School fees 2009 to 2016

22 November 2017

Statistics South Africa, in its General Household Survey (GHS) publications, provides statistics relating to school fees paid by households. Moreover, the DBE's own reports using GHS data describe fee trends[1]. The current analysis[2] attempts to clarify what the trends have been with respect to fees paid, something which is not easy to see in the earlier reports because estimates of global figures, drawing from the thirteen fee categories (or 'bins') used in the GHS questionnaire, are not calculated. Moreover, the current analysis makes the distinction between public and all schools clearer, as well as the difference between the primary and secondary levels. How GHS fee figures compare to data from a 500-school sample dataset from 2009 is moreover explored, as are differences between GHS fee data and those of the Annual Survey of Schools (ASS) datasets of the DBE.

Before non-zero fee amounts are explored, the next table indicates the percentage of learners who, according to the GHS data, pay no fees, in other words who have the category 'None' ticked for the following question: 'What is the total amount of tuition fees paid by this household for [person's name] this year?'.

Table 1: Percentage of learners not paying fees

	2009	2010	2011	2012	2013	2014	2015	2016
Primary (grades R to 7) – public	55	65	66	68	68	72	72	72
Secondary (grades 8 to 12) – public	45	58	62	64	64	65	66	67
All Grade R in formal schools	47	61	61	63	61	65	63	61
All grades R to 12 in public and indep. schools	48	59	61	63	63	66	66	67

A further question in the GHS asks why fees are not paid. For all learners (so in relation to the last row of the above table), 80% of the learners questioned are reportedly in a 'no fee school' or the 'school did not ask for fees'. For a further 17% of learners, the reason is not specified. These two response categories thus account for 97% of learners not paying fees. Only 0.3% of learners 'get a fee exemption', meaning they are in a fee-charging school but due to household circumstances are exempt from payment.

One relatively easy way of representing the GHS fee data, in a manner that makes comparisons across years meaningful, can be seen in the next two graphs. Here the vertical axis refers to the maximum value in a fee category, for instance R3,000 in the R2,001 to R3,000 category. However, these maximum values have been adjusted by Stats SA's consumer price index (CPI) to produce 2016 Rand values. The horizontal axis refers to the percentage of learners, derived from cumulative weighted learners in the GHS data.

The two graphs refer to just public schools, meaning they correspond to the first two rows of Table 1. One thing that is immediately clear is that the data suggest a very large jump in fees paid between 2011 and 2012. If one estimates the overall mean fee paid by all learners, counting learners who pay zero, this jump comes to 48% at the primary level and 26% at the secondary level (in real inflation-adjusted terms). (How one can estimate the overall mean is explained below.) There is nothing to suggest that such large fee increases actually occurred between 2011 and 2012. The most probable explanation for the jump is some change in the GHS sample. One test was run. Unweighted observations in the GHS data were used. This

[1] Department of Basic Education, 2016.

[2] Produced by Martin Gustafsson (mgustafsson@sun.ac.za) for the DBE's Working Group to examine possible policy changes relating to the funding of schools.

still produced the very large 2011 to 2012 increases seen below. The problem appears not to lie with changes in the weighting of observations.

Figure 1: GHS primary fee distribution 2009-2016 (in 2016 Rand terms)

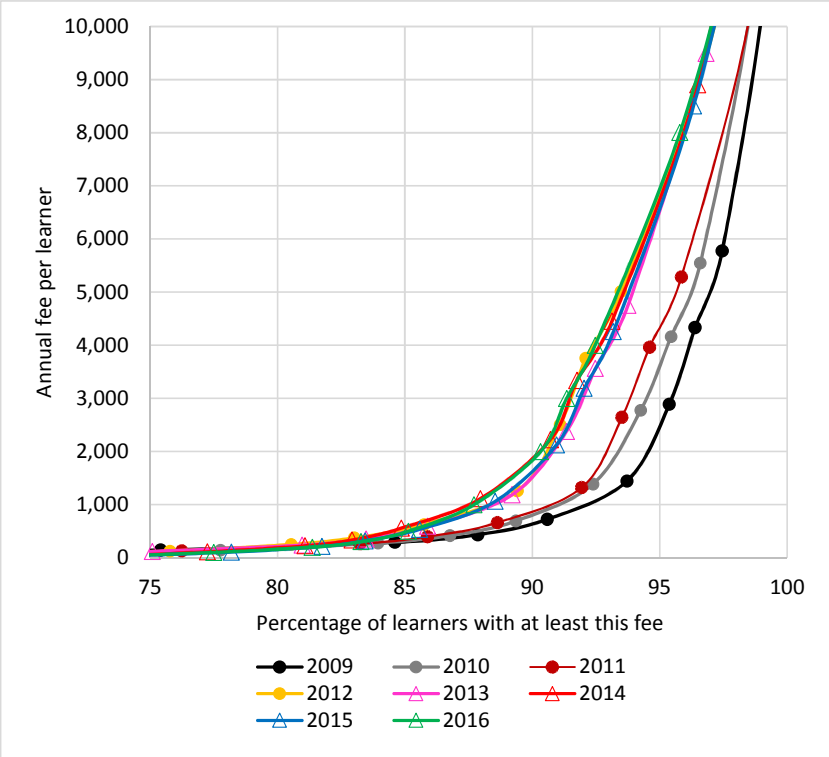
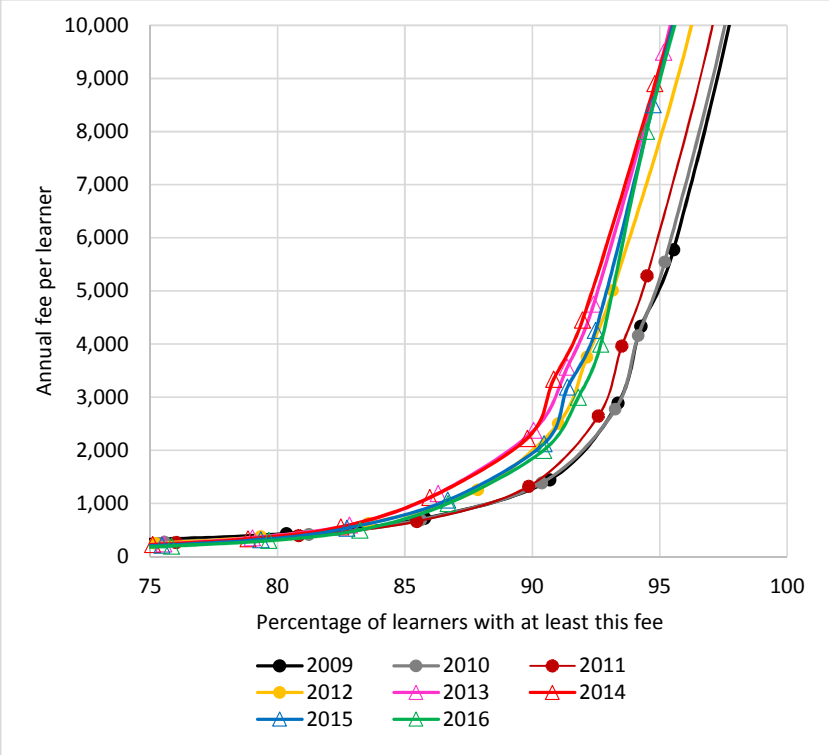


Figure 2: GHS secondary fee distribution 2009-2016 (in 2016 Rand terms)



The following two graphs compare fee levels in the GHS to what one finds in two other sources. The first is a rich dataset on school financing collected in 2009 from a nationally representative sample of 500 public schools. This is referred to as FAMS in the graphs, for Funding and Management Survey. Unfortunately neither the data nor the reports from this Unicef-funded initiative, undertaken in collaboration with the Department of Education, are widely available. The FAMS curves in the graphs below illustrate the distribution of fees *collected* per learner, with Rand values inflated using CPI to produce 2011 Rand values. The second source is the Annual Survey of Schools (ASS). The ASS asks schools what they *charge* per learner in school fees. The ASS fee data for 2011 were more complete than ASS data for subsequent years which were available for inspection. Yet even the 2011 data had serious gaps. Specifically, for 77% of primary-level learners in public schools the school had submitted no fee data, when GHS data indicate that around 66% of learners do not pay fees. There are good reasons to trust the 66% statistic. At the secondary level a similar gap was found: 79% without fees in ASS against 62% in GHS. Clearly many schools did not submit fee data in the ASS. If one examines the situation by quintile, one finds that for 32% of (learner-weighted) schools in quintile 5 there was no fee data, the figure being 45% for quintile 4. A key question is whether the fee data that exists in the 2011 ASS data is representative of the schools with missing data.

Clearly ASS values exceed GHS and FAMS values to a large degree, whilst GHS and FAMS produce similar distributions. What would be the most plausible explanations for the higher values in the ASS data? Above all, it seems likely that non-reporting of fees in the ASS occurred to a greater degree where fees were relatively low. It could be that schools with low fees also had fewer staff available to fill in the ASS questionnaire (which was 38 pages long in 2011). Some of the gap would be accounted for by the fact that the ASS focusses on fees *charged* and not actually *paid.* Apart from formal exemptions, there are many cases where parents simply do not pay their full fees, and the school is not able to recover outstanding amounts. A report from the 2009 FAMS study provides figures indicating that around 19.5%

of fees *charged* in the public system is not collected, with around half of the gap being due to formal fee exemptions, and the other half simple non-payment of fees due[3]. The ASS values are higher than the GHS values by a much larger margin than 19.5%. Whether one considers the overall mean (including zero) or the 90th percentile, ASS fee levels are around 2.5 times as high as those in the GHS at the primary level, and 5.0 times as high at the secondary level. Hence the conclusion that most of the ASS-GHS gap is due to schools charging lower fees being missing in the ASS data. The GHS and FAMS-derived distributions seen in the two graphs thus seem more or less correct.

Figure 3: GHS versus other sources in public grades R to 7 (2011)

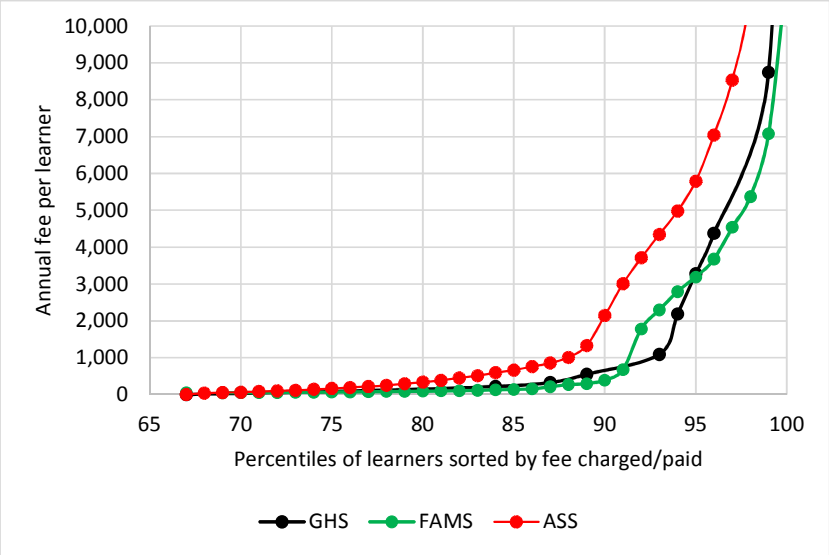
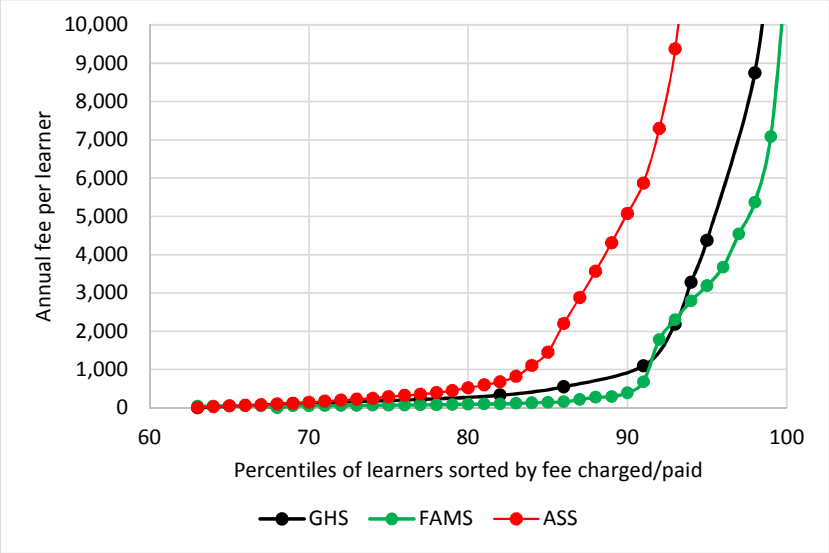


Figure 4: GHS versus other sources in public grades 8 to 12 (2011)

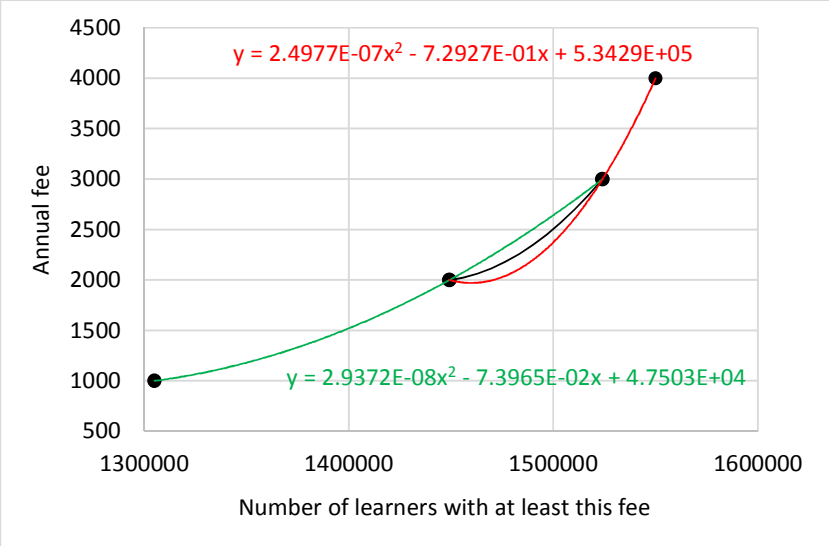


A method was devised to estimate the mean fee paid within each of the thirteen fee categories in the GHS[4]. This would allow for the estimation of the overall average fee paid. The next two graphs illustrate the method. For categories which were not at the top or bottom of the range,

[3] Department of Education, 2009.
[4] A Stata .do file with the code used in available on request from the author.

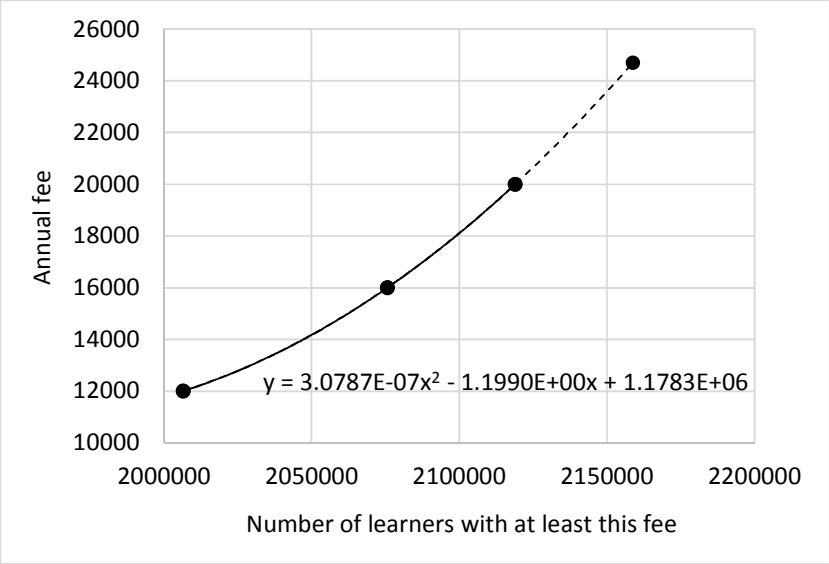
the approach shown in Figure 5 was employed. For each category, two quadratic functions would be determined, represented by the red and green curves. Thereafter the average between the two functions, within the category in question, was calculated – see the black curve. Thereafter calculus was used to obtain the area under the black curve, which then allowed for the mean for the category to be calculated.

Figure 5: Imputing averages per bin (I)



To provide an idea of the approach used for outer categories, Figure 6 shows what was done for the top category, where the minimum is R20,001, but the maximum undefined. Here it was assumed that fees would continue to increase beyond R20,000 in line with the function defining the trend in the second-from-the-top and third-from-the-top categories. This then produced a maximum of just over R24,000 in the case of Figure 6.

Figure 6: Imputing averages per bin (II)



The next two tables draw from the methodology explained above. Table 2 provides average fees paid, counting even learners with no fees, across eight years. Values are in terms of 2016 prices, using CPI. The average annual percentage increases for the entire 2009 to 2016 period

are very high largely because of the 2011 to 2012 jump. What seems far more reliable is the 2012 to 2016 annual increases in the last column. The fact that these figures are low, even negative, would in part be due to the fact that even in the 2012 to 2016 period, the percentage of learners not paying fees increased (see Table 1).

Table 2: Average fees paid 2009 to 2016 in 2016 prices

									Avg. annual % increase	
	2009	2010	2011	2012	2013	2014	2015	2016	2009-2016	2012-2016
Primary (grades R to 7) – public	457	567	610	901	859	914	851	897	8	0
Secondary (grades 8 to 12) – public	805	815	858	1,080	1,233	1,144	1,116	1,085	5	-1
All Grade R in formal schools	451	1,067	688	945	929	992	789	735	2	-6
All grades R to 12 in public and indep. schools	1,121	1,190	1,234	1,593	1,529	1,558	1,557	1,483	4	-1

Note: Average annual percentage increases are calculated using SLOPE in Excel.

Table 3 provides a better sense than the previous table of the kinds of annual fee increases the middle class would have faced. Here the fee at the 90th percentile is given, where all 100 percentiles include learners with no fees. Again, the last column can be considered more reliable than the second-last one.

Table 3: Fees at the 90th percentile 2009 to 2016 in 2016 prices

									Avg. annual % increase	
	2009	2010	2011	2012	2013	2014	2015	2016	2009-2016	2012-2016
Primary (grades R to 7) – public	640	743	739	1,602	1,514	1,778	1,565	1,800	14	3
Secondary (grades 8 to 12) – public	1,256	1,288	1,334	1,883	2,345	2,430	1,841	1,802	7	-3
All Grade R in formal schools	1,038	1,715	1,468	1,971	1,954	1,836	2,103	1,835	6	-1
All grades R to 12 in public and indep. schools	2,460	2,552	3,073	4,910	4,448	4,823	4,850	4,799	10	0

The average fee paid per learner, counting even learners for whom no fees are paid, provides a sense of the overall private contribution of households to public schooling via fees. If we multiply the primary-level value of R897 in 2016 (see Table 2) by 7.4 million learners one obtains R6.6 billion, whilst multiplying the secondary-level average by 4.4 million learners produces R4.8 billion, giving a total of R11.4 billion. The 2009 FAMS estimate was R9.0 billion, or around R13.7 billion in 2016 Rand values. The two sources, GHS and FAMS, thus produce aggregates which are sufficiently close to each other to provide some reassurance that the GHS is collecting relatively good school fee data.

References

Department of Basic Education (2016). *General Household Survey (GHS) 2015 report: Focus on schooling*. Pretoria.

Department of Education (2009). School funding and management in South Africa: Findings from the school survey. Pretoria. [Unpublished report.]