## Appendix C: Data Appendix

## Control variables

Controls for individual characteristics include an indicator of whether the student separated from their school in an earlier school year, and indicators for gender, Aboriginal identity, language spoken at home (any language besides English), disability, giftedness, ESL status, and the student's own FSA exam score. We also control for a set of socioeconomic characteristics of the Census Enumeration or Dissemination Area (EA or DA, respectively) in which the student resides as proxies for unobserved student background characteristics. Specifically, we control for the proportion of household heads in the EA/DA who immigrated to Canada in the previous five years; whose education level was less than grade 9 , without a high school diploma, with a high school diploma, and with a bachelor's degree or higher (the omitted category is those with more than high school but less than a bachelor's degree); who are visible minority; who are single parents; who moved into the EA or DA in the last year or in the last five years; and the unemployment rate among those over age 25, the average dwelling value, average household income, and the fraction who own their dwelling. Details of the construction of these variables are provided below.

Controls for school characteristics include the proportion of grade 4 students who are Aboriginal, speak a language other than English at home, are male, are disabled, are in an ESL program, were excused from the reading or numeracy test, or are enrolled in French Immersion. Finally, we include several proxies for students' cost of changing schools: their travel distance to school, the number of public and private schools within the $75^{\text {th }}$ percentile of the distribution of student travel distance to school, and an indicator for attending a French Immersion program (because this program is offered in a limited set of schools). French Immersion programs, which are the most popular form of magnet programs in the Lower Mainland, provide French-only instruction to non-francophone students.

## Coding of Neighborhood Characteristics

Neighborhood characteristics are based on public-use aggregates of the Census of Population "long form," administered by Statistics Canada to one in five households in 1996 and 2001. The lowest level of geography for which Statistics Canada produced aggregate statistics based on the 1996 Census is an Enumeration Area (EA). Statistics based on the 2001 Census were produced at the Dissemination Area (DA) level. EAs are geographic areas designated for the collection of Census data. Prior to the 2001 Census, EAs were used for both Census data collection and dissemination. In the 2001 Census, they were replaced by DAs for dissemination purposes. In the 1996 Census, EAs were composed of one or more neighboring blocks containing between 125 and 440 dwellings (in rural and urban areas, respectively). In the 2001 Census, DAs were composed of one or more neighboring blocks with a population of 400 to 700 persons. These definitions are sufficiently similar for our purposes.

EA/DA-level Census characteristics were integrated with our enrollment data via students' residential postal code in each year. The integrated EA/DA characteristics are based on the most recently administered Census for each year of our sample. We link postal codes and EAs/DAs using Statistics Canada's Postal Code Conversion File (PCCF). The PCCF contains a complete longitudinal correspondence between postal codes and EAs/DAs (postal codes are occasionally retired and subsequently recycled). Postal codes are smaller than EAs/DAs and usually lie entirely within an EA/DA. In cases where postal code boundaries span multiple EAs/DAs, we use the PCCF's Single Link Indicator (which identifies the best link to an EA/DA) to link to a unique EA/DA.

In a small number of cases, we were unable to assign EA/DA-level characteristics to residential postal codes. This arose when residential postal codes did not appear in the PCCF (most likely due to mis-reported postal codes), or when EA/DA-level characteristics were suppressed by Statistics Canada for confidentiality reasons. Overall, these cases comprised about 1 percent of grade 4 students in the enrollment database.

## Coding of Distance and School Density Measures

Our measures of the distance between students' residence and the school they attended are based on reported postal codes. We obtained postal codes for all schools attended by grade 4 students who met our other sample restrictions from public sources (most notably, school and district websites). We used the PCCF to assign a latitude and longitude to each postal code in each year, and calculated the great circle distance (in km) between the student's residence and schools. For each residential postal code in each year, we then calculated the number of active public and private schools within a circle centered on the residential postal code and with radius equal to the $75^{\text {th }}$ percentile of in-sample travel distance to public and private schools, respectively.

## Coding of Other Key Variables

In all regressions, the reference category for home language is students who always report speaking English at home. Students are coded as speaking a non-English language at home if they report speaking a language other than English at home in any year between kindergarten and grade 5. Similarly, students are coded as Aboriginal, disabled, or gifted if they ever report that status. Students are coded as ESL if they are designated as such in the current school year. Annual school-by-grade averages of these variables were computed by aggregating the student-
level data.

## Missing Data and Other Sample Restrictions

As reported in the main text, we restrict our analysis sample to students who entered kindergarten at a Lower Mainland school between 1995/1996 and 1999/2000, subsequently made regular progress through grade 5 at Lower Mainland schools, and were enrolled in grade 4 at a public school between 1999/2000 and 2003/2004. We excluded 6,681 observations where a student did not progress through the grades along with her cohort, and we excluded 64 observations where the measured distance between the student's residence and the school they attended exceeded 50 km (since it is likely that this distance indicates measurement error in the postal code). Our sample comprises 106,344 Grade 4 students after applying these sample restrictions. Of these, 41,164 additional observations were excluded because of missing data. The most commonly missing data items, including those described elsewhere in this Appendix, were:

- the Fraser Institute school score/ranking, because the Fraser Institute only generated scores for schools with at least 15 students enrolled in both grade 4 and grade 7, and because two public school districts (Coquitlam and Chilliwack) were excluded from the 2003 report card (the three-year average Fraser Institute score is missing for 22,277 observations, the Fraser Institute score based on the 2001/2002 exam is missing for 19,529 observations, and the score based on the 2002/2003 exam is missing for 4,313 observations);
- neighborhood characteristics, as described above (876 observations); and
- students' own FSA exam result (6,849 observations were missing either a reading or numeracy score).


## Appendix D: Additional Tables

Table OA1: Sample Means of Control Variables

|  | (1) | (2) |
| :---: | :---: | :---: |
|  | Sample Mean or Proportion | Sample Standard Deviation |
| Individual Characteristics |  |  |
| Male | 0.506 | 0.500 |
| Aboriginal | 0.047 | 0.211 |
| Non-English Home Language | 0.324 | 0.468 |
| Disabled | 0.036 | 0.187 |
| Gifted | 0.017 | 0.128 |
| Enrolled in ESL Program | 0.307 | 0.461 |
| Changed Schools Prior to Grade 4 | 0.348 | 0.476 |
| Own FSA Reading Score | 0.050 | 0.964 |
| Own FSA Numeracy Score | 0.062 | 0.983 |
| School Characteristics |  |  |
| Proportion Excused from FSA Reading | 0.084 | 0.069 |
| Proportion Excused from FSA Numeracy | 0.086 | 0.070 |
| Proportion Male | 0.514 | 0.074 |
| Proportion Aboriginal | 0.038 | 0.048 |
| Proportion Non-English Home Language | 0.323 | 0.266 |
| Proportion Disabled | 0.060 | 0.045 |
| Proportion Enrolled in ESL Program | 0.250 | 0.245 |
| Proportion Enrolled in French Immersion | 0.062 | 0.168 |
| Cost of Changing Schools |  |  |
| Enrolled in French Immersion | 0.068 | 0.251 |
| Number of Public Schools Nearby | 2.60 | 1.42 |
| Number of Private Schools Nearby | 8.64 | 6.05 |
| Travel Distance to School (km) | 1.19 | 2.20 |
| Census Characteristics |  |  |
| Mean Household Income / \$1000 | 64.9 | 25.5 |
| Proportion Visible Minority | 0.329 | 0.257 |
| Proportion One-Parent Families | 0.146 | 0.088 |
| Proportion of those Aged 25+ Unemployed | 0.065 | 0.052 |
| Average Value of Dwelling / \$1000 | 292 | 133 |
| Proportion Dwellings Owned | 0.717 | 0.211 |
| Proportion Moved Last Year | 0.159 | 0.090 |
| Proportion Moved in Last 5 Years | 0.484 | 0.160 |
| Proportion Less than Grade 9 Education | 0.072 | 0.065 |
| Proportion Some High School | 0.185 | 0.082 |
| Proportion with High School Diploma | 0.131 | 0.051 |
| Proportion with BA or higher | 0.175 | 0.117 |
| Proportion Immigrant | 0.337 | 0.168 |

Source: Authors' calculations based on B.C. Ministry of Education enrollment database and auxiliary data. Notes: "Nearby" is defined as a circle with radius equal to the $75^{\text {th }}$ percentile of travel distance to school.

Table OA2: Distribution of School Achievement Measures

|  | Mean | Std. <br> Dev | Correlation |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | School-Average FSA Score |  |  |  | Fraser Institute Score |  |  |
|  |  |  | $\begin{gathered} 1999 / \\ 2000 \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2000 / \\ 2001 \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2001 / \\ 2002 \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2002 / \\ 2003 \\ \hline \end{gathered}$ | 3 Year Avg. | $\begin{gathered} \hline 2001 / \\ 2002 \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2002 / \\ 2003 \\ \hline \end{gathered}$ |
| Public Schools |  |  |  |  |  |  |  |  |  |
| 1999/2000 FSA | 0 | 1 | 1 |  |  |  |  |  |  |
| 2000/2001 FSA | 0 | 1 | 0.708 | 1 |  |  |  |  |  |
| 2001/2002 FSA | 0 | 1 | 0.637 | 0.672 | 1 |  |  |  |  |
| 2002/2003 FSA | 0 | 1 | 0.563 | 0.619 | 0.665 | 1 |  |  |  |
| 3 Year Avg. FI | 0 | 1 | 0.790 | 0.808 | 0.784 | 0.669 | 1 |  |  |
| 2001/2002 FI | 0 | 1 | 0.616 | 0.639 | 0.813 | 0.619 | 0.886 | 1 |  |
| 2002/2003 FI | 0 | 1 | 0.667 | 0.632 | 0.661 | 0.801 | 0.782 | 0.713 | 1 |

Source: Authors' calculations based on B.C. Ministry of Education enrollment database and auxiliary data.
Notes: "FSA" refers to the school-average of FSA reading and numeracy scores. "FI Score" refers to the Fraser Institute school score. All scores are normalized to have mean zero and variance one over schools in each year.

Table OA3: Complete Coefficient Estimates, Difference-in-Differences Estimator

|  | (1) <br> Full Sample | (2) <br> English | (3) <br> Non-English |
| :---: | :---: | :---: | :---: |
| Lagged Score | $\begin{aligned} & -0.003 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.003 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.001 \\ & (0.007) \end{aligned}$ |
| Lagged Score*(Yr=2000) | $\begin{aligned} & -0.007 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.010^{* *} \\ & (0.005) \end{aligned}$ | $\begin{gathered} 0.003 \\ (0.008) \end{gathered}$ |
| $\mathrm{Yr}=2000$ | $\begin{aligned} & -0.047 * \\ & (0.024) \end{aligned}$ | $\begin{aligned} & -0.073^{*} * \\ & (0.028) \end{aligned}$ | $\begin{gathered} 0.033 \\ (0.050) \end{gathered}$ |
| Proportion Disabled | $\begin{gathered} 0.015 \\ (0.060) \end{gathered}$ | $\begin{gathered} 0.059 \\ (0.079) \end{gathered}$ | $\begin{aligned} & -0.093 \\ & (0.102) \end{aligned}$ |
| Proportion Non-English Home Language | $\begin{gathered} 0.017 \\ (0.045) \end{gathered}$ | $\begin{gathered} 0.062 \\ (0.061) \end{gathered}$ | $\begin{aligned} & -0.107 \\ & (0.070) \end{aligned}$ |
| Proportion Aboriginal | $\begin{aligned} & -0.133 \\ & (0.087) \end{aligned}$ | $\begin{aligned} & -0.077 \\ & (0.106) \end{aligned}$ | $\begin{aligned} & -0.330^{* *} \\ & (0.130) \end{aligned}$ |
| Proportion Enrolled in ESL Program | $\begin{aligned} & -0.002 \\ & (0.056) \end{aligned}$ | $\begin{gathered} 0.042 \\ (0.076) \end{gathered}$ | $\begin{aligned} & -0.027 \\ & (0.077) \end{aligned}$ |
| Proportion Male | $\begin{aligned} & -0.046 \\ & (0.033) \end{aligned}$ | $\begin{aligned} & -0.127 * * * \\ & (0.041) \end{aligned}$ | $\begin{aligned} & 0.165^{* * *} \\ & (0.062) \end{aligned}$ |
| Proportion Enrolled in French Immersion | $\begin{aligned} & -0.165^{* *} \\ & (0.072) \end{aligned}$ | $\begin{aligned} & -0.122 \\ & (0.080) \end{aligned}$ | $\begin{aligned} & -0.356^{* *} \\ & (0.154) \end{aligned}$ |
| Proportion Disabled*(Yr $\geq 2000)$ | $\begin{aligned} & -0.029 \\ & (0.079) \end{aligned}$ | $\begin{gathered} 0.097 \\ (0.108) \end{gathered}$ | $\begin{aligned} & -0.291 * * * \\ & (0.110) \end{aligned}$ |
| Proportion Non-English*( $\mathrm{Yr} \geq 2000$ ) | $\begin{aligned} & 0.071^{* *} \\ & (0.034) \end{aligned}$ | $\begin{aligned} & 0.092 * * \\ & (0.043) \end{aligned}$ | $\begin{gathered} 0.028 \\ (0.061) \end{gathered}$ |
| Proportion Aboriginal* $(\mathrm{Yr} \geq 2000)$ | $\begin{gathered} 0.022 \\ (0.073) \end{gathered}$ | $\begin{gathered} 0.016 \\ (0.084) \end{gathered}$ | $\begin{gathered} 0.088 \\ (0.126) \end{gathered}$ |
| Proportion Enrolled in ESL Program* (Yr $\geq 2000$ ) | $\begin{aligned} & -0.052 \\ & (0.037) \end{aligned}$ | $\begin{aligned} & -0.057 \\ & (0.053) \end{aligned}$ | $\begin{aligned} & -0.025 \\ & (0.058) \end{aligned}$ |
| Proportion Male*(Yr $\geq 2000)$ | $\begin{gathered} 0.060 \\ (0.045) \end{gathered}$ | $\begin{gathered} 0.096^{*} \\ (0.053) \end{gathered}$ | $\begin{aligned} & -0.047 \\ & (0.090) \end{aligned}$ |
| Proportion French Immersion* $\mathrm{Yr} \geq 2000$ ) | $\begin{gathered} 0.027 * \\ (0.015) \end{gathered}$ | $\begin{gathered} 0.026 \\ (0.018) \end{gathered}$ | $\begin{aligned} & 0.076 * * \\ & (0.036) \end{aligned}$ |
| Proportion Excused from FSA | $\begin{aligned} & -0.040 \\ & (0.037) \end{aligned}$ | $\begin{aligned} & -0.113 * * \\ & (0.053) \end{aligned}$ | $\begin{gathered} 0.005 \\ (0.046) \end{gathered}$ |
| Non-English Home Language | $\begin{gathered} 0.011 \\ (0.008) \end{gathered}$ | $\begin{gathered} 0.000 \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.000 \\ (0.000) \end{gathered}$ |
| Aboriginal | $\begin{aligned} & 0.074 * * * \\ & (0.010) \end{aligned}$ | $\begin{aligned} & 0.073 * * * \\ & (0.010) \end{aligned}$ | $\begin{gathered} 0.055 \\ (0.049) \end{gathered}$ |
| Enrolled in ESL Program | $\begin{aligned} & -0.019^{* *} \\ & (0.009) \end{aligned}$ | $\begin{aligned} & -0.041^{* * *} \\ & (0.013) \end{aligned}$ | $\begin{aligned} & -0.003 \\ & (0.011) \end{aligned}$ |
| Male | $\begin{aligned} & -0.002 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.003 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.004 \\ & (0.007) \end{aligned}$ |
| Disabled | $\begin{aligned} & 0.025 * * \\ & (0.011) \end{aligned}$ | $\begin{gathered} 0.021^{*} \\ (0.012) \end{gathered}$ | $\begin{gathered} 0.032 \\ (0.022) \end{gathered}$ |
| Gifted | $\begin{gathered} 0.000 \\ (0.011) \\ \hline \end{gathered}$ | $\begin{gathered} 0.004 \\ (0.013) \end{gathered}$ | $\begin{gathered} 0.002 \\ (0.023) \end{gathered}$ |

Table OA3, Continued

| Changed Schools Prior to Grade 4 | $\begin{aligned} & \hline 0.064 * * * \\ & (0.004) \end{aligned}$ | $\begin{aligned} & \hline 0.072 * * * \\ & (0.005) \end{aligned}$ | $\begin{aligned} & \hline 0.041 * * * \\ & (0.007) \end{aligned}$ |
| :---: | :---: | :---: | :---: |
| Own FSA Reading Score | $\begin{aligned} & -0.005^{*} \\ & (0.003) \end{aligned}$ | $\begin{aligned} & -0.006^{*} \\ & (0.003) \end{aligned}$ | $\begin{aligned} & -0.005 \\ & (0.005) \end{aligned}$ |
| Own FSA Numeracy Score | $\begin{aligned} & -0.006 * * \\ & (0.002) \end{aligned}$ | $\begin{aligned} & -0.007 * * \\ & (0.003) \end{aligned}$ | $\begin{aligned} & -0.002 \\ & (0.005) \end{aligned}$ |
| Mean Household Income / \$1000 | $\begin{aligned} & -0.000^{*} \\ & (0.000) \end{aligned}$ | $\begin{aligned} & -0.000 \\ & (0.000) \end{aligned}$ | $\begin{aligned} & -0.001 \\ & (0.001) \end{aligned}$ |
| SE of Mean Household Income / \$1000 | $\begin{gathered} 0.001 \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.000 \\ (0.001) \end{gathered}$ | $\begin{aligned} & -0.001 \\ & (0.002) \end{aligned}$ |
| Proportion Visible Minority | $\begin{gathered} 0.001 \\ (0.030) \end{gathered}$ | $\begin{gathered} 0.006 \\ (0.038) \end{gathered}$ | $\begin{gathered} 0.011 \\ (0.052) \end{gathered}$ |
| Proportion One-Parent Families | $\begin{gathered} 0.014 \\ (0.034) \end{gathered}$ | $\begin{aligned} & -0.017 \\ & (0.042) \end{aligned}$ | $\begin{gathered} 0.071 \\ (0.059) \end{gathered}$ |
| Proportion of those Aged 25+ Unemployed | $\begin{gathered} 0.015 \\ (0.054) \end{gathered}$ | $\begin{gathered} 0.042 \\ (0.069) \end{gathered}$ | $\begin{gathered} 0.001 \\ (0.087) \end{gathered}$ |
| Average Value of Dwelling / \$1000 | $\begin{gathered} 0.000 \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.000 \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.000 \\ (0.000) \end{gathered}$ |
| Proportion of Dwellings Owned | $\begin{aligned} & -0.016 \\ & (0.017) \end{aligned}$ | $\begin{aligned} & -0.031 \\ & (0.021) \end{aligned}$ | $\begin{gathered} 0.012 \\ (0.031) \end{gathered}$ |
| Proportion Moved Last Year | $\begin{gathered} 0.047 \\ (0.030) \end{gathered}$ | $\begin{gathered} 0.054 \\ (0.040) \end{gathered}$ | $\begin{gathered} 0.008 \\ (0.052) \end{gathered}$ |
| Proportion Moved in Last 5 Years | $\begin{gathered} 0.001 \\ (0.021) \end{gathered}$ | $\begin{gathered} 0.018 \\ (0.024) \end{gathered}$ | $\begin{aligned} & -0.032 \\ & (0.044) \end{aligned}$ |
| Proportion Less than Grade 9 Education | $\begin{gathered} 0.048 \\ (0.069) \end{gathered}$ | $\begin{gathered} 0.062 \\ (0.093) \end{gathered}$ | $\begin{aligned} & -0.029 \\ & (0.109) \end{aligned}$ |
| Proportion Some High School | $\begin{gathered} 0.013 \\ (0.044) \end{gathered}$ | $\begin{gathered} 0.028 \\ (0.057) \end{gathered}$ | $\begin{aligned} & -0.066 \\ & (0.079) \end{aligned}$ |
| Proportion with High School Diploma | $\begin{aligned} & -0.010 \\ & (0.051) \end{aligned}$ | $\begin{gathered} 0.030 \\ (0.062) \end{gathered}$ | $\begin{aligned} & -0.135 \\ & (0.093) \end{aligned}$ |
| Proportion with Bachelor's or Higher | $\begin{aligned} & 0.172 * * * \\ & (0.046) \end{aligned}$ | $\begin{aligned} & 0.199^{* * *} \\ & (0.056) \end{aligned}$ | $\begin{gathered} 0.142 \\ (0.088) \end{gathered}$ |
| Proportion Immigrant | $\begin{aligned} & -0.009 \\ & (0.041) \end{aligned}$ | $\begin{aligned} & -0.027 \\ & (0.049) \end{aligned}$ | $\begin{aligned} & -0.002 \\ & (0.082) \end{aligned}$ |
| Travel Distance to School (km) | $\begin{aligned} & 0.005 * * * \\ & (0.001) \end{aligned}$ | $\begin{aligned} & 0.005 * * * \\ & (0.001) \end{aligned}$ | $\begin{gathered} 0.003 \\ (0.002) \end{gathered}$ |
| Enrolled in French Immersion | $\begin{aligned} & -0.019^{*} \\ & (0.010) \end{aligned}$ | $\begin{aligned} & -0.016 \\ & (0.011) \end{aligned}$ | $\begin{aligned} & -0.033 \\ & (0.035) \end{aligned}$ |
| Number of Public Schools Nearby | $\begin{aligned} & -0.002 \\ & (0.002) \end{aligned}$ | $\begin{aligned} & -0.004 \\ & (0.002) \end{aligned}$ | $\begin{gathered} 0.002 \\ (0.003) \end{gathered}$ |
| Number of Private Schools Nearby | $\begin{gathered} 0.001 \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.001 \\ (0.002) \end{gathered}$ | $\begin{aligned} & -0.001 \\ & (0.002) \end{aligned}$ |
| Constant | $\begin{gathered} 0.078 * * \\ (0.037) \\ \hline \end{gathered}$ | $\begin{array}{r} 0.084^{*} \\ (0.044) \\ \hline \hline \end{array}$ | $\begin{array}{r} 0.138^{*} \\ (0.078) \\ \hline \hline \end{array}$ |

Notes: This table reports all coefficient estimates for the specifications reported in columns 1-3 of Table 4. Robust standard errors in parentheses, clustered at the school-by-year level. $* * *$ indicates statistically significant at the $1 \%$ level, ${ }^{* *}$ indicates significant at the $5 \%$ level, *indicates significant at the $10 \%$ level.

Table OA4: Complete Coefficient Estimates, Control Function Estimator

|  | (1) <br> Full Sample | (2) <br> English | (3) <br> Non-English |
| :---: | :---: | :---: | :---: |
| 1999 FSA Score*(Yr=2000) | $\begin{aligned} & \hline-0.009^{* *} \\ & (0.005) \end{aligned}$ | $\begin{aligned} & \hline-0.013^{* * *} \\ & (0.005) \end{aligned}$ | $\begin{gathered} \hline 0.003 \\ (0.007) \end{gathered}$ |
| 2000 FSA Score*(Yr=2001) | $\begin{aligned} & -0.011^{*} \\ & (0.006) \end{aligned}$ | $\begin{aligned} & -0.011 \\ & (0.007) \end{aligned}$ | $\begin{aligned} & -0.015 \\ & (0.010) \end{aligned}$ |
| 1999-2001 FI Score*(Yr=2002) | $\begin{aligned} & -0.035^{* * *} \\ & (0.010) \end{aligned}$ | $\begin{aligned} & -0.031^{* * *} \\ & (0.011) \end{aligned}$ | $\begin{aligned} & -0.046^{* * *} \\ & (0.015) \end{aligned}$ |
| 2002 FI Score*(Yr=2003) | $\begin{gathered} 0.001 \\ (0.007) \end{gathered}$ | $\begin{gathered} 0.006 \\ (0.009) \end{gathered}$ | $\begin{aligned} & -0.011 \\ & (0.009) \end{aligned}$ |
| 1999 FSA Score*(Yr>2000) | $\begin{aligned} & -0.001 \\ & (0.005) \end{aligned}$ | $\begin{aligned} & -0.003 \\ & (0.006) \end{aligned}$ | $\begin{gathered} 0.006 \\ (0.008) \end{gathered}$ |
| 2000 FSA Score*(Yr>2001) | $\begin{gathered} 0.009 \\ (0.007) \end{gathered}$ | $\begin{gathered} 0.006 \\ (0.008) \end{gathered}$ | $\begin{gathered} 0.016^{*} \\ (0.009) \end{gathered}$ |
| 1999-2001 FI Score*(Yr>2002) | $\begin{aligned} & -0.027^{* * *} \\ & (0.010) \end{aligned}$ | $\begin{aligned} & -0.024^{* *} \\ & (0.011) \end{aligned}$ | $\begin{aligned} & -0.032^{* *} \\ & (0.016) \end{aligned}$ |
| Current FSA Score | $\begin{aligned} & -0.005 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.002 \\ & (0.004) \end{aligned}$ | $\begin{aligned} & -0.011^{*} \\ & (0.006) \end{aligned}$ |
| Current FSA Score*(Yr>2001) | $\begin{gathered} 0.009^{*} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.003 \\ (0.006) \end{gathered}$ | $\begin{aligned} & 0.020^{* *} \\ & (0.009) \end{aligned}$ |
| Proportion Male | $\begin{aligned} & -0.047 \\ & (0.030) \end{aligned}$ | $\begin{aligned} & -0.083^{* *} \\ & (0.035) \end{aligned}$ | $\begin{gathered} 0.048 \\ (0.051) \end{gathered}$ |
| Proportion Disabled | $\begin{gathered} 0.044 \\ (0.064) \end{gathered}$ | $\begin{gathered} 0.113 \\ (0.069) \end{gathered}$ | $\begin{aligned} & -0.079 \\ & (0.098) \end{aligned}$ |
| Proportion Non-English Home Language | $\begin{aligned} & -0.039 \\ & (0.041) \end{aligned}$ | $\begin{gathered} 0.026 \\ (0.047) \end{gathered}$ | $\begin{aligned} & -0.122 * * \\ & (0.056) \end{aligned}$ |
| Proportion Aboriginal | $\begin{aligned} & -0.100 \\ & (0.070) \end{aligned}$ | $\begin{aligned} & -0.067 \\ & (0.088) \end{aligned}$ | $\begin{aligned} & -0.172 \\ & (0.109) \end{aligned}$ |
| Proportion Enrolled in ESL Program | $\begin{gathered} 0.016 \\ (0.043) \end{gathered}$ | $\begin{gathered} 0.030 \\ (0.053) \end{gathered}$ | $\begin{gathered} 0.016 \\ (0.053) \end{gathered}$ |
| Proportion Enrolled in French Immersion | $\begin{gathered} 0.014 \\ (0.040) \end{gathered}$ | $\begin{gathered} 0.009 \\ (0.042) \end{gathered}$ | $\begin{gathered} 0.066 \\ (0.107) \end{gathered}$ |
| Proportion Disabled*(Yr $\geq 2000$ ) | $\begin{gathered} 0.048 \\ (0.079) \end{gathered}$ | $\begin{aligned} & -0.001 \\ & (0.097) \end{aligned}$ | $\begin{gathered} 0.110 \\ (0.111) \end{gathered}$ |
| Proportion Non-English*(Yr 2000) | $\begin{gathered} 0.038 \\ (0.038) \end{gathered}$ | $\begin{aligned} & -0.037 \\ & (0.047) \end{aligned}$ | $\begin{aligned} & 0.125^{* *} \\ & (0.053) \end{aligned}$ |
| Proportion Aboriginal*(Yr ${ }^{\text {2000 }}$ ) | $\begin{gathered} 0.022 \\ (0.086) \end{gathered}$ | $\begin{aligned} & -0.026 \\ & (0.106) \end{aligned}$ | $\begin{gathered} 0.071 \\ (0.125) \end{gathered}$ |
| Proportion Enrolled in ESL Program*(Yr $\geq 2000$ ) | $\begin{aligned} & -0.044 \\ & (0.040) \end{aligned}$ | $\begin{gathered} 0.017 \\ (0.049) \end{gathered}$ | $\begin{aligned} & -0.113 * * \\ & (0.054) \end{aligned}$ |
| Proportion Male*(Yr ${ }^{\text {( }}$ 2000) | $\begin{gathered} 0.061 \\ (0.042) \end{gathered}$ | $\begin{aligned} & 0.106^{* *} \\ & (0.050) \end{aligned}$ | $\begin{aligned} & -0.037 \\ & (0.075) \end{aligned}$ |
| Proportion French Immersion*(Yr $\geq 2000$ ) | $\begin{gathered} 0.017 \\ (0.019) \end{gathered}$ | $\begin{gathered} 0.025 \\ (0.022) \end{gathered}$ | $\begin{aligned} & -0.015 \\ & (0.037) \end{aligned}$ |
| Proportion Disabled*(Yr ${ }^{\text {2002 }}$ ) | $\begin{aligned} & -0.043 \\ & (0.099) \\ & \hline \end{aligned}$ | $\begin{gathered} 0.051 \\ (0.125) \\ \hline \end{gathered}$ | $\begin{aligned} & -0.199 \\ & (0.131) \\ & \hline \end{aligned}$ |

Table OA4, Continued

| Proportion Non-English*(Yr $\geq 2002)$ | $\begin{gathered} \hline \hline 0.050 \\ (0.046) \end{gathered}$ | $\begin{gathered} \hline \hline 0.120^{* *} \\ (0.058) \end{gathered}$ | $\begin{aligned} & \hline \hline-0.034 \\ & (0.057) \end{aligned}$ |
| :---: | :---: | :---: | :---: |
| Proportion Aboriginal*(Yr ${ }^{\text {2002 }}$ ) | $\begin{gathered} 0.184 \\ (0.134) \end{gathered}$ | $\begin{gathered} 0.188 \\ (0.160) \end{gathered}$ | $\begin{aligned} & 0.346^{* *} \\ & (0.165) \end{aligned}$ |
| Proportion Enrolled in ESL Program*(Yr 2002 ) | $\begin{aligned} & -0.060 \\ & (0.044) \end{aligned}$ | $\begin{aligned} & -0.115^{* *} \\ & (0.058) \end{aligned}$ | $\begin{aligned} & -0.002 \\ & (0.055) \end{aligned}$ |
| Proportion Male*(Yr $\geq 2002$ ) | $\begin{aligned} & -0.059 \\ & (0.074) \end{aligned}$ | $\begin{aligned} & -0.023 \\ & (0.091) \end{aligned}$ | $\begin{aligned} & -0.141 \\ & (0.099) \end{aligned}$ |
| Proportion French Immersion*(Yr ${ }^{\text {2002 }}$ ) | $\begin{aligned} & -0.047^{* * *} \\ & (0.017) \end{aligned}$ | $\begin{aligned} & -0.034^{*} \\ & (0.018) \end{aligned}$ | $\begin{aligned} & -0.095^{* *} \\ & (0.044) \end{aligned}$ |
| Prop. Excused from 1999 Reading FSA*(Yr=2000) | $\begin{gathered} 0.052 \\ (0.246) \end{gathered}$ | $\begin{gathered} 0.078 \\ (0.217) \end{gathered}$ | $\begin{aligned} & -0.038 \\ & (0.570) \end{aligned}$ |
| Prop. Excused from 2000 Reading FSA*(Yr=2001) | $\begin{gathered} 0.003 \\ (0.208) \end{gathered}$ | $\begin{aligned} & -0.015 \\ & (0.255) \end{aligned}$ | $\begin{gathered} 0.186 \\ (0.326) \end{gathered}$ |
| Prop. Excused from 2001 Reading FSA*(Yr=2002) | $\begin{aligned} & -0.234^{*} \\ & (0.127) \end{aligned}$ | $\begin{aligned} & -0.266^{* *} \\ & (0.132) \end{aligned}$ | $\begin{aligned} & -0.162 \\ & (0.223) \end{aligned}$ |
| Prop. Excused from 2002 Reading FSA*(Yr=2003) | $\begin{aligned} & -0.020 \\ & (0.081) \end{aligned}$ | $\begin{gathered} 0.026 \\ (0.100) \end{gathered}$ | $\begin{aligned} & -0.137 \\ & (0.141) \end{aligned}$ |
| Prop. Excused from 1999 Numeracy FSA*(Yr=2000) | $\begin{aligned} & -0.049 \\ & (0.275) \end{aligned}$ | $\begin{aligned} & -0.062 \\ & (0.235) \end{aligned}$ | $\begin{aligned} & -0.002 \\ & (0.613) \end{aligned}$ |
| Prop. Excused from 2000 Numeracy FSA*(Yr=2001) | $\begin{aligned} & -0.036 \\ & (0.201) \end{aligned}$ | $\begin{aligned} & -0.002 \\ & (0.248) \end{aligned}$ | $\begin{aligned} & -0.228 \\ & (0.318) \end{aligned}$ |
| Prop. Excused from 2001 Numeracy FSA*(Yr=2002) | $\begin{gathered} 0.156 \\ (0.112) \end{gathered}$ | $\begin{gathered} 0.210^{*} \\ (0.123) \end{gathered}$ | $\begin{gathered} 0.048 \\ (0.189) \end{gathered}$ |
| Prop. Excused from 2002 Numeracy FSA*(Yr=2003) | $\begin{aligned} & -0.084 \\ & (0.107) \end{aligned}$ | $\begin{aligned} & -0.200 \\ & (0.123) \end{aligned}$ | $\begin{gathered} 0.064 \\ (0.157) \end{gathered}$ |
| Prop. Excused from 1999 Reading FSA* (Yr>2000) | $\begin{gathered} 0.054 \\ (0.202) \end{gathered}$ | $\begin{gathered} 0.132 \\ (0.172) \end{gathered}$ | $\begin{aligned} & -0.269 \\ & (0.478) \end{aligned}$ |
| Prop. Excused from 2000 Reading FSA* (Yr>2001) | $\begin{aligned} & -0.003 \\ & (0.181) \end{aligned}$ | $\begin{aligned} & -0.224 \\ & (0.220) \end{aligned}$ | $\begin{gathered} 0.473 * \\ (0.268) \end{gathered}$ |
| Prop. Excused from 2001 Reading FSA*(Yr>2002) | $\begin{aligned} & -0.141 \\ & (0.119) \end{aligned}$ | $\begin{gathered} 0.009 \\ (0.142) \end{gathered}$ | $\begin{aligned} & -0.333^{*} \\ & (0.174) \end{aligned}$ |
| Prop. Excused from 1999 Numeracy FSA*(Yr>2000) | $\begin{gathered} 0.107 \\ (0.231) \end{gathered}$ | $\begin{gathered} 0.055 \\ (0.190) \end{gathered}$ | $\begin{gathered} 0.388 \\ (0.526) \end{gathered}$ |
| Prop. Excused from 2000 Numeracy FSA*(Yr>2001) | $\begin{aligned} & -0.059 \\ & (0.175) \end{aligned}$ | $\begin{gathered} 0.143 \\ (0.213) \end{gathered}$ | $\begin{aligned} & -0.490^{*} \\ & (0.265) \end{aligned}$ |
| Prop. Excused from 2001 Numeracy FSA*(Yr>2002) | $\begin{gathered} 0.164^{*} \\ (0.094) \end{gathered}$ | $\begin{gathered} 0.054 \\ (0.108) \end{gathered}$ | $\begin{aligned} & 0.347 * * \\ & (0.150) \end{aligned}$ |
| Year=2000 | $\begin{aligned} & -0.009 \\ & (0.006) \end{aligned}$ | $\begin{aligned} & -0.011 \\ & (0.007) \end{aligned}$ | $\begin{aligned} & -0.001 \\ & (0.011) \end{aligned}$ |
| Year=2001 | $\begin{aligned} & -0.037 \\ & (0.024) \end{aligned}$ | $\begin{aligned} & -0.052^{*} \\ & (0.029) \end{aligned}$ | $\begin{aligned} & -0.004 \\ & (0.041) \end{aligned}$ |
| Year=2002 | $\begin{aligned} & -0.022 \\ & (0.026) \end{aligned}$ | $\begin{aligned} & -0.039 \\ & (0.031) \end{aligned}$ | $\begin{gathered} 0.020 \\ (0.042) \end{gathered}$ |
| Year=2003 | $\begin{gathered} 0.008 \\ (0.040) \\ \hline \end{gathered}$ | $\begin{aligned} & -0.037 \\ & (0.046) \\ & \hline \end{aligned}$ | $\begin{gathered} 0.112 * \\ (0.058) \\ \hline \end{gathered}$ |

Table OA4, Continued

| Non-English Home Language | $0.009^{*}$ | 0.000 | 0.000 |
| :--- | :---: | :---: | :---: |
|  | $(0.005)$ | $(0.000)$ | $(0.000)$ |
| Aboriginal | $0.069^{* * *}$ | $0.066^{* * *}$ | $0.077^{* *}$ |
|  | $(0.007)$ | $(0.008)$ | $(0.037)$ |
| Enrolled in ESL Program | $-0.013^{* *}$ | $-0.034^{* * *}$ | 0.005 |
|  | $(0.005)$ | $(0.008)$ | $(0.007)$ |
| Male | -0.001 | -0.002 | -0.002 |
|  | $(0.002)$ | $(0.003)$ | $(0.004)$ |
| Disabled | $0.025^{* * *}$ | $0.025^{* * *}$ | 0.010 |
|  | $(0.007)$ | $(0.008)$ | $(0.015)$ |
| Gifted | 0.005 | 0.008 | -0.002 |
|  | $(0.008)$ | $(0.009)$ | $(0.017)$ |
| Changed Schools Prior to Grade 4 | $0.060^{* * *}$ | $0.066^{* * *}$ | $0.046^{* * *}$ |
|  | $(0.003)$ | $(0.004)$ | $(0.005)$ |
| Own FSA Reading Score | $-0.004^{* *}$ | $-0.005^{* *}$ | -0.002 |
|  | $(0.002)$ | $(0.002)$ | $(0.003)$ |
| Own FSA Numeracy Score | $-0.006^{* * *}$ | $-0.009^{* * *}$ | -0.003 |
|  | $(0.002)$ | $(0.002)$ | $(0.003)$ |
| Mean Household Income / \$1000 | $-0.000^{*}$ | $-0.000^{*}$ | -0.000 |
| SE of Mean Household Income / \$1000 | $(0.000)$ | $(0.000)$ | $(0.000)$ |
| Proportion Visible Minority | 0.000 | 0.001 | -0.000 |
|  | $(0.000)$ | $(0.000)$ | $(0.001)$ |
| Proportion One-Parent Families | $0.032^{*}$ | 0.034 | 0.036 |
|  | $(0.016)$ | $(0.021)$ | $(0.027)$ |
| Proportion of those Aged 25+ Unemployed | 0.002 | 0.009 | -0.015 |
|  | $(0.018)$ | $(0.021)$ | $(0.032)$ |
| Average Value of Dwelling | -0.000 | -0.026 | 0.051 |
| Proportion of Dwellings Owned | $(0.032)$ | $(0.039)$ | $(0.051)$ |
|  | 0.000 | 0.000 | 0.000 |
| Proportion Moved Last Year | $(0.000)$ | $(0.000)$ | $(0.000)$ |
| Proportion Moved in Last 5 Years | -0.013 | -0.010 | -0.021 |
| Proportion Less than Grade 9 Education | $(0.010)$ | $(0.013)$ | $(0.018)$ |
| Proportion Some High School | $0.039^{* *}$ | 0.033 | 0.037 |
|  | $(0.020)$ | $(0.025)$ | $(0.033)$ |
| Proportion with High School Diploma | -0.005 | 0.002 | -0.017 |
|  | $(0.012)$ | $(0.013)$ | $(0.023)$ |
|  | 0.013 | 0.038 | -0.013 |
|  | $(0.036)$ | $(0.046)$ | $(0.056)$ |
|  | $0.044^{*}$ | 0.048 | 0.005 |
|  | $(0.026)$ | $(0.031)$ | $(0.043)$ |
|  | 0.010 | 0.023 | -0.028 |
|  | $(0.027)$ | $(0.032)$ | $(0.051)$ |
|  | $0.062^{* * *}$ | $0.059^{* *}$ | 0.068 |
|  | $(0.023)$ | $(0.027)$ | $(0.041)$ |
|  | -0.025 | -0.029 |  |
|  | $(0.027)$ | $(0.039)$ |  |

Table OA4, Continued

| Travel Distance to School (km) | $0.005^{* * *}$ | $0.005^{* * *}$ | $0.003^{* *}$ |
| :--- | :--- | :--- | :--- |
| Enrolled in French Immersion | $(0.001)$ | $(0.001)$ | $(0.001)$ |
|  | -0.014 | -0.006 | $-0.038^{* *}$ |
| Number of Public Schools Nearby | $(0.009)$ | $(0.010)$ | $(0.018)$ |
|  | -0.000 | -0.000 | 0.000 |
| Number of Private Schools Nearby | $(0.001)$ | $(0.001)$ | $(0.002)$ |
|  | -0.001 | -0.001 | -0.002 |
| Constant | $(0.001)$ | $(0.001)$ | $(0.001)$ |
|  | $0.088^{* * *}$ | $0.070^{* *}$ | $0.130^{* *}$ |
|  | $(0.025)$ | $(0.028)$ | $(0.054)$ |

Source: Authors' calculations based on B.C. Ministry of Education enrollment database and auxiliary data.
Notes: This table reports all coefficient estimates for the specifications reported in Table 5 in the main text. Robust standard errors in parentheses, clustered at the school-by-year level. $* * *$ indicates statistically significant at the $1 \%$ level, ${ }^{* *}$ indicates significant at the $5 \%$ level, ${ }^{*}$ indicates significant at the $10 \%$ level.

Table OA5: Robustness Checks
$\begin{array}{lccccc}\hline \hline & (1) & \begin{array}{c}(2) \\ \text { English only }\end{array} & (3) & \begin{array}{c}(4) \\ \text { Fraser Institute Rankings }\end{array} \\$\cline { 2 - 5 } \& \& All \& $\left.\begin{array}{c}\text { Without } \\ \text { Aboriginals }\end{array} & \begin{array}{c}\text { Without } \\ \text { Fr.Imm. }\end{array} & \text { English }\end{array} \begin{array}{c}\text { Non- } \\ \text { English }\end{array}\right]$

Source: Authors' calculations based on B.C. Ministry of Education enrollment database and auxiliary data. Notes: Column (1) reproduces estimates from column (2) of Table 5 in the main text. Column (2) excludes Aboriginal students and column (3) excludes French Immersion students. Columns (4) and (5) replace the school's Fraser Institute score with the school's rank based on the Fraser Institute score. "FSA Score" refers to the schoolaverage of FSA reading and numeracy scores. "FI Score" is the Fraser Institute school score, and "FI Rank" is the school's published Fraser Institute ranking based on FI Scores. Note that larger values of FSA Score and FI Score indicate better performance, whereas larger values of FI Rank indicate worse performance. See notes to Table 5 in the main text for additional control variables. Robust standard errors in parentheses, clustered at the school-by-year level. ${ }^{* * *}$ indicates statistically significant at the $1 \%$ level, ${ }^{* *}$ indicates significant at the $5 \%$ level, * indicates significant at the $10 \%$ level.

Table OA6: Falsification Test 1

|  | $(1)$ <br> Full Sample | $(2)$ <br> English | $(3)$ <br> Non-English |
| :--- | :---: | :---: | :---: |
| False "News" Measures |  |  |  |
| 2000 FSA Score*(Yr=2000) | -0.005 | $-0.010^{*}$ | 0.008 |
|  | $(0.005)$ | $(0.006)$ | $(0.007)$ |
| 2001 FSA Score*(Yr=2001) | -0.009 | -0.009 | -0.011 |
| 2002 FSA Score*(Yr=2002) | $(0.008)$ | $(0.008)$ | $(0.010)$ |
|  | -0.011 | -0.012 | -0.005 |
| 2003 FSA Score*(Yr=2003) | $(0.007)$ | $(0.008)$ | $(0.011)$ |
|  | -0.012 | $-0.015^{*}$ | -0.001 |
| False "Old News" Measures | $(0.007)$ | $(0.008)$ | $(0.012)$ |
| 2000 FSA Score*(Yr>2000) | -0.001 | -0.004 | 0.005 |
|  | $(0.006)$ | $(0.007)$ | $(0.008)$ |
| 2001 FSA Score*(Yr>2001) | -0.001 | -0.003 | -0.001 |
| 2002 FSA Score*(Yr>2002) | $(0.005)$ | $(0.006)$ | $(0.006)$ |
|  | 0.005 | 0.009 | -0.002 |
| Current Mean FSA Score | $(0.008)$ | $(0.009)$ | $(0.008)$ |
|  |  |  |  |
| Number of Observations | 0.007 | $0.010^{*}$ | 0.000 |
| Number of Schools | $(0.005)$ | $(0.006)$ | $(0.009)$ |

Source: Authors' calculations based on B.C. Ministry of Education enrollment database and auxiliary data. Notes: These estimates replicate the specifications reported in Table 5, except that all genuine "news" measures (based on lagged test scores that parents could observe) have been replaced with false "news" measures based on contemporaneous test scores (which parents could not observe until the following school year). All genuine "old news" measures have also been replaced with corresponding false measures. The interaction between the current mean FSA score and Year>2001 was dropped because of collinearity with the false news measures. Given the high degree of inter-temporal correlation between school-average test scores (see Table OA2 in this Appendix), it is not surprising that some estimates in column (2) are weakly statistically significant. On the whole, however, there is little evidence of a systematic relationship between false "news" and separations; and the overall pattern of results differs substantially from those reported in Table 5. See notes to Table 5 for details of specification. Complete coefficient estimates for these specifications are available from the authors on request. Robust standard errors in parentheses, clustered at the school-by-year level. $* * *$ indicates statistically significant at the $1 \%$ level, $* *$ indicates significant at the $5 \%$ level, $*$ indicates significant at the $10 \%$ level.

Table OA7: Falsification Test 2

|  | $(1)$ |  | $(2)$ |
| :--- | :---: | :---: | :---: |
|  | Full Sample | English | Non-English |
| False "News" Measures |  |  |  |
| 2001 FSA Score*(Yr=2000) | -0.007 | $-0.010^{*}$ | 0.003 |
|  | $(0.004)$ | $(0.005)$ | $(0.006)$ |
| 2002 FSA Score*(Yr=2001) | -0.004 | -0.007 | 0.004 |
|  | $(0.005)$ | $(0.006)$ | $(0.007)$ |
| 2003 FSA Score*(Yr=2002) | $-0.010^{*}$ | $-0.014^{* *}$ | -0.003 |
|  | $(0.006)$ | $(0.007)$ | $(0.009)$ |
| False "Old News" Measures | -0.008 | -0.010 | -0.006 |
| 2001 FSA Score*(Yr>2000) | $(0.005)$ | $(0.007)$ | $(0.007)$ |
| 2002 FSA Score*(Yr>2001) | 0.002 | -0.001 | 0.009 |
|  | $(0.005)$ | $(0.007)$ | $(0.008)$ |
| Current Mean FSA Score |  |  |  |
|  | 0.003 | 0.006 | -0.002 |
| Number of Observations | $(0.003)$ | $(0.004)$ | $(0.005)$ |
| Number of Schools | 52381 | 35900 | 16481 |

Source: Authors' calculations based on B.C. Ministry of Education enrollment database and auxiliary data. Notes: These estimates replicate the specifications reported in Table 5, except that all genuine "news" measures (based on lagged test scores that parents could observe) have been replaced with false "news" measures based on future test scores (which parents could not observe). All genuine "old news" measures have also been replaced with corresponding false measures. The interaction between the current mean FSA score and Year>2001 was dropped because of collinearity with the false news measures. Because of the structure of false news measures, and because we have no 2004 FSA scores, this specification was estimated for 1999/2000-2002/2003 only. Given the high degree of inter-temporal correlation between school-average test scores (see Table OA2 in this Appendix), it is not surprising that some reported estimates are statistically significant. On the whole, however, there is little evidence of a systematic relationship between false "news" and separations; and the overall pattern of results differs substantially from those reported in Table 5. See notes to Table 5 for details of specification. Complete coefficient estimates for these specifications are available from the authors on request. Robust standard errors in parentheses, clustered at the school-by-year level. $* * *$ indicates statistically significant at the $1 \%$ level, **indicates significant at the $5 \%$ level, *indicates significant at the $10 \%$ level.

