

How the Literacy Report Cards were Derived

The community literacy report cards are derived from a special version of the 2006 Census of Population file of individuals aged 16 and over, one onto which literacy scores and literacy market segments have been assigned to each individual.

The assignment of literacy scores uses the relationship between literacy and individual characteristics observed in the 2003 International Adult Literacy and Skills Survey. Prose literacy scores are reported on a scale of 0 to 500.

The assignment of literacy market segments uses the relationship between an analysis of the patterns of strength and weakness in decoding and comprehension skills and individual characteristics observed in the 2005 International Survey of Reading Skills. The variables used in the imputation - age, gender, education, immigrant status, mother tongue and aboriginal status, occupation and province. - allow one to faithfully reproduce the distributions of skill observed in these two sources.

Aggregate literacy demand is derived for each community by multiplying each employed individual by the literacy score at the lower bound of the occasional prose literacy proficiency level associated with their occupation in HRSDC's Essential Skills profile.

Average literacy demand is computed by dividing aggregate literacy demand by the number of employed individuals. Literacy skill demand is associated with the community where the individual lives rather than the community where they work. Aggregate literacy supply is derived by summing the prose literacy scores of all individuals aged 16 and over.

Average prose literacy scores are derived by dividing the aggregate literacy score by the number of adults aged 16 and over living in the community. The aggregate and average literacy supply of the employed population are derived by restricting the computation to the employed population.

The literacy utilization rate is calculated by dividing aggregate literacy demand by aggregate literacy supply multiplied by 100. The cost of eliminating literacy skill shortages is calculated in two steps.

For individuals whose literacy score is below the score at the lower bound of the prose literacy level associated with their occupation a skill shortage in points is calculated by subtracting the individual's score from the lower bound of proficiency level associated with their occupation. Each point of literacy skill shortage is then multiplied by an estimate of the cost of raising skill a point at the proficiency level at which it falls using the "best practice" interventions identified for each literacy market segments in DataAngel's report "Addressing Canada's Literacy Challenge: A Cost-Benefit Analysis".

Costs are then summed for all individuals in literacy skill shortage in the community. Average costs are derived by dividing the total cost of eliminating literacy skill shortages by the number of adults aged 16 and over living in the community.

The expected increase in earnings associated with the elimination of literacy skill shortages through instruction is derived by multiplying the size of individual literacy skill shortages by \$155, the amount of additional earnings associated with an increase of a literacy point after the effects of age, gender, education, language, immigrant status and aboriginal status have been removed. Earnings increases per person are derived by dividing the total earnings increase by the number of workers in literacy skill shortage.

The size of literacy skill surpluses is calculated by comparing individual literacy scores to the upper bound of the proficiency level associated with their occupation. Where this value is positive the individual is judged to be in literacy skill surplus.

The expected increase in earnings associated with the elimination of literacy skill surpluses through increasing the knowledge intensity of employment is derived by multiplying the size of individual literacy skill surpluses by \$155, the amount of additional earnings associated with an increase of a literacy point after the effects of age, gender, education, language, immigrant status and aboriginal status have been removed. Earnings increases per person are derived by dividing the total earnings increase by the number of workers in literacy skill shortage.

How the community-level estimates should be interpreted.

Overall, the estimates presented in the report cards should be interpreted as indicative rather than definitive. The report cards are intended to provide local decision makers with a sense of the relative size and nature of their local literacy “problem” and first order approximations of the level of investment that would be needed to eliminate literacy skill shortages through “best practice” instruction. The profiles also provide local decision makers with a sense of their local literacy “opportunity” by identifying what the potential economic benefits might be. We judge this information key to getting municipal governments and employers to invest.

The estimates presented in the literacy report cards are based on literacy variables that have been imputed onto the 2006 Census of Population and are thus subject to three sources of error - sampling error associated with demographic characteristics, coding error associated with individuals assignment to occupations and error associated with the imputation of the literacy data. Sampling errors at the level reported in the report cards is negligible. Occupational coding errors are unlikely to bias the estimates in significant

ways at the level of aggregation being reported. Imputation errors are significant at the level of the individual but are unlikely to bias the estimates in significant ways at the level of aggregation being reported. The estimates of demand and shortage should be interpreted as the minimum possible associated with the Essential Skills profiles. These estimates assume that the profiles themselves are a reliable indicator of the literacy skill demands of occupations.

The estimates of the cost of eliminating literacy skill shortages through instruction represent the average costs given the distribution of potential learners by literacy market segments as defined in Reading the Future: Planning for Canada’s Future Literacy Needs.

The estimates of increases in earnings should be taken as indications of the marginal economic value associated with the elimination of literacy skill shortages and surpluses. To be realized the economy would have to absorb the additional skill and apply them to economically productive ends. The value applied per point represents an approximation based upon the relationship between earnings and literacy observed in the 2003 IALSS study. Employers may choose not to pass along all of the associated productivity benefits to their workers.