

**Globalization and Comparative Compositional Inequality**  
**Supplemental Appendix**

February 26, 2019

# 1 Overview

This supplemental appendix is organized as follows:

- In Section 2 we provide details about our dependent variable measurement and descriptive statistics for each country.
- In Section 3 we discuss the data coverage in other available data sets and the one that we have assembled for this paper.
- In Section 4 we provide results for alternative measures of globalization.
- In Section 5 we provide results for models that only include globalization and economic growth.
- In Section 6 we provide results for the control variables included in the models presented in the paper.
- In Section 7 we provide tables of numeric results for each country model for which we present results in the main paper.
- In Section 8 we provide results for Uruguay and a brief discussion of that case.

## 2 Data

In this section of the supplemental appendix, we begin with an overview of the data sources from each country covered in the paper. We then present a table of summary statistics and figure displaying the dependent variable and the different measures of globalization for the time period covered by our study.

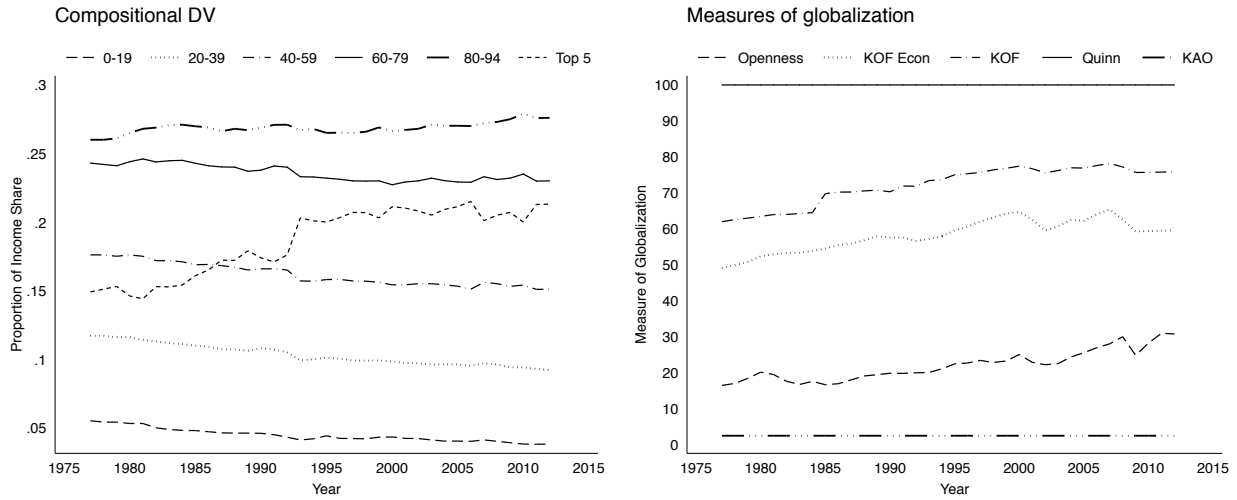
## 2.1 United States

Household income data for the United States were obtained from the Census Bureau’s Current Population survey for 1947 through 2013. We calculate quantiles of the income distribution based on survey responses reporting pre-tax total household income. This survey is representative of the US population and does not require weighting. Constrained by available observations of political polarization, we run our analyses on data for 1977-2012. Summary statistics for those thirty-six observations are reported below. We also report statistics on our measure of openness (World Bank trade openness) as well as alternative measures for which robustness checks are reported in Section 4 of this appendix. Additionally, we report summary statistics for each of our control variables.

**Table 1:** Summary Statistics—US Dataset

| <b>Variable</b>                                     | <b>Mean</b> | <b>Std. Dev.</b> | <b>Min.</b> | <b>Max.</b> | <b>N</b> |
|---|-------------|------------------|-------------|-------------|----------|
| <i>Compositional Dependent Variable</i>             |             |                  |             |             |          |
| 0-19th percentile                                   | 0.044       | 0.005            | 0.038       | 0.055       | 36       |
| 20-39th percentile                                  | 0.103       | 0.008            | 0.092       | 0.117       | 36       |
| 40-59th percentile                                  | 0.162       | 0.008            | 0.151       | 0.176       | 36       |
| 60-79th percentile                                  | 0.236       | 0.006            | 0.227       | 0.246       | 36       |
| 80-94th percentile                                  | 0.269       | 0.004            | 0.26        | 0.279       | 36       |
| Top 5%  | 0.186       | 0.025            | 0.144       | 0.215       | 36       |
| <i>Alternative Measures of Independent variable</i> |             |                  |             |             |          |
| WB Trade Openness                                   | 21.909      | 4.183            | 16.385      | 30.885      | 36       |
| Quinn Financial Openness                            | 100         | 0                | 100         | 100         | 36       |
| KOF Economic Globalization                          | 58.135      | 4.363            | 49.07       | 65.37       | 36       |
| KAO Financial Openness                              | 2.374       | 0                | 2.374       | 2.374       | 36       |
| <i>Controls</i>                                     |             |                  |             |             |          |
| GDP Growth  | 0.028       | 0.02             | -0.028      | 0.072       | 36       |
| GDP per capita growth                               | 0.018       | 0.02             | -0.037      | 0.062       | 36       |
| Henisz Political Constraints                        | 0.401       | 0.01             | 0.372       | 0.412       | 36       |
| Political Polarization                              | 1.111       | 1.008            | 0           | 2           | 36       |
| Ideology of Executive                               | 1.889       | 1.008            | 1           | 3           | 36       |
| Age Dependency Ratio                                | 59.769      | 1.057            | 56.693      | 60.736      | 36       |

In Figure 1 below we show a time-series line plot of each composition of the dependent variable as well as a plot of alternative measures of the main independent variable of theoretical interest across time.



**Figure 1:** US compositional dependent variable (DV) and alternative measures of globalization across time period covered

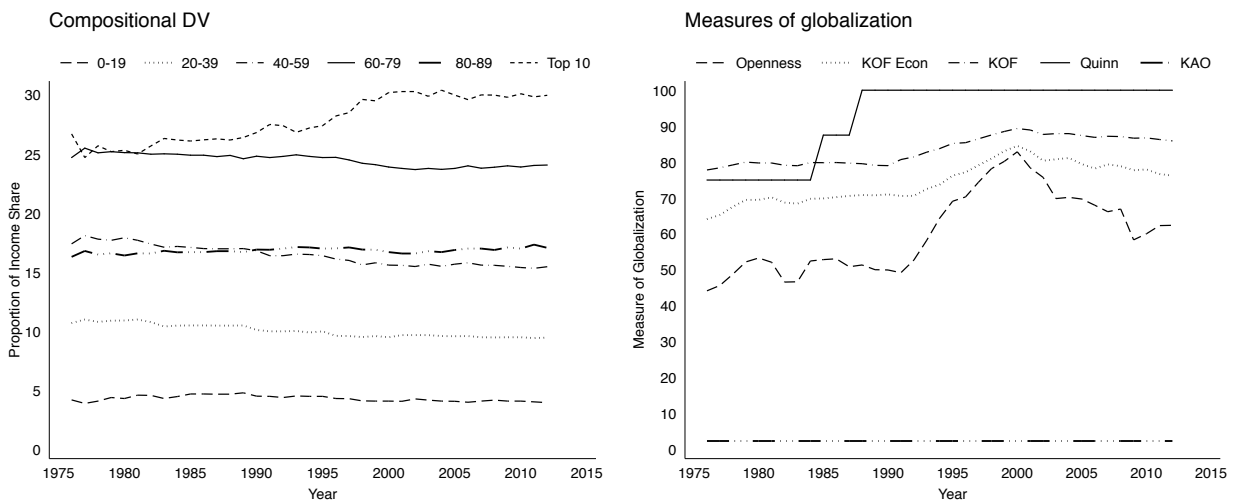
## 2.2 Canada

Canadian deciles of the income distributed are reported by *Income Statistics Division* (N.d.) for 1976-2014. Constrained by available political polarization data, we run our analyses on data for 1976-2012. Summary statistics for those thirty-seven observations are reported below.

In Figure 2 we show a time-series line plot of each composition of the dependent variable as well as a plot of alternative measures of the main independent variable across time.

**Table 2:** Summary Statistics—Canadian Dataset

| Variable  | Mean   | Std. Dev. | Min.   | Max.   | N  |
|---|--------|-----------|--------|--------|----|
| <i>Compositional Dependent Variable</i>             |        |           |        |        |    |
| 0-19th percentile                                   | 4.313  | 0.246     | 3.9    | 4.8    | 37 |
| 20-39th percentile                                  | 10.056 | 0.535     | 9.433  | 11     | 37 |
| 40-59th percentile                                  | 16.437 | 0.856     | 15.333 | 18.1   | 37 |
| 60-79th percentile                                  | 24.496 | 0.53      | 23.683 | 25.5   | 37 |
| 80-89th percentile                                  | 16.826 | 0.223     | 16.3   | 17.333 | 37 |
| Top 10%   | 27.872 | 1.914     | 24.7   | 30.4   | 37 |
| <i>Alternative Measures of Independent variable</i> |        |           |        |        |    |
| WB Trade Openness                                   | 60.483 | 11.185    | 44.165 | 82.858 | 37 |
| Quinn Financial Openness                            | 92.905 | 10.842    | 75     | 100    | 37 |
| KOF Economic Globalization                          | 74.442 | 5.475     | 64.12  | 84.510 | 37 |
| KAO Financial Openness                              | 2.374  | 0         | 2.374  | 2.374  | 37 |
| <i>Controls</i>                                     |        |           |        |        |    |
| GDP Growth  | 0.029  | 0.032     | -0.089 | 0.072  | 37 |
| GDP per capita growth                               | 0.018  | 0.032     | -0.099 | 0.063  | 37 |
| Henisz Political Constraints                        | 0.431  | 0.034     | 0.368  | 0.488  | 37 |
| Political Polarization                              | 0.432  | 0.835     | 0      | 2      | 37 |
| Ideology of Executive                               | 2.135  | 1.004     | 1      | 3      | 37 |
| Age Dependency Ratio                                | 46.55  | 1.775     | 43.934 | 51.894 | 37 |



**Figure 2:** Canadian compositional dependent variable (DV) and alternative measures of globalization across time period covered

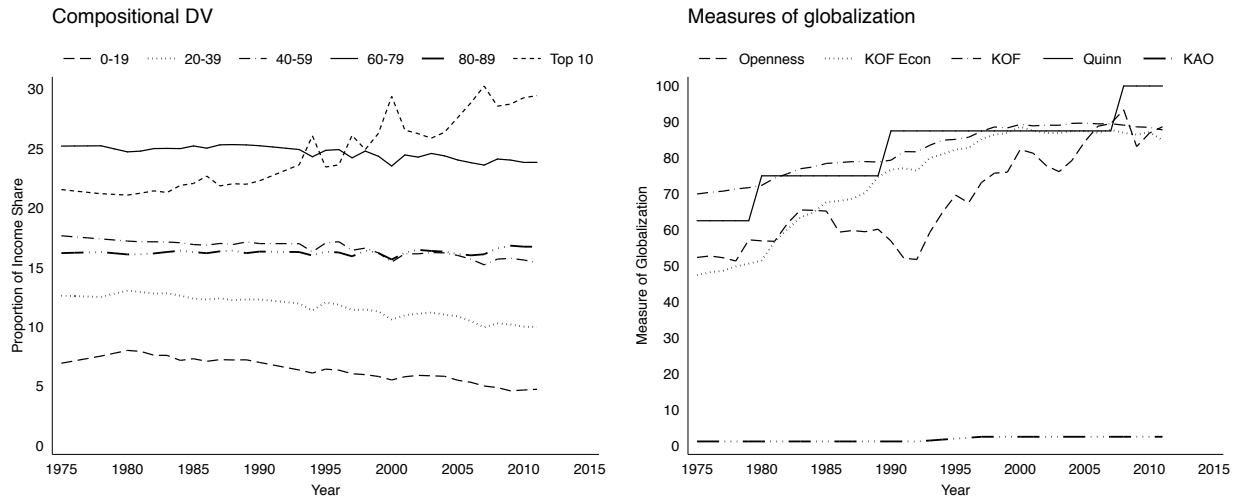
## 2.3 Sweden

Swedish deciles of the income distributed are reported in [Hicks, Jacobs and Matthews \(2016\)](#) for 1975-2011. Summary statistics for those thirty-seven observations are reported below.

**Table 3:** Summary Statistics—Swedish Dataset

| Variable  | Mean   | Std. Dev. | Min.   | Max.   | N  |
|---|--------|-----------|--------|--------|----|
| <i>Compositional Dependent Variable</i>             |        |           |        |        |    |
| 0-19th percentile                                   | 6.414  | 0.984     | 4.583  | 7.987  | 37 |
| 20-39th percentile                                  | 11.69  | 0.945     | 9.927  | 13.015 | 37 |
| 40-59th percentile                                  | 16.606 | 0.679     | 15.189 | 17.632 | 37 |
| 60-79th percentile                                  | 24.642 | 0.541     | 23.499 | 25.303 | 37 |
| 80-89th percentile                                  | 16.25  | 0.221     | 15.634 | 16.8   | 37 |
| Top 10%   | 24.397 | 3.021     | 21.057 | 30.236 | 37 |
| <i>Alternative Measures of Independent variable</i> |        |           |        |        |    |
| WB Trade Openness                                   | 68.503 | 13.003    | 51.302 | 93.359 | 37 |
| Quinn Financial Openness                            | 82.095 | 10.842    | 62.5   | 100    | 37 |
| KOF Economic Globalization                          | 74.332 | 14.183    | 47.37  | 88.650 | 37 |
| KAO Financial Openness                              | 1.676  | 0.624     | 1.082  | 2.374  | 37 |
| <i>Controls</i>                                     |        |           |        |        |    |
| GDP Growth  | 0.025  | 0.031     | -0.047 | 0.084  | 37 |
| GDP per capita growth                               | 0.021  | 0.032     | -0.055 | 0.083  | 37 |
| Henisz Political Constraints                        | 0.489  | 0.02      | 0.455  | 0.521  | 37 |
| Political Polarization                              | 1.811  | 0.397     | 1      | 2      | 37 |
| Ideology of Executive                               | 2.432  | 0.835     | 1      | 3      | 37 |
| Age Dependency Ratio                                | 55.241 | 1.322     | 52.835 | 57.165 | 37 |

In [Figure 3](#) we show a time-series line plot of each composition of the dependent variable as well as a plot of alternative measures of the main independent variable across time.



**Figure 3:** Swedish compositional dependent variable (DV) and alternative measures of globalization across time period covered

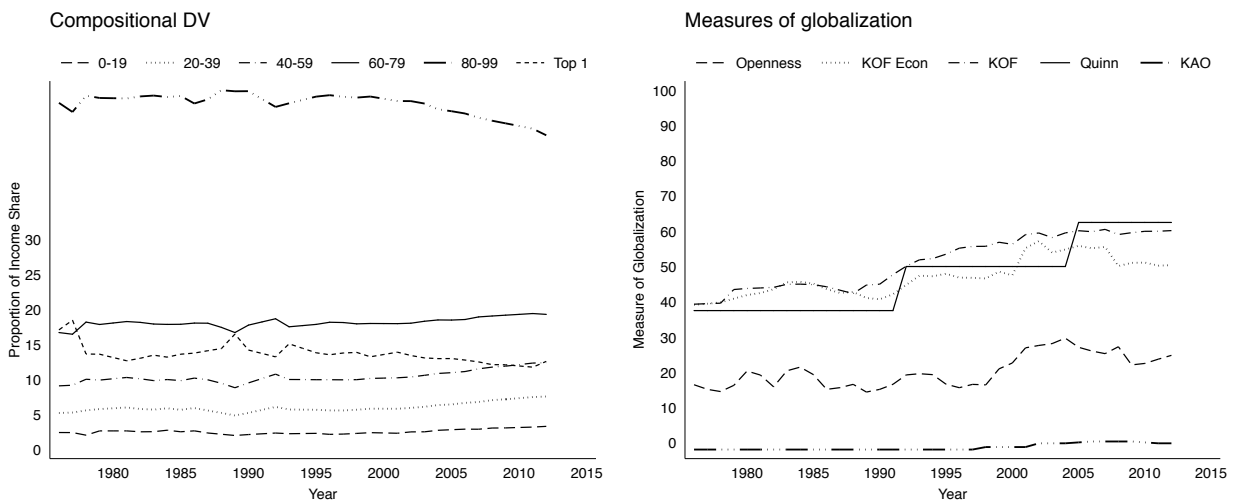
## 2.4 Brazil

We include summary statistics for our dependent and independent variables between 1976 and 2012. Although our compositional variable is available for 1974-2012, our analysis is constrained by the availability of the political polarization measure.

In Figure 4 below we show a time-series line plot of each composition of the dependent variable as well as a plot of alternative measures of the main independent variable across time.

**Table 4:** Summary Statistics—Brazilian Dataset

| Variable  | Mean   | Std. Dev. | Min.   | Max.   | N  |
|---|--------|-----------|--------|--------|----|
| <i>Compositional Dependent Variable</i>             |        |           |        |        |    |
| 0-19th percentile                                   | 2.545  | 0.336     | 2.01   | 3.312  | 37 |
| 20-39th percentile                                  | 5.992  | 0.658     | 4.86   | 7.572  | 37 |
| 40-59th percentile                                  | 10.368 | 0.874     | 8.82   | 12.392 | 37 |
| 60-79th percentile                                  | 18.121 | 0.672     | 16.462 | 19.41  | 37 |
| 80-99th percentile                                  | 49.318 | 1.592     | 44.852 | 51.288 | 37 |
| Top 1%  | 13.656 | 1.344     | 11.76  | 18.472 | 37 |
| <i>Alternative Measures of Independent variable</i> |        |           |        |        |    |
| Trade Openness                                      | 20.298 | 4.601     | 14.391 | 29.678 | 37 |
| Quinn's Financial Openness                          | 47.297 | 9.832     | 37.5   | 62.5   | 37 |
| KOF Economic Globalization                          | 47.046 | 5.258     | 39.15  | 57.21  | 37 |
| KAO Financial Openness                              | -1.23  | 0.916     | -1.904 | 0.387  | 37 |
| <i>Controls</i>                                     |        |           |        |        |    |
| GDP Growth  | 0.05   | 0.058     | -0.036 | 0.195  | 37 |
| GDP per capita growth                               | 0.033  | 0.059     | -0.051 | 0.176  | 37 |
| Henisz Political Constraints                        | 0.202  | 0.215     | 0      | 0.691  | 37 |
| Political Polarization                              | 1.054  | 0.911     | 0      | 2      | 37 |
| Ideology of Executive                               | 1.973  | 1.013     | 1      | 3      | 37 |
| Age Dependency Ratio                                | 60.667 | 9.976     | 45.119 | 77.245 | 37 |

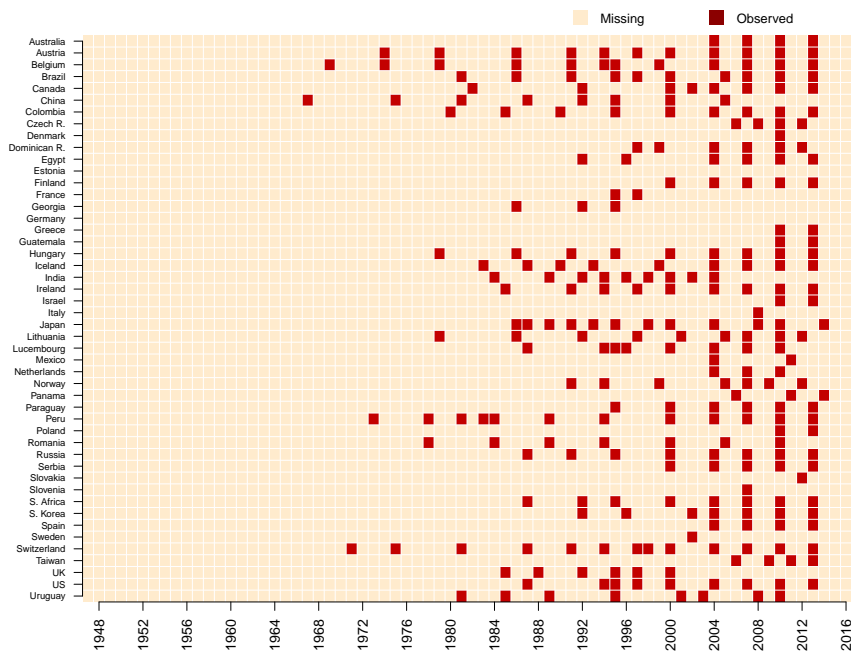


**Figure 4:** Brazilian compositional dependent variable (DV) and alternative measures of globalization across time period covered



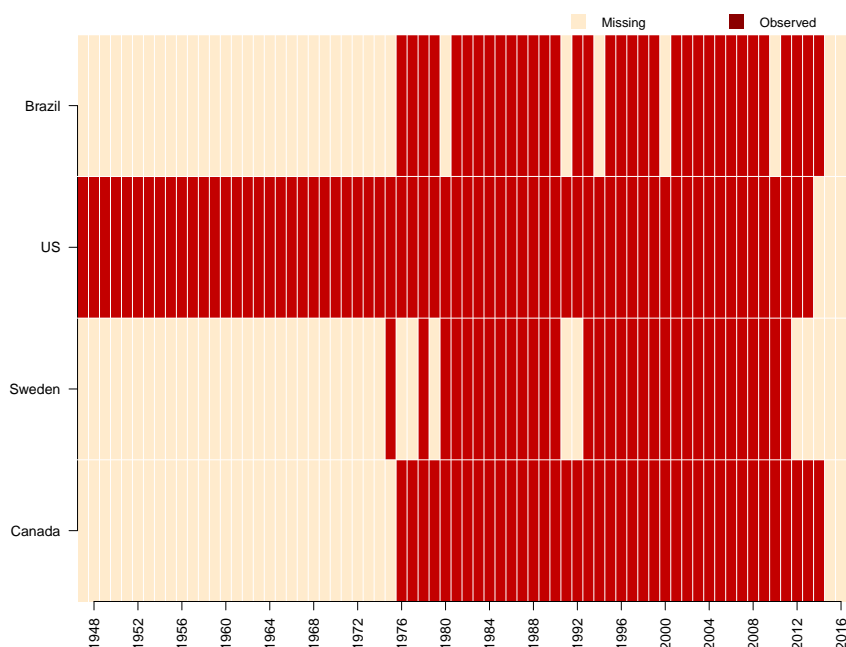
### 3 Data Coverage

As discussed in the paper, in order to test the impact of globalization on changes in income compositions dynamically, we need data that are measured in close temporal proximity. As such, conventional measures such as [Piketty’s \(2014\)](#) top income shares or those available in the Luxembourg Income Studies (LIS) datasets are not ideal. [Piketty’s \(2014\)](#) measure does not report *all* income quantiles and, in spite of including many country cases, the LIS does not provide sufficient continuous time coverage. In [Figure 5](#) we provide a matrix plot of available and unavailable country-years in the LIS database. Available observations are shown in red (darker in grayscale). Similarly, [Figure 6](#) displays available and unavailable country-years in our dataset. Although our data set only includes four countries, we have much longer and more continuous time series coverage than that for any country in the LIS database.<sup>1</sup>



**Figure 5:** LIS: Missing vs. Observed Income Share Data

<sup>1</sup>These matrix plots were produced using R’s “VIM” package developed by [Templ, Alfons and Filzmoser \(2012\)](#).



**Figure 6:** Our Data: Missing vs. Observed Income Share Data

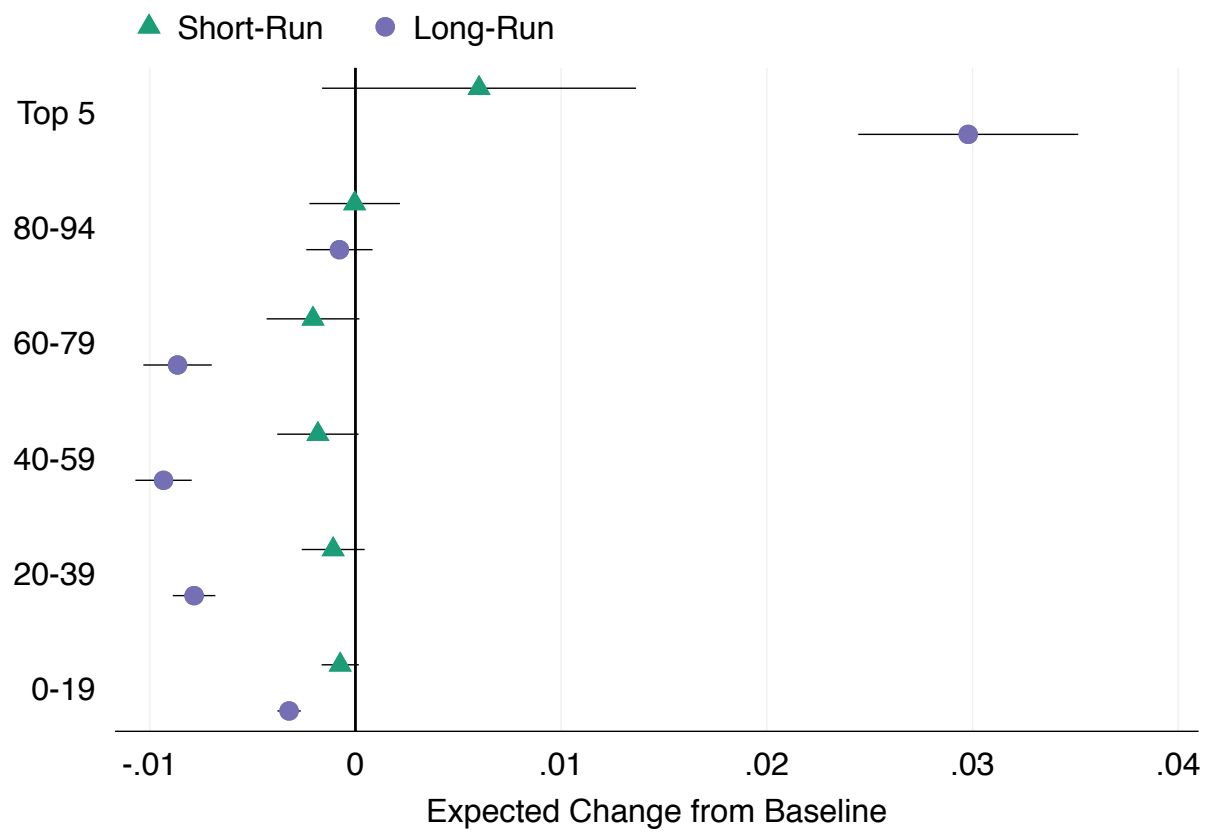
## 4 Results with alternative measures of globalization

In this section we probe the robustness of the results for the effects of globalization. We do so by estimating the same model specification that we used in the paper but, where possible, with alternative measures of globalization. We write “where possible,” because, as we can see on the right-hand side of Figures 1 and 2, two of the measures of globalization were invariant over the period covered for the United States (both Quinn and KAO’s measures of financial openness) and one of the variables (KAO’s measure of financial openness) was invariant for Canada. To make comparisons more easy, we also include copies of Figures 8 through 11 from the paper.

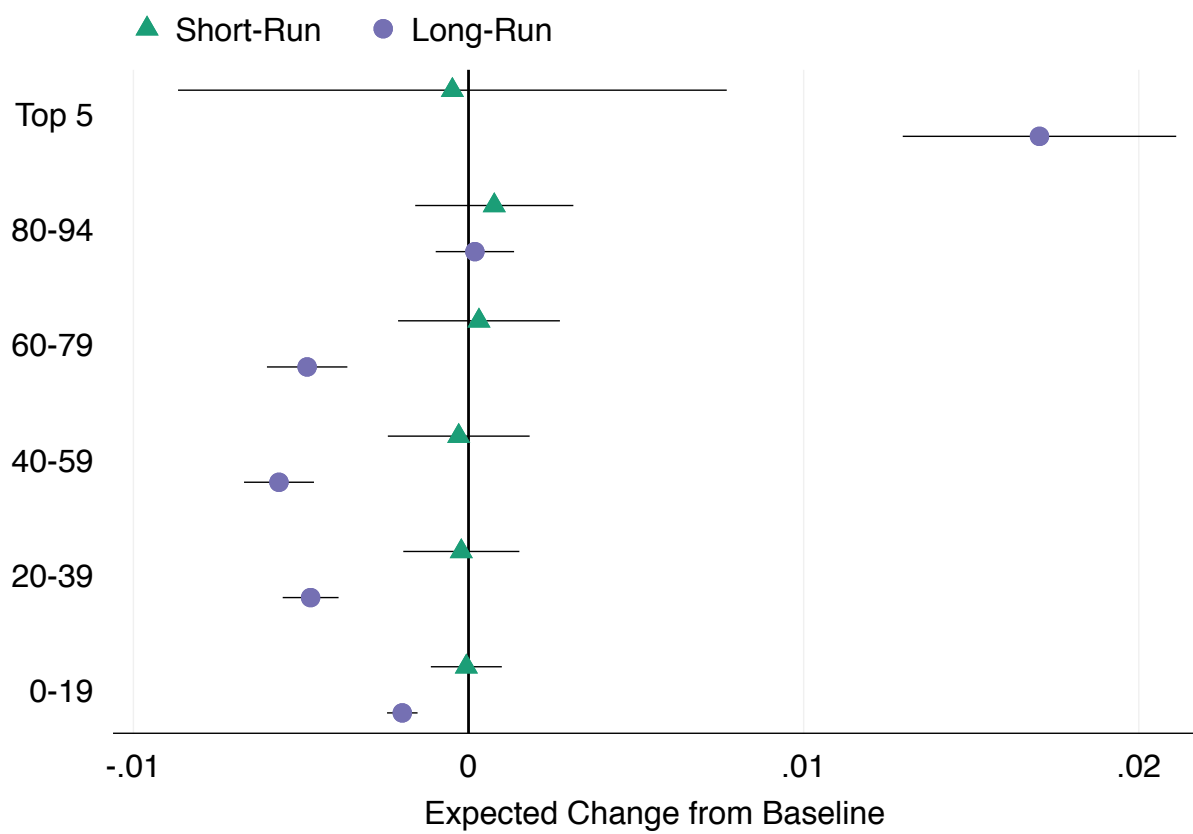
We check for robustness with three alternative measures of globalization: [Quinn’s \(1997\)](#) financial openness index, the [KOF \(2017\)](#) index of economic globalization, and [Chinn and Ito’s \(2007\)](#) KAO measure of financial openness. [Quinn’s \(1997\)](#) measure is based on the level of capital controls. The KAO measure is an index calculated from multiple dichotomous measures of restrictions

on international financial transactions. The KOF index is a composite measure of financial flows, as well as tariffs, and restrictions on capital transfers.

## 4.1 United States

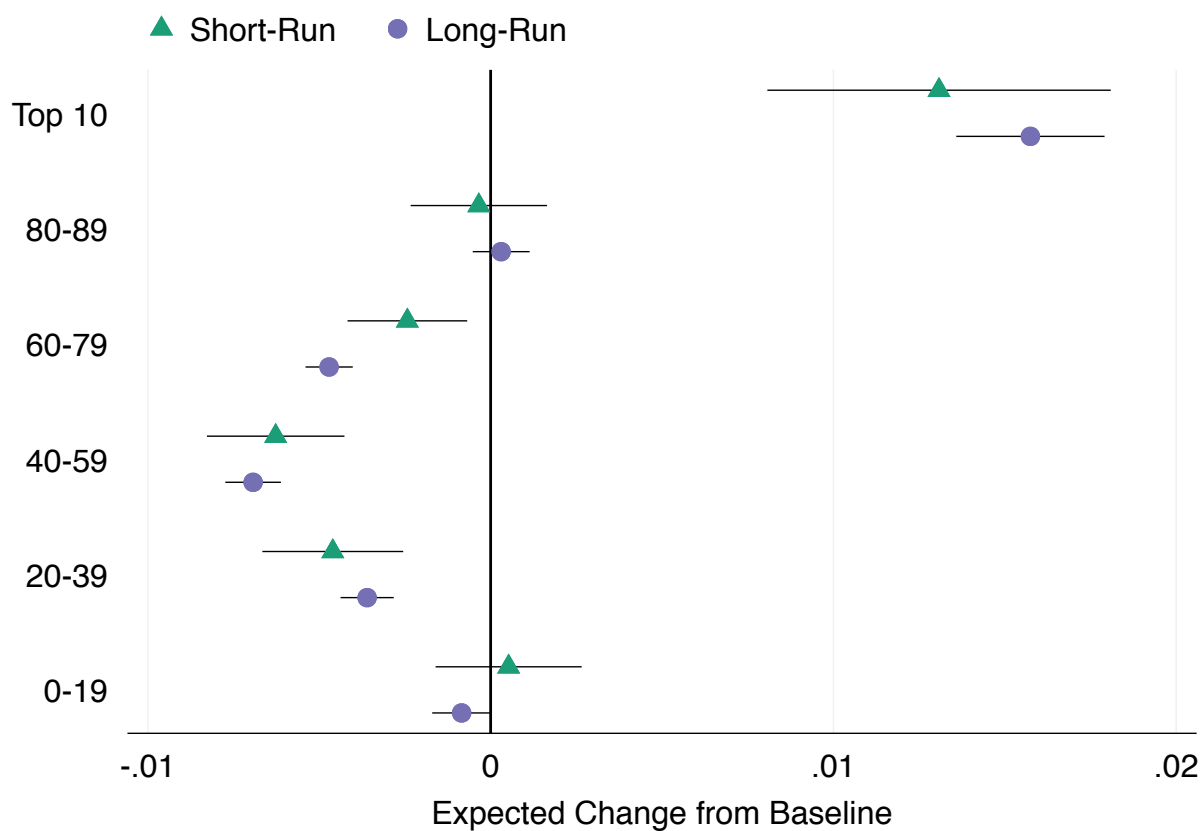


**Figure 7:** Effects of an increase in globalization on relative pre-tax income shares in the United States (as displayed in Figure 8 of the paper; WB trade openness)

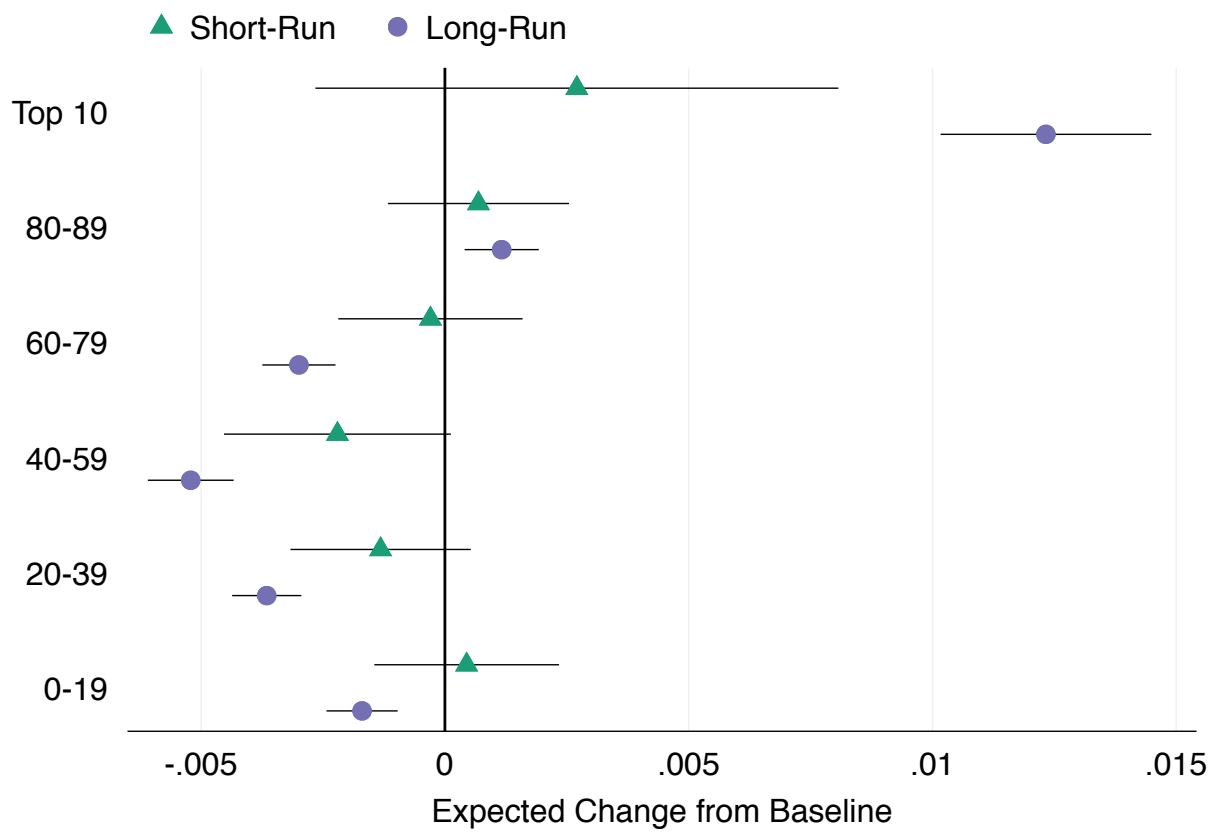


**Figure 8:** Effects of an increase in globalization on relative pre-tax income shares in the United States (KOF Economic Globalization Index)

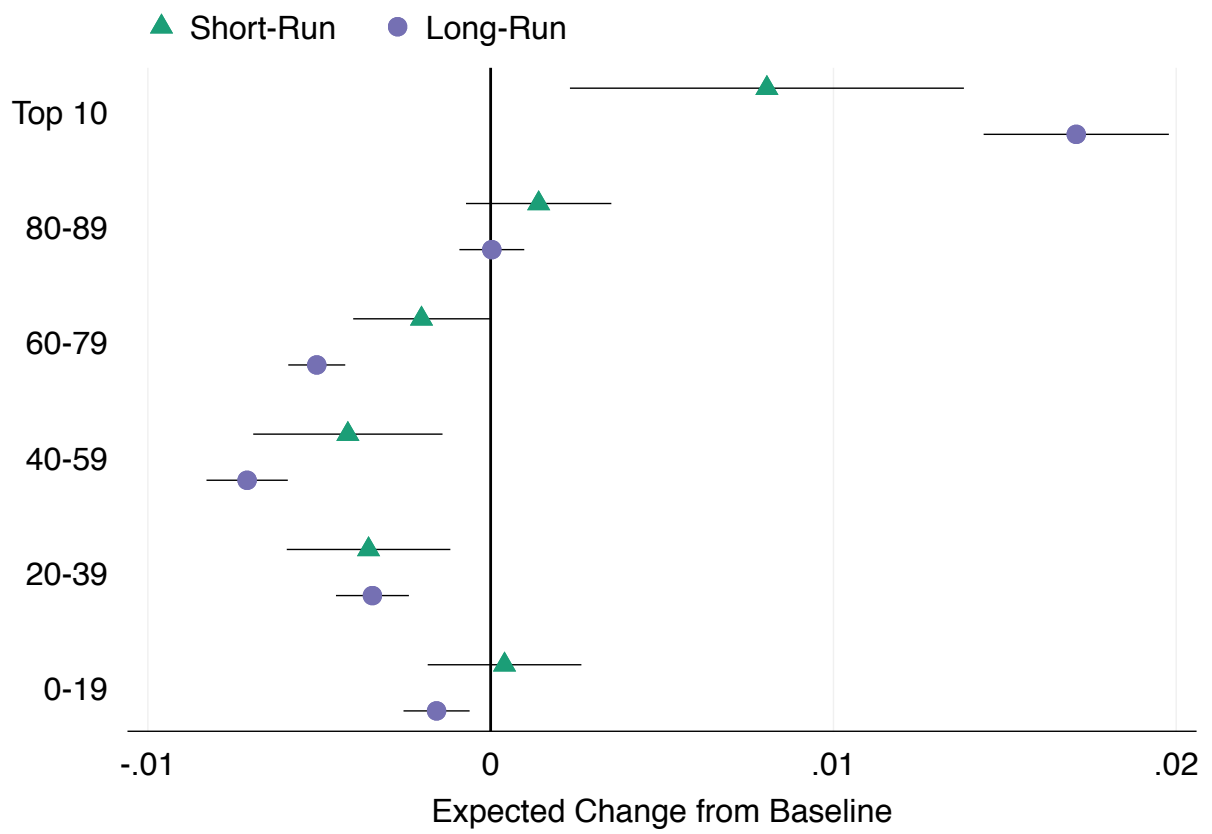
## 4.2 Canada



**Figure 9:** Effects of an increase in globalization on relative pre-tax income shares in Canada (as displayed in Figure 9 of the paper; WB trade openness)



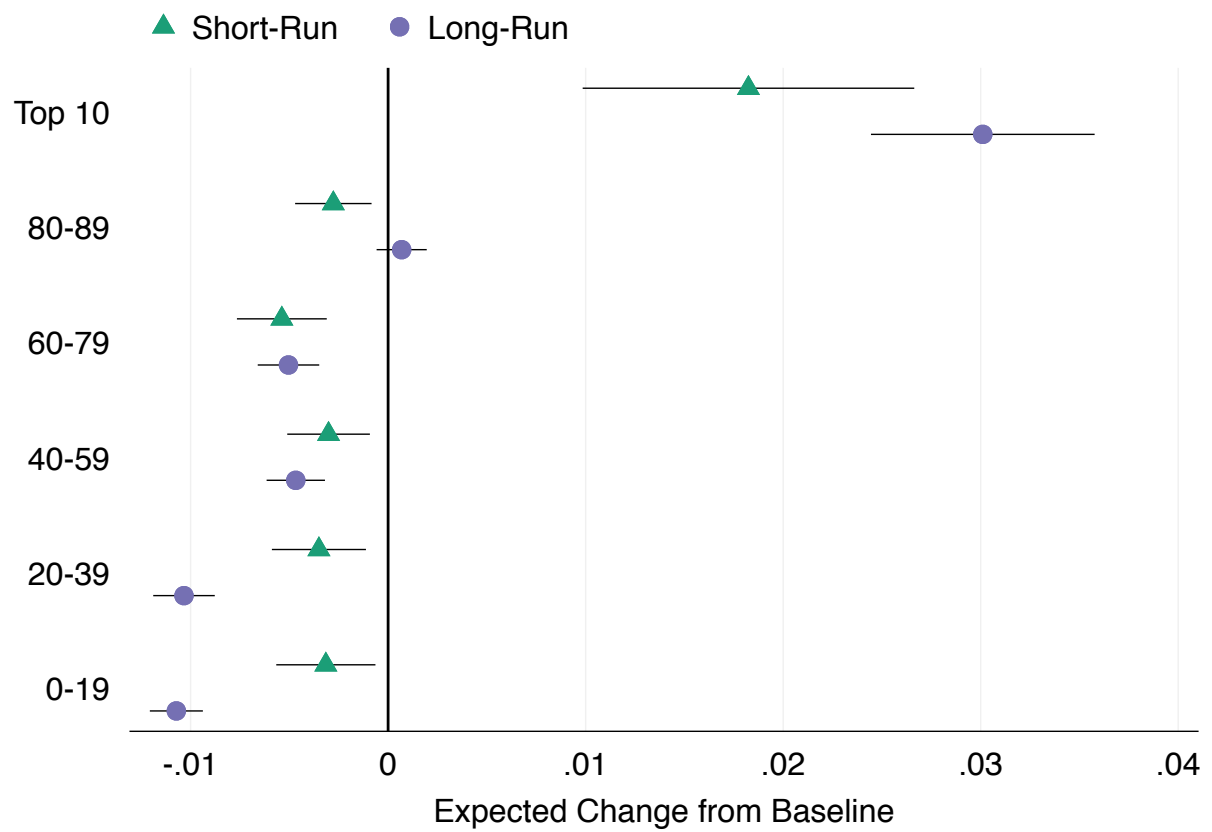
**Figure 10:** Effects of an increase in globalization on relative pre-tax income shares in Canada (Quinn financial openness)



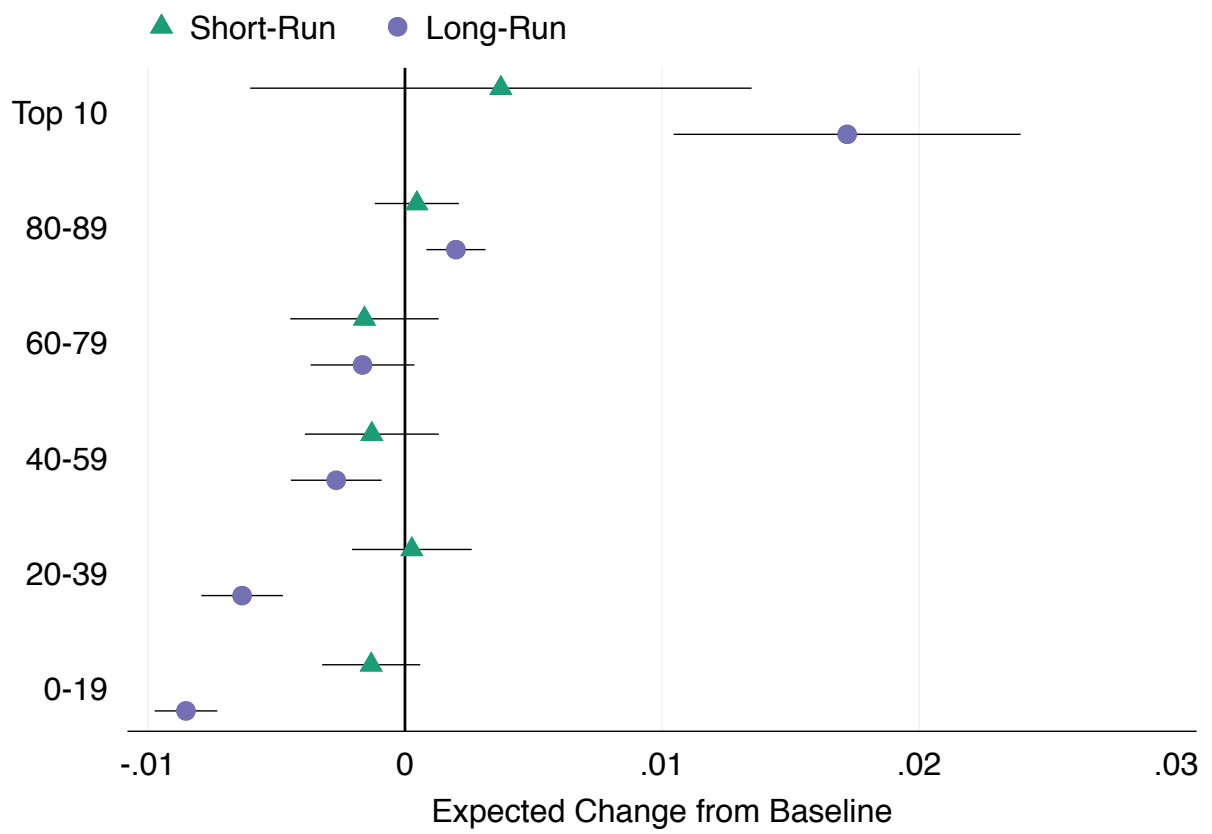
**Figure 11:** Effects of an increase in globalization on relative pre-tax income shares in Canada (KOF economic globalization index)



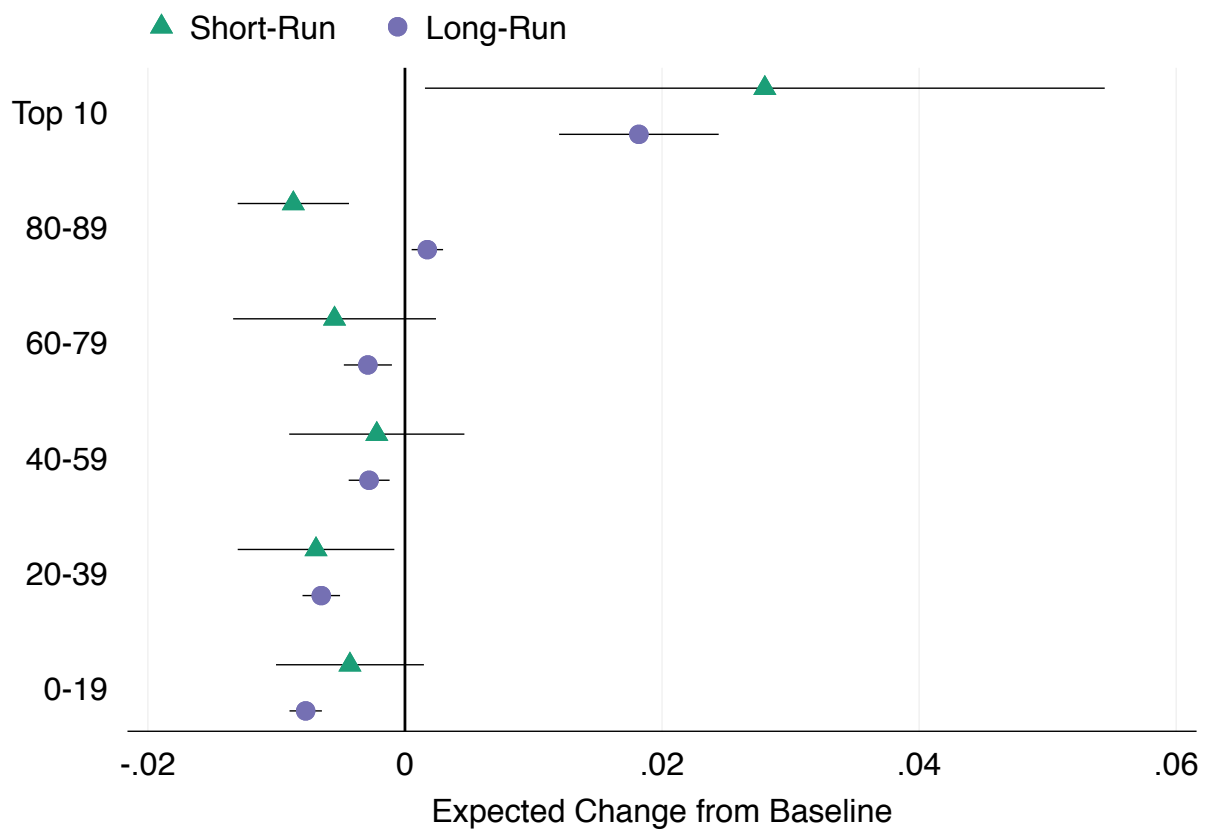
### 4.3 Sweden



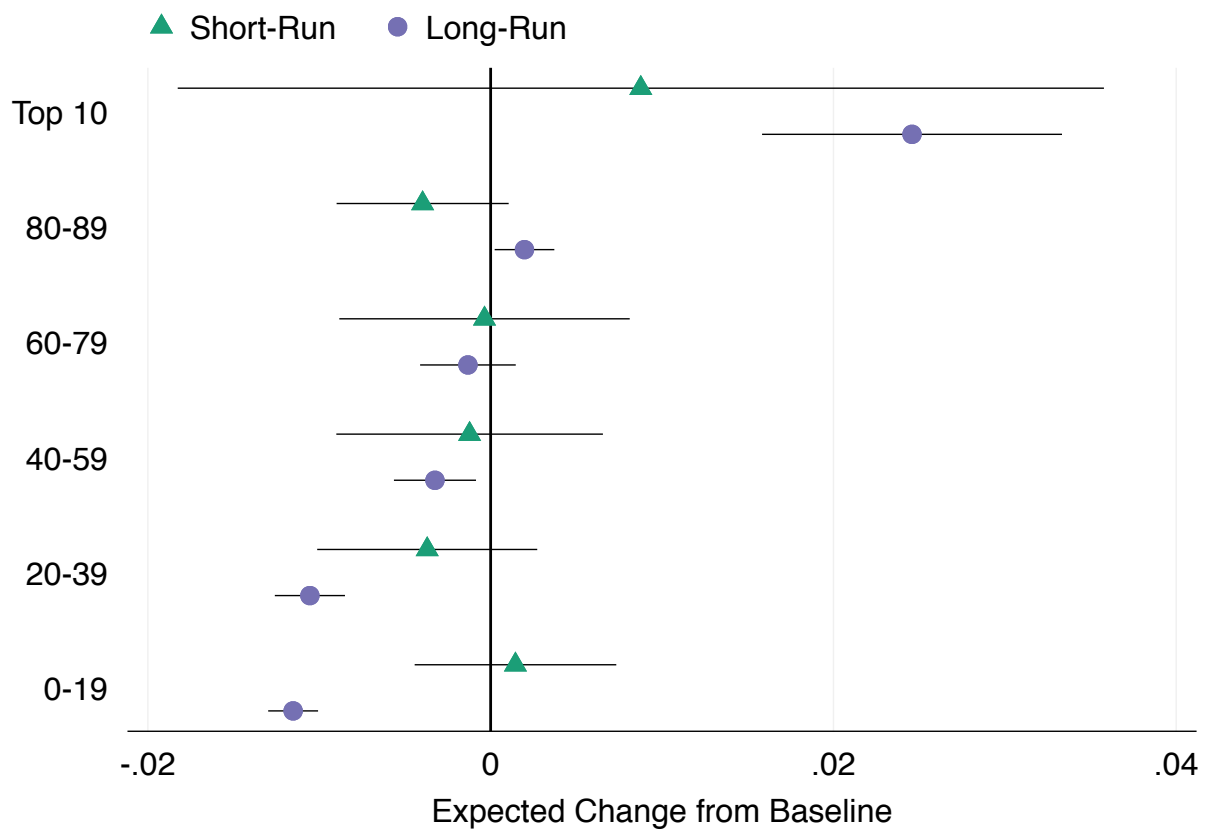
**Figure 12:** Effects of an increase in globalization on relative pre-tax income shares in Sweden (as displayed in Figure 10 of the paper; WB trade openness)



**Figure 13:** Effects of an increase in globalization on relative pre-tax income shares in Sweden (Quinn financial openness)

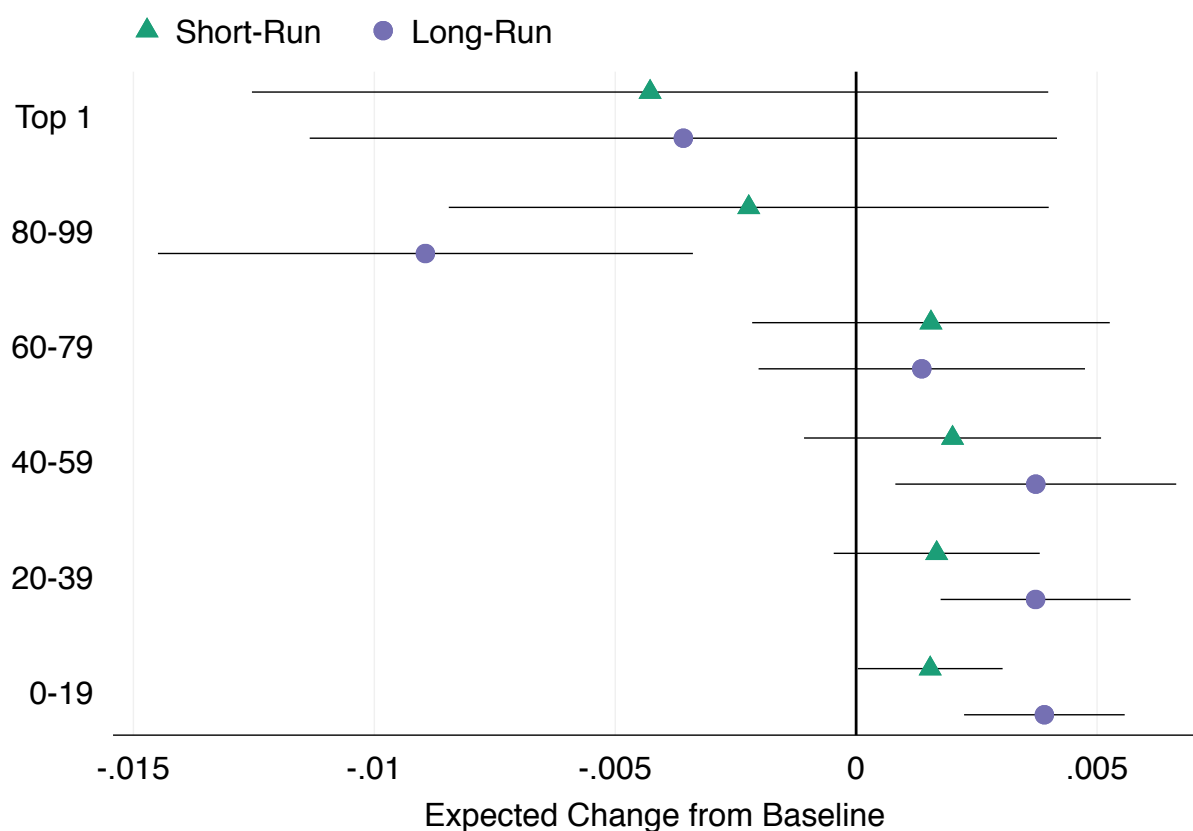


**Figure 14:** Effects of an increase in globalization on relative pre-tax income shares in Sweden (KAO financial openness)



**Figure 15:** Effects of an increase in globalization on relative pre-tax income shares in Sweden (KOF economic globalization index)

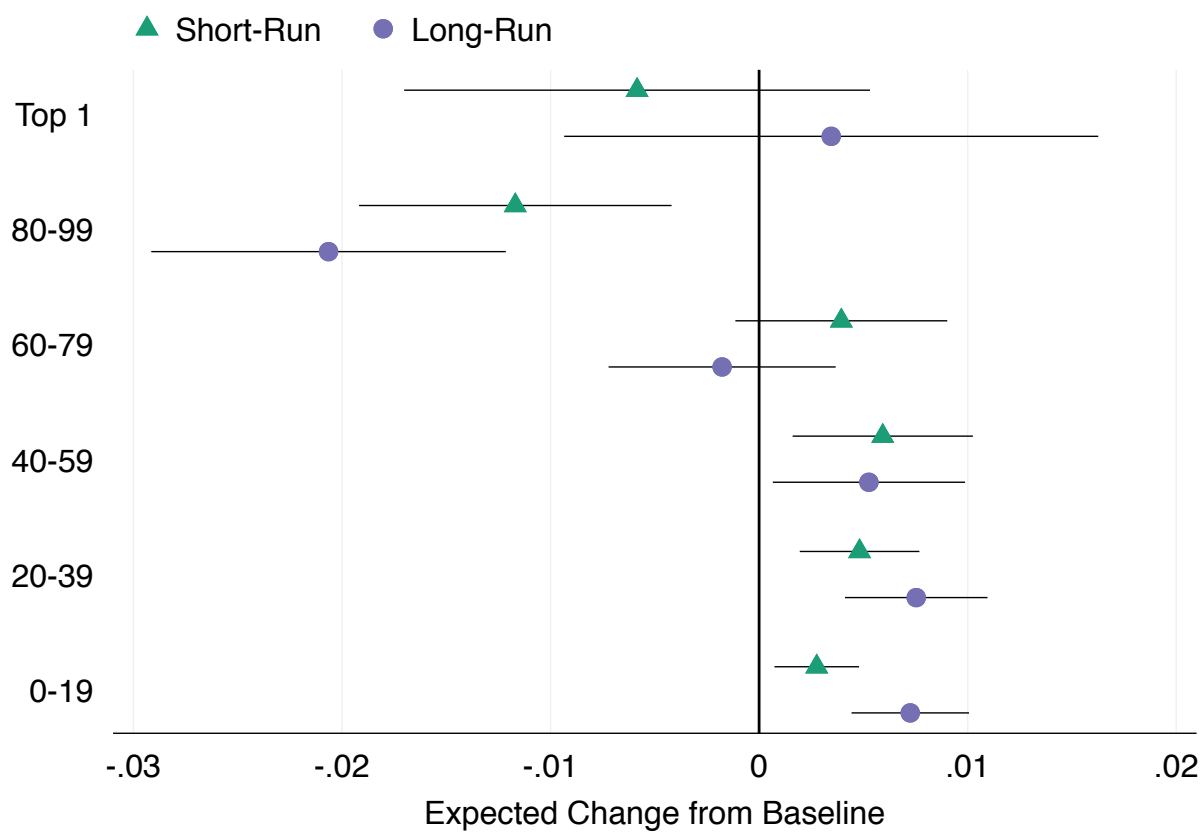
## 4.4 Brazil



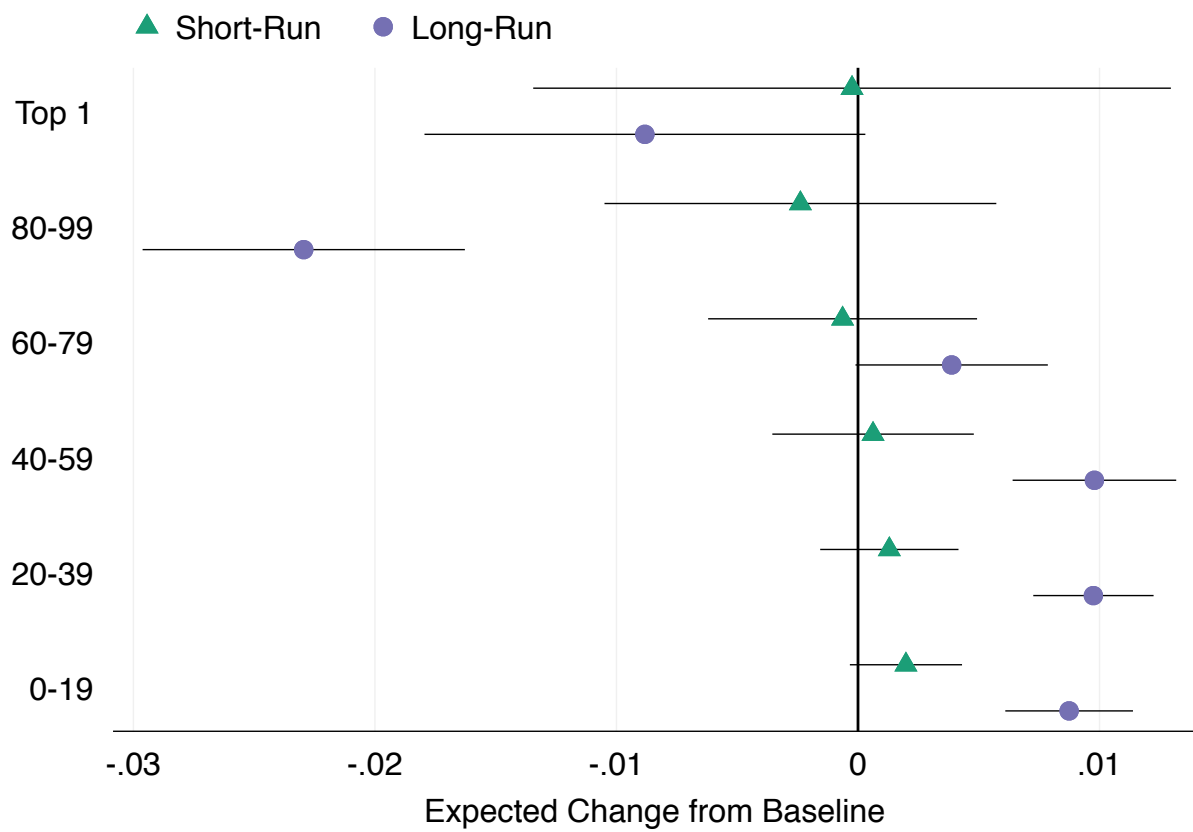
**Figure 16:** Effects of an increase in globalization on relative pre-tax income shares in Brazil (as displayed in Figure 11 of the paper; WB trade openness)

## 5 Robustness Checks with Models Only Controlling for Growth

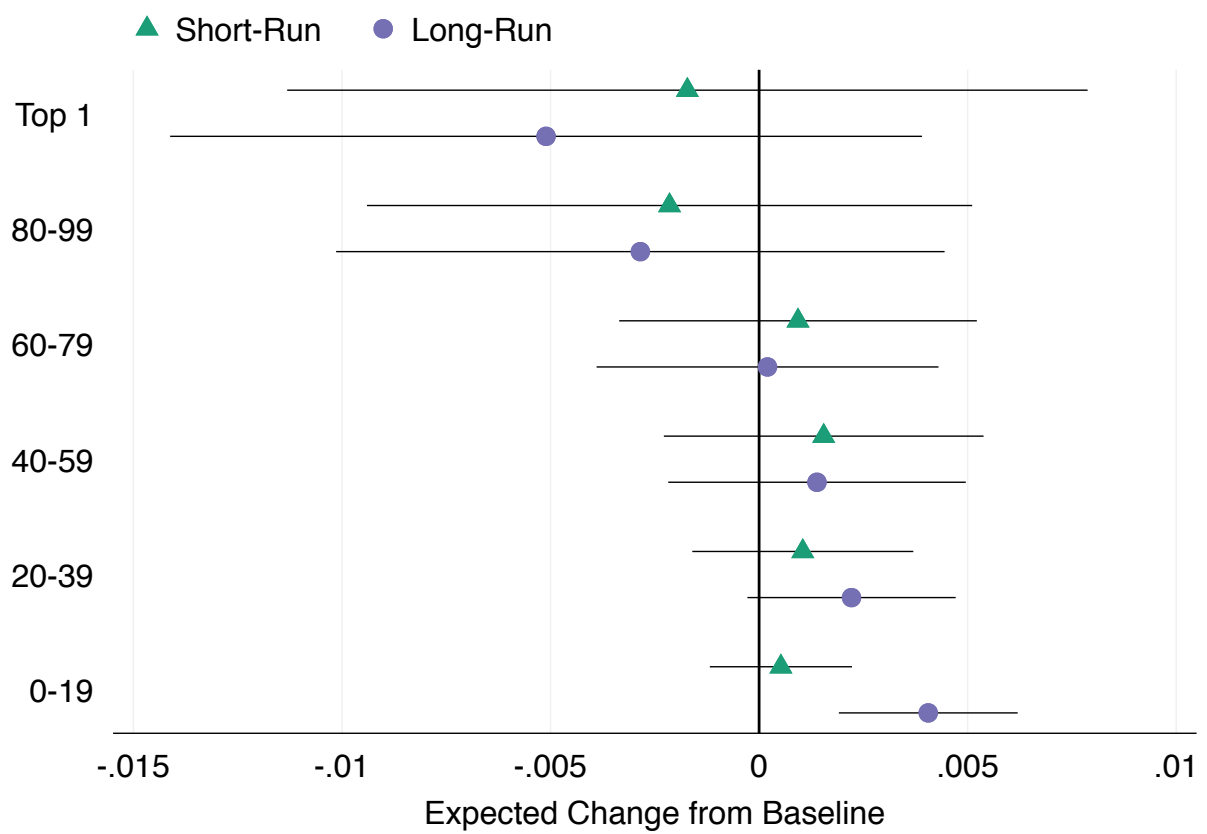
In this section we continue to probe the robustness of the results for the effects of globalization. We do so by estimating a sparse specification with only economic growth and globalization in the models. The results are nearly identical to the results presented in the paper. The main differences are as follows:



**Figure 17:** Effects of an increase in globalization on relative pre-tax income shares in Brazil (Quinn financial openness)



**Figure 18:** Effects of an increase in globalization on relative pre-tax income shares in Brazil (KAO financial openness)

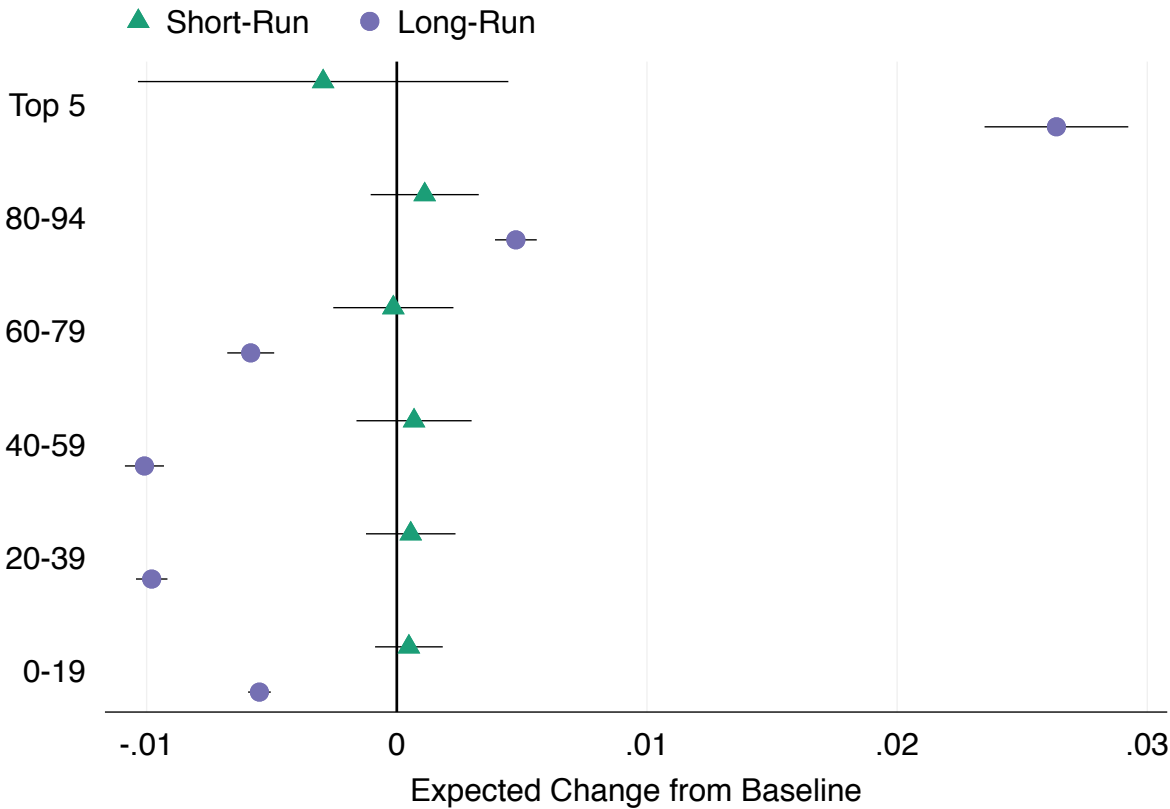


**Figure 19:** Effects of an increase in globalization on relative pre-tax income shares in Brazil (KOF economic globalization index)



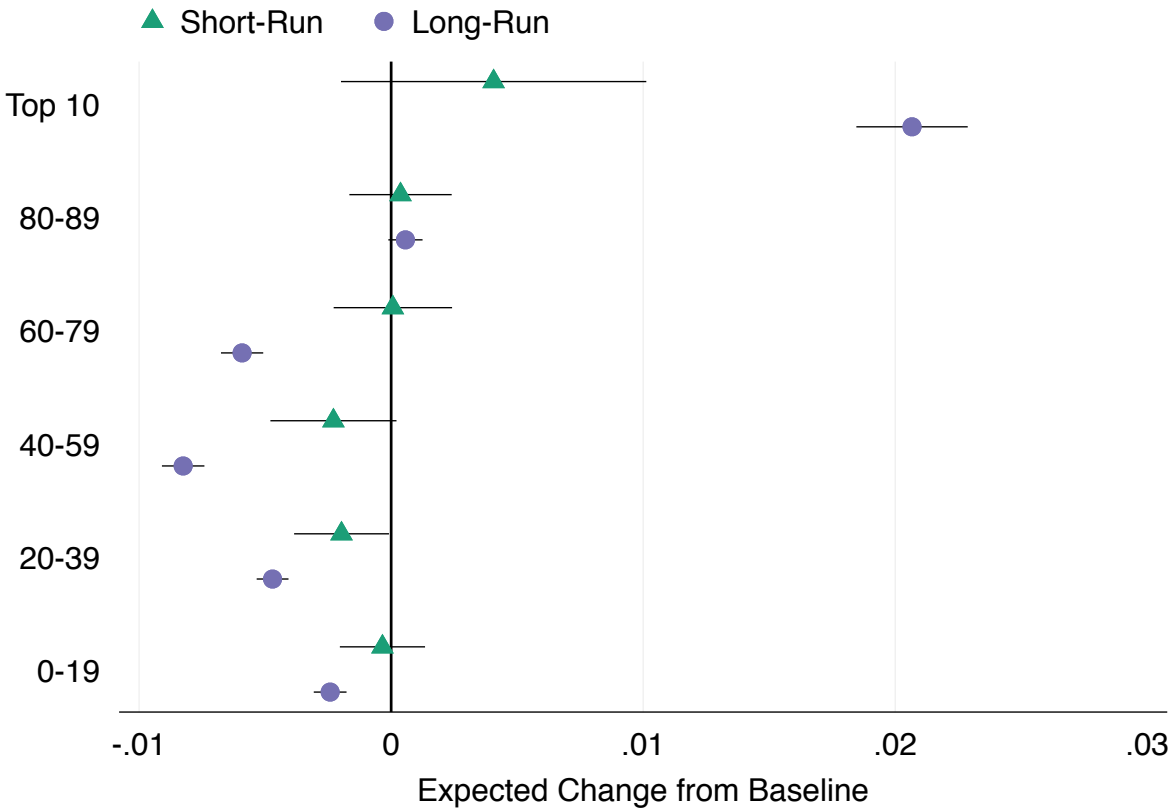
- In the US the estimated long-run effect for the 80-94th percentiles (2nd wealthiest group) is now significant and positive. The estimated long-run effect for the 60-79th percentiles is still statistically significantly negative, but smaller in the more sparse model.
- In Canada, many of the estimated short-run effects that were significantly different from zero in the full model are now not statistically significant. The estimated long-run effects are not different between the two models.
- In Sweden the estimated long-run effect for the 80-89th percentiles (2nd wealthiest group) is now significant and positive. There are also some slight differences in the estimated short-run effects.
- In Brazil, the results are all in the same direction but with smaller confidence intervals. The one result which changes to begin statistically significant is the estimated negative long-run effect for the top 1 percent.

# United States



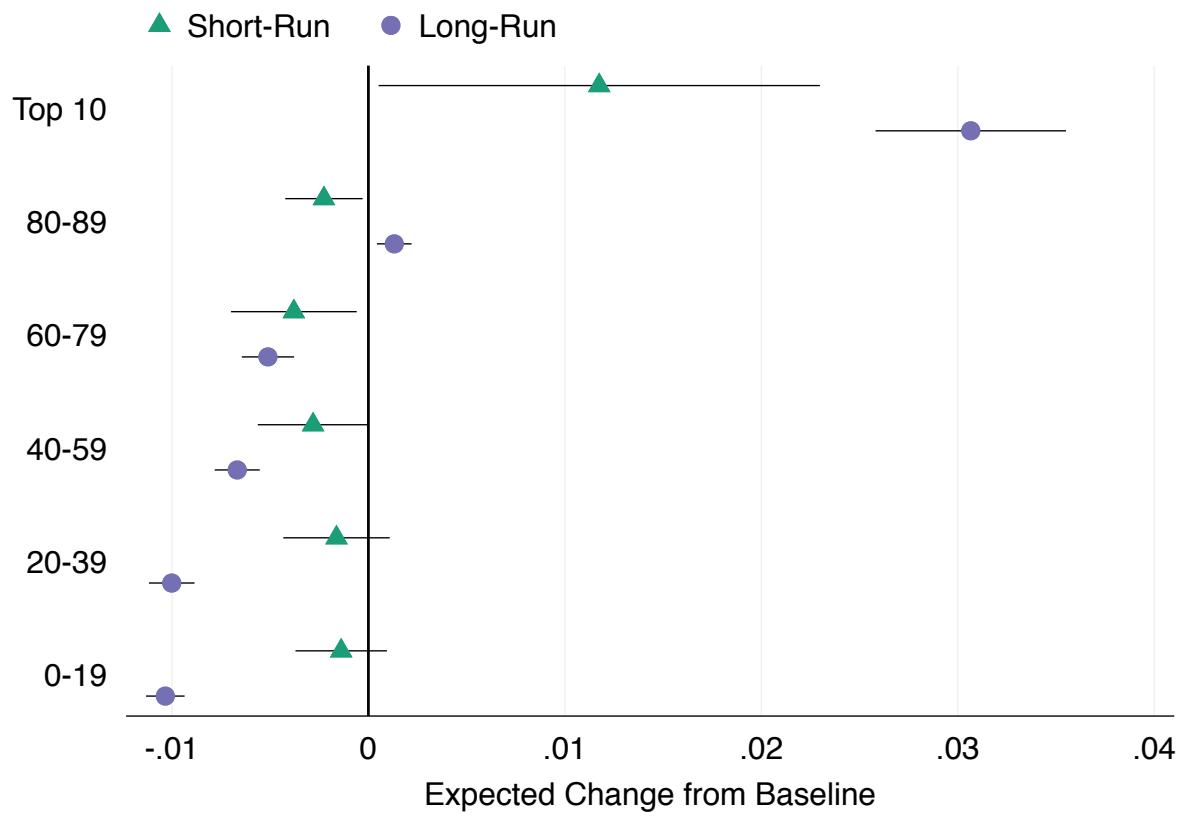
**Figure 20:** Effects of an increase in globalization on relative pre-tax income shares in the United States

# Canada



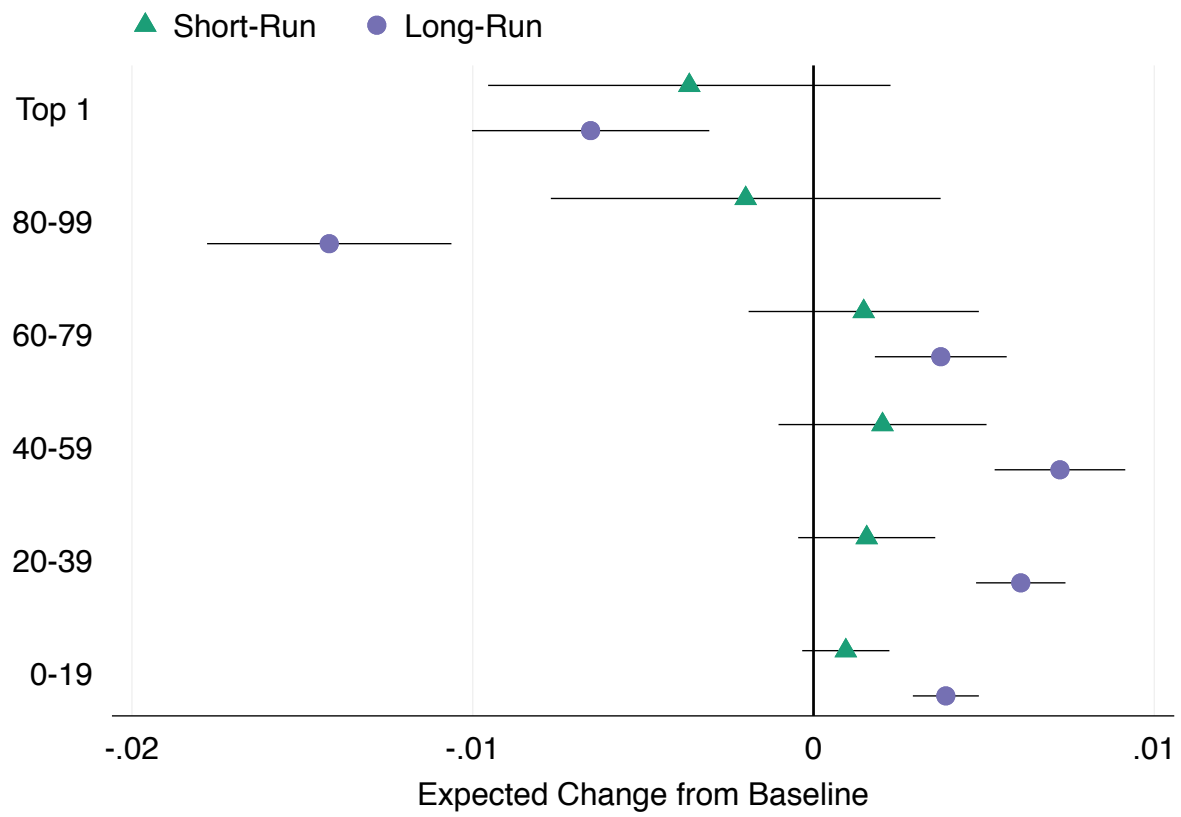
**Figure 21:** Effects of an increase in globalization on relative pre-tax income shares in Canada

## Sweden



**Figure 22:** Effects of an increase in globalization on relative pre-tax income shares in Sweden

## 5.1 Brazil

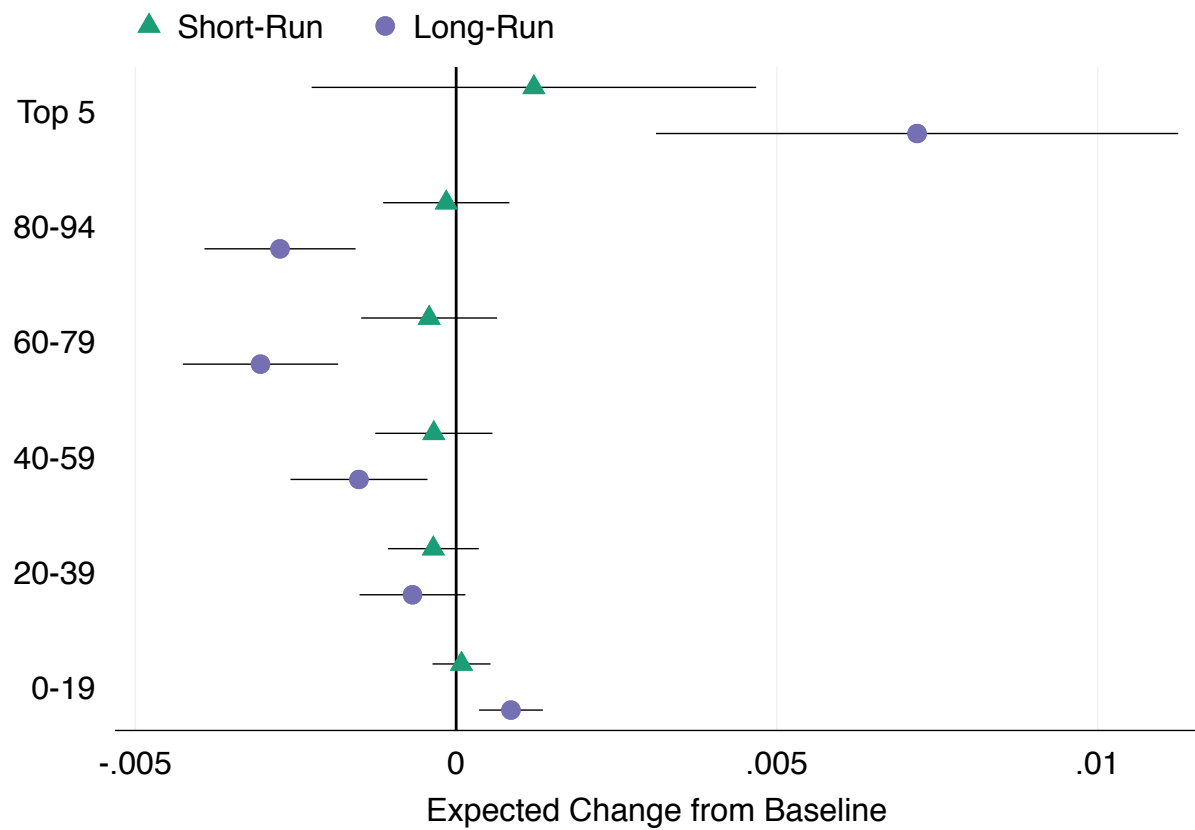


**Figure 23:** Effects of an increase in globalization on relative pre-tax income shares in Brazil

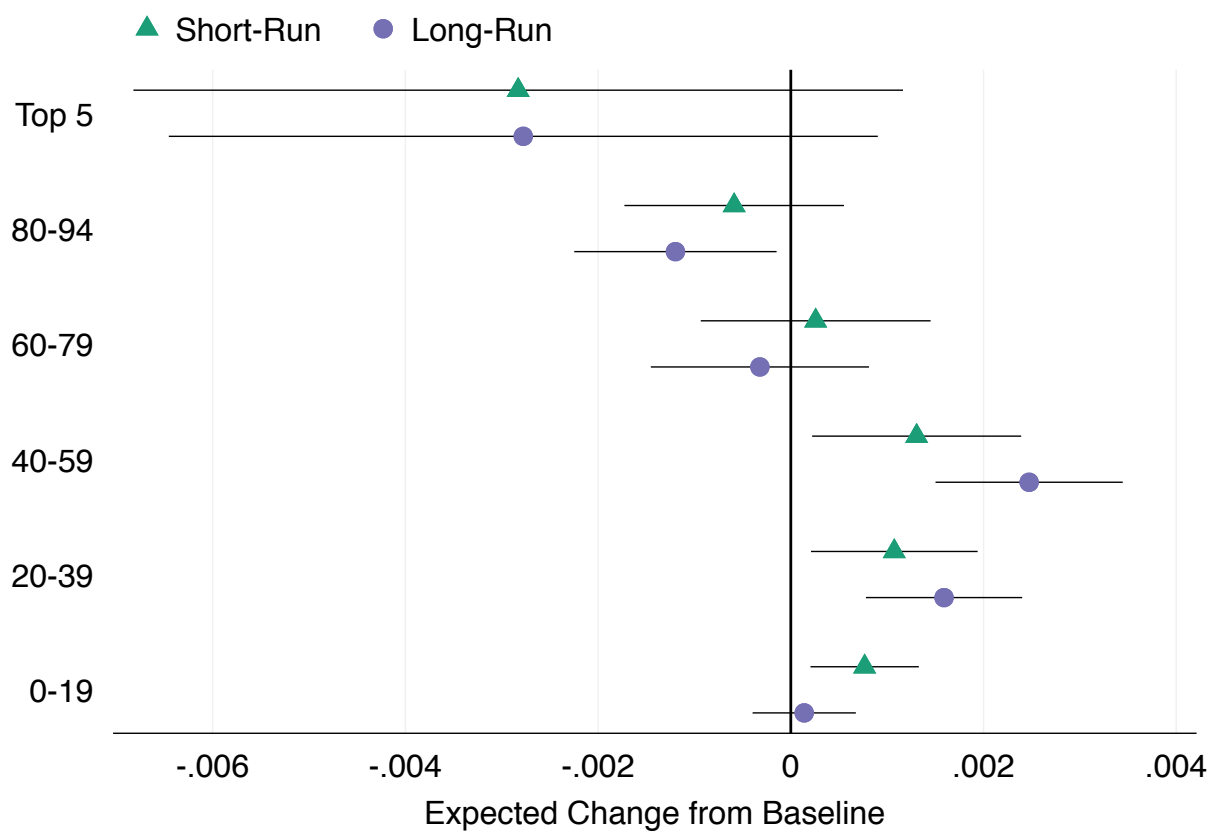
## 6 Results for control variables

In this section, we present the results for each of our control variables which we summarize in Table 2 of the paper.

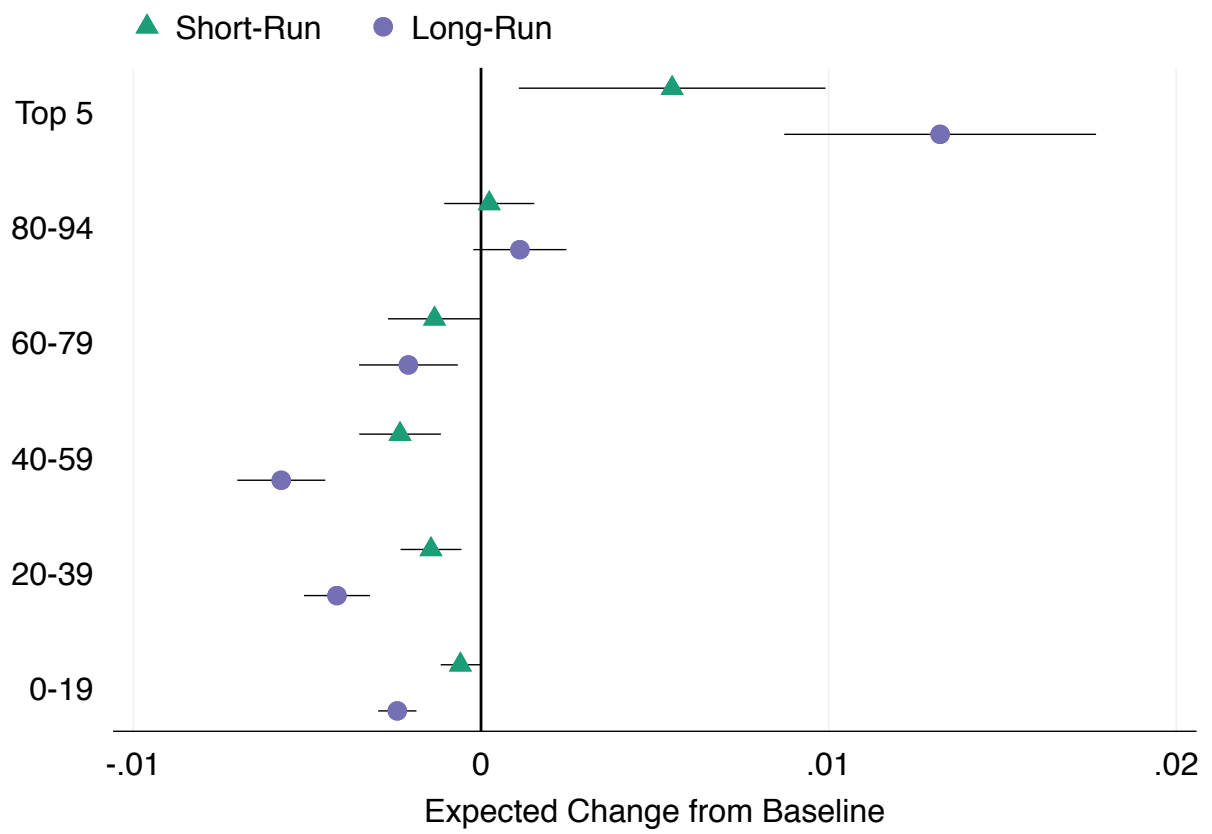
### 6.1 United States



**Figure 24:** Effects of an increase in GDP per capita growth on relative pre-tax income shares in the United States

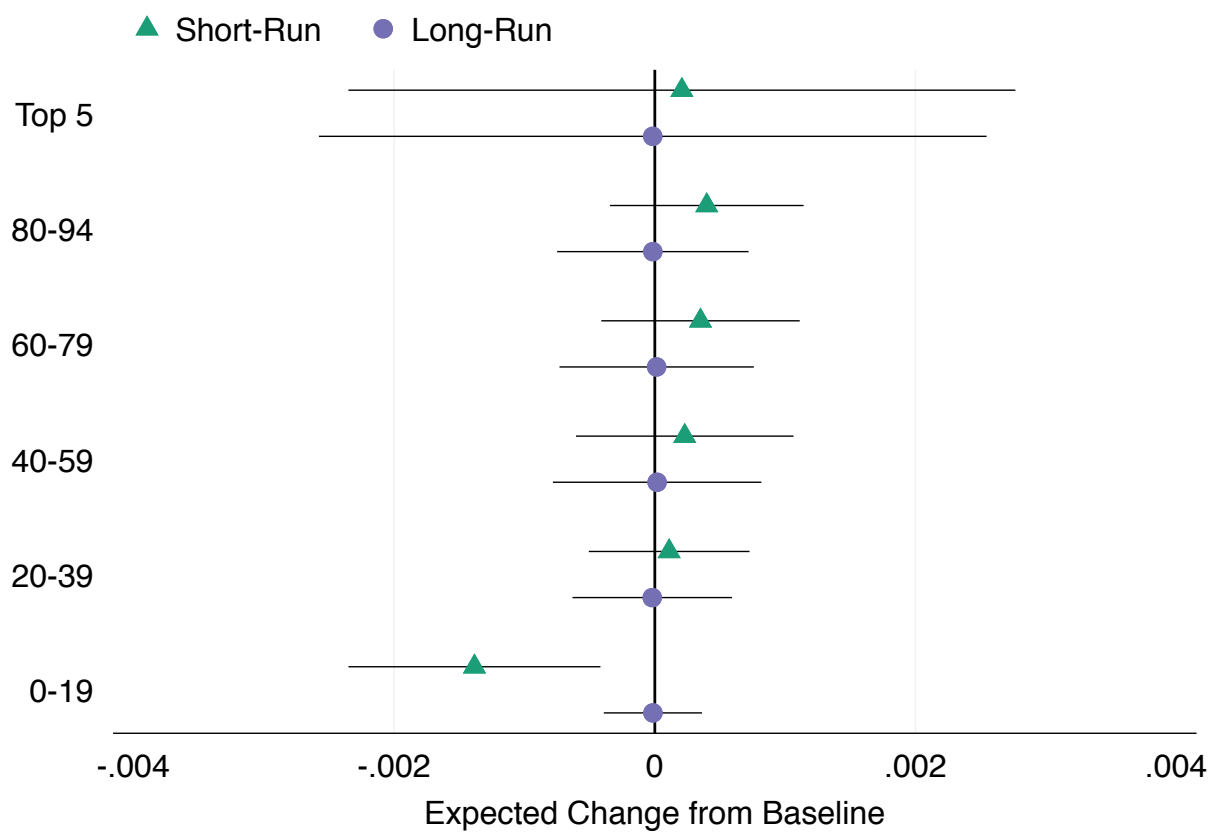


**Figure 25:** Effects of an increase in polarization on relative pre-tax income shares in the United States

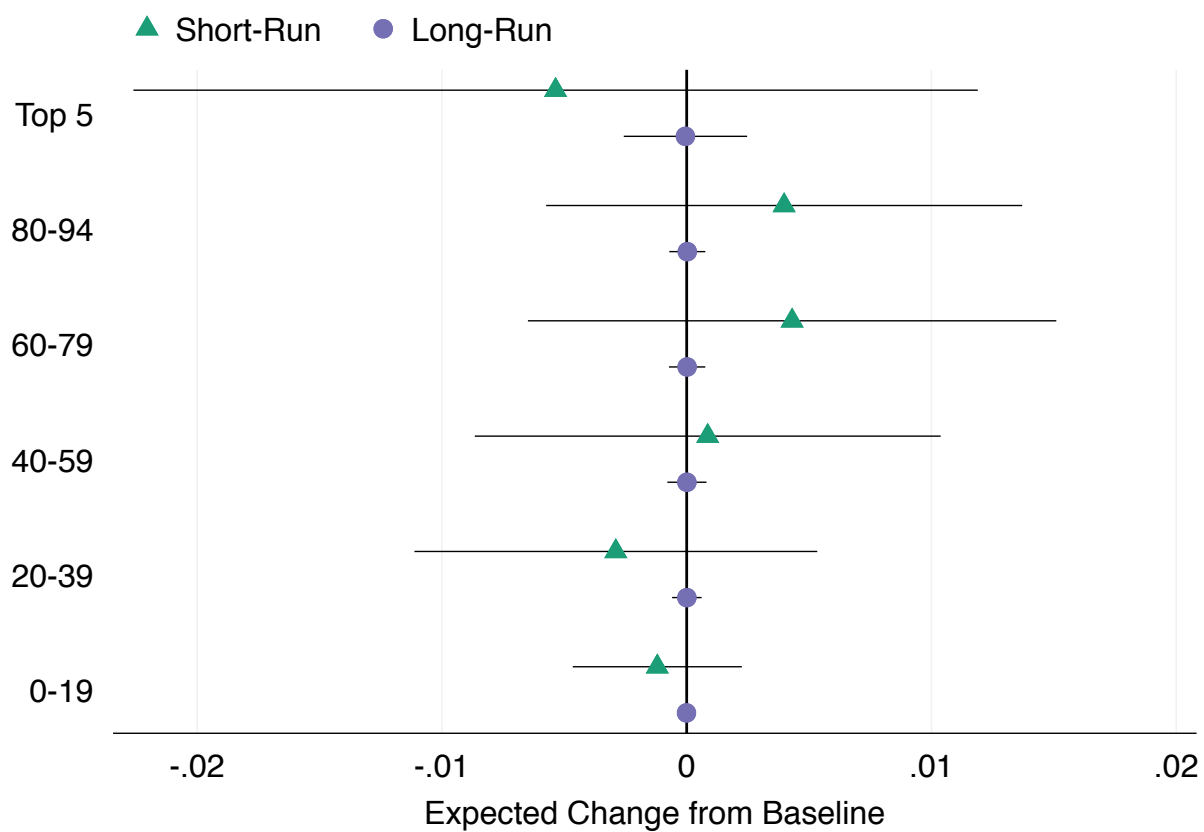


**Figure 26:** Effects of an increase in political constraints on relative pre-tax income shares in the United States



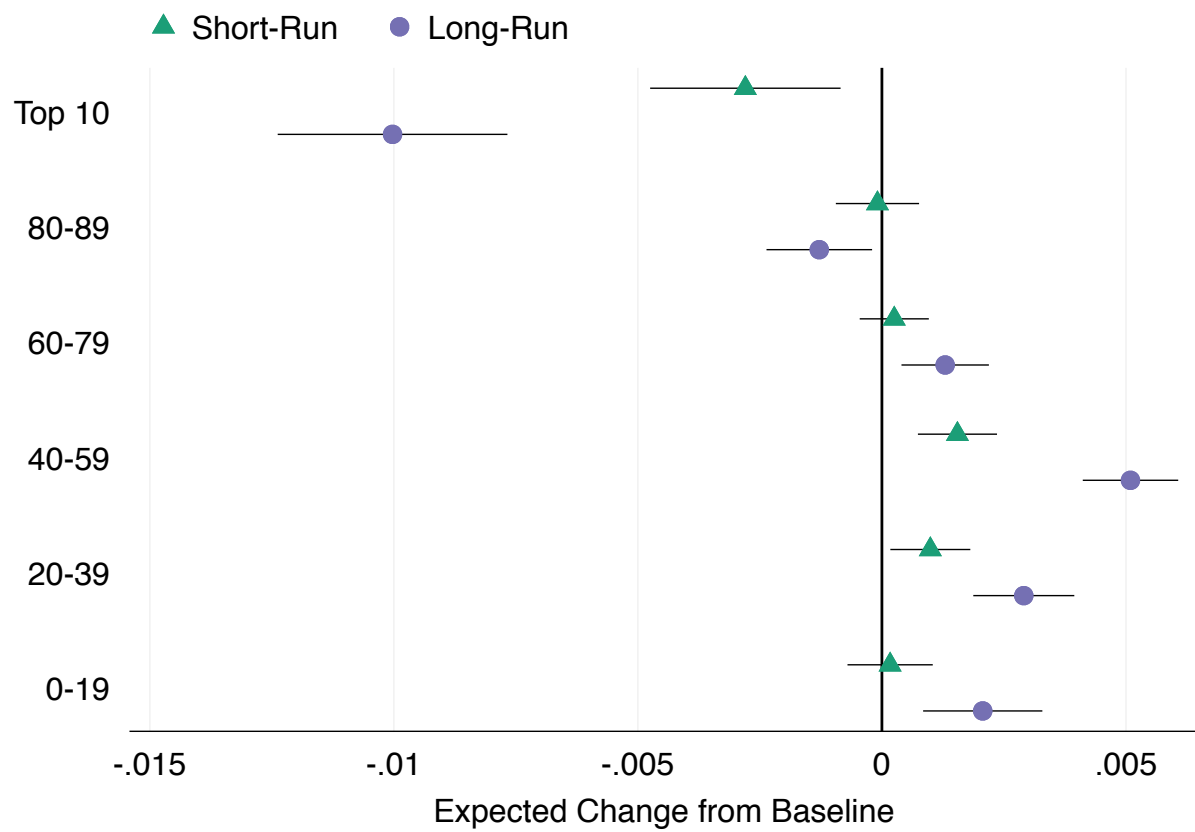


**Figure 27:** Effects of an increase in left government ideology on relative pre-tax income shares in the United States

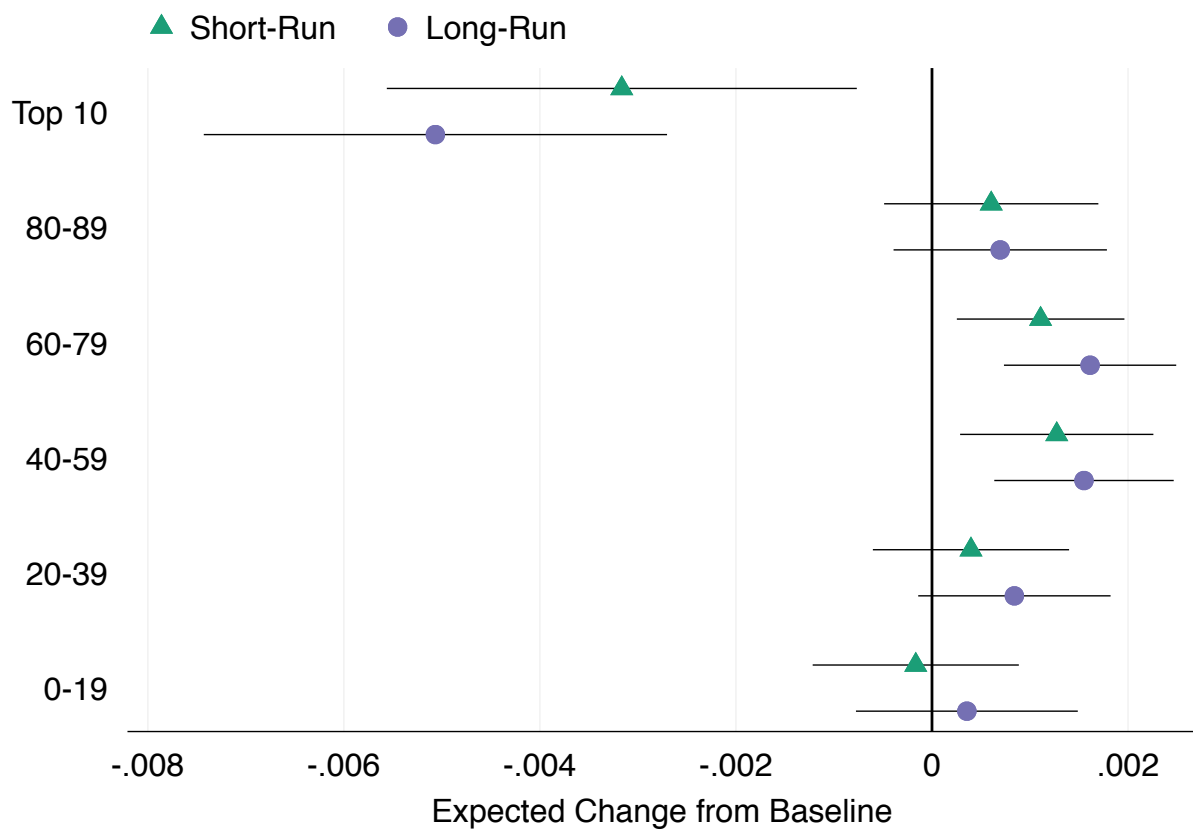


**Figure 28:** Effects of an increase in the age dependency ratio on relative pre-tax income shares in the United States

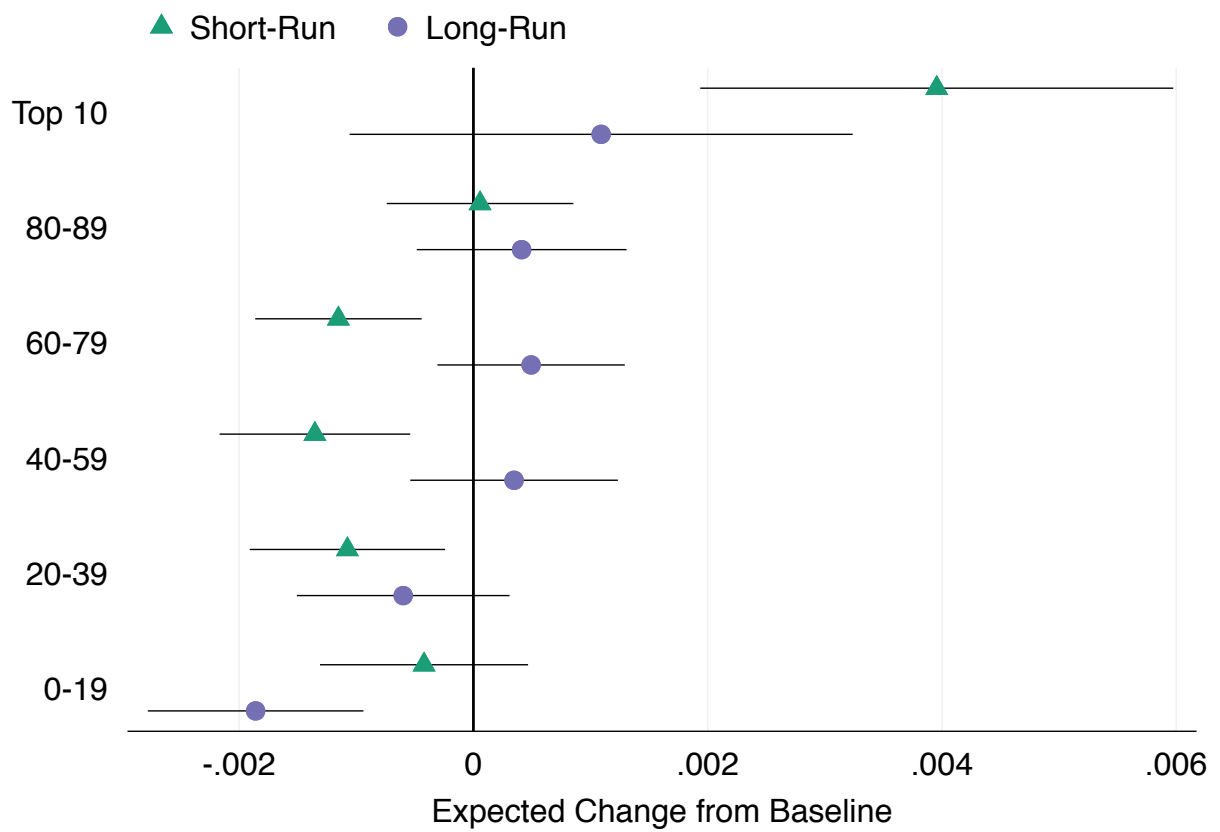
## 6.2 Canada



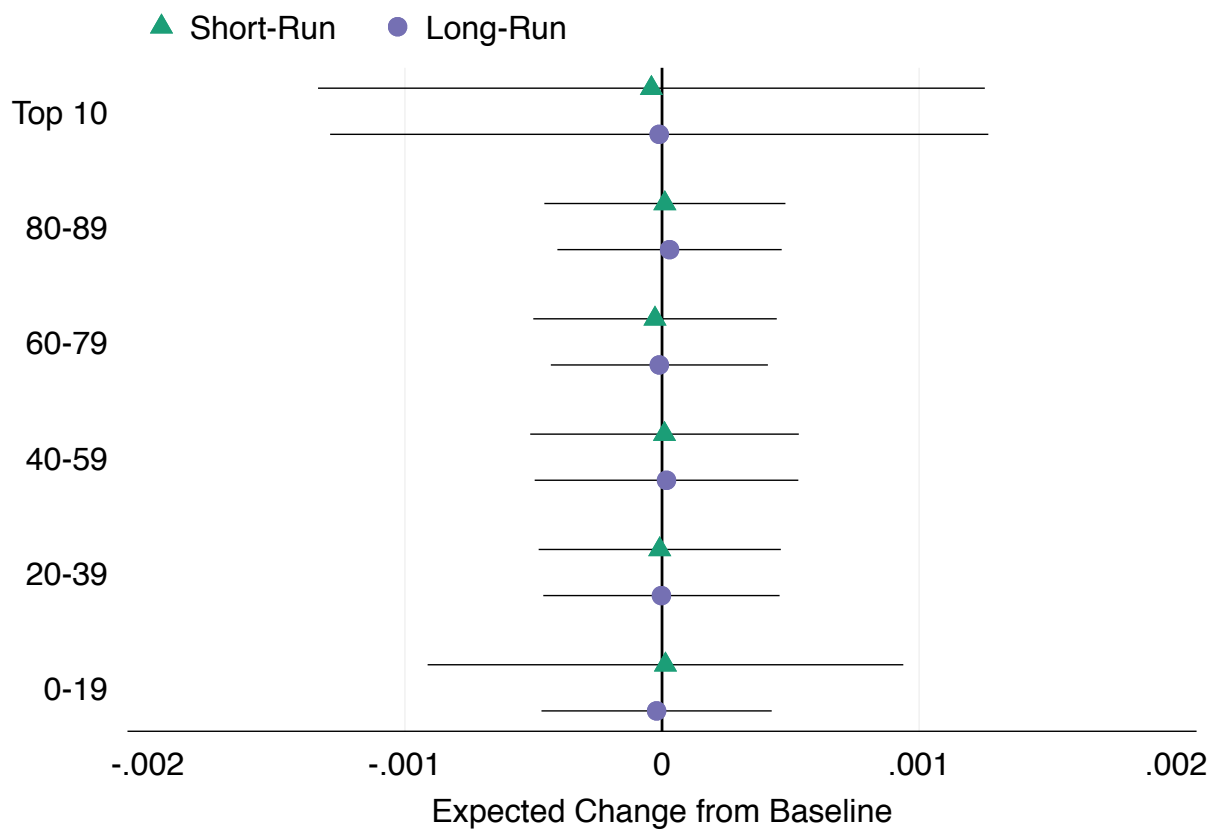
**Figure 29:** Effects of an increase in GDP per capita growth on relative pre-tax income shares in Canada



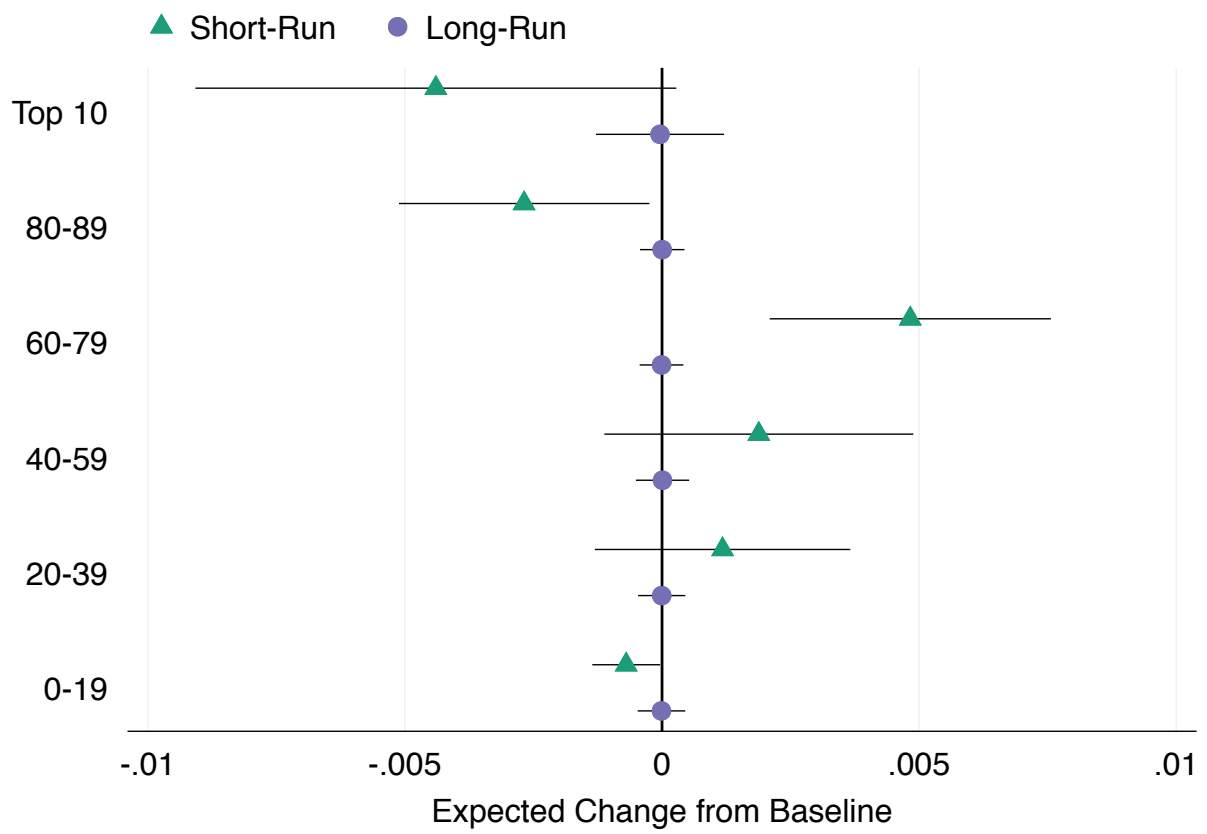
**Figure 30:** Effects of an increase in polarization on relative pre-tax income shares in Canada



**Figure 31:** Effects of an increase in political constraints on relative pre-tax income shares in Canada

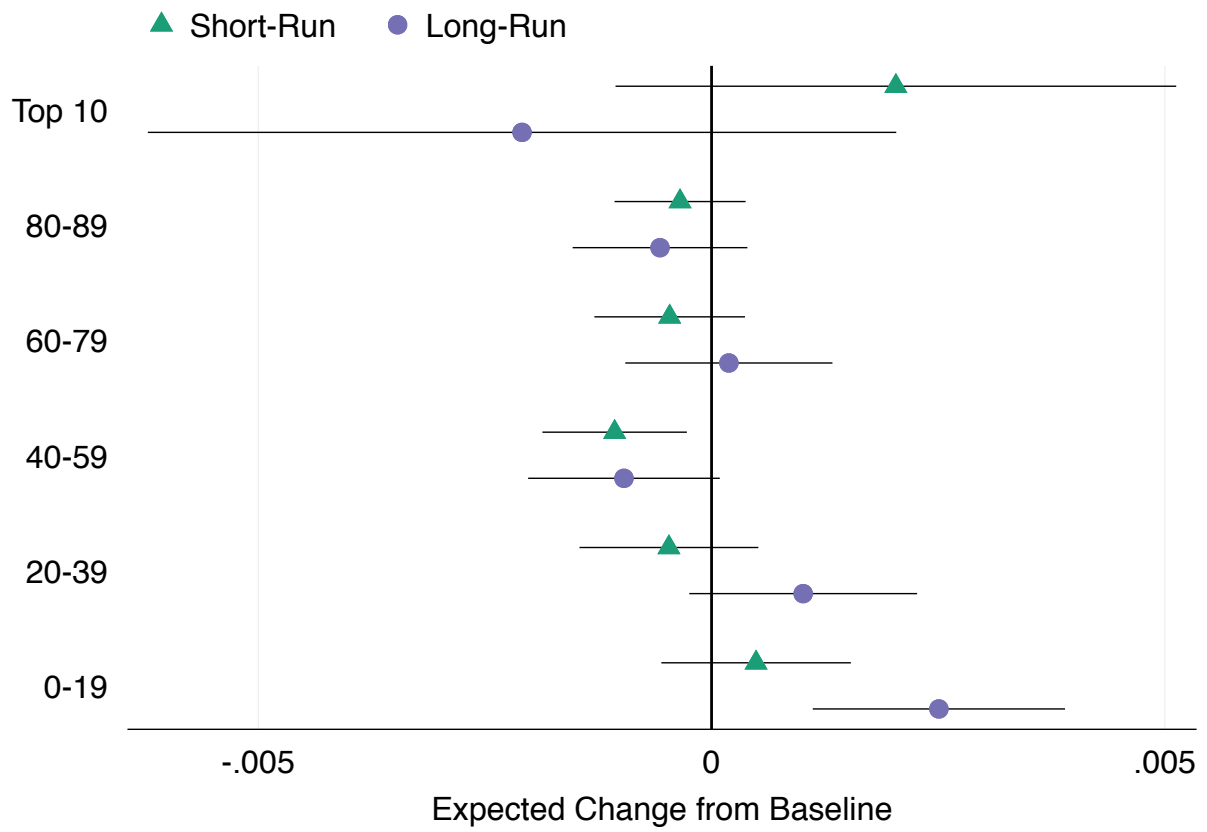


**Figure 32:** Effects of an increase in left government ideology on relative pre-tax income shares in Canada



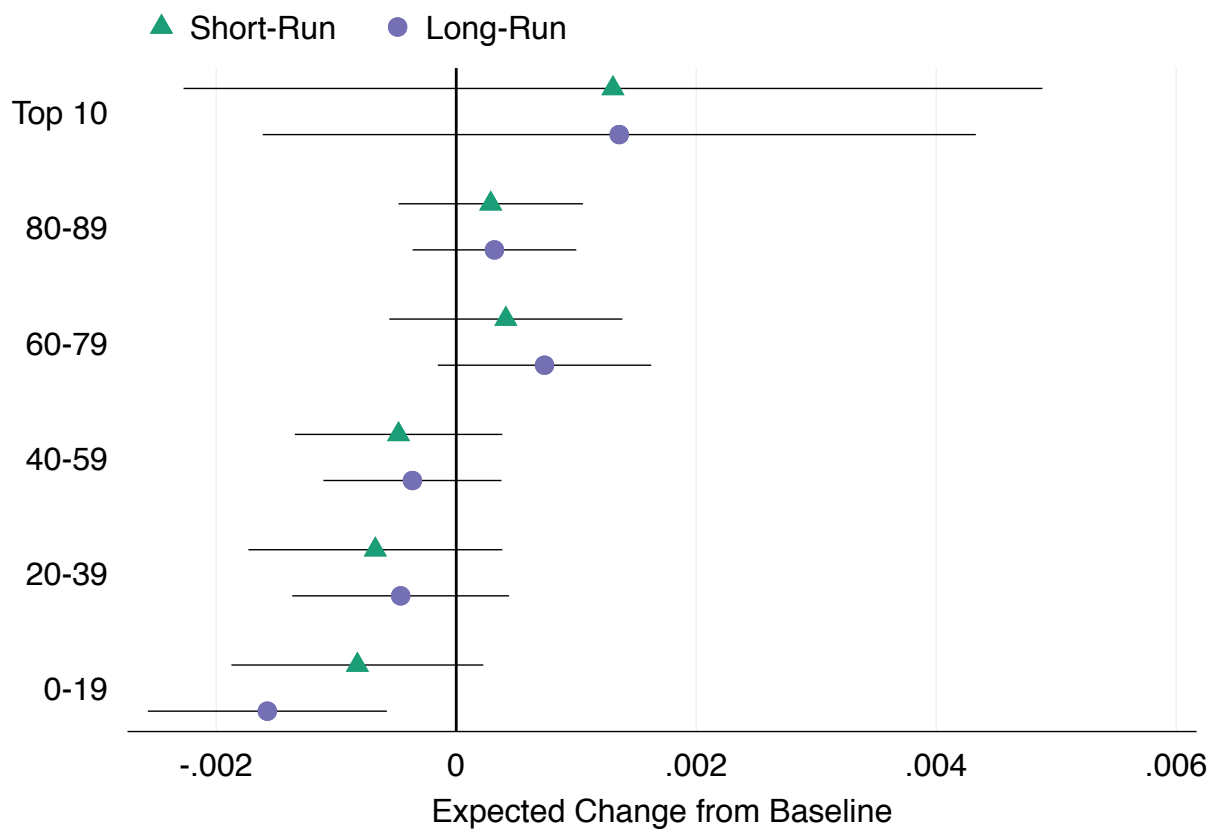
**Figure 33:** Effects of an increase in the age dependency ratio on relative pre-tax income shares in Canada

### 6.3 Sweden

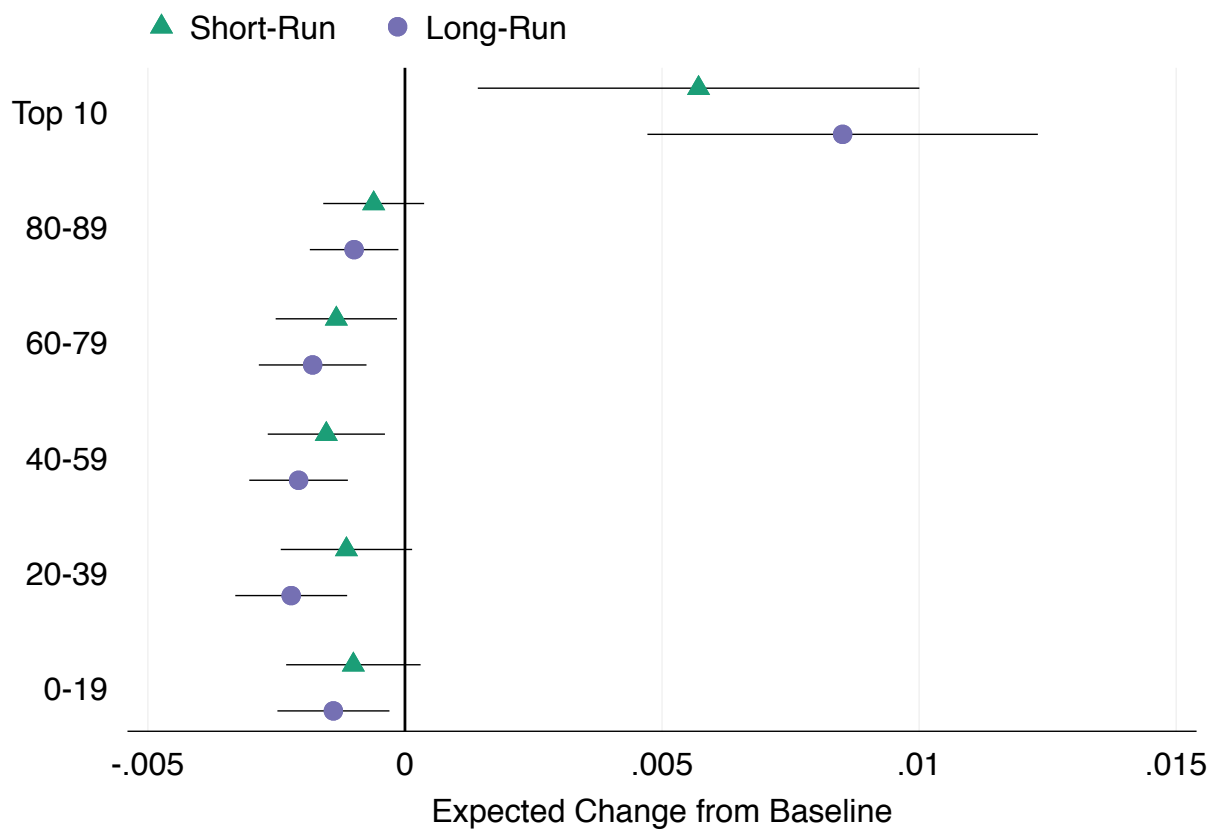


**Figure 34:** Effects of an increase in GDP per capita growth on relative pre-tax income shares in Sweden

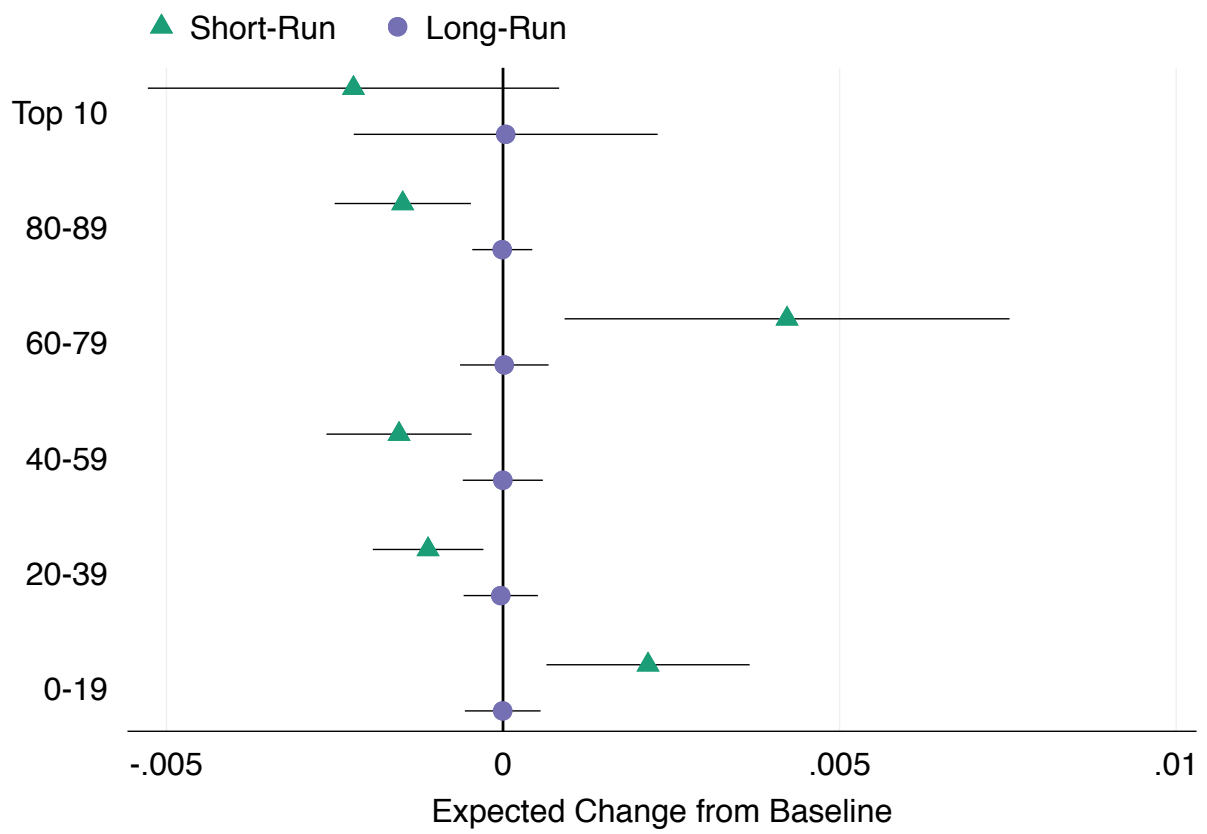




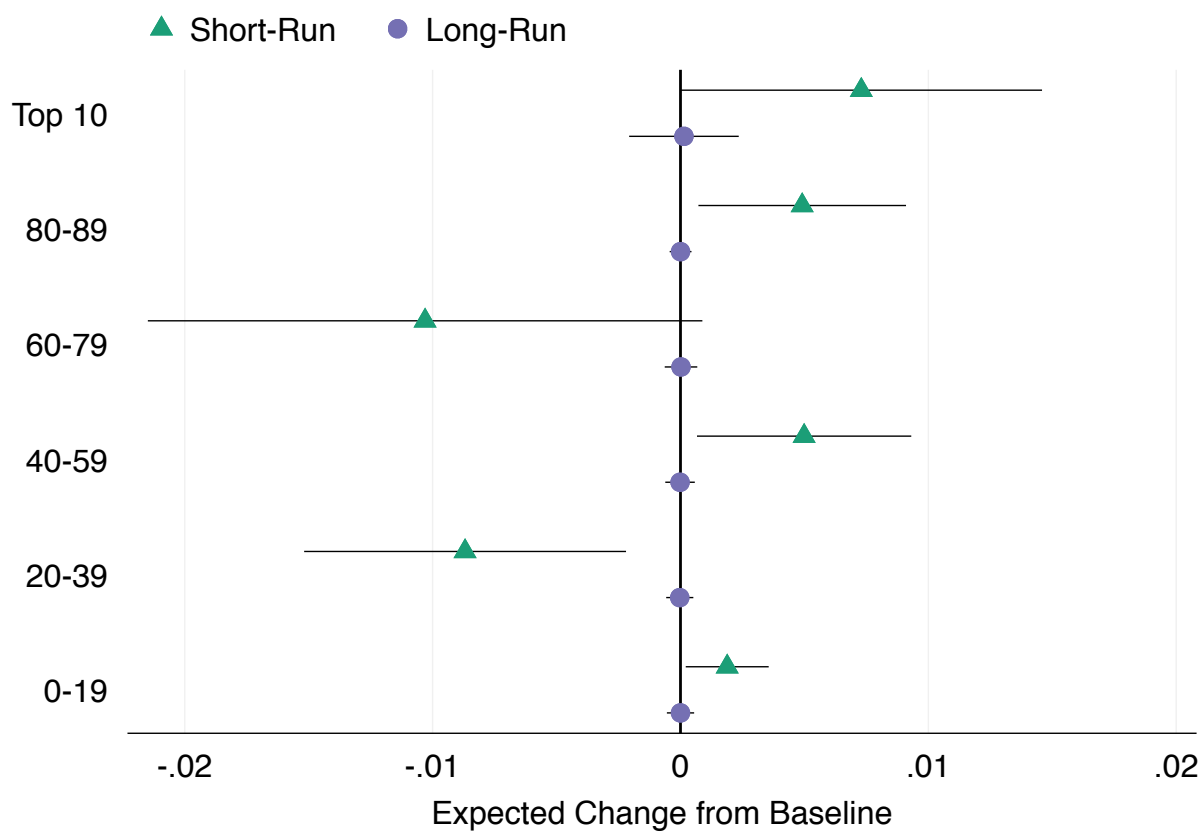
**Figure 35:** Effects of an increase in polarization on relative pre-tax income shares in Sweden



**Figure 36:** Effects of an increase in political constraints on relative pre-tax income shares in Sweden

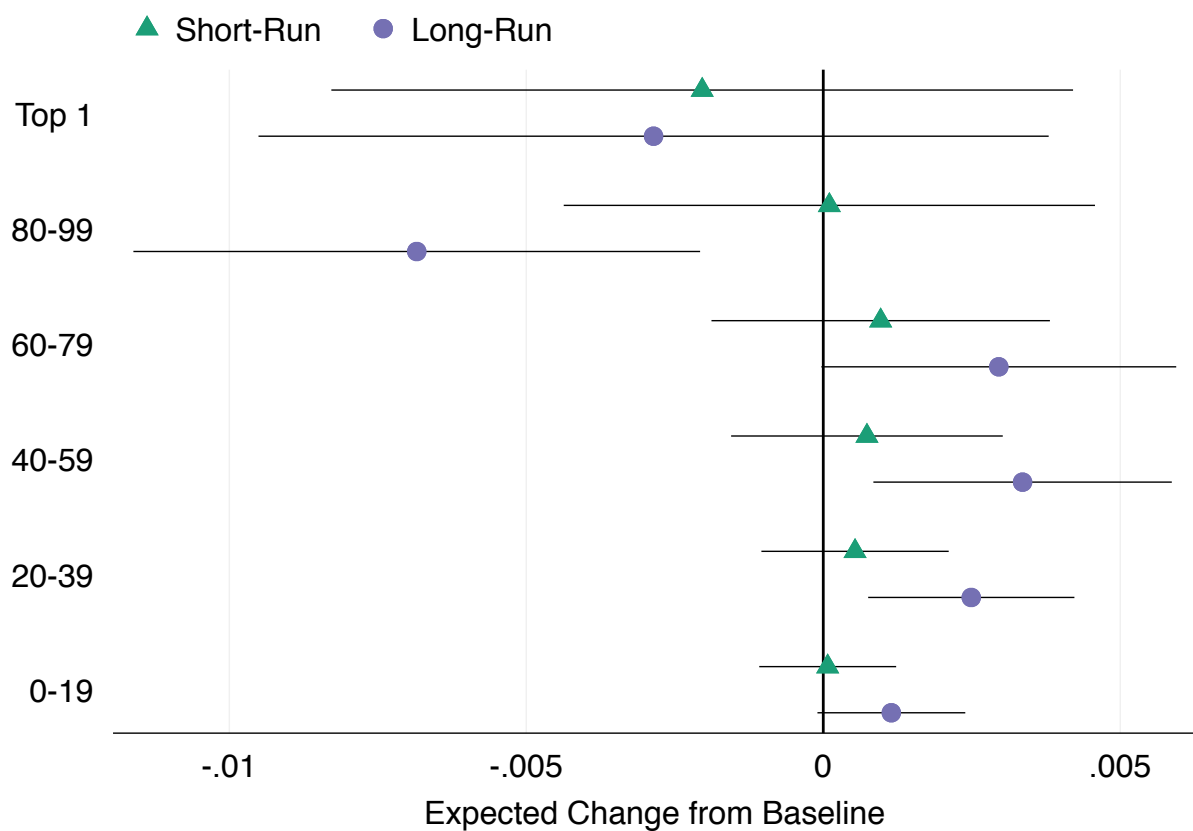


**Figure 37:** Effects of an increase in left government ideology on relative pre-tax income shares in Sweden

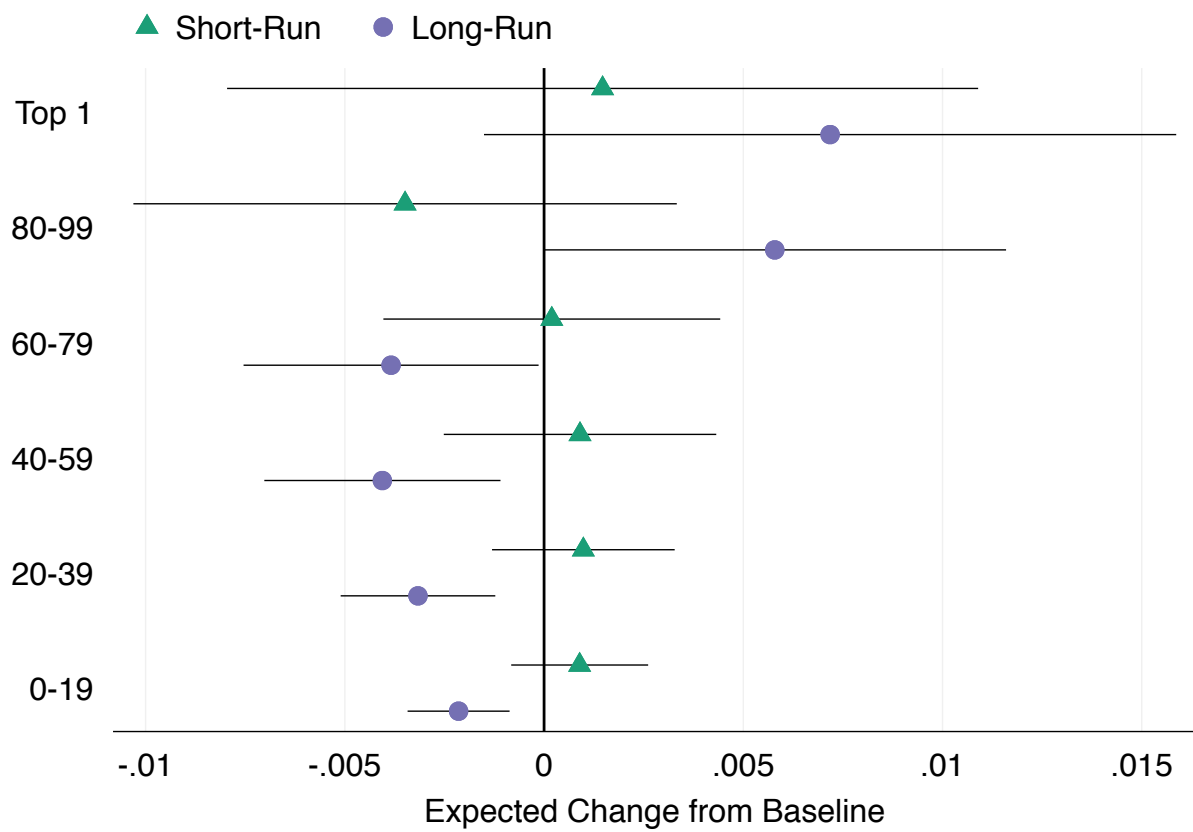


**Figure 38:** Effects of an increase in the age dependency ratio on relative pre-tax income shares in Sweden

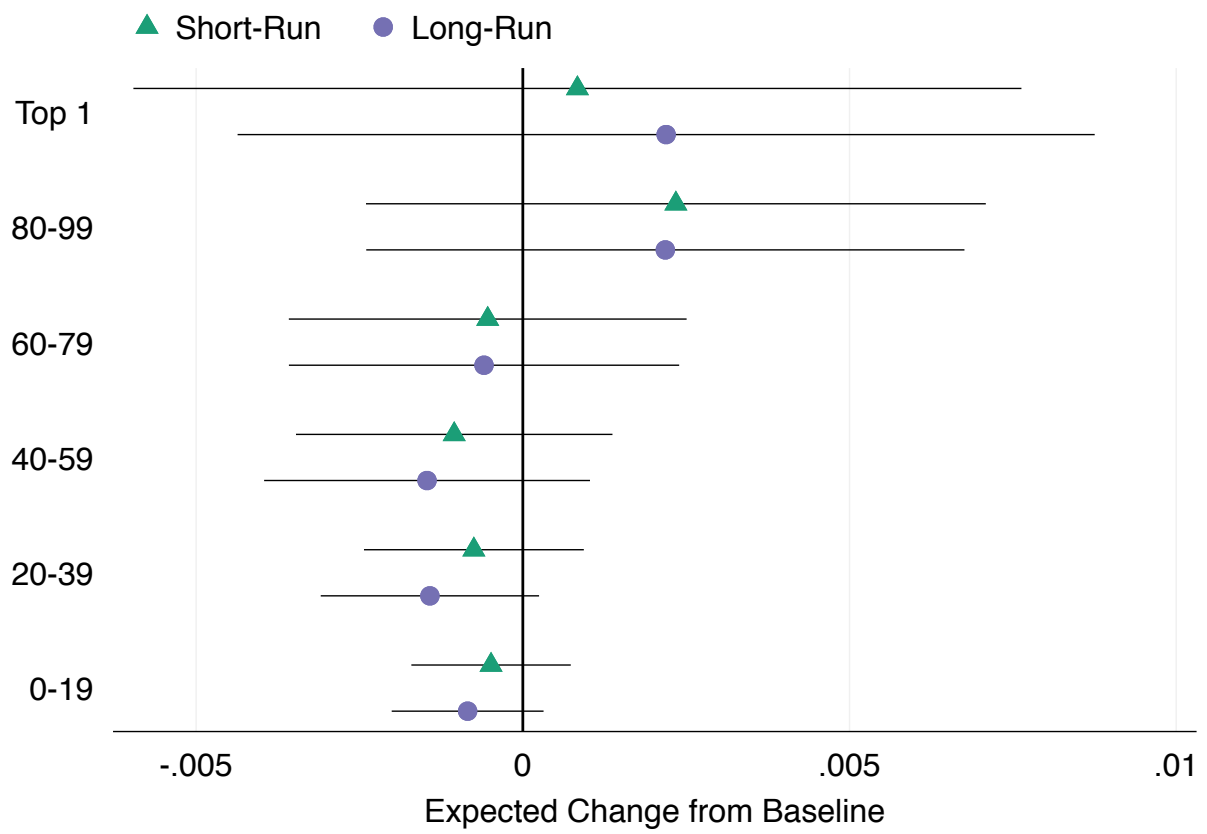
## 6.4 Brazil



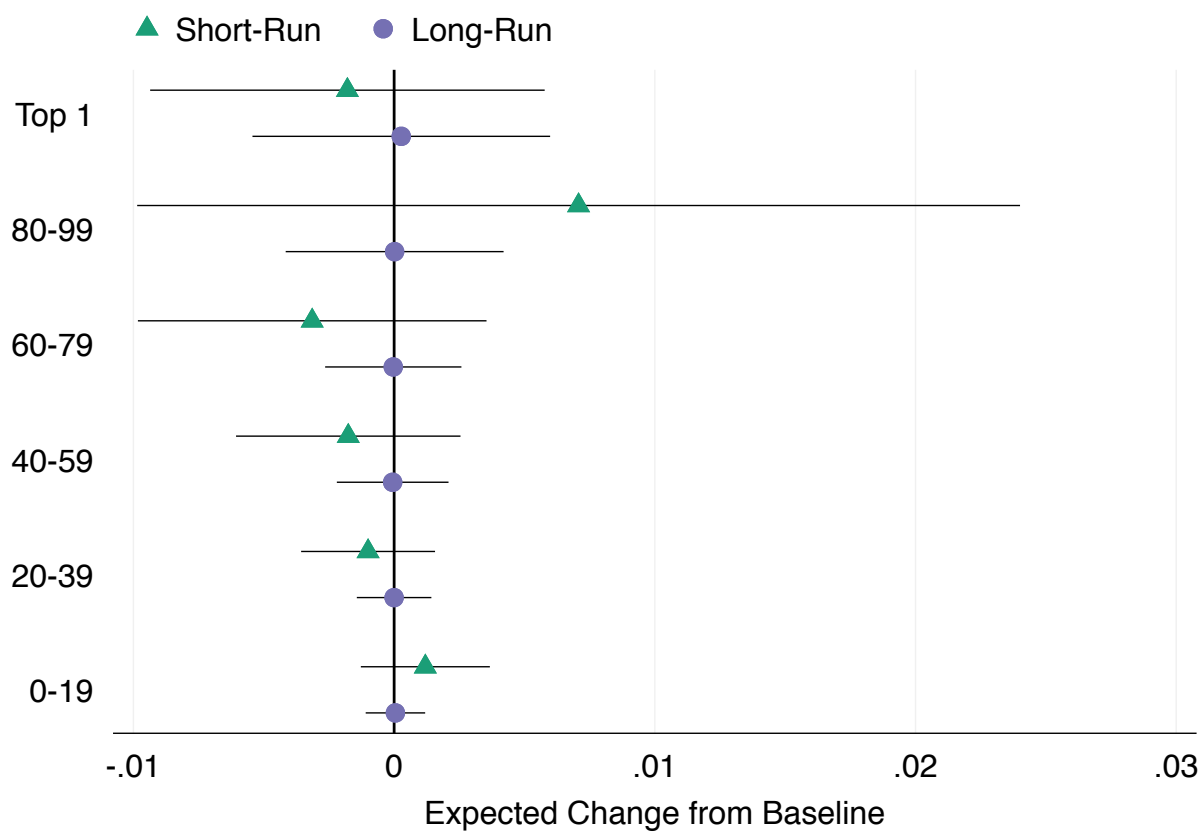
**Figure 39:** Effects of an increase in GDP per capita growth on relative pre-tax income shares in Brazil



**Figure 40:** Effects of an increase in polarization on relative pre-tax income shares in Brazil

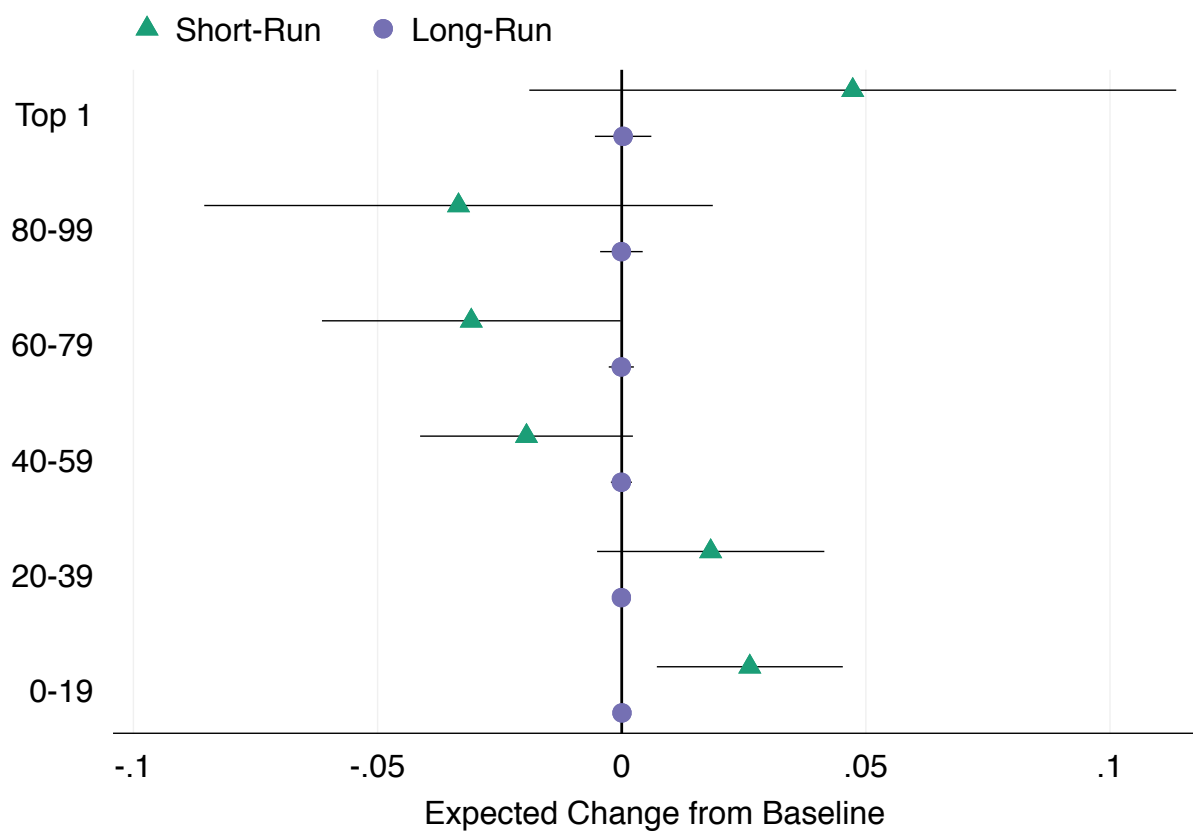


**Figure 41:** Effects of an increase in political constraints on relative pre-tax income shares in Brazil



**Figure 42:** Effects of an increase in left government ideology on relative pre-tax income shares in Brazil





**Figure 43:** Effects of an increase in the age dependency ratio on relative pre-tax income shares in Brazil

## 7 Numeric tables

In this section, we display the numeric results from our models.

### 7.1 United States

**Table 5:** Dynamic pie model results for the United States

|  | $\Delta \ln \frac{20-39}{0-19}$ | $\Delta \ln \frac{40-59}{0-19}$ | $\Delta \ln \frac{60-79}{0-19}$ | $\Delta \ln \frac{80-95}{0-19}$ | $\Delta \ln \frac{top\ 5}{0-19}$ |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|
| $\Delta \text{Trade Openness}_t$         | 0.003*<br>(0.002)               | 0.003*<br>(0.002)               | 0.003*<br>(0.002)               | 0.005**<br>(0.002)              | 0.011*<br>(0.006)                |
| $\text{Trade Openness}_{t-1}$            | 0.001<br>(0.001)                | 0.002<br>(0.001)                | 0.003**<br>(0.001)              | 0.005***<br>(0.002)             | 0.015**<br>(0.006)               |
| $\Delta \text{GDP PC growth}_t$          | -0.124<br>(0.137)               | -0.050<br>(0.144)               | -0.105<br>(0.136)               | -0.075<br>(0.148)               | 0.182<br>(0.441)                 |
| $\text{GDP PC growth}_{t-1}$             | -0.435***<br>(0.168)            | -0.550***<br>(0.176)            | -0.663***<br>(0.166)            | -0.626***<br>(0.180)            | 0.219<br>(0.525)                 |
| $\Delta \text{Polarization}_t$           | -0.007*<br>(0.004)              | -0.011***<br>(0.004)            | -0.018***<br>(0.004)            | -0.021***<br>(0.004)            | -0.032**<br>(0.012)              |
| $\text{Polarization}_{t-1}$              | 0.002<br>(0.004)                | 0.002<br>(0.004)                | -0.003<br>(0.004)               | -0.004<br>(0.004)               | -0.003<br>(0.013)                |
| $\Delta \text{Political Constraints}_t$  | 0.267<br>(0.537)                | 0.213<br>(0.571)                | 0.920*<br>(0.530)               | 1.440**<br>(0.580)              | 3.998**<br>(1.683)               |
| $\text{Political Constraints}_{t-1}$     | 0.722<br>(0.510)                | 0.627<br>(0.557)                | 1.236**<br>(0.537)              | 1.492**<br>(0.600)              | 3.499**<br>(1.728)               |
| $\Delta \text{Age Dep Ratio}_t$          | -0.009<br>(0.021)               | -0.002<br>(0.023)               | 0.012<br>(0.021)                | 0.009<br>(0.023)                | -0.039<br>(0.067)                |
| $\text{Age Dep Ratio}_{t-1}$             | -0.002<br>(0.004)               | -0.003<br>(0.005)               | -0.002<br>(0.005)               | 0.001<br>(0.005)                | 0.032<br>(0.020)                 |
| $\Delta \text{Government LR Ideology}_t$ | 0.004<br>(0.004)                | 0.003<br>(0.005)                | 0.007<br>(0.004)                | 0.012***<br>(0.005)             | 0.052***<br>(0.014)              |
| $\text{Government LR Ideology}_{t-1}$    | -0.002<br>(0.004)               | -0.003<br>(0.004)               | -0.001<br>(0.004)               | 0.000<br>(0.005)                | 0.018<br>(0.015)                 |
| $\hat{\alpha}$                           | -0.438***<br>(0.080)            | -0.362***<br>(0.069)            | -0.289***<br>(0.051)            | -0.279***<br>(0.046)            | -0.275***<br>(0.085)             |
| Constant                                 | 0.195<br>(0.348)                | 0.376<br>(0.371)                | 0.081<br>(0.359)                | -0.250<br>(0.413)               | -3.257**<br>(1.640)              |
| $N$                                      | 35                              | 35                              | 35                              | 35                              | 35                               |
| $R^2$                                    | .57                             | .62                             | .71                             | .68                             | .48                              |
| $\chi^2$                                 | 66.428***                       | 84.214***                       | 129.203***                      | 122.799***                      | 37.034***                        |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

$\hat{\alpha}$  is adjustment parameter.

## 7.2 Canada

**Table 6:** Dynamic pie model results for Canada

|   | $\Delta \ln \frac{20-39}{0-19}$ | $\Delta \ln \frac{40-59}{0-19}$ | $\Delta \ln \frac{60-79}{0-19}$ | $\Delta \ln \frac{80-99}{0-19}$ | $\Delta \ln \frac{top\ 10}{0-19}$ |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------------------|
| $\Delta$ Trade Openness <sub><i>t</i></sub>         | -0.005**<br>(0.002)             | -0.004*<br>(0.002)              | -0.000<br>(0.003)               | -0.000<br>(0.003)               | 0.004<br>(0.003)                  |
| Trade Openness <sub><i>t-1</i></sub>                | -0.001<br>(0.001)               | -0.002**<br>(0.001)             | 0.000<br>(0.001)                | 0.001<br>(0.001)                | 0.002**<br>(0.001)                |
| $\Delta$ GDP PC growth <sub><i>t</i></sub>          | 0.226<br>(0.186)                | 0.212<br>(0.194)                | -0.077<br>(0.234)               | -0.109<br>(0.260)               | -0.438*<br>(0.251)                |
| GDP PC growth <sub><i>t-1</i></sub>                 | 0.298<br>(0.247)                | 0.309<br>(0.258)                | -0.115<br>(0.310)               | -0.213<br>(0.344)               | -0.718**<br>(0.332)               |
| $\Delta$ Polarization <sub><i>t</i></sub>           | 0.017*<br>(0.009)               | 0.021**<br>(0.010)              | 0.018<br>(0.012)                | 0.019<br>(0.013)                | -0.004<br>(0.013)                 |
| Polarization <sub><i>t-1</i></sub>                  | 0.028***<br>(0.009)             | 0.034***<br>(0.009)             | 0.030***<br>(0.011)             | 0.028**<br>(0.012)              | -0.000<br>(0.012)                 |
| $\Delta$ Political Constraints <sub><i>t</i></sub>  | -0.137<br>(0.247)               | -0.091<br>(0.259)               | 0.010<br>(0.312)                | 0.135<br>(0.346)                | 0.641*<br>(0.336)                 |
| Political Constraints <sub><i>t-1</i></sub>         | 0.236<br>(0.233)                | 0.329<br>(0.244)                | 0.337<br>(0.294)                | 0.361<br>(0.325)                | 0.372<br>(0.315)                  |
| $\Delta$ Age Dep Ratio <sub><i>t</i></sub>          | 0.001<br>(0.011)                | -0.001<br>(0.011)               | 0.004<br>(0.013)                | 0.008<br>(0.015)                | -0.024*<br>(0.014)                |
| Age Dep Ratio <sub><i>t-1</i></sub>                 | 0.017***<br>(0.005)             | 0.020***<br>(0.005)             | 0.014**<br>(0.006)              | 0.010<br>(0.007)                | -0.009<br>(0.007)                 |
| $\Delta$ Government LR Ideology <sub><i>t</i></sub> | 0.005<br>(0.007)                | 0.006<br>(0.007)                | 0.004<br>(0.009)                | 0.005<br>(0.010)                | 0.001<br>(0.009)                  |
| Government LR Ideology <sub><i>t-1</i></sub>        | 0.013**<br>(0.006)              | 0.018***<br>(0.007)             | 0.013*<br>(0.008)               | 0.009<br>(0.009)                | 0.003<br>(0.008)                  |
| $\hat{\alpha}$                                      | -0.591***<br>(0.068)            | -0.735***<br>(0.065)            | -0.665***<br>(0.074)            | -0.542***<br>(0.082)            | -0.373***<br>(0.059)              |
| Constant  | -0.368<br>(0.267)               | -0.029<br>(0.283)               | 0.332<br>(0.347)                | 0.043<br>(0.381)                | 0.798**<br>(0.366)                |
| <i>N</i>  | 36                              | 36                              | 36                              | 36                              | 36                                |
| <i>R</i> <sup>2</sup>                               | .48                             | .58                             | .39                             | .25                             | .29                               |
| $\chi^2$  | 86.299***                       | 140.440***                      | 89.190***                       | 51.985***                       | 56.485***                         |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

$\hat{\alpha}$  is adjustment parameter.

## 7.3 Sweden

**Table 7:** Dynamic pie model results for Sweden

|   | $\Delta \ln \frac{20-39}{0-19}$ | $\Delta \ln \frac{40-59}{0-19}$ | $\Delta \ln \frac{60-79}{0-19}$ | $\Delta \ln \frac{80-99}{0-19}$ | $\Delta \ln \frac{top\ 10}{0-19}$ |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------------------|
| $\Delta$ Trade Openness <sub><i>t</i></sub>         | 0.002**<br>(0.001)              | 0.003**<br>(0.001)              | 0.003**<br>(0.001)              | 0.003**<br>(0.001)              | 0.011***<br>(0.003)               |
| Trade Openness <sub><i>t-1</i></sub>                | 0.005***<br>(0.001)             | 0.006***<br>(0.001)             | 0.007***<br>(0.001)             | 0.008***<br>(0.001)             | 0.018***<br>(0.002)               |
| $\Delta$ GDP PC growth <sub><i>t</i></sub>          | -0.413***<br>(0.126)            | -0.443***<br>(0.150)            | -0.323**<br>(0.152)             | -0.327**<br>(0.157)             | -0.110<br>(0.308)                 |
| GDP PC growth <sub><i>t-1</i></sub>                 | -0.537***<br>(0.196)            | -0.599***<br>(0.232)            | -0.466**<br>(0.233)             | -0.564**<br>(0.242)             | -0.886*<br>(0.469)                |
| $\Delta$ Polarization <sub><i>t</i></sub>           | 0.019<br>(0.013)                | 0.027*<br>(0.016)               | 0.034**<br>(0.016)              | 0.036**<br>(0.016)              | 0.043<br>(0.032)                  |
| Polarization <sub><i>t-1</i></sub>                  | 0.028**<br>(0.011)              | 0.029**<br>(0.014)              | 0.033**<br>(0.014)              | 0.033**<br>(0.014)              | 0.038<br>(0.028)                  |
| $\Delta$ Political Constraints <sub><i>t</i></sub>  | 0.478<br>(0.352)                | 0.426<br>(0.422)                | 0.557<br>(0.433)                | 0.537<br>(0.449)                | 2.315***<br>(0.871)               |
| Political Constraints <sub><i>t-1</i></sub>         | 0.202<br>(0.265)                | 0.347<br>(0.320)                | 0.485<br>(0.333)                | 0.465<br>(0.342)                | 2.515***<br>(0.747)               |
| $\Delta$ Age Dep Ratio <sub><i>t</i></sub>          | 0.047***<br>(0.016)             | 0.065***<br>(0.020)             | 0.069***<br>(0.020)             | 0.069***<br>(0.020)             | 0.163***<br>(0.039)               |
| Age Dep Ratio <sub><i>t-1</i></sub>                 | 0.014***<br>(0.004)             | 0.016***<br>(0.005)             | 0.014***<br>(0.005)             | 0.015***<br>(0.005)             | 0.039***<br>(0.011)               |
| $\Delta$ Government LR Ideology <sub><i>t</i></sub> | -0.005<br>(0.007)               | -0.012<br>(0.008)               | -0.018**<br>(0.008)             | -0.022***<br>(0.008)            | -0.039**<br>(0.016)               |
| Government LR Ideology <sub><i>t-1</i></sub>        | -0.008<br>(0.006)               | -0.007<br>(0.007)               | -0.008<br>(0.007)               | -0.013*<br>(0.007)              | 0.002<br>(0.014)                  |
| $\hat{\alpha}$                                      | -0.672***<br>(0.076)            | -0.537***<br>(0.063)            | -0.559***<br>(0.062)            | -0.535***<br>(0.058)            | -0.793***<br>(0.095)              |
| Constant  | -0.783***<br>(0.280)            | -0.966***<br>(0.333)            | -0.751**<br>(0.323)             | -1.059***<br>(0.341)            | -3.562***<br>(0.733)              |
| <i>N</i>  | 36                              | 36                              | 36                              | 36                              | 36                                |
| <i>R</i> <sup>2</sup>                               | .43                             | .38                             | .36                             | .44                             | .62                               |
| $\chi^2$  | 100.418***                      | 93.379***                       | 101.132***                      | 110.894***                      | 109.161***                        |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

$\hat{\alpha}$  is adjustment parameter.

## 7.4 Brazil

**Table 8:** Dynamic pie model results for Brazil

|   | $\Delta \ln \frac{20-39}{0-19}$ | $\Delta \ln \frac{40-59}{0-19}$ | $\Delta \ln \frac{60-79}{0-19}$ | $\Delta \ln \frac{80-99}{0-19}$ | $\Delta \ln \frac{top\ 1}{0-19}$ |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|
| $\Delta$ Trade Openness <sub><i>t</i></sub>         | -0.006**<br>(0.003)             | -0.008**<br>(0.003)             | -0.010***<br>(0.004)            | -0.013***<br>(0.004)            | -0.018**<br>(0.007)              |
| Trade Openness <sub><i>t-1</i></sub>                | -0.006***<br>(0.002)            | -0.008***<br>(0.003)            | -0.009***<br>(0.003)            | -0.011***<br>(0.003)            | -0.013**<br>(0.006)              |
| $\Delta$ GDP PC growth <sub><i>t</i></sub>          | 0.098<br>(0.112)                | 0.087<br>(0.143)                | 0.101<br>(0.164)                | 0.038<br>(0.183)                | -0.328<br>(0.295)                |
| GDP PC growth <sub><i>t-1</i></sub>                 | 0.026<br>(0.126)                | -0.005<br>(0.162)               | -0.041<br>(0.188)               | -0.235<br>(0.214)               | -0.440<br>(0.341)                |
| $\Delta$ Polarization <sub><i>t</i></sub>           | -0.009<br>(0.013)               | -0.019<br>(0.017)               | -0.038*<br>(0.020)              | -0.054**<br>(0.022)             | -0.023<br>(0.035)                |
| Polarization <sub><i>t-1</i></sub>                  | 0.008<br>(0.010)                | 0.010<br>(0.012)                | 0.008<br>(0.014)                | 0.020<br>(0.016)                | 0.057**<br>(0.025)               |
| $\Delta$ Political Constraints <sub><i>t</i></sub>  | 0.031<br>(0.036)                | 0.048<br>(0.046)                | 0.083<br>(0.052)                | 0.107*<br>(0.058)               | 0.099<br>(0.095)                 |
| Political Constraints <sub><i>t-1</i></sub>         | 0.012<br>(0.032)                | 0.035<br>(0.040)                | 0.056<br>(0.045)                | 0.057<br>(0.051)                | 0.081<br>(0.084)                 |
| $\Delta$ Age Dep Ratio <sub><i>t</i></sub>          | -0.075***<br>(0.012)            | -0.090***<br>(0.014)            | -0.098***<br>(0.016)            | -0.089***<br>(0.017)            | -0.040<br>(0.027)                |
| Age Dep Ratio <sub><i>t-1</i></sub>                 | -0.003*<br>(0.001)              | -0.003<br>(0.002)               | -0.001<br>(0.002)               | -0.000<br>(0.003)               | 0.001<br>(0.004)                 |
| $\Delta$ Government LR Ideology <sub><i>t</i></sub> | -0.035*<br>(0.018)              | -0.037<br>(0.023)               | -0.031<br>(0.026)               | -0.026<br>(0.029)               | -0.048<br>(0.048)                |
| Government LR Ideology <sub><i>t-1</i></sub>        | -0.014<br>(0.013)               | -0.015<br>(0.016)               | -0.011<br>(0.018)               | -0.015<br>(0.020)               | -0.036<br>(0.033)                |
| $\hat{\alpha}$                                      | -0.438***<br>(0.094)            | -0.398***<br>(0.080)            | -0.312***<br>(0.075)            | -0.287***<br>(0.073)            | -0.399***<br>(0.093)             |
| Constant  | 0.626***<br>(0.171)             | 0.818***<br>(0.217)             | 0.791***<br>(0.244)             | 1.006***<br>(0.285)             | 0.856**<br>(0.365)               |
| <i>N</i>  | 36                              | 36                              | 36                              | 36                              | 36                               |
| <i>R</i> <sup>2</sup>                               | .76                             | .73                             | .70                             | .63                             | .38                              |
| $\chi^2$  | 128.034***                      | 117.390***                      | 101.094***                      | 80.354***                       | 31.658                           |

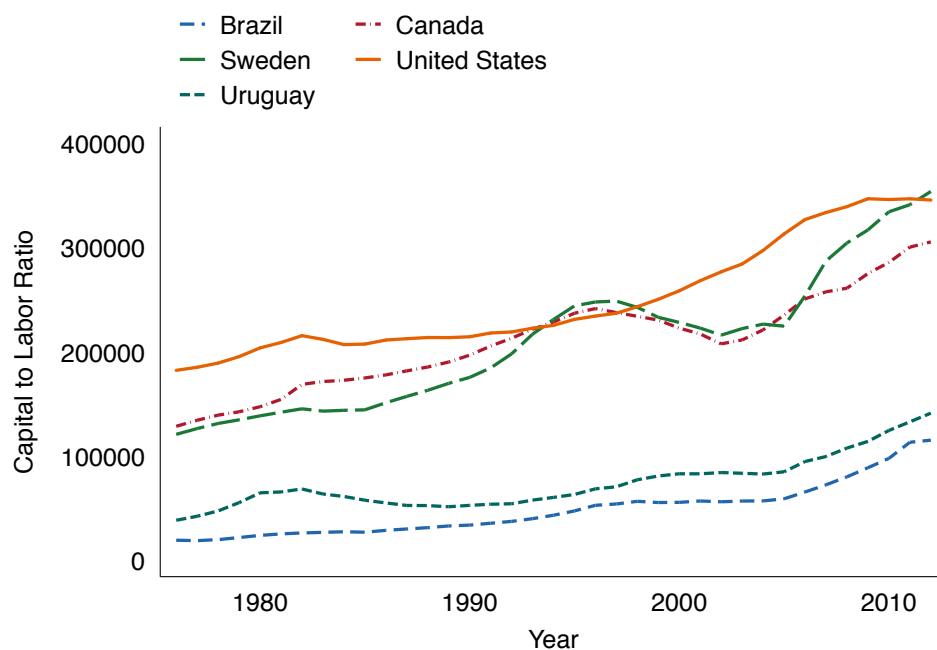
Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

$\hat{\alpha}$  is adjustment parameter.

## 8 Uruguay

As we discuss in the paper, we were able to locate data for Uruguay that are similar to those for the other countries. In many ways, Uruguay was an attractive case for us because its position in terms of factor endowments lies somewhere between that of Brazil and the three more developed cases included in the paper. This is illustrated in Figure 44. The main difference is that while the income data for the United States, Canada, Sweden, and Brazil were measured before taxes, those for Uruguay were measured after taxes. This is a major difference given that the purpose of our analyses is to estimate the impact of globalization on income compositions before taxation. Thus we decided not to include the analyses for Uruguay in our paper.



**Figure 44:** Capital to Labor Ratio (Figure 5 in the paper with Uruguay, 1976-2012)

### 8.1 Uruguay data

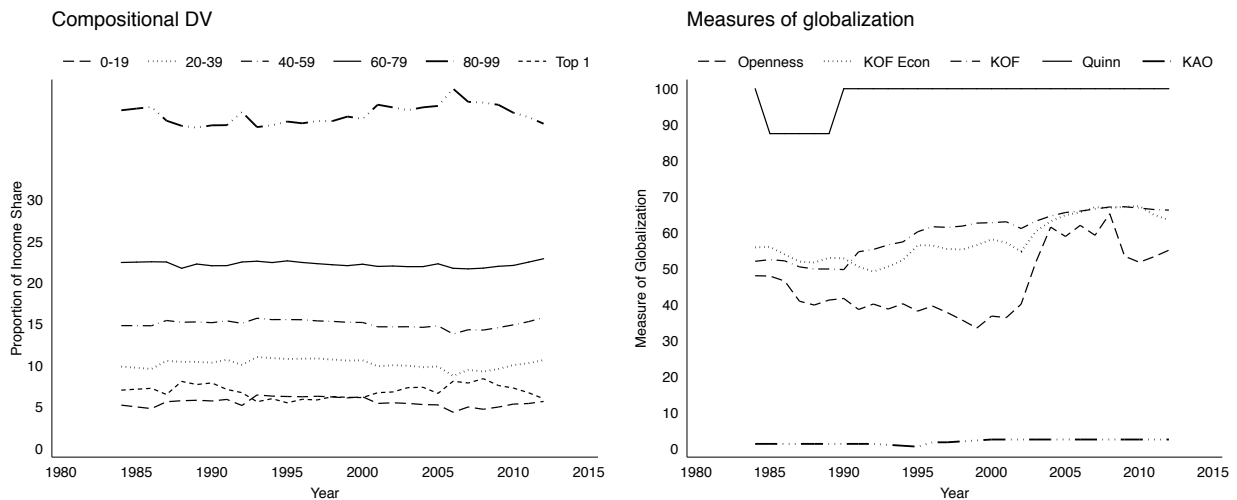
Respondents to Uruguay's annual continuous household survey (*Encuesta Continua de Hogares* N.d.) report their household income from 1984 through 2016 (excepting 1985). Though surveys

were conducted in all 19 of Uruguay's *departamentos*, they were not randomly sampled. In order to weight survey responses, we first obtain *departamento*-level population data for each of the points (years) for which we have survey responses (*Encuesta Continua de Hogares N.d.*). We thus weight survey responses by multiplying each observation by  $\frac{p_{it}/P_t}{d_{it}/D_t}$  where  $p_{it}$  = population of the respective *departamento*  $i$  at time  $t$ ,  $P_t$  is the total population of Uruguay at time  $t$ ,  $d_{it}$  is the number of survey respondents at departamento  $i$  at time  $t$ , and  $D_t$  is the total number of observations at the country level in year  $t$ .

We use Stata 14's `_pctile` command to produce the bottom four quintiles of the country's household income distribution, in addition to the 80-99th percentile as well as the top 1%. Income shares for 1985 are linearly interpolated using Stata 14's `ipolate` command.

Constrained by available political polarization data, we run our analyses on data for 1984-2012. Summary statistics for those twenty-nine observations are reported below.

Figure 45 below shows a time-series line plot of each composition of the dependent variable as well as a plot of alternative measures of the main independent variable across time.



**Figure 45:** Uruguayan compositional dependent variable (DV) and alternative measures of globalization across time period covered

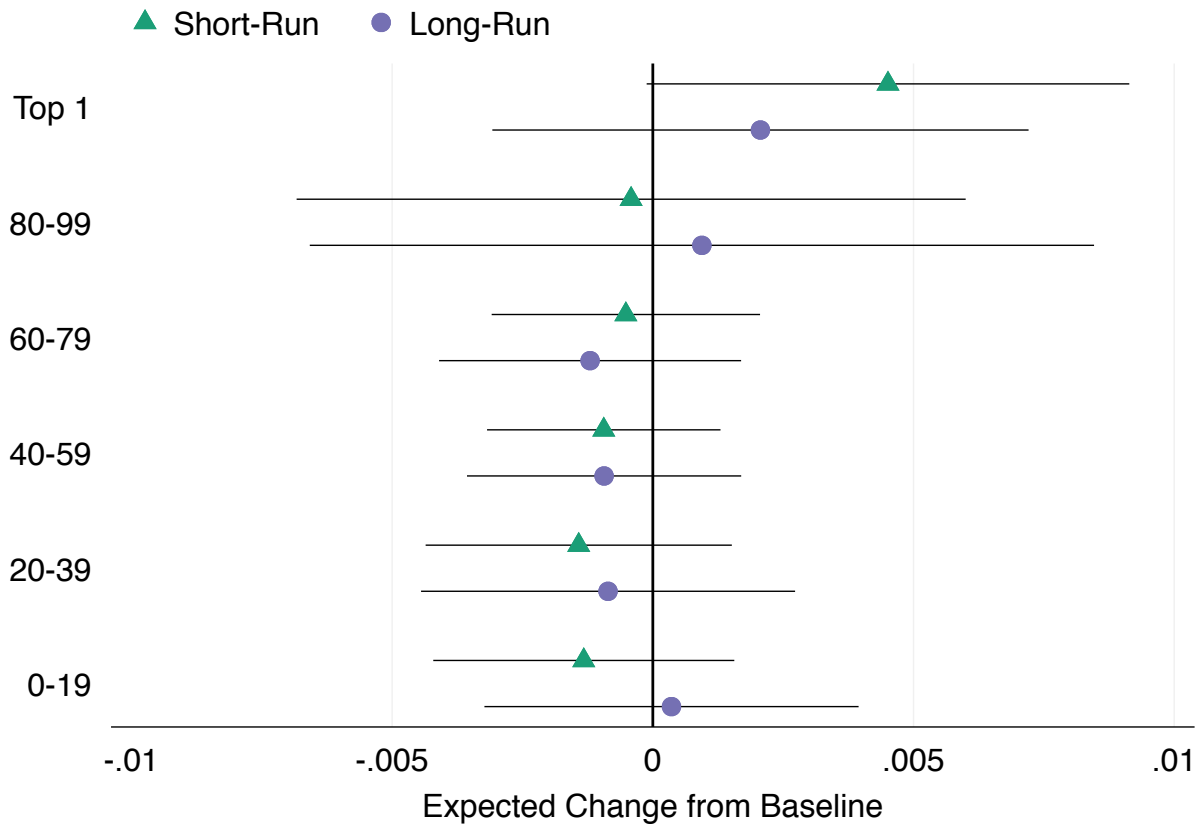
**Table 9:** Summary Statistics—Uruguay Dataset

| <b>Variable</b>                                     | <b>Mean</b> | <b>Std. Dev.</b> | <b>Min.</b> | <b>Max.</b> | <b>N</b> |
|---|-------------|------------------|-------------|-------------|----------|
| <i>Compositional Dependent Variable</i>             |             |                  |             |             |          |
| 0-19th percentile                                   | 5.533       | 0.549            | 4.325       | 6.412       | 29       |
| 20-39th percentile                                  | 10.167      | 0.558            | 8.721       | 10.993      | 29       |
| 40-59th percentile                                  | 14.999      | 0.468            | 13.775      | 15.758      | 29       |
| 60-79th percentile                                  | 22.182      | 0.311            | 21.636      | 22.861      | 29       |
| 80-99th percentile                                  | 40.266      | 1.174            | 38.687      | 43.398      | 29       |
| Top 1%  | 6.853       | 0.808            | 5.463       | 8.385       | 29       |
| <i>Alternative Measures of Independent variable</i> |             |                  |             |             |          |
| WB Trade Openness                                   | 45.95       | 9.272            | 33.386      | 65.208      | 29       |
| Quinn Financial Openness                            | 97.845      | 4.805            | 87.5        | 100         | 29       |
| KOF Economic Globalization                          | 57.849      | 5.846            | 49.12       | 67.320      | 29       |
| KOF Globalization Index                             | 59.784      | 6.143            | 49.66       | 67.150      | 29       |
| KAO Financial Openness                              | 1.739       | 0.659            | 0.387       | 2.374       | 29       |
| <i>Controls</i>                                     |             |                  |             |             |          |
| GDP Growth  | 0.032       | 0.059            | -0.078      | 0.136       | 29       |
| Henisz Political Constraints                        | 0.444       | 0.148            | 0           | 0.564       | 29       |
| Political Polarization                              | 1.034       | 1.017            | 0           | 2           | 29       |
| Ideology of Executive                               | 1.517       | 0.949            | 0           | 3           | 29       |
| Caselli Capital-to-Labor ratio                      | 79043.155   | 25563.568        | 51660.617   | 141247.891  | 29       |

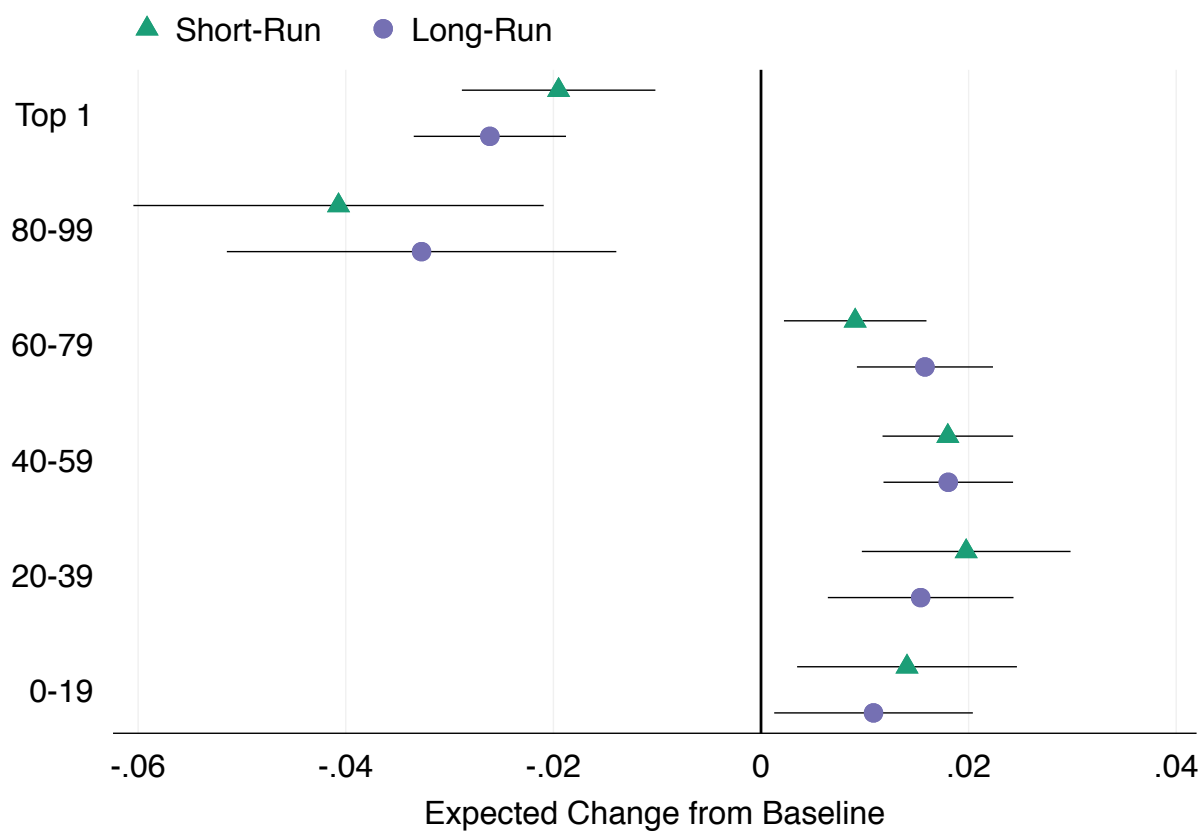


## 8.2 Uruguay globalization results

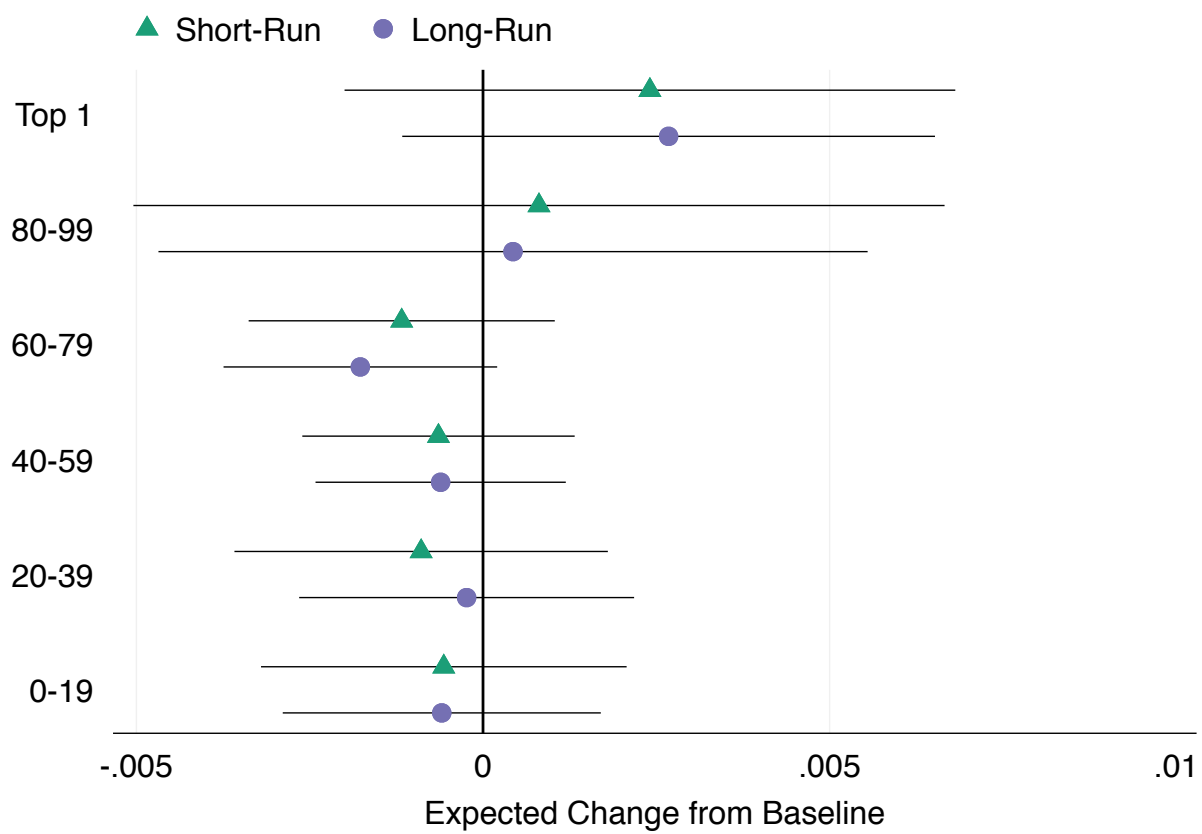
In Figures 46 to 49, we present the results the effects of globalization on income distribution in Uruguay parallel to the progression of results presented for our other four countries in Section 4. The effects are not statistically distinguishable from zero in Figures 46, 48, and 49. In Figure 47, using the Quinn measure of financial openness, we find results very similar to those of Brazil and thus consistent with our theory. However, as discussed above, we are cautious about making strong conclusions from these results because they are from post-tax income measures.



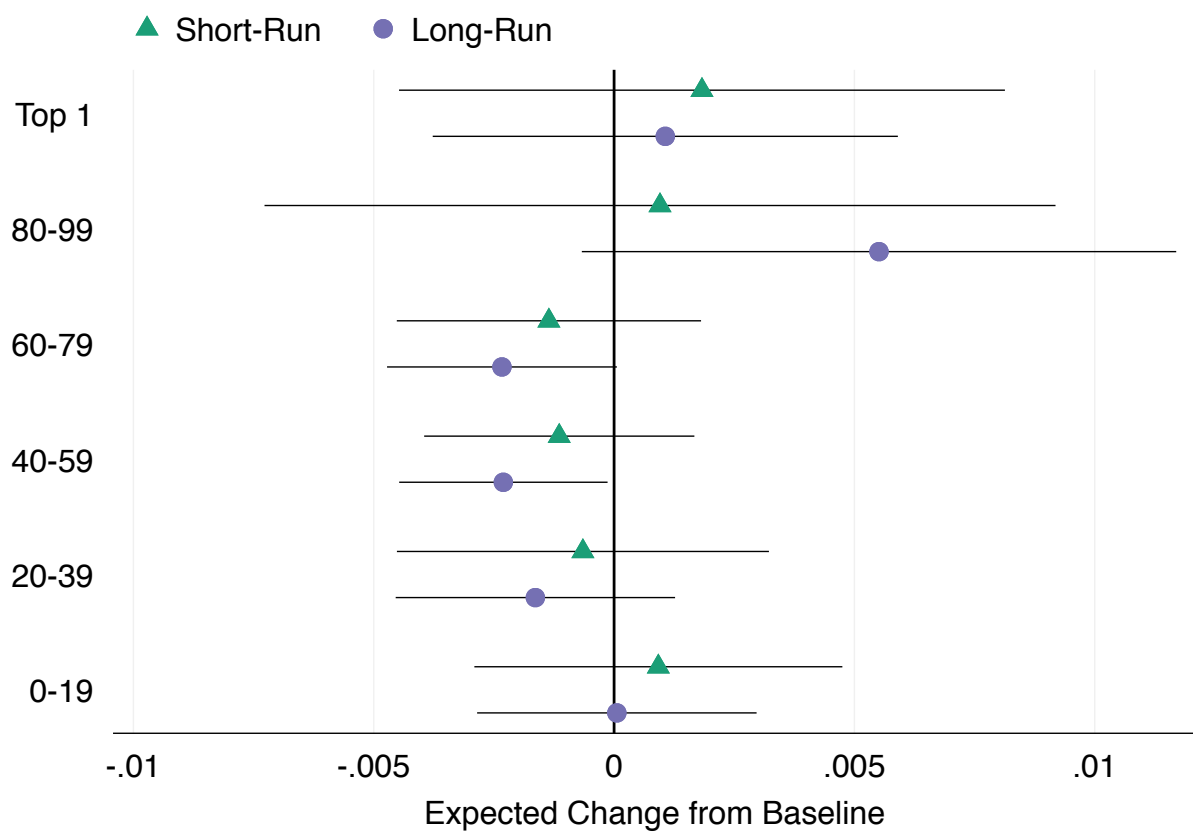
**Figure 46:** Effects of an increase in globalization on relative post-tax income shares in Uruguay (WB trade openness)



**Figure 47:** Effects of an increase in globalization on relative post-tax income shares in Uruguay (Quinn financial openness)



**Figure 48:** Effects of an increase in globalization on relative post-tax income shares in Uruguay (KAO financial openness)



**Figure 49:** Effects of an increase in globalization on relative post-tax income shares in Uruguay (KOF Globalization Index)

## References

Chinn, Menzie D and Hiro Ito. 2007. “A New Measure of Financial Openness.” *NBER* .

*Encuesta Continua de Hogares*. N.d.

**URL:** <http://www.ine.gub.uy/encuesta-continua-de-hogares1>

Hicks, Timothy, Alan M Jacobs and J Scott Matthews. 2016. “Inequality and Electoral Accountability: Class-Biased Economic Voting in Comparative Perspective.” *The Journal of Politics* 78(4):1076–1093.

*Income Statistics Division*. N.d.

**URL:** <http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2060031>

*KOF*. 2017.

Piketty, Thomas. 2014. *Capital in the twenty-first century*. Harvard University Press.

Quinn, Dennis. 1997. “The Correlates of Change in International Financial Regulation.” *The American Political Science Review* 91(3):531–551.

Templ, Matthias, Andreas Alfons and Peter Filzmoser. 2012. “Exploring incomplete data using visualization techniques.” *Advances in Data Analysis and Classification* 6(1):29–47.