The Cultural Determinants of Access to Post-secondary Education by First Generation Households: An Analysis Using the Youth in Transition Survey

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May 2015

Abstract

The OECD (2012) recently noted that post-secondary education (PSE) participation rates in Canada will need to continue to expand as the population ages and as the needs of the knowledge-based economy increase. With many groups already participating at high rates, much of this expansion will have to come from groups which are currently underrepresented in PSE (especially at the university level), including Aboriginals, the disabled, rural students, and students from low-income families. Children from families where neither parent has completed any level of PSE also represent an important under-represented group – and one that broadly cuts across (and is related to) the other specific groups just mentioned. This paper presents the results of an analysis of the factors – with a focus on the "cultural factors" – which favour PSE participation among those children who come from such families. Our findings identify a range of effects which could hold important clues as to why some children from families without a history of PSE go on to access PSE while others do not, and thus point to how these rates could potentially be increased through policy measures. Furthermore, those measures, being focused on cultural factors rather than the financial barriers that have been concentrated on in the past (tuition fees, student aid, etc.) may in some cases not only be more effective in changing behaviour, but may do so at lower cost. Only further research can help us identify which policies work, which do not, and which are most cost effective.

Thanks to Reuben Ford for his insightful comments on an earlier draft of this paper.

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I. Introduction

The OECD (2012) recently noted that participation rates in Canadian PSE will need to continue to expand as the population ages and as the needs of the knowledge-based economy increase. Canada is thus in a position where the supply of skills individuals will decline while demand increases, thus underlining the importance of bringing an increasing proportion of Canada's current and future youth into post-secondary education. While Canada has very high PSE participation rates by OECD standards, and a high quality post-secondary education system, graduation from PSE has not always been distributed equally among different groups in the country. Because students from certain populations (i.e., higher income, highly educated parents, children of immigrants, etc.) already have high participation rates, there is little scope to increase the numbers of participants here. Rather, the focus has to be on groups which have been historically underrepresented in PSE; Aboriginals, the disabled, rural students, and students from low-income families, all have lower PSE participation rates in general, and much lower university participation rates in particular.

Although not mutually exclusive from these other categories, children from households where neither parent has completed PSE also represent an under-represented group. Previous research has found parental education to be an important predictor of PSE access and attainment, and this research will attempt to identify the characteristics of those households where there is no history of PSE that result in the children becoming "first generation" PSE students.

Our work is based on an empirical analysis that exploits the remarkably rich Youth In Transition Survey, Cohort A (YITS-A). This data, which is unrivalled in Canada and in other countries, allows us to identify a wide range of family attributes associated with participation in PSE. These include various cultural factors (defined below) that tend to influence whether a child goes on to college or university. Previous research has found that parental education is a dominant factor with respect to participation in PSE in this regard. Hence we are attempting to identify those factors *within* families that can make the difference in a child's educational attainment.

This research occurs in the context of recent empirical evidence (in Canada and elsewhere) that challenges the standard neoclassical model of educational decision-making. A primary component of this new model is the role of factors beyond purely economic considerations. The authors refer to one of these factors as *culture*.

The authors, following Finnie (2014) define culture as:

> . . . an understanding of and appreciation for the value and broad benefits of PSE, a sense that it is something that might be possible (or even likely) for the young person in question, and the preparation for that option, perhaps from a young age...In essence, two young people facing the same economic/financial calculations (the benefit and cost considerations mentioned above) and having the same financial means at their disposal may make different decisions regarding whether to attend PSE, and this may be driven by having different cultural orientations with respect to PSE as defined in this way.

The following section offers a brief review of the relevant literature. Section III discusses the methodology and the data that will be utilized. Analysis of the results from the model estimation is the topic of Section IV. The final section concludes and discusses the policy relevance of the work.

II. Literature Review

A now-common finding in the Canadian literature is that children from families whose parents do not have a PSE are much less likely to attend university than those whose parents do have a PSE. Drolet (2005) shows that only about one-sixth of children from households where the highest level of parental education is high school or less are attending or have attended university, compared to almost one-half of those from households where at least one parent has a university degree. Drolet also shows that parental education is not related to college participation as children with parents with a high school education are just as likely to participate in college as those whose parents have a university degree. Earlier work by Corak, Lipps and Zhao (2003) and Finnie, Laporte and Lascelles (2004) arrive at essentially the same conclusion.

More recently, Finnie and Mueller (2008a) show that the participation gap is even wider once higher levels of parental education are considered. For example, only 16.9% of 19-year old males (31.1% of 19-year old females) had ever attended university when the parent with the most education had only completed high school. For those with at least one parent who had a graduate degree, the numbers increase to 65.6% and 76.8% for males and females, respectively. Using these same data, but when respondents were two years older (i.e., at age 21), and addressing participation somewhat differently,

Finnie and Mueller (2010) find that those with the most educated parents had a much lower probability of *not* attending PSE: 5.9% of young people with at least one parent with a graduate degree compared to 27.5% of those whose most-educated parent had only a high school diploma. Thus, parental education is a large determinant of PSE, particularly university, attendance. In other words, a child who does not have a parent who has attended PSE is less likely to attend him/herself. Indeed, one of the main lessons from these and other similar studies has been that the effects of parental income are greatly diminished once parental education is factored into estimated models.

Similarly, Finnie, Childs and Wismer (2011) report that a large proportion of students from less-educated families do not attend PSE: about 30% of Canadians aged 21 years come from families where neither parent has completed any PSE, and this group is only about half as likely to attend university compared to families where one or both parents has attended PSE. This gap is somewhat narrowed when college participation is included, but the overall PSE participation rate is still substantially lower for those from families with no parental PSE experience. Furthermore, most of this university gap remains once the researchers control for other factors such as low-income status, rural status, Aboriginal status and having a disability (all factors also associated with lower PSE attendance). The authors note (pp. 23-4): "Being from a non-PSE family has a greater effect than being from a low-income family (by far) or a rural area (again by far); the parental education effect is even greater than the effects of being disabled or Aboriginal."

The decision to attend PSE is complex and there are many factors which influence this decision. Ascertaining these effects is empirically difficult, but parental education likely works through a number of channels to influence a young person's PSE choices. For example, a recent thread of research (Finnie, et al, 2005; Finnie and Mueller, 2008a, 2008b) shows that parental education does in fact work both directly and indirectly to enhance access to PSE. High school grades, reading ability, and academic engagement are all positively correlated with the higher probability of attending PSE, especially university, and all are positively correlated with parental education.

Indeed, it is this indirect mechanism through which parental education is transmitted to higher PSE participation rates which is gaining acceptance in the Canadian research. This paper uses the term culture, to refer to a set of attitudes towards PSE that encompass both the idea that PSE is valuable for that individual and that attending PSE is a realistic possibility for them. The incidence of these cultural values shows a striking correlation with PSE attendance. Childs, Finnie and Mueller (2010), as one example, borrow from the sociology literature and use the concept of *cultural capital* and relate this to

PSE attendance. Cultural capital refers to " . . . a specific set of ways in which parents pass their social status and economic opportunities on to their children. . . . These processes involve the knowledge, experiences, and connections that help individuals to succeed in life . . . " (p. 247).

The authors find that factors such as communicating with children, supporting children's learning, the material well-being of the household, reading habits and family cultural activities are all positively related to PSE access, university in particular, even after controlling for parental education and other factors. Things such as discussing politics and social issues with children, or visiting a museum or art gallery are positively related to university attendance. While these results are not causal, if further research can establish such a link, it would suggest that schools (for example) may be able to provide students with some of the cultural capital which may be lacking in the family home.

More educated parents may also possess more accurate information about the true benefits and costs of PSE to their children. There is evidence that those from families whose parents have only a high school education show greater price sensitivity than those with more highly educated parents and that their under-representation in PSE could be due to this (Palameta and Voyer, 2010). As with other under-represented groups, this price sensitivity could be due the benefits of PSE being underestimated and/or the costs of PSE overestimated (Frenette and Robson, 2011).

Another example of the importance of culture is given by Finnie and Mueller (2009, 2010) who find that the university participation rates of some immigrant groups (such as the Chinese) are much higher than the levels of parental education, parental income, and other factors including parental educational aspirations for their children would predict. They attribute this to the particular background of Chinese immigrants to Canada where a great deal of emphasis is placed on academic achievement.

III. Methodology and Data

In this project, we use a standard empirical model for estimating PSE access, where the educational outcome is taken to be a function of a variety of different sets of influences. This project compares households where the parents have not themselves gone to PSE to those where at least one of the parents has completed PSE. These two groups are defined as first generation household PSE attendees (*FGHs*) and those who had a parent complete PSE and so are not considered first generation (*non-FGHs*).

The analysis begins with a small set of regressors that have been shown in the literature to be related to the decision to attend PSE. Then the model is expanded to include a more comprehensive set of regressors that represents the key types of cultural influences: cultural capital, financial preparation for PSE, and PSE aspirations and expectations that are also likely to affect participation.

The model can be expressed as follows:

$$Y = X_i\beta_i + u$$

where Y is the measure of education access, the X_i are vectors of covariates that influence Y, the β_i are the coefficients associated with each set of X_i, and u is the classical stochastic error term.

This modeling framework allows the key background characteristics of households to be controlled for and then isolate the effects of the different kinds of household behaviour on PSE choices and outcomes. In this way we will be able to see which behaviours contributed to PSE participation and which do not. Policies could then focus on the factors that are related to these behaviours so that youth from families that lack these attributes are given a better chance to make it into PSE.

The structure of the MNL model means that coefficient estimates of these choices sum to one. As a result, the no PSE choice is omitted from the tables since it adds no information to looking at the effects on college and university attendance. Most of the large and significant coefficients presented below are for university attendance, while many for college attendance are small and insignificant. We caution readers not to interpret this as meaning that the explanatory variables have no impact on college attendance. Rather, if a variable is positively related to university attendance, this means that the distribution in terms of PSE attendance shifted to the right. Another way of thinking of this is that variables typically have two effects: one is to increase the probability of doing some level of PSE, the second is to increase the probability of going to university. Thus the overall effects are more evident in the university effect than the college effect, the latter of which essentially has two offsetting effects in play.

To identify PSE access, the detailed information on PSE programs included in the PSE rosters included in the YITS must be used. This allows for the particular level of PSE programs to be identified and compared across multiple programs a student might enter. A multinomial logit (MNL) model is used to allow access to both educational levels, college and university, to be modeled simultaneously.

We also consider whether the youth participates in any kind of PSE while also differentiating college and university participation.

All PSE programs of each individual in the YITS are collected and programs that appear in multiple cycles are linked together. The level (college or university) of each program a youth enrols in (access) is first determined, after which programs are sorted by level (university first). Students with no valid PSE program are considered to be no-PSE.

For example, in Table 2a, The PISA variable urban is related to an increase in university attendance of 7.1 percentage points, while the coefficient estimate related to college is -0.024 and statistically indistinguishable from zero. This does not mean that urban status has no relationship to college attendance. Rather, the *net* effect on college is not very great (essentially zero). This occurs because coming from an urban background is associated with some young people who would not have attended PSE ending up going to college or university, while some others who would have attended college go to university. If the offsetting college effects are about equal, then the net effect on college attendance will be zero, while the effects on university attendance will be positive. Thus, the distribution of PSE attendance moves to the right. As a result of this, we will mainly discuss the results as they are related to university attendance.

This analysis uses the Youth in Transition Survey – Cohort A (or YITS-A). The first cycle of the survey was conducted in early-2000 and included respondents that had their 15th birthdays in 1999. The first cycle of the survey also included interviews with the parents of the respondents as well as high school administrators. Subsequent surveys of the respondents only were conducted every two years until cycle 6 in 2010.

We utilize cycle 4 in the results reported in this draft, which focuses on access to PSE rather than final (observed) attainment. This cycle was conducted in 2006 when the respondents were 21 years of age, a time when most young people have at least begun their post-secondary education. An equivalent analysis was conducted using the cycle 6 PSE attainment measure and the results were found to be similar to what is reported in this paper. While the YITS has relatively low attrition due to specific

collection methods employed by Statistics Canada, sample sizes get progressively smaller in later cycles. We thus judge Cycle 4 (age 21) to be the best for an analysis of the type undertaken here.[1]

The parental education variable is used to limit the samples to those households where neither parent has completed PSE (FGHs) as well as those where at least one parent has completed a PSE program (non-FGHs).

IV. Empirical Findings

Descriptive Statistics

The summary data in Tables 1a and 1b present descriptive statistics on our entire sample. Table 1a is for those whose parents did not complete PSE (our FGHs) and Table 1b for those who had at least one parent complete PSE (non-FGHs). As a reminder, some 36.3 percent of the total YITS sample is from a FGH.[2] In other words, just over one third of the 21-year olds in the sample come from a family where neither parent attended PSE. Still, among this group, 61.4 percent have attended PSE by age 21, with about 60 percent of these having attending college and 40 percent having attended university. Females are much most likely to have attended any PSE compared to males (68.1 percent versus 54.4 percent), and a much higher proportion of females have attended university (31.9 percent versus 18.7 percent). Those from rural areas are much less likely to attend PSE, with this difference coming almost exclusively from lower university participation.

Table 1a also shows that visible minority immigrants have much higher rates of access to PSE (84.2 percent versus 59.1 percent for Canadian Born Non-Visible Minorities). This is not the case for Non-Visible Minority immigrants (46.6 versus 59.1 percent). Canadian Born Visible Minorities also have a substantially higher rate (79.3 percent). Both these higher rates are driven by much higher rates of access to university, as college access rates for all four groups are similar.

The PSE access rates and the type of PSE accessed vary substantially by province, as expected due to differences in educational policy across the provinces and other provincial differences. Alberta has the lowest access rate (52.8 percent), but it is fairly evenly split between college (29.0 percent) and

[1] The use of the earlier cycle 3, while yielding a larger sample, was conducted when respondents were only 19 years of age, and age when many young people in Quebec were still attending a CEGEP and so would not be captured as they moved into university.

[2] Separate estimates for both males and females were also conducted for this and each of the following exercises. In general, the patterns described for the combined sample are similar to those for the separated samples. These results are available from the authors upon request.

university (23.8 percent). Quebec has a slightly higher rate of access (54.3 percent), but much more of that is college (37.6 percent) than university (16.7 percent).

Ontario, on the other hand, has the highest overall rate (70.2 percent) and the highest college rate (43.1 percent). This leaves a university rate of 27.0 percent, which is lower than that in Newfoundland and Labrador (28.4), Prince Edward Island (35.0), Nova Scotia (35.8), New Brunswick (29.6), Manitoba (31.7), Saskatchewan (32.2) and British Columbia (33.5).

Students from two parent families have a higher rate of access (63.1 percent) than others. Students from families headed by a single mother have a rate of 56.7 percent and those from single father families have a rate of 51.5 percent. The single father group has a 15.8 percent university access rate.

The student's PISA reading score is closely related to access to PSE, particularly university. Of those students who score below 400, only 3 percent attend university. Those with a score above 600 have a rate of 54.5 percent. There is also a difference of 18.7 percentage points (31.6 versus 12.9 percent) between the two middle scores. The college access rates are not quite as different between the PISA score groups.

The descriptive statistics also show the differences in access rates by family income: 51.2 percent of these households in the lowest income category ($5,000 to $25,000) attend some form of PSE. As income rises, so does the overall access rate. This reaches 64.9 percent for households with family income of $50,000 to $75,000 and 76.2 percent for households earning $100,000 and up. Access to both college and university both increase with family income, but the increase is greater for university attendance.

We include Table 1b to compare non-FGHs with FGHs. Not surprisingly, here there is a much higher proportion who have attended PSE: 81.1 per cent, or about 20 percentage points higher than the figure for FGHs. Non-FGHs are also much more likely to have attended university (51.0 percent versus 25.5 percent), but slightly less likely to have attended college (30.1 percent versus 36.0 percent). While PSE attendance rates are higher for non-FGHs, the same general attendance pattern is observed as before. Specifically, higher access rates (especially for university) if urban, a visible minority and/or an immigrant, from Atlantic Canada as opposed to the Prairie provinces, and among those young people with higher PISA reading scores and family incomes.

Background Models

The next several tables (Tables 2 to 6) contain the various estimates from the multinomial logit (MNL) model. These results have a specific interpretation. We model the three choices that young people have as not having attended PSE by the age of 21, having attended college (including trade school), or having attended university.[3] If a young person has attended both college and university, we count them as university attendees in order to keep the categories mutually exclusive, even as we recognise the various issues related to doing so.[4]

The results from the first MNL models are presented in Table 2a and include only the background variables of interest – those which have previously been shown to be related to access to PSE using a similar model (e.g., Finnie and Mueller, 2008a, 2008b). The first model includes a number of background variables including urban status, visible minority/immigrant status, province of residence, family structure, and gender. The second (third) model retains these variables and adds a categorical variable for family income (PISA reading score). The fourth model is the full specification and includes all the variables mentioned above. These models set the context and background for the results that follow, which focus on the cultural aspects of these decisions of PSE access that are the focus of this paper.

In the first model (the first 2 columns of Table 2a), we see that female students are 13 percentage points more likely to access university compared to male students. Students who lived in an urban area at age 15 have a 7.1 percentage point higher university rate than rural students.

The next set of variables represents both the immigration status and visible minority status of the household – specifically referring to the YITS youth respondent. Canadian born visible minority students (which can include second generation immigrants) are 17.4 percentage points more likely to attend university compared to the Canadian born who are not visible minorities. Non-visible minority immigrants are 9.6 percentage points less likely. Of the four groups, visible minority immigrants have the highest rate: 19.8 percentage points higher than the reference group.

The provincial indicators show the relative college and university attendance rates compared to households in Ontario. Ontario's college system is exceptional in Canada and the marginal effects reflect that. Students in Newfoundland and Labrador (12.1 percentage points), Prince Edward Island (13.9),

[3] The numbers of youth who attended trade school were too small to include this group separately.
[4] The issues may not, however, be as serious as when relating level of PSE to later career outcomes, when those who attend both college and university are typically classified as the latter.

Nova Scotia (17.6), New Brunswick (14.4), Québec (5.3), Manitoba (20.1), Saskatchewan (18.8), Alberta (14.0) and British Columbia (14.3) are less likely to access college.

These large college effects are somewhat balanced by higher university access rates in Newfoundland and Labrador (6.9 percentage points), Prince Edward Island (12.9), Nova Scotia (10.4), New Brunswick (8.0), Manitoba (7.6), Saskatchewan (9.7) and British Columbia (4.7). Alberta (1.6) and Québec (7.3) have lower university access rates as well as college.

Students from single parent households are less likely to attend PSE. Single mother households have a 4.9 percentage point lower college rate and a 4.2 percentage point lower university rate. The university effect is stronger for single fathers (7.1 percentage points less likely to access), but weaker for college (1.5 percentage points).

Looking at the other models in Table 2a, we see the same general trends in the first model. As is usual, females are much more likely to attend university compared to males – some 8 to 13 percentage points higher, depending on the model estimated. Consistent with earlier studies, the results indicate that those in urban areas are more likely to attend university than those in rural area (5.5 to 6.3 percentage points), as are visible minorities (17.1 to 18.7 percentage points for Canadian born visible minorities and 22.9 to 32.6 percentage points for immigrants). Relative to Ontario, residents of all provinces with the exception of Quebec and Alberta are more likely to have attended university. However, all other provinces have lower college attendance rates than Ontario.

Those students from single father families are less likely to attend university in three of the four model specifications. Students from families headed by a single mother are less likely to attend PSE as well, but the effect does disappear when family income is controlled for.

In the second model specification, a set of family income variables (representing different ranges of income) is included as explanatory variables. To the degree the results reported in the first model change, it is because they are correlated with and related to family income; to the degree those first effects do not change, they are independent of family income. First, regarding the income variables themselves, youth in households with family incomes below $50,000 are considerably less likely to attend university than those in the $50-75,000 comparison range. And the lower the income, the greater the effect, with those at the lowest levels (less than $25,000) also less likely to attend college.

Those at higher incomes (above $100,000) appear to be somewhat more likely to attend university, although the effect is only weakly significant; the effect is even weaker, yet still positive, with respect to college attendance. Second, when family income is included in the model, there is a slight reduction in the magnitude of the effect on university access of being from an urban household (7.1 to 6.3 percentage points). The university effects for both visible minority groups and the provincial controls all get larger when income is controlled for. This suggests that these groups have lower family incomes, so the effects are larger when adjusting for income.

Finally, the importance of PISA scores in attending PSE is obvious in the final two specifications. The mean of the PISA score is 500, and those below 400 (one standard deviation or more below the mean) are not only less likely to attend university, but also to attend college as well. It is again interesting to see how adding the new variables (i.e., the PISA scores in this case) affect other variables included in the models.

Table 2b estimates the same models, but for those young people who had at least one parent complete PSE (i.e., non-FGHs). Compared to those youth above (where neither parent attended PSE), again the pattern is very similar. There is, however, generally a greater spread in the probabilities of attending university and college. For example, those from families with incomes over $100,000 are 4.2 percentage points less likely to attend college and 13.0 percentage points more likely to attend university. This compares to the previous case where there was no difference in college attendance and only a 5.8 percentage point difference in university attendance. Similarly, with most of the other variables included in the models, the probability of attending college (university) is much lower (higher) for those from non-FGHs compared to those from FGHs.

Cultural Capital Models

Previous research (Childs, Finnie and Mueller, 2010, 2012) has shown the importance of *culture* as a correlated to PSE attendance. Culture is this context refers to a broad set of household and individual behaviours that relate to educational decisions. An important component of this is *cultural* capital which is, according to Childs, Finnie and Mueller (2012:5):

> …knowledge, experiences, connections, etc. which help individuals succeed in life. In our case, this means successful entry into PSE. In economists' lingo, the inter-generational transfer of education (social inheritance) could be the result of a number of household

> background factors (cultural capital). And it is the lack of this cultural capital which may prohibit individuals from assessing post-secondary education, thus propagating inequality in educational attainment.[5]

We now turn our attention to the results of the estimation of the MNL model of access to university and college with the inclusion of the cultural capital index variables.[6] Table 3a contains three panels representing different estimates. On the left of each panel, the models are estimated with each of the cultural capital index variables included separately (i.e., 8 distinct models corresponding to the eight index variables that are estimated) and then jointly (i.e., all 8 index variables are included in a single specification). The left panel includes only the index variables, the middle panel includes the background variables (as in the second panel in Table 2a), and the right hand panel adds the PISA reading score variable to the model.

When estimated separately and with no additional controls (as shown in the two first columns in the table), 7 of the 8 index variables are positively related to university attendance, and in each case the estimates are statistically significant. The exception is family educational support, which is negative and significant. One possible reason for this perhaps counterintuitive result is that this variable may reflect the family assistance provided to respondents who need help during high school, and is thus a marker of children who are already performing poorly, and it is this poor performance which is likely causing lower university attendance. We cannot, however, rule out the possibility that the assistance itself has a negative effect.

When the 8 index variables are estimated jointly (columns 3 and 4 in the table), the positive estimated effects all decrease in magnitude but remain statistically significant at some level (some lower than others). These findings indicate that although the influences tend to be positively correlated, meaning that a household that is high on one index score will tend to be high on others, each factor continues to have its own independent effect even when all the other variables are taken into consideration.

And the effects remain substantial in magnitude, with a one standard deviation advantage in any score being associated with an increased probability of going to university of between 2.1 and 5.4 percentage points. And given the independence of these effects as captured by our MNL model, a child having such

[5] According to Childs, Finnie and Mueller (2012), the concept of cultural capital is very closely linked to that of identity economics (Akerlof and Kranton, 2000, 2002, 2010), a concept with which most economists are probably more familiar.

[6] Appendix Table A1 has a complete list of the cultural capital variables used as well as their underlying components.

an advantage in each one of the measures which works in a child's favour would be 24.9 percentage points more likely to attend university than a child coming from a family that was at the mean in all respects. We find these to be a remarkable set of findings.

One particularly interesting finding is that the effects of cultural *activities* are much stronger than the effects of cultural *possessions*: it is not so much what the family *has*, but what it *does* that matters most. That said the indicator of family wealth is also important, as is the measure of home educational resources.

Finally, the effects of family educational support become more strongly negative when the other measures are included. Given the already speculative nature of the interpretation of this variable, we do not add further conjecture into the mix, except to say that this variables and its effect appears also to be correlated with the other index measures.

When the family background variables are added (the middle panel of Table 3a) the results do not change markedly. That is to say, the index variables do not appear to be proxying for the effects of the background variables when those are omitted. Otherwise put, the index variables and family background variables do not appear to be highly correlated.

However, when the PISA reading scores are added into the model (the right hand panel), the importance of the 8 index variables are diminished in almost all cases. For example, reading engagement now becomes statistically indifferent from zero. This suggests that the impact of reading on access is captured, at least in part, through the PISA reading score. That is, reading leads to higher PISA reading scores, and higher PISA readings scores lead to higher rates of university attendance. The same interpretation applies to the other index variables. Put differently, the final models presented show the effects that remain after PISA readings scores are controlled for – along with the background variables and, in the very final column, the other index variables.

While each effect may be relatively small in size, taken together they exert a large effect on university attendance that is in addition to the effect that these variables have on PISA reading scores. Again summing the effects, a student coming from a household with a one standard deviation advantage in each of the index variables which point to household advantages would still be 16.7 percentage points more likely to go to university than one from an average family – and this, to emphasize, is the advantage *after* taking into account the benefits that would accrue to those influences have already

resulted in higher PISA reading scores. These influences clearly matter a great deal to which youth go to university and which do not.

At the same time, the family educational support effect decreases in absolute value, suggesting that the PISA scores are picking up students who are struggling with their high school studies, and controlling for this, the (negative) effect of this measure is halved. For comparison purposes, Table 3b contains the estimates using the same model specifications but including only those categorized as non-FGHs. Again, the results are very similar to those for FGHs. Similarly, comparing these results to earlier work by Childs, Finnie and Mueller (2010, 2012), which did not differentiate by type of household, we see a very similar pattern. Together these results suggest that the correlates of PSE participation, university attendance in particular, are similar for all young people, whether or not they had a parent that completed PSE.

Financial Preparation

We now turn out attention to some of the influences of some of the savings variables available in the YITS on PSE attendance. While these variables may not appear to be related to culture at first glance, it can be argued that cultural influences may be important in determining savings behaviour and PSE participation. More specifically, we address the relationship of savings behaviour on the part of the student respondents as well as their parents on PSE attendance. Both the impacts of student and parental savings are estimated in the same model as the authors found little difference when estimated separately. The results for FGHs are reported in in Table 4a, while those for non-FGHs are in Table 4b. The results are obtained by including only the set of parent and student saving variables in the first model, then adding the family and background variables to the second model, and finally adding the PISA reading score to the third model. Tables 4a and 4b, therefore, show the key results of three separate models which are run for two samples (so six results in total). These models do not contain any of the index variables included in the previous tables.

Both student and parental savings variables are measured when the youth respondent was aged 15. The student was asked to describe their current monthly savings behaviour. The parental survey is more retrospective – and includes any past action that the parents have done to financially prepare for the youth's PSE. The framing of the saving questions may be especially important since these results are may reflect endogeneity – specifically, young people who desire to go to university or college are more

likely to put money aside – even at the age of 15. And those parents who may expect their children to go may do the same. This in comparison to savings *causing* increases in PSE attendance.

The first model indicates that any type of saving on the part of the student is positively related to PSE attendance, especially at the university level. Saving specifically for PSE is more strongly related to PSE attendance, especially university attendance. Unfortunately, we have no way of knowing the dollar amount of saving by the student (or the parents), but previous research using other data [Finnie-Wismer paper using the PSIS to be cited here] has shown that it is in fact whether a parent or student has saved at all that makes by far the biggest difference, with the actual amount of saving having only a small additional effect. Those results suggest that it is in fact a cultural impact which is operating, with being a saver, particular in the case of saving for PSE, proxying for a pro-PSE set of attitudes and behaviour.

We also see a positive relationship between parental financial preparation and university attendance. Again we caution that this is likely to be endogenous to the model. For example, with financial vehicles such as RESPs, it is likely that those with children headed to PSE are likely to take advantage of these types of financial instruments (especially when the government also makes a partial contribution).

The magnitude of these savings variables is diminished only slightly when the additional control variables are added in the second model.

In the third model, which includes PISA scores, we see the impact of financial preparation and student savings on attending university diminished. Again this says only that savings is correlated with reading ability at age 15, and more fully disentangling these effects is a task that lies beyond the scope of this paper.

The differences between FGHs (Table 4a) and non-FGHs (Table 4b) are generally in magnitude, with the coefficient estimates being larger in the latter case, and especially in the case of university attendance. In other words, savings behaviour on the part of the student and parental financial preparation are both important correlates of university attendance for both groups of students, but have more influence among non-FGHs. As mentioned, however, we have no way on knowing the dollar amount of savings and parental financial preparation by either group of young people.

Educational Aspirations

Tables 5a and 5b present the key results of a set of models which address the relationship between parents' aspirations for their children and their actual participation. The first model in each table only includes the parent's desired highest level of education for their children. The second model adds the familiar background controls (including family income). In the third model, the student's PISA reading score is added. These models are then estimated for both the FGH and non-FGH groups, so six models are again presented. In the YITS, parents were asked to provide considerable detail on the *level* of education they wished their children to obtain, but less detail regarding the strength of the response.

The results indicate that the level of education that parents desire and the level that their children actually access are strongly related. For example, those parents who desire less than a high school education for their children, in fact on average have children that are much less likely to go on to PSE. And, as aspirations of parents increase, so too does the probability of attending a higher level of PSE. Further, the effects are strong, and are suggestive of the importance of parents having high expectations for their children and ultimately having these realized. These effects remain strong even when the background controls and PISA reading scores are added to the model.

As with the case of savings above, the impact of parental aspirations is greater for non-FGHs than for FGHs.

In fact, these results are very similar to those obtained when the student's own aspirations rather than parents are included in the model. Tables 6a and 6b show the importance of the child's own education aspirations and follow the same pattern as Table 5. As with parental aspirations, there is a striking match between the aspirations of these young people and the level of PSE that they attend. For example, in the model including controls, those in FGHs (non-FGHs) who aspire to a trade or college education are 24.4 (15.1) percentage points more likely to attend college than someone who only aspired to a high school diploma, (decreasing slightly to 20 (N/A) percentage points when PISA scores are added). They are also more likely to have attended university. If they aspired to university, FGHs (non-FGHs) are 37.2 (49.1) percentage points more likely to attend university and 14.3 (11.3) percentage points more (less) likely to attend college. Recall that these questions were asked of the respondents when they were 15 years old. These results suggest that the 15-year olds in the sample know what they want and generally go on to achieve it. Similarly, the results suggest that it is likely to be important to target attitudes early if changed behaviour, such as higher rates of PSE attendance at one level or another, are to be achieved.

As with parental education, adding the PISA reading score to the model only diminishes the magnitude of these effects slightly and the effect is larger for females when they are estimated separately.

This point is similar to the finding that parental aspirations for their children are related to the educational outcomes of the children. For example, parents who desire college (rather than university) are more likely to have their child attend college than university. The reverse holds if they would like their child to go to university. Conversely, those who desired less than a high school education are less likely to see their children attend either university or college.

These results are again strikingly similar to those by Finnie and Mueller (2012) who estimate a similar model, but where the sample included all young people. Christofides, et. al. (2008) also find a positive relationship between parental expectations and student aspirations to attend PSE, and suggest that there is a role for parents in the high school career counselling process, and further that students without PSE-educated parents might especially benefit from this counselling.

Household Characteristics and Behaviour

The models presented above show the relationship between different household characteristics and behaviours, including cultural capital behaviours, savings behaviours and educational aspirations. These results show that we can observe some differences in characteristics and behaviour between non-FGHs and non-FGHs, as well as between those young people who attend PSE and those who do not. What is interesting is that the behavioural differences we have estimated are a matter of degree and not kind, so that our different groups may be influenced differently by some of the factors discussed, but the influences generally work in the same direction. We must note that we cannot conclude that the there is a causal relationship between these characteristics and behaviours and access to PSE. Indeed, many of these behaviours might be due to preparations for the youth to attend PSE.

Now that we have identified a relationship between these characteristics and behaviours and PSE access, a review of the differences in household behaviours across the two groups (and also the college and university subgroups) provides a good summary of the report. Table 7a (NB: Table 7b, with date for non-FGHs to be added) presents descriptive statistics on household behaviour for all FGHs in the sample. The first section looks at the means of each cultural capital index. These indices are designed to have a mean of zero and a standard deviation of one relative to all PISA responses internationally. For ease of interpretation, the scores have been multiplied by 100, so 100 represents one standard

deviation difference. The scores point to a large difference in behaviour between PSEs and no-PSEs (i.e., those FGHs who attended PSE and those who did not).

The cultural communication index is 33.2 points higher (or one third of a standard deviation) for households that send their children to university than for no-PSEs. Similarly, college households are 12.5 points higher. There is a similar difference for social communication, with differences of 29.3 and 12.7 points respectively.

Family educational support is interesting – with college households having the highest rate (-7.0 points) and university households actually having a lower score than no-PSEs (-16.9 points versus -13.5 points).

The second section compares financial preparation and aspirations. Here we find that the proportion of youth who save for education is 17.5 percentage points higher (36.7 versus 19.2 percent) for PSEs. Similarly, PSEs have a 13.5 percentage point higher rate of financial preparation than no-PSEs.

Family wealth also differs across the three groups, and in the expected direction. No-PSEs are 6.3 points higher than the mean, college FGHs are 21 points higher and university FGHs are 38 points higher. The PISA wealth index is an attempt to get at the household's wealth beyond what the family income variables in the YITS indicate. It is based on the presence and number of some key consumer durables. One measure that stands out is access to the Internet (not reported here). For PSEs, the rate of Internet access is 16.1 percentage points higher (63.7 versus 47.6 percent) and those households who sent their child to university had a rate of 70.2 percent. Interestingly the rate of Internet access is higher for households where the primary respondent is male. Of course the Internet was not nearly as common in 1999 when these data were gathered in the first cycle of the YITS, and the impact of such a measure would surely have changed since then.

There is an even larger difference between university and no-PSE scores for the home educational resources index: 51.1 points (7.7 versus -43.4 points). The score for cultural activities is also very different, 50.3 points (22.6 versus -27.7 points). There is a smaller difference of 41 points between the cultural possession scores (-12.6 versus -53.6 points).

The difference between university and no-PSE scores for reading engagement is the largest of all the indices presented here: 59.9 points (22.2 versus -37.7 points). These numbers, along with the model findings presented earlier, point to clear differences in cultural factors that are likely to generate significant advantages for some youth relative to others in terms of accessing PSE.

The distribution of parental education aspirations also differs substantially across the different types of households. Clearly, a large proportion (at least 79.3 percent for no-PSEs and 50.8 percent for college attendees) of households don't see their children achieve the education level they prefer (since we do not track multiple degrees in this analysis, we cannot provide a similar figure for university FGHs). We do, however, see large differences in the type of parental educational aspirations across the groups.

Similarly, there are differences in the aspirations of students across the groups. 32.6 percent of youth from no-PSEs report wanting to earn at least one university degree. These rates are 52.2 and 89.8 percent for students from college and university FGHs, respectively. Again, this means that 76.1 of youth from no-PSEs and 52.2 of college attendees do not achieve their educational ambitions

V. Conclusions and Discussion

In this paper, we have focused on a group that is seriously under-represented in PSE in Canada, especially at the university level, namely those youth who come from families where neither parent themselves possesses a PSE credential. One goal in studying these first generation households (or FGHs) was to better understand the factors which determine who among this group break the cycle to go on to college or university and who do not. Another goal was to see if the correlates of college and university attendance differ for those from FGHs compared to those from families where at least one parent possesses a PSE credential (or non-FGHs). About one-third of the youth in our sample are from FGHs.

Our analysis is also unusual in that it goes beyond the standard approach which normally focuses on financially related factors such as costs and family income by exploiting the uniquely rich set of variables available in the Youth in Transitions Survey data. This information, unequalled in other data sets both in Canada and indeed at the international level, allow us to get at a range of family characteristics and behaviour which we believe boost the chances of the child furthering their studies due to their contribution to the "culture of PSE" within the family.

We think the findings are interesting, and important. We first include a range of background variables which have been used in other work covering all youth (i.e., not just those whose parents have not completed PSE) and find a range of familiar, although still important tendencies. Most interesting among these for the purposes of this paper is that – and we focus on the effects on university attendance because the differences are clearer here than for college attendance – family income does indeed play a role. So too do certain other factors: in particular, living in an urban area is associated with higher attendance rates than others, while visible minorities (whether first or second generation immigrants)

are *much* more likely to go than non-minorities. In general, the impact of these variables are higher for non-FGHs than for FGHs, indicating (to us at least) that there is something correlated with non-FGHs which magnifies the importance of these factors on PSE attendance, specifically university attendance. These factors themselves are, we suspect, related to underlying cultural factors (especially the importance attached to PSE in the home), but these only set the stage for our dive into the more explicit measures available in the YITS.

These indicators – to list them – capture the cultural and social communication that takes place between the child and their parents, the family educational support in terms of time spent by parents and siblings with the youth, a proxy of family wealth (to supplement the family income variable mentioned above), the extent of educational resources available in the home (e.g., having an area to work), cultural activities such as visiting museums and attending concerts), cultural possessions (e.g., the number of books in the home), and the youth's reading habits: what, how often, and their related attitude to reading.

In fact, all these factors matter – whether taken on their own, or in almost all cases when all the other indicators are also included. The effects naturally tend to be smaller when all variables are included together than when they are considered one at a time, but we are struck by the fact that substantial, statistically significant effects remain in all specifications. In short, these factors all seem to matter, and while their influences may be related to some degree (as seen in the reduction of the effects when considered jointly), each one appears to have a separate, independent effect.

While each of the effects is relatively modest individually, adding the effects up leads us to understand that a child who is advantaged in each of these respects is significantly more likely to go on to PSE, university in particular, than one who does not have these same advantages. Findings such as these have not, to our knowledge, previously been identified.

We also regard it as very interesting that the two strongest effects are those related to cultural activities and reading – it appears to matter most what the family *does* as opposed to what it *has*.

An important finding is that these effects are found to work to varying degrees through the child's reading ability, as captured by the PISA reading score. That is, having advantages in the ways just described is associated with higher readings scores, and reading scores are strongly related to access to PSE. This points to one particularly important factor: reading.

We then add further sets of variables. One set captures the youth's and parents' savings behaviour. These also matter, but we caution readers not to interpret these as indicating that financial factors are important and that policies such as encouraging parents (and youth) to save, especially for PSE, will have a substantial effect on access to PSE. This caution stems from other work which has shown that it is not so much the *amount* of savings that matter, but *whether the parent or child saves at all* – thus pointing to a set of attitudes, to the general preparation for PSE, and other such factors which are themselves more consistent with a cultural interpretation than one related to financial factors. More research with other data would be required to better disentangle these effects.

We also include a set of variables that capture the parents' educational aspirations for their children, and the effects are huge – far outweighing, for example, the income effects we see here or which are typically found in other studies. Money still matters, but not nearly as much as parental attitudes.

All this said, an important caveat must be emphasized here. While the longitudinal nature of the YITS gives us the measures focused on in this paper measured well before the final PSE decision is made (i.e., at age 15 rather than 18 or so), we must be wary of confusing correlation and causation in these results. Preparation for PSE may, for example, begin earlier, and those preparations may include the participation in cultural activities or affect many of the other variables included in our analysis, such that those families who already have some indication that their child will go on to PSE may then invest in the child in ways that are reflected in our measures. In short, at least some causality may run from (later) PSE participation back to the factors we focus on. Unravelling all these influences in a precise manner is a task that lies far beyond the scope of this project.

A second important caveat is that the measures included in our analysis may to a significant degree be adding other effects with which they are correlated. For example, perhaps taking our child to a museum is not the thing that precisely matters, but may capture a parent who encourages their child to be enquiring, to think, to ask questions, to learn how to answer those same questions they have, to seek our resources that can help them advance their enquiry, to express themselves, to read more. The better we can pinpoint the exact factors related to enhancing PSE attendance, the more meaningful (and effective) policy will be.

Naturally, the analysis reported on in this paper does not encompass the full complexity of youths' PSE decision, but we believe our study provides important insights into the relative importance of various important factors in the process that are not normally identified, or discussed, in the usual literature,

which tends to follow the economic model which assumes that individuals make fully informed rational decisions about schooling based on the future (mostly financial) benefits versus the up-front costs. We think our results help force an opening up of that model.

More specifically, our results point instead to a range of cultural factors or, more broadly put, a full array of family characteristics, behaviours, and attitudes which appear to be strongly related to a child going on to PSE. Further, these advantages can be gained by young people, regardless of whether their parents completed PSE. Although the advantages to each group do differ as non-FGHs seem to benefit more, these results are still encouraging and are suggestive of a role for public policy in the PSE-attendance decision.

As our understanding changes at the empirical level, so too should our policy considerations. In short, removing financial barriers to PSE are likely to be a necessary, but not sufficient, condition for fully addressing issues of access to PSE. This basic proposition points to both an opportunity and a challenge for policy makers wanting to increase, and make more equal, opportunities for going on to PSE, especially for disadvantaged youth. The policy challenge then becomes one of finding out how PSE access opportunities can be improved when cultural influences appear to be so important and implementing policies that accomplish this.

We are now in a position to understand what we need to learn so that we can then implement policies that are effective in this regard. This moves us away from the old “financial factors” focus and onto one that has the potential of making a much greater difference in terms of improving youth’s opportunities for pursuing PSE. Only further research, the implementation and evaluation of trial programs, and other such initiatives will tell us what we need to do.

Perhaps, for example, programs could be put in place whereby youth – perhaps especially disadvantaged youth – are taken for visits to college and university campuses starting early (as early as primary school) so that these institutions become less of a mystery for those for whom this is the case – such as those whose parents have not pursued PSE – and they may begin to consider that attending one could be a real option in their lives. Discussion of PSE could also enter curricula, including solid data regarding the options available and the true costs and potential life-changing benefits of going on to college or university.

Academic support may also play a key role. Peer group/mentoring programs could possibly be initiated. Helping students prepare application forms for PSE when the time approaches may be part of a solution.

Gandara (2001) has provided a typology for classifying and ordering policies of this type, while Orders and Duquette (2010) have provided a review of policies that have been attempted to these ends in a number of OECD countries

Other broader cultural experiences should perhaps also take on new importance. More trips to museums? Perhaps. Finding out better what exactly going to museums captures in terms of increasing access rates would be even better. The two – action now, more research – can go hand in hand.

We would therefore encourage jurisdictions to embrace a broad-based strategy whereby our understanding of the underlying processes is improved (i.e., more research) at the same time as we move ahead by introducing pilot and experimental programs with rigorous evaluation built into them. If this were started today, then in 2, 3, 5 and 10 years we would know much more about what matters to PSE participation, and what works to improve and equalise PSE opportunities.

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Table 1a: First Generation Households (FGHs) Descriptive Statistics

	no-PSE	PSE		
		Any PSE	College	Uni.
All Observations				
All Observations	38.6	61.4	36.0	25.5
Gender				
Male	45.6	54.4	35.7	18.7
Female	31.9	68.1	36.2	31.9
Urban High School				
Rural	43.6	56.4	36.7	19.7
Urban	36.0	64.0	35.6	28.4
Visible Minority and Immigrant Status				
Canadian Born Non-Visible Minority	40.9	59.1	36.3	22.8
Canadian Born Visible Minority	20.7	79.3	33.6	45.7
Non-Visible Minority Immigrant	53.4	46.6	32.6	14.0
Visible Minority Immigrant	15.8	84.2	35.6	48.6
Province				
Newfoundland and Labrador	39.0	61.0	32.6	28.4
Prince Edward Island	34.2	65.8	30.7	35.0
Nova Scotia	38.4	61.6	25.8	35.8
New Brunswick	40.5	59.5	29.9	29.6
Quebec	45.7	54.3	37.6	16.7
Ontario	29.8	70.2	43.1	27.0
Manitoba	44.6	55.4	23.8	31.7
Saskatchewan	42.8	57.2	25.1	32.2
Alberta	47.2	52.8	29.0	23.8
British Columbia	37.8	62.2	28.7	33.5
Family Type				
Two parents	36.9	63.1	36.7	26.4
Single mother	43.3	56.7	33.4	23.3
Single father	48.5	51.5	35.7	15.8
Other	45.3	54.7	30.7	24.0
PISA Reading Score				
Below 400	69.0	31.0	28.0	3.0
400 to 500	51.0	49.0	36.1	12.9
500 to 600	28.4	71.6	40.0	31.6
Above 600	14.9	85.1	30.6	54.5
Family income ($)				
5 000 to 25 000	48.8	51.2	30.3	20.8
25 000 to 50 000	42.3	57.7	34.7	23.1
50 000 to 75 000	35.1	64.9	37.4	27.5
75 000 to 100 000	34.5	65.5	38.7	26.8
$100000 and up	23.8	76.2	41.7	34.5

-- indicates value suppressed due to Statistics Canada confidentiality requirements.

Table 1b: First Generation Households (non-FGHs) Descriptive Statistics

	No PSE	PSE		
		Any PSE	College	Uni.
All Observations				
All Observations	18.9	81.1	30.1	51.0
Gender				
Male	25.2	74.8	32.6	42.2
Female	12.3	87.7	27.5	60.2
Urban High School				
Rural	24.8	75.2	34.8	40.4
Urban	17.2	82.8	28.8	54.0
Visible Minority and Immigrant Status				
Canadian Born Non-Visible Minority	21.0	79.0	31.0	48.1
Canadian Born Visible Minority	8.4	91.6	24.8	66.8
Non-Visible Minority Immigrant	9.3	90.7	27.5	63.2
Visible Minority Immigrant	8.6	91.4	25.7	65.7
Province				
Newfoundland and Labrador	18.2	81.8	28.6	53.2
Prince Edward Island	16.8	83.2	16.6	66.6
Nova Scotia	16.7	83.3	20.9	62.4
New Brunswick	18.4	81.6	20.4	61.3
Quebec	21.7	78.3	39.3	39.1
Ontario	12.5	87.5	31.4	56.1
Manitoba	25.8	74.2	16.8	57.4
Saskatchewan	26.3	73.7	22.5	51.2
Alberta	26.0	74.0	26.9	47.1
British Columbia	24.2	75.8	25.3	50.5
Family Type				
Two parents	18.3	81.7	36.7	26.4
Single mother	22.2	77.8	33.4	23.3
Single father	19.9	80.1	35.7	15.8
Other	36.9	63.1	30.7	24.0
PISA Reading Score				
Below 400	51.0	49.0	40.6	8.4
400 to 500	34.2	65.8	41.8	24.0
500 to 600	15.3	84.7	31.9	52.8
Above 600	6.4	93.6	16.1	77.5
Family income ($)				
5 000 to 25 000	24.4	75.6	32.1	43.5
25 000 to 50 000	25.5	74.5	34.3	40.2
50 000 to 75 000	22.4	77.6	32.2	45.4
75 000 to 100 000	15.6	84.4	28.4	56.1
$100000 and up	10.8	89.2	24.7	64.5

-- indicates value suppressed due to Statistics Canada confidentiality requirements.

Table 2a: Background Variables Only (FGHs)

	Background		Add Income		Add PISA Score		Add Both	
	College	Univ.	College	Univ.	College	Univ.	College	Univ.
Gender (Male)								
Female	0.008	0.130***	0.009	0.131***	0.001	0.078***	0.002	0.079***
	(0.019)	(0.015)	(0.019)	(0.015)	(0.018)	(0.014)	(0.018)	(0.014)
Urban/Rural (Rural)								
Urban	-0.024	0.071***	-0.031	0.063***	-0.030	0.059***	-0.035*	0.055***
	(0.020)	(0.016)	(0.020)	(0.016)	(0.020)	(0.015)	(0.020)	(0.015)
Visible Minority/Immigrant Status (Canadian Born Non-Visible Minority)								
Canadian Born Visible Minority	0.002	0.174***	0.004	0.187***	0.014	0.171***	0.017	0.178***
	(0.040)	(0.037)	(0.040)	(0.037)	(0.039)	(0.034)	(0.039)	(0.034)
Non-Visible Minority Immigrant	-0.039	-0.096**	-0.027	-0.091**	-0.020	-0.061	-0.011	-0.063
	(0.072)	(0.038)	(0.072)	(0.040)	(0.067)	(0.038)	(0.067)	(0.039)
Visible Minority Immigrant	0.011	0.198***	0.011	0.229***	-0.039	0.316***	-0.035	0.326***
	(0.055)	(0.051)	(0.056)	(0.053)	(0.046)	(0.044)	(0.046)	(0.045)
Province (Ontario)								
Newfoundland and Labrador	-0.121***	0.069**	-0.108***	0.107***	-0.128***	0.130***	-0.118***	0.145***
	(0.032)	(0.030)	(0.033)	(0.033)	(0.031)	(0.030)	(0.032)	(0.031)
Prince Edward Island	-0.139***	0.129***	-0.134***	0.156***	-0.144***	0.146***	-0.139***	0.158***
	(0.034)	(0.033)	(0.034)	(0.034)	(0.033)	(0.030)	(0.033)	(0.031)
Nova Scotia	-0.176***	0.104***	-0.169***	0.128***	-0.177***	0.134***	-0.171***	0.143***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.029)	(0.028)	(0.030)	(0.029)
New Brunswick	-0.144***	0.080***	-0.137***	0.103***	-0.150***	0.141***	-0.145***	0.151***
	(0.029)	(0.026)	(0.030)	(0.027)	(0.029)	(0.026)	(0.029)	(0.026)
Quebec	-0.053**	-0.073***	-0.045*	-0.061***	-0.057**	-0.085***	-0.050*	-0.079***
	(0.026)	(0.021)	(0.027)	(0.021)	(0.026)	(0.019)	(0.026)	(0.019)
Manitoba	-0.201***	0.076***	-0.198***	0.083***	-0.198***	0.056**	-0.194***	0.061**
	(0.029)	(0.027)	(0.029)	(0.027)	(0.028)	(0.025)	(0.029)	(0.025)
Saskatchewan	-0.188***	0.097***	-0.183***	0.112***	-0.187***	0.079***	-0.183***	0.085***
	(0.028)	(0.027)	(0.028)	(0.027)	(0.028)	(0.025)	(0.028)	(0.025)
Alberta	-0.140***	-0.016	-0.143***	-0.017	-0.143***	-0.063***	-0.144***	-0.063***
	(0.029)	(0.024)	(0.029)	(0.024)	(0.028)	(0.022)	(0.028)	(0.021)
British Columbia	-0.143***	0.047*	-0.141***	0.051*	-0.142***	0.014	-0.142***	0.017
	(0.031)	(0.027)	(0.031)	(0.027)	(0.031)	(0.024)	(0.031)	(0.024)
Family Structure (Two Parent Family)								
Single mother	-0.049*	-0.042**	-0.017	0.007	-0.044*	-0.027	-0.016	-0.008
	(0.026)	(0.021)	(0.029)	(0.025)	(0.025)	(0.020)	(0.029)	(0.023)
Single father	-0.015	-0.071**	0.004	-0.046	-0.018	-0.096***	-0.000	-0.085***
	(0.049)	(0.036)	(0.050)	(0.039)	(0.049)	(0.031)	(0.050)	(0.032)
Other	-0.041	-0.048	-0.014	-0.019	-0.054	-0.022	-0.034	-0.008
	(0.066)	(0.058)	(0.069)	(0.062)	(0.064)	(0.055)	(0.065)	(0.057)

Table 2a: Background Variables Only (FGHs)

	Background		Add Income		Add PISA Score		Add Both	
	College	**Univ.**	**College**	**Univ.**	**College**	**Univ.**	**College**	**Univ.**
Family Income ($50 000 to 75 000)								
$5 000 to 25 000			-0.065**	-0.095***			-0.055*	-0.028
			(0.033)	(0.027)			(0.033)	(0.027)
$25 000 to 50 000			-0.019	-0.060***			-0.019	-0.022
			(0.024)	(0.020)			(0.023)	(0.017)
$75 000 to 100 000			0.005	-0.009			0.003	0.003
			(0.030)	(0.025)			(0.029)	(0.022)
$100 000 and up			0.042	0.067*			0.047	0.058*
			(0.041)	(0.038)			(0.040)	(0.034)
PISA Reading Score (400 to 500)								
Below 400					-0.072**	-0.094***	-0.065**	-0.093***
					(0.032)	(0.013)	(0.032)	(0.014)
500 to 600					0.039*	0.202***	0.036	0.200***
					(0.022)	(0.016)	(0.022)	(0.016)
Above 600					-0.048*	0.428***	-0.051*	0.424***
					(0.027)	(0.024)	(0.027)	(0.024)
Number of observations	5,778	5,778	5,778	5,778	5,778	5,778	5,778	5,778

note: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

Table 2b: Background Variables Only (non-FGHs)

	Background		Add Income		Add PISA Score		Add Both	
	College	Univ.	College	Univ.	College	Univ.	College	Univ.
Gender (Male)								
Female	-0.053***	0.177***	-0.054***	0.180***	-0.019	0.098***	-0.021	0.103***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.012)	(0.013)	(0.012)
Urban/Rural (Rural)								
Urban	-0.078***	0.125***	-0.067***	0.094***	-0.055***	0.077***	-0.047***	0.056***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.014)	(0.016)	(0.014)
Visible Minority/Immigrant Status (Canadian Born Non-Visible Minority)								
Canadian Born Visible Minority	-0.055**	0.169***	-0.062**	0.184***	-0.054**	0.164***	-0.059**	0.175***
	(0.026)	(0.028)	(0.026)	(0.028)	(0.025)	(0.025)	(0.025)	(0.024)
Non-Visible Minority Immigrant	-0.019	0.116***	-0.030	0.141***	-0.005	0.089**	-0.010	0.104***
	(0.039)	(0.041)	(0.039)	(0.041)	(0.039)	(0.037)	(0.039)	(0.038)
Visible Minority Immigrant	-0.027	0.131***	-0.067**	0.201***	-0.081***	0.219***	-0.102***	0.256***
	(0.033)	(0.034)	(0.031)	(0.032)	(0.027)	(0.027)	(0.026)	(0.027)
Province (Ontario)								
Newfoundland and Labrador	-0.064***	0.040*	-0.088***	0.092***	-0.072***	0.060***	-0.086***	0.094***
	(0.022)	(0.024)	(0.022)	(0.023)	(0.021)	(0.021)	(0.021)	(0.021)
Prince Edward Island	-0.169***	0.153***	-0.187***	0.199***	-0.179***	0.181***	-0.190***	0.209***
	(0.020)	(0.022)	(0.019)	(0.021)	(0.018)	(0.020)	(0.018)	(0.019)
Nova Scotia	-0.127***	0.111***	-0.145***	0.150***	-0.140***	0.141***	-0.150***	0.165***
	(0.020)	(0.021)	(0.019)	(0.021)	(0.018)	(0.018)	(0.018)	(0.018)
New Brunswick	-0.136***	0.105***	-0.154***	0.149***	-0.156***	0.157***	-0.166***	0.182***
	(0.019)	(0.021)	(0.019)	(0.021)	(0.018)	(0.018)	(0.018)	(0.018)
Quebec	0.070***	-0.141***	0.058***	-0.113***	0.070***	-0.149***	0.064***	-0.129***
	(0.020)	(0.019)	(0.020)	(0.019)	(0.019)	(0.017)	(0.019)	(0.017)
Manitoba	-0.158***	0.043*	-0.167***	0.064***	-0.159***	0.046**	-0.165***	0.061***
	(0.020)	(0.024)	(0.020)	(0.023)	(0.020)	(0.021)	(0.020)	(0.021)
Saskatchewan	-0.112***	0.008	-0.127***	0.048**	-0.116***	0.015	-0.124***	0.040**
	(0.020)	(0.023)	(0.020)	(0.022)	(0.019)	(0.020)	(0.019)	(0.019)
Alberta	-0.057***	-0.064***	-0.061***	-0.062***	-0.044**	-0.102***	-0.048**	-0.100***
	(0.020)	(0.022)	(0.021)	(0.021)	(0.020)	(0.019)	(0.020)	(0.019)
British Columbia	-0.062***	-0.067***	-0.072***	-0.045**	-0.058***	-0.070***	-0.065***	-0.055***
	(0.020)	(0.021)	(0.020)	(0.021)	(0.020)	(0.019)	(0.020)	(0.019)
Family Structure (Two Parent Family)								
Single mother	0.041*	-0.095***	0.003	0.004	0.036	-0.090***	0.015	-0.026
	(0.024)	(0.023)	(0.024)	(0.025)	(0.023)	(0.020)	(0.023)	(0.021)
Single father	0.120**	-0.136***	0.102*	-0.088*	0.112**	-0.122***	0.100*	-0.089*
	(0.056)	(0.053)	(0.056)	(0.053)	(0.052)	(0.047)	(0.051)	(0.047)
Other	0.096	-0.236***	0.079	-0.169**	0.076	-0.166**	0.065	-0.124*
	(0.075)	(0.063)	(0.072)	(0.067)	(0.072)	(0.066)	(0.068)	(0.065)

Table 2b: Background Variables Only (non-FGHs)

	Background		Add Income		Add PISA Score		Add Both	
	College	**Univ.**	**College**	**Univ.**	**College**	**Univ.**	**College**	**Univ.**
Family Income ($50 000 to 75 000)								
$5 000 to 25 000			0.026	-0.084**			0.005	-0.025
			(0.036)	(0.033)			(0.034)	(0.031)
$25 000 to 50 000			0.027	-0.071***			0.011	-0.037**
			(0.020)	(0.019)			(0.019)	(0.017)
$75 000 to 100 000			-0.036**	0.103***			-0.031*	0.087***
			(0.018)	(0.018)			(0.017)	(0.016)
$100 000 and up			-0.069***	0.181***			-0.042**	0.130***
			(0.019)	(0.019)			(0.019)	(0.018)
PISA Reading Score (400 to 500)								
Below 400					-0.006	-0.164***	0.002	-0.163***
					(0.037)	(0.020)	(0.037)	(0.021)
500 to 600					-0.106***	0.282***	-0.106***	0.273***
					(0.019)	(0.016)	(0.019)	(0.016)
Above 600					-0.260***	0.523***	-0.256***	0.508***
					(0.018)	(0.016)	(0.019)	(0.017)
Number of observations	10,737	10,737	10,737	10,737	10,737	10,737	10,737	10,737

note: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

Table 3a: PISA Cultural Capital Index Variables (FGHs)

	Index Variable Only				Index and Background Variables				Index, Background Variables and PISA Reading Scores			
	Separately		Jointly		Separately		Jointly		Separately		Jointly	
	College	Uni.	College	Uni.	College	Uni.	College	Uni.	College	Uni.	College	Uni.
Cultural Communication												
Parental cultural communication	-0.007	0.067***	-0.015	0.029***	-0.008	0.064***	-0.014	0.036***	-0.011	0.045***	-0.016	0.026***
	(0.010)	(0.009)	(0.012)	(0.010)	(0.010)	(0.009)	(0.012)	(0.010)	(0.010)	(0.008)	(0.012)	(0.009)
Social Communication												
Parental social communication	0.004	0.050***	-0.001	0.021**	0.000	0.045***	-0.003	0.023***	-0.002	0.037***	-0.007	0.023***
	(0.010)	(0.008)	(0.012)	(0.009)	(0.010)	(0.008)	(0.012)	(0.009)	(0.010)	(0.007)	(0.011)	(0.008)
Family Educational Support												
Family educational support	0.023**	-0.017**	0.026**	-0.053***	0.018*	-0.026***	0.020*	-0.056***	0.020*	-0.001	0.024**	-0.028***
	(0.010)	(0.008)	(0.011)	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)
Family Wealth												
Family wealth	0.011	0.058***	0.005	0.044***	0.001	0.054***	-0.005	0.042***	0.002	0.045***	-0.004	0.035***
	(0.011)	(0.010)	(0.012)	(0.010)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.010)	(0.013)	(0.010)
Home Educational Resources												
Home educational resources	0.017**	0.063***	0.015	0.035***	0.013	0.053***	0.014	0.031***	0.013	0.035***	0.013	0.019**
	(0.009)	(0.008)	(0.010)	(0.008)	(0.009)	(0.008)	(0.010)	(0.008)	(0.009)	(0.007)	(0.009)	(0.008)
Cultural Activities												
Cultural activities of the student	0.003	0.089***	0.005	0.051***	0.000	0.070***	0.003	0.042***	0.000	0.048***	0.003	0.032***
	(0.010)	(0.009)	(0.011)	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)
Cultural Possessions												
Cultural possession of the family	-0.006	0.070***	-0.017	0.015*	-0.008	0.052***	-0.015	0.008	-0.008	0.036***	-0.013	0.010
	(0.010)	(0.008)	(0.011)	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)	(0.010)	(0.008)	(0.011)	(0.008)
Reading Engagement												
Enjoyment of reading	0.005	0.080***	-0.001	0.054***	-0.000	0.066***	-0.008	0.046***	-0.002	0.021***	-0.010	0.012
	(0.008)	(0.007)	(0.010)	(0.008)	(0.009)	(0.007)	(0.010)	(0.008)	(0.009)	(0.007)	(0.010)	(0.008)

Notes: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

This separatly columns include only one cultural capital index variable, and therefore represent 8 different models. The jointly columns estimate all indicies together.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 3b: PISA Cultural Capital Index Variables (non-FGHs)

	Index Variable Only				Index and Background Variables				Index, Background Variables and PISA Reading Scores			
	Separately		Jointly		Separately		Jointly		Separately		Jointly	
	College	Uni.	College	Uni.	College	Uni.	College	Uni.	College	Uni.	College	Uni.
Cultural Communication												
Parental cultural communication	-0.042***	0.107***	-0.010	0.033***	-0.038***	0.092***	-0.016*	0.043***	-0.022***	0.054***	-0.008	0.025***
	(0.007)	(0.007)	(0.008)	(0.009)	(0.007)	(0.007)	(0.008)	(0.008)	(0.007)	(0.006)	(0.008)	(0.008)
Social Communication												
Parental social communication	-0.034***	0.089***	-0.024***	0.044***	-0.028***	0.069***	-0.022***	0.040***	-0.022***	0.051***	-0.022***	0.035***
	(0.007)	(0.007)	(0.009)	(0.008)	(0.007)	(0.007)	(0.009)	(0.008)	(0.007)	(0.006)	(0.008)	(0.008)
Family Educational Support												
Family educational support	0.009	0.003	0.032***	-0.050***	0.012	-0.011	0.032***	-0.053***	-0.003	0.018***	0.014*	-0.016**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)
Family Wealth												
Family wealth	-0.028***	0.070***	-0.020**	0.046***	-0.004	0.034***	-0.002	0.023**	-0.003	0.031***	-0.001	0.020**
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)
Home Educational Resources												
Home educational resources	0.017**	0.063***	-0.004	0.034***	0.013	0.053***	-0.001	0.024***	0.013	0.035***	0.003	0.015**
	(0.009)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)	(0.009)	(0.007)	(0.008)	(0.007)
Cultural Activities												
Cultural activities of the student	-0.054***	0.127***	-0.027***	0.059***	-0.042***	0.095***	-0.021**	0.046***	-0.025***	0.058***	-0.016**	0.035***
	(0.007)	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)	(0.008)	(0.007)	(0.006)	(0.008)	(0.007)
Cultural Possessions												
Cultural possession of the family	-0.047***	0.105***	-0.018**	0.027***	-0.033***	0.073***	-0.013*	0.017**	-0.020***	0.041***	-0.011	0.011
	(0.006)	(0.006)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)
Reading Engagement												
Enjoyment of reading	-0.047***	0.118***	-0.029***	0.075***	-0.041***	0.094***	-0.027***	0.059***	-0.009	0.025***	-0.001	0.006
	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)	(0.008)	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)

Notes: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

This separatly columns include only one cultural capital index variable, and therefore represent 8 different models. The jointly columns estimate all indicies together.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 4a: Parent and Youth Saving Variables (FGHs)

	Saving Variables Only		Add Controls		Add PISA Reading Score	
	College	**University**	**College**	**University**	**College**	**University**
Youth Saving Behaviour (Did not save at all)						
Saved, but not for education	0.037	0.036*	0.033	0.036**	0.027	0.020
	(0.023)	(0.019)	(0.023)	(0.018)	(0.022)	(0.017)
Saved for education	0.094***	0.133***	0.080***	0.127***	0.077***	0.086***
	(0.026)	(0.022)	(0.026)	(0.021)	(0.026)	(0.019)
Any Parental Financial Preparation (No)						
Yes	0.005	0.098***	0.002	0.076***	0.005	0.062***
	(0.019)	(0.016)	(0.020)	(0.016)	(0.019)	(0.015)

Notes: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 4b: Parent and Youth Saving Variables (non-FGHs)

	Saving Variables Only		Add Controls		Add PISA Reading Score	
	College	**University**	**College**	**University**	**College**	**University**
Youth Saving Behaviour (Did not save at all)						
Saved, but not for education	-0.017	0.114***	-0.011	0.102***	-0.001	0.067***
	(0.017)	(0.018)	(0.017)	(0.017)	(0.016)	(0.016)
Saved for education	-0.040**	0.222***	-0.031*	0.196***	-0.010	0.141***
	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)	(0.017)
Any Parental Financial Preparation (No)						
Yes	-0.056***	0.140***	-0.028*	0.090***	-0.021	0.073***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.014)	(0.014)

Notes: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 5a: Parental Aspirations (FGHs)

	Aspiration Variables Only		Add Controls		Add PISA Reading Score	
	College	**University**	**College**	**University**	**College**	**University**
Highest Level (High School Diploma)						
Less than HS	--	--	-0.227***	-0.042***	-0.281***	-0.084***
	--	--	(0.034)	(0.012)	(0.040)	(0.022)
College/Trade	0.191***	0.096***	0.171***	0.100***	0.120***	0.085***
	(0.035)	(0.013)	(0.037)	(0.016)	(0.042)	(0.024)
One University Degree	0.159***	0.338***	0.139***	0.307***	0.086**	0.227***
	(0.034)	(0.016)	(0.037)	(0.018)	(0.043)	(0.025)
More than One University Degree	0.122***	0.411***	0.107**	0.364***	0.064	0.261***
	(0.042)	(0.029)	(0.045)	(0.028)	(0.050)	(0.031)

note: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 5b: Parental Aspirations (non-FGHs)

	Aspiration Variables Only		Add Controls		Add PISA Reading Score	
	College	**University**	**College**	**University**	**College**	**University**
Highest Level (High School Diploma)						
Less than HS	0.275	-0.104***	0.287	-0.170***	to be added	
	(0.289)	(0.036)	(0.254)	(0.053)		
College/Trade	0.210***	0.108***	0.184***	0.079		
	(0.062)	(0.038)	(0.068)	(0.054)		
One University Degree	0.081	0.487***	0.055	0.409***		
	(0.061)	(0.038)	(0.068)	(0.053)		
More than One University Degree	-0.052	0.660***	-0.068	0.564***		
	(0.061)	(0.039)	(0.068)	(0.055)		

note: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 6a: Student Aspirations (FGHs)

	Aspiration Variables Only		Add Controls		Add PISA Reading Score	
	College	**University**	**College**	**University**	**College**	**University**
Highest Level (High School Diploma)						
Less than a high school diploma	--	--	-0.084	0.080	-0.126	0.288*
	--	--	(0.073)	(0.100)	(0.091)	(0.172)
Trade/College diploma	0.260***	0.033***	0.244***	0.035***	0.200***	0.010
	(0.031)	(0.011)	(0.033)	(0.013)	(0.036)	(0.022)
At least one University Degree	0.152***	0.406***	0.143***	0.372***	0.099***	0.277***
	(0.028)	(0.015)	(0.031)	(0.016)	(0.035)	(0.023)

note: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 6b: Student Aspirations (non-FGHs)

	Aspiration Variables Only		Add Controls		Add PISA Reading Score	
	College	**University**	**College**	**University**	**College**	**University**
Highest Level (High School Diploma)						
Less than a high school diploma	-0.107	-0.089***	-0.089	-0.074	to be added	
	(0.117)	(0.030)	(0.128)	(0.047)		
Trade/College diploma	0.194***	0.016	0.151***	0.036		
	(0.040)	(0.026)	(0.041)	(0.030)		
At least one University Degree	-0.081**	0.537***	-0.113***	0.491***		
	(0.036)	(0.025)	(0.039)	(0.028)		

note: *** p<0.01, ** p<0.05, * p<0.1

Average marginal effects shown.

The background models include gender, urban/rural, province, visible minority status, immigrant status, family structure and family income.

Table 7a: Household Characteristics and Behaviours (FGHs)

	no-PSE	PSE		
		Any PSE	College	Uni.
PISA Cultural Capital Index Means				
Cultural Communication				
Parental cultural communication	-21.9		-9.4	11.3
Social Communication				
Parental social communication	-44.5		-31.8	-15.2
Family Educational Support				
Family educational support	-13.5		-7.0	-16.9
Family Wealth				
Family wealth	6.3		21.0	38.0
Home Educational Resources				
Home educational resources	-43.4		-13.7	7.7
Cultural Activities				
Cultural activities of the student	-27.7		-6.7	22.6
Cultural Possessions				
Cultural possession of the family	-53.6		-40.3	-12.6
Reading Engagement				
Enjoyment of reading	-37.7		-11.8	22.2
Savings and Aspiration Categories				
Youth Saving Behaviour				
Did not save at all	34.5	22.4	23.7	20.6
Saved, but not for education	46.3	40.9	42.3	39.0
Saved for education	19.2	36.7	34.0	40.3
Any Parental Financial Preparation				
No	52.2	38.7	42.6	33.2
Yes	47.8	61.3	57.4	66.8
Parental Education Aspiration (High School Diploma)				
Less than HS	--	0.0	0.0	0.0
High School Diploma	13.6	2.6	3.8	0.8
College/Trade	51.1	35.3	45.3	21.2
One University Degree	28.2	48.8	41.2	59.6
More than One University Degree	--	13.3	9.6	18.4
Youth Education Aspiration (High School Diploma)				
Less than a high school diploma	1.3	0.2	0.2	--
High School Diploma	22.7	3.9	5.5	--
Trade/College diploma	43.5	27.5	42.0	8.2
At least one University Degree	32.6	68.4	52.2	89.8

-- indicates value suppressed due to Statistics Canada confidentiality requirements.

Appendix

Table A1: Composition of PISA Indices

Index	PISA Code	Components of Index	Valid Responses
Cultural communication with parents	CULTCOM	In general, how often do your parents: discuss politics or social issues with you? discuss films, books or television programmes with you? listen to classical music with you?	Never or hardly ever; a few times a year; about once a month; several times a month; several times a week
Social communication with parents	SOCCOM	In general, how often do your parents: discuss how well you are doing at school? eat dinner with you around a table? spend time just talking to you?	Never or hardly ever; a few times a year; about once a month; several times a month; several times a week
Family educational support	FAMEDSUP	How often do the folowing people work with you on your schoolwork? Your mother Your father Your brothers and sisters Your grandparents Other relations Friends of your parents	Never or hardly ever; a few times a year; about once a month; several times a month; several times a week
Family wealth	WEALTH	In your home, do you have: a dishwasher? a room of your own? educational software? a link to the internet? How many of the following do you have at your home? Cellular phone. Television. Computer. Motor car. Bathroom.	Yes/No None; One; Two; Three or more
Home educational resources	HEDRES	In your home, do you have: a dictionary? a quiet place to study? a desk for study? textbooks? How many of the following do you have at your home? Calculators.	Yes/No None, One, Two, Three or more

Activities related to "classical" culture	CULTACT	During the past year, how often have you participated in these activities? Visited a museum or art gallery. Attended an opera, ballet, or classical symphony concert. Watched live theatre.	Never or hardly ever; one or twice a year; abour three or four times a year; more than four times a year
Possessions related to "classical" culture in the family home	CULTPOSS	In your home, do you have: classical literature (e.g., Shakespeare)? books of poetry? works of art (e.g., paintings)?	Yes/No
Engagement in reading	JOYREAD	How much do you disagree or agree with the following statements about reading? I read only if I have to. Reading is one of my favourite hobbies. I like talking about books with other people. I find it hard to finish books. I feel happy if I receive a book as a present. For me, reading is a waste of time. I enjoy going to a bookstore or a library. I read only to get the information I need. I cannot sit still and read for more than a few minutes.	Strongly disagree, disagree, agree, strongly agree
Reading diversity	DIVREAD	How often do you read these materials because you want to? Magazines. Comic books. Fictions (novels, narratives, stories). Non-fiction books. Emails and web pages. Newspapers.	Never or hardly ever; a few times a year; about once a month; several times a month; several times a week

Source: Manual for the PISA 2000 Database, adapted from Childs, Finnie and Mueller (2010, 2012).