

Replication of a research claim from Liang et al. (2018) in the Journal of Political Economy

SCORE Report - Liang_JournPoliEco_2018_q8xv_mkk9

Nathan Fiala
Victor Volkman

Claim Summary

The claim selected from for replication Liang et al. (2018) is that the number of entrepreneurs as a fraction of the workforce decreases with the country's median age. This reflects the following statement from the paper's abstract: "A one standard deviation decrease in a country's median age increases new business formation by 2.5 percentage points, which is about 40 percent of the mean rate." [Tested with] country-Year-Level entrepreneurship rate regression. Table 2 reports reduced-form regressions at the country level of aggregation. Portion of Table 2 selected is Column 3. Focal independent variable is "Median age (ages 20-64)". [Coefficient of "Median age (ages 20-64)" is -0.007 with standard errors clustered at the country level of -0.001, significant at 1 percent.] Using the estimates from column 3 of table 2, a one standard deviation decrease in median age (equal to 3.5 years in 2010) results in a 2.5 percentage point increase in the entrepreneurship rate, which is over 40 percent of the mean entrepreneurship rate across countries (equal to 0.061 in 2010).

Replication Criteria

A successful replication of the key SCORE test (H^*) would be to confirm that the entrepreneurship rate in a country is negatively associated with the country's median age after expanding the years of the data set.

Replication Result

The analysis in the original study relied on data from two sources: [the Global Entrepreneurship Monitor \(GEM\)](#) and [the U.S. Census Bureau's International Database](#), with a sample period of 2001-2010. This analysis uses the same data and expands the time period to be 2001-2016. This data is publicly available.

We find that the results are robust to the inclusion of the additional years of data. The relationship between the entrepreneurship level of a country and the median age of the citizens in the original study (data covering 2001 to 2010) was found to be -0.0074 (p-value 0.0000, CI: [-0.0101, -0.0047]). The relationship in the new data (2011 to 2016) is -0.0079 (p-value 0.0000, CI: [-0.010, -0.0055]). When combining the datasets the relationship is -0.0077 (p-value 0.0000, CI: [-0.0101, -0.0053]).

The sample for the new data included 391 observations, which met the stage 1 threshold of 22 observations defined by the power analysis.

Deviations from preregistration

There were no deviations from the original preregistration.

Description of materials provided

The original data and the expanded dataset (replication_data_mkk9.csv), along with analysis code (REPEntireDataset2_Country_Year_Entre_Regression.do) and table outputs (LiangTestCompleteFull.pdf, LiangTestCompleteOld.pdf, LiangTestCompleteNew.pdf), are uploaded into the OSF system. All materials in this component will be made public.

Citation

James Liang, Hui Wang and Edward P. Lazear, “Demographics and Entrepreneurship”, Journal of Political Economy, 126(S1), 2018.