Why the Difference?
Variation in Reading Scores Among Canadian Provinces

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This article has been adapted from “Variation in Literacy Skills Among Canadian Provinces: Findings from the OECD PISA, 2000” Education Skills and Learning Research paper, no. 12 Statistics Canada. It is available free online at www.statcan.ca: 8096/bsolc/english/bsolc?catno=81-595-M2 004012. As we go to press, the results of the 2003 PISA assessment are just being released. Like the earlier results, they too show significant variation among the provinces.

Canada’s 15-year-olds rank among the best in the world in reading, math and science according to the OECD Programme for International Student Assessment (PISA).1 Conducted in the spring of 2000, the PISA survey identified how well youth can apply their reading, science, and mathematical abilities to perform real-world tasks as they move on to post-secondary education and the labour market. Canada placed second in reading, sixth in math, and fifth in science among the 27 participating OECD countries. The results of the second, 2003 survey are expected at the end of this year. They will demonstrate whether our youth have maintained or improved this performance, as other countries also endeavour to move ahead.

Despite a second-place finish at the international level, Canada’s ten provinces varied significantly in their reading scores. Not all provinces attained scores among the top group of countries. Alberta ranked second in the world in literacy next to Finland, but scores for the four Atlantic provinces were considerably lower, placing that region in the middle of the international ranking. Moreover, the results demonstrated that one in ten Canadian students can at best perform only the very basic reading tasks at PISA Reading Level 1. Reaching Level 4 predicts that a young person will be able to pursue post-secondary education.

Figure 1 shows the average reading performance for each of the ten provinces, compared with other OECD countries. Provincial results ranged from a score of 501 in New Brunswick to 550 in Alberta. The average scores for the three largest provinces, Ontario, Quebec and British Columbia, were 533, 536, and 538. Because almost 73.5% of Canadian 15-year-olds live in these three provinces, their scores anchor the national average of 534. Alberta’s average reading performance, 550, was above the Canadian average, while the scores for Newfoundland and Labrador (517), Prince Edward Island (517), and Nova Scotia (521) were below the Canadian average. New Brunswick had the lowest score at 501, which is comparable to the OECD international average set at 500. New Brunswick’s performance was 33 points below the Canadian average, a gap of about one school year. These results are consistent with earlier national and international studies.

Family Background Accounts for Some Provincial Variation

In all countries studied in PISA there was a significant relationship between students’ reading performance and their family backgrounds. The education level of the parents, the nature of their occupations, and the kinds of educational, material and cultural possessions in the home are among the most important family background factors. For the PISA study, I developed a measure of socioeconomic status (SES) that is a statistical summary of these factors. It was scaled to have a mean of zero and a standard deviation of 1.0 for all OECD countries. With this measure, one can examine how well students from differing family circumstances fared in their reading performance. This relationship between reading performance and socioeconomic status is called a socioeconomic gradient.

Figure 2 shows the socioeconomic gradients for the ten Canadian provinces. The graph shows clearly that in every province students from less advantaged backgrounds (e.g., a score of -1 or lower on the SES scale) have considerably lower reading scores than those from advantaged backgrounds (e.g., those with SES scores of 1 or higher). On average the gap in reading performance is about 75 points. The graph also shows that students in Ontario and the Atlantic provinces have lower scores than those in Quebec and Alberta at all levels of socioeconomic status. If one considers a student of average SES – a score of zero – the SES-adjusted scores for Quebec and Alberta are 539 and 535 respectively, while in New Brunswick the adjusted score is 503. The gap between the top and bottom scoring countries is only 36 points, considerably less than the 49-point gap observed in Figure 1. In more statisti-
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Low SES Students Perform Better in Average or High SES Schools
An important question for educational policy is whether school performance is higher in systems where students are segregated according to their ability or socioeconomic status. The PISA study found that in every country there was a significant relationship between reading performance and the average SES of the school. This means that a child of average SES tends to have higher performance if he or she attends a school with high average SES rather than one with low average SES. This effect of school composition is attributable to a number of factors, including peer effects, differing levels of school resources, and the school and classroom learning climate. The effect tends to be stronger for low SES students than for high SES students.

This is also the case for the provincial schooling systems in Canada. Together, the family SES of students and the SES of the schools they attend account for about 63% of the variation among provinces.

Reading Performance and Schooling Processes
The PISA study also collected data on levels of school resources and on various school policies and practices related to school performance. In Canada, the most important school resource factor was whether students were taught by teachers who were trained in language arts. The amount and quality of school resources were less important than students making the best use of available resources. Schools where students reported better teacher-student relations and a stronger disciplinary climate also had higher performance. Generally, however, the effects of any particular school or classroom factor were fairly small. Rather, it is a combination of factors that together make a difference to school performance.

The results indicate that the ten provinces would be much more similar in their performance if they had similar levels of school resources, policies and practice. Alberta and Ontario are the exception; their relatively high performance in PISA is somewhat attributable to the level of school resources in those provinces, and to their school and classroom policies and practices.

Taken together, these findings suggest that it is not possible to identify a small set of factors that jointly explain why some provinces perform better than others; the best “policy mix” for a country depends on its wider social, historical, and economic context. However, the findings do emphasize the role of school composition. Discussions about the merits of policies that differentially allocate students into different types of schools and school programs should not only consider the potential benefits of a targeted curriculum and preparation for specific vocations. They should also consider the role that such policies may play in the allocation of human and material resources, and the impact they have on the important aspects of school and classroom context that affect student outcomes.

EN BREF Malgré la deuxième place du Canada au chapitre des résultats des évaluations du Programme international de suivi des acquis des élèves (PISA) de l’OCDE pour l’année 2000, les provinces canadiennes ont obtenu des classements très variés en lecture. La présente analyse indique que, dans chaque province, les élèves issus d’un milieu défavorisé ont obtenu des résultats substantiellement inférieurs en lecture que les élèves issus d’un milieu aisé. Elle indique aussi que les élèves ayant un faible statut socioéconomique (SES) ont un meilleur rendement lorsqu’ils fréquentent une école à statut SES moyen ou élevé, et que le principal facteur scolaire qui détermine le rendement des élèves est le niveau de formation du professeur dans l’enseignement de la lecture. Les résultats indiquent en outre que les dix provinces auraient obtenu des rendements beaucoup plus semblables si elles avaient disposé de ressources éducatives équivalentes et si leurs politiques et leurs pratiques avaient été davantage similaires.