



Research on Socio-Economic Policy

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Excessive class sizes in the Foundation Phase

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In previous research we have stressed the importance of learning to read by the end of Grade 3 (see 'Learning to Read and Reading to Learn', 2016). However, teaching young children to read is notoriously difficult in an over-crowded classroom. As Snow et al. (1998)² have explained: "The abilities and opportunities of teachers to closely observe and facilitate the literacy learning of diverse groups of children are certainly influenced by the numbers of children they deal with."

In this policy brief we analyse the Annual Survey of Schools (ASS) data of 2013 – a data base that records enrolments by grade for all public schools in the country – and focus on Grades 1–3 (Foundation Phase). We find that there are considerable inter-provincial differences in the extent of extreme class sizes at this critical point of schooling. In the Western Cape very large classes – defined as 46 learners or more per class – are rare, with about 3% of Grades 1–3 learners in these types of classes. However, in a province like Limpopo or the Eastern Cape the figures are ten times higher with 41% of Grade 1–3 learners in Limpopo being in very large classes and 36% of Grades 1–3 learners in the Eastern Cape being in classes of 46 learners or more. In both Gauteng and Mpumalanga this is 33%. In the Eastern Cape and Limpopo between 10–15% of Grade 1–3 learners are in extreme class sizes of more than 60 learners.

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² Snow, C., Burns, M & Griffin, P. (1998). *Preventing Reading Difficulties in Young Children*. Department of Education, Washington, DC.

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1. The lack of research on extreme class sizes in developing countries

Although there have been a number of studies that have tried to estimate the impact of reducing class sizes, almost all of this research has been conducted in developed countries. The major contextual difference is that these studies typically look at classes that are not 'large' in any developing-country sense. The classic Tennessee Project STAR research looked at a reduction from 22 children per class to 15 children per class. Similarly Angrist & Lavy (1999)³ looked at a reduction in class size from 41 to 21 in Israel. It is quite reasonable to expect that class size reductions from 60 to 40 may have a different impact than those from 40 to 20, particularly in the early grades.

There is not a large amount of rigorous research on this issue that has been conducted in developing countries. In a recent review Ganimian & Murnane (2016: 17)⁴ summarise this as follows: "The best available evidence is that class size reductions in developing countries are effective only when initial class sizes are very large, the reductions radically change the number of students in the classroom, and students are tracked by their initial achievement." In one of the studies in Kenya which they refer to, class sizes were reduced from about 90 students to about 43 students by using a contract teacher. Where students were also tracked on prior achievement there were modest but statistically significant gains. In a similar study in Andhra Pradesh (India), Muralidharan & Sundaraman (2013)⁵ find that reducing the pupil-teacher ratio by 10% using either a contract teacher or a regular civil-service teacher led to an increase in test scores of 0.03 and 0.02 standard deviations respectively, a quite small gain. The additional teacher lowered the average pupil-teacher ratio from 36 to 25. They also stress the cost-effectiveness of hiring contract teachers over regular civil service teachers, given that the latter earn 5 times as much and the impact was very similar for both groups.

Moving from the quantitative literature to the educational literature, Snow et al., (1998) in their book "Preventing reading difficulties in young children", discuss class sizes but note the following:

"Although both the quantity and quality of teacher–student interactions are necessarily limited by large class size, best instructional practices are not guaranteed by small class size. Class size reduction efforts must be accompanied by professional development and planning that supports the desired changes in curriculum, instruction, and assessment."

In the Eastern Cape and Limpopo between 10–15% of Grade 1–3 learners are in extreme class sizes of more than 60 learners.

2. Extreme class sizes in South Africa

In the South African context there has been little attention paid to class sizes, especially class sizes in the Foundation Phase. There is a strong case to be made that class sizes in the early grades should be smaller than those in the higher grades. For a variety of reasons, children aged 6–8 years may be more difficult to manage, direct and teach than children aged 10 years and older. The post-provisioning norms of 2002 (Government Gazette 24077) indicate that the ideal maximum class size for Grades R–4 is 35, whilst it is 40 for Grades 5–6 and 37 for Grades 7–9.

As part of an on-going research project focussing on the Foundation Phase we analysed the Annual Survey of School (ASS) data for 2013 to determine the prevalence of different Foundation Phase (Gr 1–3) class-sizes in each province. Table 1, together with Figure 1 and 2, show the proportion of learners that can be found in different class sizes in each province (only public schools are considered).

3 Angrist, J. & Lavy, V. (1999) Using Maimonides' Rule to Estimate the Effect of Class Size on Scholastic Achievement. *Quarterly Journal of Economics*. May, 1999.

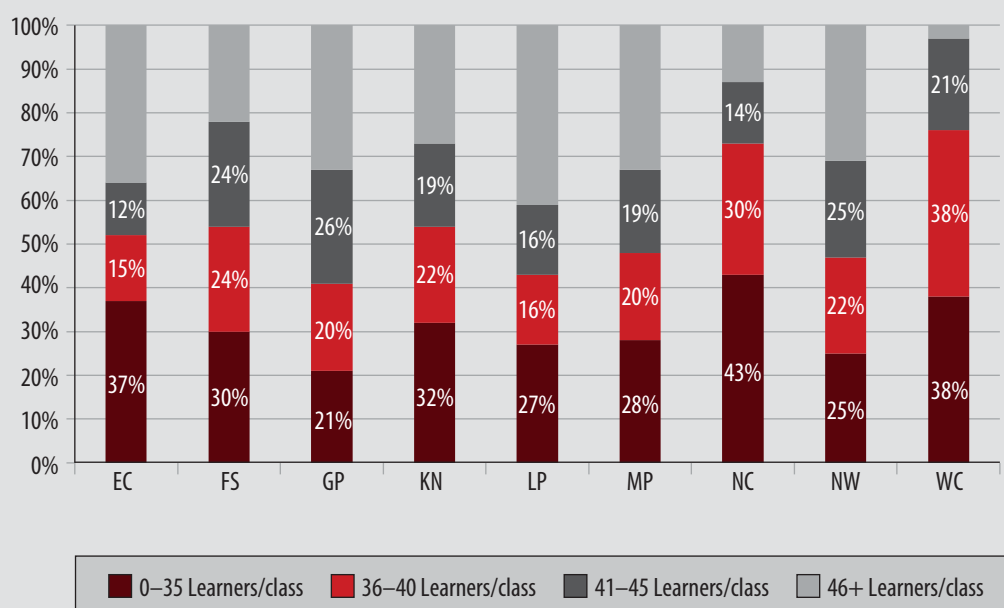
4 Ganimian, A. & Murnane, R. (2016). Improving Education in Developing Countries: Lessons from Rigorous Impact Evaluations. *Review of Educational Research*. Vol. XX, No. X, pp. 1–37.

TABLE 1: Percentage of Grades 1–3 learners in Foundation Phase classes of a particular size in each province

	0 – 35 Learners/class	36 – 40 Learners/class	41 – 45 Learners/class	46 – 50 Learners/class	51+ Learners/class
EC	37%	15%	12%	9%	27%
FS	30%	24%	24%	16%	6%
GP	21%	20%	26%	19%	14%
KN	32%	22%	19%	12%	15%
LP	27%	16%	16%	14%	27%
MP	28%	20%	19%	15%	18%
NC	43%	30%	14%	7%	6%
NW	25%	22%	22%	15%	16%
WC	38%	38%	21%	3%	0%

From the table above and the graphs below, it quickly becomes clear that there are significant provincial differences in the extent to which Grades 1–3 learners are exposed to large classes. If one uses the government’s own post-provisioning norms, which imply a maximum class size of 35 learners in Grades R–4, then we can say that the majority of Foundation Phase learners are in classes that exceed these norms, in some instances by a significant margin. While 38% of Grade 1–3 learners in the Western Cape are in classes that do not exceed the norms, the comparable figure in Gauteng is only 21%. If one takes a slightly larger class-size threshold of 40 learners per class or less, then three quarters (76%) of Grades 1–3 students in the Western Cape are in norm-compliant classes, compared to only 41% in Gauteng, 43% in Limpopo and 52% in the Eastern Cape.

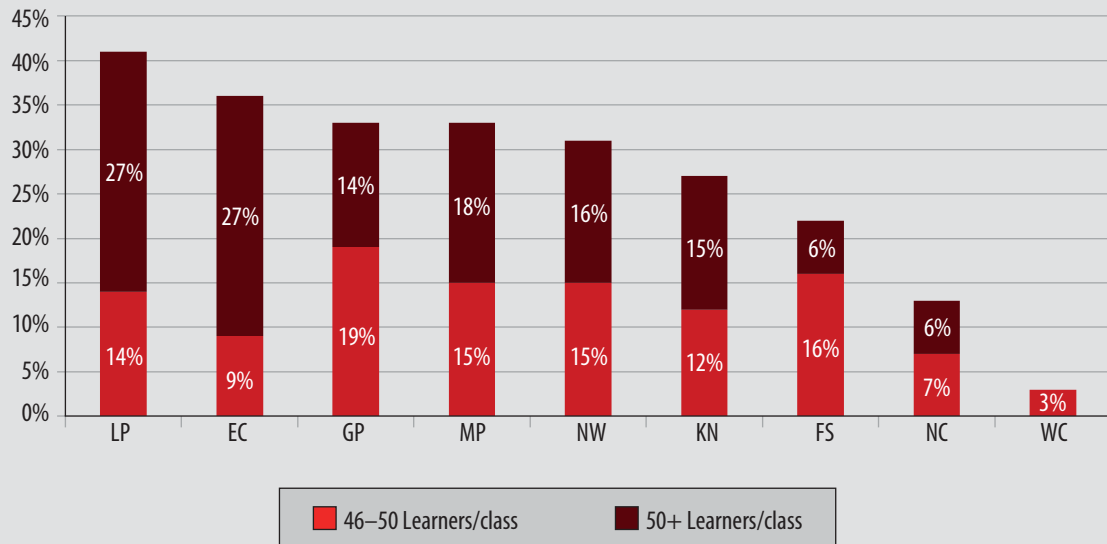
FIGURE 1: The percentage of Grades 1 – 3 learners that are in Foundation Phase classes of a particular size in each province.



5 Muralidharan, K. & Sundararaman, V. (2013). Contract Teachers: Experimental Evidence from India. *National Bureau of Economic Research (NBER) Working Paper No. 19440*.

If one turns to the issue of very large and extreme class sizes, the true extent of the problem emerges. Among Grade 1–3 learners in Limpopo and the Eastern Cape nearly one in three (27%) are in very large Foundation Phase classes (more than 50 learners). In five provinces more than 30% of Grade 1–3 learners are in large classes (more than 45 learners). What is of greatest concern is that in the Eastern Cape and Limpopo between 10–15% of Grade 1–3 learners are in extremely large classes with more than 60 children.

FIGURE 2: The percentage of Grades 1–3 learners that are in very large classes



The fact that large classes are often overlooked in the policy debates has arguably contributed to a situation where education expenditure discussions tend to focus on the ability to pay existing teachers more, as opposed to employing more teachers, or even teacher assistants.

3. Policy recommendations:

There are five policy recommendations that follow from the preceding analysis:

1. Acknowledge the extent of the problem & prioritise the Foundation Phase

Although the Action Plan to 2019 does identify “Teacher availability and class sizes” as an explicit goal (Goal 15), there is no special mention of class sizes in the Foundation Phase or whether and why this phase should be prioritised over others. As we have argued in other research, unless children are learning to read in the Foundation Phase they are largely precluded from meaningful engagement with the curriculum in later grades – i.e. they cannot ‘read to learn.’ Unfortunately many Foundation Phase teachers in South Africa lack the pedagogical skill and content-knowledge base to teach children to read even in appropriately-sized classes (35 learners per class). Removing the additional barrier of extreme class-sizes is a necessary (but not sufficient) condition for increasing the chances that children will learn to read in this critical phase.

2. Prioritise the elimination of extreme class-sizes first

When referring to the issue of large class-sizes in the Foundation Phase, some do not make the distinction between marginally over-crowded classes (40 learners per class) and extremely overcrowded classes (60 learners per class), instead simply referring to 'over-crowded classes' – presumably meaning anything in excess of 35 learners per class. The education authorities' attempts to reduce excessive class sizes should give highest priority to first eliminating very large classes (i.e. those with 50+ learners per class), and only after this focus on addressing other large classes (say 40+ learners).

3. Identify the prevalence of extreme class sizes in each district

Although the analysis presented here has provided a high-level overview of the prevalence of large classes in the Foundation Phase in each province, additional work would need to be done to operationalize this information at the sub-province level. Identifying which districts are most affected, and the characteristics of these schools, such as their quintile, whether they are mainly in urban or rural areas, and the types of teachers that are currently teaching in those schools, can aid in creating context-appropriate solutions.

4. Identify the causes of extreme class-sizes in each province

The problems of extreme class-sizes are not necessarily uniform across provinces. They can be due to unresponsive post-provisioning systems, a lack of physical classrooms, teacher absenteeism, or inefficient timetabling (use of existing resources). A one-size fits all solution is unlikely to work.

5. Propose and pilot alternative strategies to reduce extreme class sizes

Given the budgetary realities involved in reducing class sizes, national and provincial governments need to propose, pilot and evaluate different interventions that can reduce extreme class sizes. One alternative that is implemented in some countries is the practice of having multiple school 'shifts' where one set of students start and finish their school day later than the other group. For instance, one could get some learners to start school two hours later, and go home two hours later. This would allow some hours of smaller classes when teachers could provide more individualised support to learners. One could also consider special classes in the afternoon for those learners struggling most. The international literature points to the recruitment of contract teaching staff or teaching assistants as a policy option. These individuals are usually drawn from the local community, offered a short course of training (perhaps one year) and remunerated at lower levels than traditional teachers because they have lower qualifications. While Foundation Phase teachers in South Africa earn approximately R21,100 per month, it is conceivable that one could appoint teaching assistants with lower qualifications at a lower cost. Such a proposal is likely to experience considerable political opposition from the teacher unions. However, this type of initiative would improve the working conditions of existing teachers (by providing additional personnel support), create a channel to influence the teaching of reading in the Foundation Phase (through the short-course curricula) and increase employment in the local community. Reducing class sizes by only appointing new teachers does not seem feasible in the existing budgetary climate, and waiting until this is possible will unnecessarily prejudice Foundation Phase students that are already in extremely overcrowded classes.