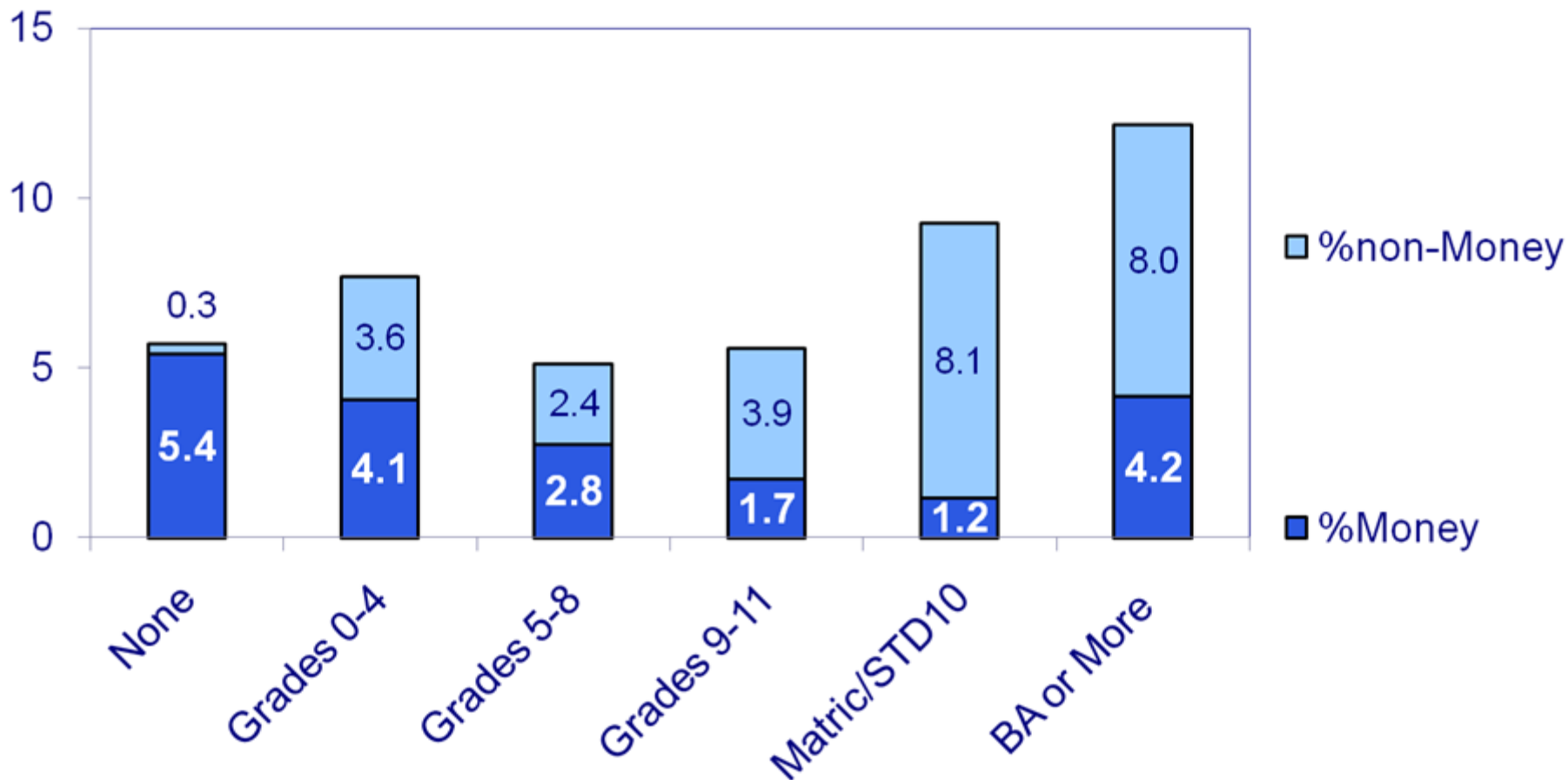
- Each household that recycled was asked if it recycled for each of the reasons listed in the previous slide.
- The household did not need to agree to any reason why it recycled and could agree to more than one reason why it recycled.
- In the following slides a household is coded as recycling for *money reasons* if it agreed that it recycled to get money, regardless of whatever additional reasons it might have stated for recycling.
- A household is coded as recycling for *non-money reasons* (normative or altruistic reasons) if the household recycled but the household did *not* agree that it recycled to get money.

Percent Recycling for Money Reasons and non-Money Reasons Among Urban White or Asian Households



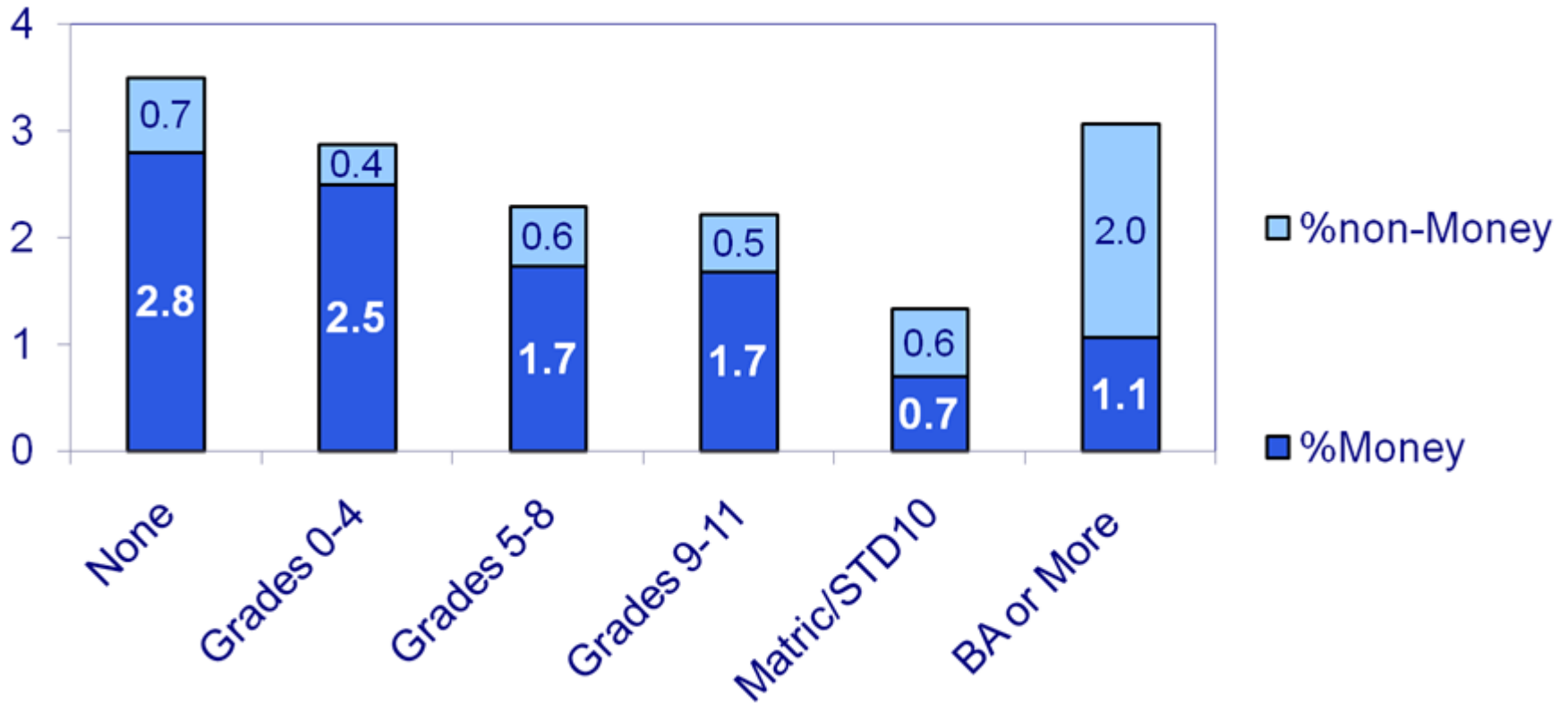
Those few White or Asian households whose heads had no education recycled for money reasons. Recycling for non-money reasons increased rapidly with education.

Percent Recycling for Money Reasons and non-Money Reasons Among Urban Coloured Households



Recycling for non-money reasons generally increased with education of household head for Coloured households.

Percent Recycling for Money Reasons and non-Money Reasons Among Urban African Households



Recycling for money reasons decreased with education among African households; there was little relation between education and recycling for non-money reasons until a BA or higher level of education, a level attained by 4% of urban African household heads.

Presence of a Schoolchild in the Household

- An African scholar in South Africa noted that she grew up in an urban township where many people recycled to gain a little money.
- Now, she and her husband, both of whom are professionals with Masters degrees, do not think about recycling much.
- She said that the only time she recycles is when she sends paper with her son for a school paper drive.
- She noted that her son is taught in school that behaviours such as wearing a seat belt and recycling are good things to do. Her son often reminds her to fasten her seat belt, and then she does so.
- Motivated by her observations, we looked at the relation of the presence of a child in elementary or secondary school in the household and whether the household recycles.
- We include a variable which is:
 - 0=No child in elementary or secondary school in the household
 - 1=Child in elementary or secondary school in the household

Age of Head of Household

- In developed countries, older people are more likely to recycle than younger people, possibly due to a greater sense of social responsibility.
- However, among African households, older people were exposed to the effects of apartheid for a longer time and might not be any more interested in recycling than younger people. Older Africans might associate recycling with unpleasant memories of the importance of recycling as an income source under apartheid.

Factors Related to Recycling for Non-Money Reasons

- Next we look at factors related to recycling for non-money reasons. This is recycling for normative reasons, such as to help society or to conserve resources.
- We look at the factors considered earlier, as well as the presence of a schoolchild in the household and the age of the head of household.

Results of Multivariate Analysis of Household Recycling for non-Money Reasons, Including Schoolchild in Household and Age of Household Head

	African	Coloured	White or Asian
Education	+	++	++
Littering a Problem	n.s.	n.s.	++
Local Recycling Prog.	++	++	++
Prox. to Buyback Prog.	++	++	++
Child in Elem/Sec Sch.	++	n.s.	-
Age of Household Head	n.s.	++	++

n.s. No significant relationship

- Negative relationship, stronger by chance < 5% of the time
- + Positive relationship, stronger by chance < 5% of the time
- - Negative relationship, stronger by chance < 1% of the time
- + + Positive relationship, stronger by chance < 1% of the time

- For **African** households, the presence of a schoolchild is *positive* and significant for recycling for non-money reasons.
- The results are consistent with the interpretation that African households are more likely to recycle when there are schoolchildren in the household due to the desire of African parents:
 1. To cooperate with school programs in order to help their children and
 2. To set a good example for their children.
- For African households, the age of the head of household is not significantly related to whether the household recycles.
- For **non-African** households, the presence of a schoolchild in the household is significantly *negatively* related to whether the household recycles. The results are consistent with the interpretation that for non-African households, when there are schoolchildren, life is seen as very busy and thus such households are less likely to bother about recycling.
- For non-African households, the older the head of household, the more likely the household is to recycle, as is generally found in developed countries.

Discussion

- The positive relation between socio-economic status and recycling among White or Asian households looks similar to that seen in developed countries.
- The level of recycling among African households is low and increases little with education, even for non-money reasons, until a very high level of education is reached.
- Under apartheid, there was little reason for Africans to feel much commitment to the general welfare and only somewhat more reason for Coloureds to feel such a commitment. These experiences could have contributed to the low level of household recycling by African households and by Coloured households.
- Under apartheid, collecting recyclables was important in poor townships as a means of earning money, a history that African households seem to be eager to put behind them.
- It might take some time for African households to see recycling as a worthwhile activity to engage in for the common welfare.

Discussion (Cont.)

- What could spur a higher level of household recycling among African households in the future?
 - Fairly well-educated urban African households have only been urban and fairly well-educated for a short time.
 - Children learn about the advantages of recycling in school.
 - In a generation, this might lead to a higher level of recycling among urban Africans.
- “Wait a generation” is not a policy recommendation.
- In the meantime: We know that the presence of a schoolchild increases African household recycling.
- More and better school education about recycling, along with more collection programs and more and better located recycling buyback centers, would likely increase recycling among all urban residents, especially among urban Africans.

Selected References

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Appendix: Variables in Multivariate Analysis

Dependent variable: Household recycles	0=Household does not recycle; 1=Household recycles
Education	Educational level of household head in six categories
Littering problem	0=Littering not a community problem; 1=Littering a community problem
Local recycling program	0=No community/school recycling program; 1=Has a community/school recycling program
Distance to local buyback program	1=No buyback program; 2=DK if there is a buyback program; 3=Is a buyback program, DK distance to program; 4=10+ km; 5=5km - <10km; 6=1km - <5km; 7=200m - 1km; 8=100m - 199m; 9=<100m
Child in Elem/Sec School	0=Household does not include a child in elementary or secondary school; 1=Household includes a child in elementary or secondary school
Age of Household Head	Age of household head in years
Dummy 2005	0=Data not from 2005 survey; 1=Data from 2005 survey
Dummy 2006	0=Data not from 2006 survey; 1=Data from 2006 survey

Appendix: Detailed Results of Logistic Regression of Whether an Urban Household Recycles

* p < .05, ** p < .01	African	Coloured	Wh. or Asian
Education	-.194**	.155**	.520**
Littering a Problem	.596**	.206	.668**
Local Recycling Prog.	1.322**	1.533**	2.067**
Proximity of Local Buyback Prog.	.304**	.187**	.252**
Dummy 2005	.064	-.192	-.486**
Dummy 2006	-.516**	-.389**	-1.150**
Constant	-4.501	-4.401	-5.865
X²	813.8**	294.2**	1608.4**
d. f.	6	6	6
n	30,183	7,480	8,028

Appendix: Detailed Results of Logistic Regression of Household Recycling for non-Money Reasons, including Schoolchild in Household and Age of Household Head

	African	Coloured	Wh.or Asian
	(1)	(2)	(3)
Education	.152*	.603**	.657**
Littering a Problem	.243	.137	.775**
Local Recycling Program	1.579**	1.779**	2.111**
Proximity of Local Buyback Prog.	.120**	.115**	.215**
Child in Elem/Sec School	.477**	.029	-.196*
Age of Household Head	.006	.022**	.019**
Dummy 2005	.482**	-.042	-.331**
Dummy 2006	-.813**	-.276	-.990**
Constant	-6.906	-7.692	-7.659
X²	183.0**	276.6**	1443.5**
d. f.	8	8	8
n	30,130	7,476	8,011