

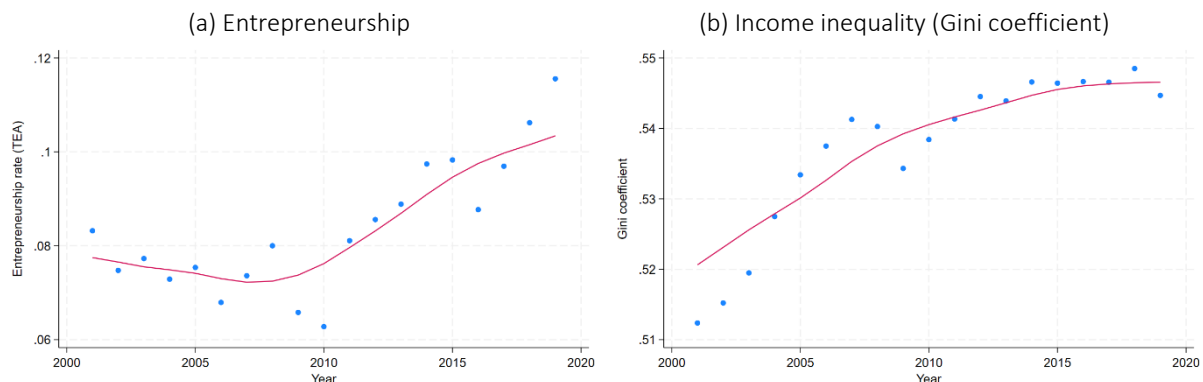
Extended abstract of the paper on “The effects of entrepreneurship on income inequality in developed countries: In search of mechanisms”

Authors: Eckhardt Bode (Kiel Institute for the World Economy), Lena Fiedler (Kiel Institute for the World Economy), Alina Sorgner (John Cabot University)

1. Introduction

The increase in income inequality in recent decades has threatened economic prosperity and social and political stability in many developed countries (e.g., Atkinson, 2015; Dabla-Norris et al., 2015). New firm formation (henceforth entrepreneurship for short) appears to have contributed to slowing down this increase.¹ In fact, income inequality increased faster during the early 2000s when entrepreneurship was on the decline and subsequently levelled off in the 2010s as entrepreneurship rates recovered and began to rise (Fig. 1).² However, the mechanisms through which entrepreneurship could reduce income inequality are not yet well-understood. In this paper, we explore two mechanisms through which new firm formation may affect income inequality in developed countries. One mechanism, based on Jones and Kim (2018), suggests that innovative entrepreneurs can reduce or slow down the growth of the income share of the top income earners through creative destruction (Schumpeter, 1934). By successfully challenging dominant market positions of large incumbent firms, they can reduce their profits and thus their ability to pay excessive incomes to their owners and top managers. The second mechanism is job creation. Entrepreneurship could affect the income share of lower income earners through job creation, including the creation of low-paid jobs.

Fig. 1: Evolution of entrepreneurship and income inequality in highly developed countries over time



The graphs display population-weighted means over those 20 EU or OECD countries for which data on entrepreneurship, measured as the rate of “Total Early-stage Entrepreneurship Activity” (TEA; see Section 2), is available for most years. The 20 countries included are (ISO 3166 alpha-3 codes): AUS, CAN, CHE, CHL, DEU, ESP, FRA, GBR, HRV, IRL, ISR, ITA, JPN, KOR, MEX, NLD, POL, SVN, SWE and USA. Casually missing data for individual years are interpolated linearly.

Sources: See Section 2.1.

Our study makes three main contributions to the literature that provide essential information on potential mechanisms through which entrepreneurship affects income inequality. First, we complement earlier studies that investigate the effects of entrepreneurship on aggregate (Liu and Qian, 2023; Bonaparte

¹ By contrast, self-employment, which includes established business owners, has been found to contribute to aggravating income inequality because self-employed are disproportionately populating the tails of the income distribution (Halvarsson et al., 2018; Aghion et al., 2019; Schneck, 2020; Atems and Shand, 2018; Liu and Qian, 2023). Still another mechanism could be social upward mobility of successful entrepreneurs (Aghion et al., 2019).

² The patterns depicted in Fig. 1 are also reflected by other measures of income inequality such as the income shares at the tails of the income distribution, and by more disaggregated measures of entrepreneurship (see Figures A.1 and A.2 in the Appendix).

and Kumar, 2024; Al-Azzam, in press) or top income inequality (Jones and Kim, 2018) by also investigating its effects on bottom income inequality.³ We show that entrepreneurship reduces income inequality not only by significantly reducing income shares at the top of the income distribution, which Jones and Kim (2018) attribute to creative destruction, but also by significantly increasing income shares at the bottom of the income distribution, which is a new finding that still lacks a convincing theoretical explanation. Job creation for low-income earners may be a plausible mechanism.⁴ Second, we complement earlier studies that investigate only aggregate entrepreneurship (Liu and Qian, 2023; Bonaparte and Kumar, 2024) or distinguish between opportunity- and necessity-driven entrepreneurship (Al-Azzam, in press) by additionally studying more disaggregate measures of productive entrepreneurship. We not only corroborate these studies showing that opportunity entrepreneurship reduces income inequality more than necessity entrepreneurship, but also demonstrate that innovative entrepreneurs and those with higher growth aspirations reduce income inequality to a similar extent as opportunity entrepreneurs on aggregate.

Third, we are, to the best of our knowledge, the first to show that the effects of entrepreneurship on inequality have weakened significantly over time. The decline of opportunity entrepreneurship rates during the 2000s contributed significantly to accelerating the comparatively rapid increase in top income inequality during this decade. In contrast, the increase in opportunity entrepreneurship rates, including innovative and growth-oriented entrepreneurship, during the 2010s did not contribute significantly to the slowdown of the increase of top income inequality during this decade.

2. Methodology and data

We investigate the association between entrepreneurship and income inequality for a panel of 31 EU and OECD countries⁵ from 2003 to 2019 by regressing the log of an inequality measure for country i and year t , $\ln Ineq_{it}$, on a measure of entrepreneurship, $\ln E_{it-2}$, as well as a rich set of control variables ($\ln X_{it-2}$) and country and year fixed effects (ι_i, ι_t):

$$\ln Ineq_{it} = \alpha_0 + \alpha_1 \ln E_{it-2} + \alpha_2 \ln X_{it-2} + \iota_i + \iota_t + u_{it}. \quad (1)$$

We lag entrepreneurship and all control variables by two years to account for the fact that they need some time to affect aggregate inequality, and that they reduce possible biases due to reverse causality.

We measure income inequality by six indices: the Gini coefficient reflects aggregate inequality, the income shares of the 20%, 10% or 1% highest income earners reflect top income inequality, and those of the 20% or 10% lowest income earners reflect bottom inequality.⁶ Using data from the Global Entrepreneurship Monitor (GEM), we measure aggregate entrepreneurship by the rate of “Total Early-stage Entrepreneurship Activity” (TEA), which is the share in the population aged 18–64 of respondents who “are starting or running a new business, i.e. have not yet paid wages or salaries for 42 months or more” (early-stage entrepreneurs; GEM, 2024: 8). We additionally use the population shares of opportunity, growth-

³ Al-Azzam (in press) uses quantile regressions for a panel of more than 100 low or high-income countries to disaggregate the income inequality distribution *across* countries. He finds that entrepreneurship reduces income inequality more in countries with lower than in those with higher income inequality. We instead focus on high-income countries, most of which are at the lower tail of the global income inequality distribution, and examine the effects of entrepreneurship on different parts of the *within-country* income distribution.

⁴ Available empirical evidence provides at best indirect evidence for this job-creation mechanism. Calvino et al. (2016) show that entrepreneurs contribute disproportionately to job creation, and Shane (2009) and Sorgner et al. (2017) show that entrepreneurs pay lower wages to their employees (e.g., Kline, 2024; Block et al., 2018) and to themselves.

⁵ We focus on developed countries because high prevalence of informal entrepreneurship in emerging and developing countries could dilute our conclusions.

⁶ All inequality measures are from the World Inequality Database (WID; <https://wid.world/>; last access: May 25, 2025) and are calculated from pre-tax national income of the adult population aged 20+.

oriented and innovative entrepreneurs as measures of higher-quality entrepreneurship, and the population share of necessity-driven entrepreneurs as a measure of lower-quality entrepreneurship.⁷

We include a rich set of control variables to avoid omitted variable biases. The country fixed effects absorb the time-invariant differences between the countries, and the year fixed effects absorb global trends and business cycle fluctuations. Identification of the parameters thus comes from the variation over time within the countries.

3. Results

Tab. 1 summarizes the results of the regressions of the six measures of inequality (columns) on the six measures of entrepreneurship (rows). The estimate in the upper left cell, which is from the regression of aggregate income inequality, as measured by the Gini coefficient, on aggregate entrepreneurship, as measured by the TEA rate, confirms earlier studies. The elasticity of the Gini index with respect to the TEA rate is negative and highly significant.

Tab. 1: Effects of entrepreneurship on income inequality: Estimated effects for alternative indicators of entrepreneurship and income inequality

	Gini	Top income share			Bottom income share	
	Coefficient	Top quintile (80%-100%)	Top decile (90%-100%)	Top percentile (99%-100%)	Bottom quintile (0%-20%)	Bottom decile (0%-10%)
	(1)	(2)	(3)	(4)	(5)	(6)
TEA	-0.029*** (0.005)	-0.023*** (0.004)	-0.029*** (0.006)	-0.083*** (0.016)	0.104*** (0.035)	0.044 (0.052)
Opportunity TEA	-0.026*** (0.004)	-0.021*** (0.003)	-0.028*** (0.005)	-0.079*** (0.015)	0.080** (0.030)	0.036 (0.045)
Growth-oriented entrepreneurship (5 empl. in 5 years)	-0.018*** (0.005)	-0.014*** (0.004)	-0.017*** (0.005)	-0.037*** (0.012)	0.031 (0.021)	-0.011 (0.042)
Growth-oriented entrepreneurship (10 empl. in 5 yrs)	-0.012*** (0.003)	-0.009*** (0.003)	-0.011*** (0.003)	-0.019** (0.008)	0.009 (0.017)	0.015 (0.029)
Innovative entrepreneurship	-0.011*** (0.003)	-0.008*** (0.003)	-0.010*** (0.003)	-0.021** (0.009)	0.042** (0.021)	0.022 (0.037)
Necessity TEA	-0.009** (0.004)	-0.007** (0.003)	-0.007** (0.003)	-0.026*** (0.009)	0.032** (0.014)	-0.010 (0.038)

Fixed effects panel least squares regressions for 31 EU or OECD countries 2003-2019 (unbalanced panel), weighted by population. Each cell reports the estimated parameter of the indicator of entrepreneurship in the head column on the indicator of inequality in the head row. All regressions include the full set of control variables as well as country and year fixed effects. All explanatory variables are lagged by two years. All variables except regulatory quality are in logs. Detailed estimates of selected regressions are reported in Tab. A.4 in the Appendix, all other results are available upon request. Robust standard errors, clustered at the country level, are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Sources: See Section 2.1.

Replacing the Gini index by measures of top or bottom income inequality in columns (2)-(6), we find that aggregate entrepreneurship reduces inequality by compressing the income distribution from both

⁷ The entrepreneurship data is available at <https://www.gemconsortium.org/data/sets> (last access: May 29, 2024). Opportunity- (necessity-) driven entrepreneurs are those who stated to take advantage of a business opportunity (lacked other employment options). Growth-oriented entrepreneurs are those who stated that they intended to have five or more employees (alternative measure: 10 or more employees) within the next five years. Innovative entrepreneurs are those who stated that they introduced new products or services for all customers.

the top and the bottom. On the one hand, entrepreneurship reduces the income share of the highest-income earners. The elasticity of the income share of the top 20% income earners with respect to the TEA rate, -0.023 (column 2, first row) implies, for example, that a one standard-deviation increase of the TEA rate reduces the top 20% income share by 0.003 index points, which is about 24% of its standard deviation. The effects on the top 10% (column 3) and 1% income earners (column 4) are of similar magnitude. On the other hand, entrepreneurship increases the income share of the lowest-income earners. The elasticity of the income share of the bottom 20% income earners with respect to the TEA rate, 0.104 (column 5, first row) implies that a one standard-deviation increase of the TEA rate increases the bottom 20% income share by almost 19% of its standard deviation. The effect on the bottom 10% income share is somewhat smaller and not significant at conventional levels, though.

The remaining rows of Tab. 1, which show the results for different types of entrepreneurship, suggest that higher-quality entrepreneurship affects aggregate as well as top and bottom inequality to a greater extent than necessity entrepreneurship. The results for growth oriented and innovative entrepreneurship are qualitatively similar (third-fifth row), even though they vary somewhat in magnitude and significance. The effects of necessity entrepreneurship on inequality in the last row are estimated to be much smaller in absolute terms than those of opportunity entrepreneurship, by contrast.

The contributions of entrepreneurship to the increase in income inequality have declined over time, however. To show this, we add an interaction term of entrepreneurship with a time trend to model (1). The main takeaway is that entrepreneurship contributed to reducing aggregate income inequality during the 2000s and early 2010s but not in more recent years. This decline was particularly strong—and statistically significant—for the effects of opportunity entrepreneurship. The changes over time of the effects of necessity entrepreneurship on inequality are not significant, by contrast. This implies that the decline in opportunity entrepreneurship rates during the 2000s contributed significantly to the comparatively fast increase in income inequality during that time while the subsequent increase in opportunity entrepreneurship rates contributed less to slowing down the increase in income inequality during the 2010s. One possible explanation for the weakening of the effect of opportunity entrepreneurship on top income inequality is that new firms were less successful in challenging the dominant market positions of established firms in the 2010s.

4. Conclusions

This paper presents new evidence suggesting that innovative, opportunity-driven, or growth-oriented entrepreneurship contributed to reducing income inequality in developed countries by compressing the income distribution from both the top and the bottom. Its effects on the upper tail of the income distribution have weakened over time since the early 2000s, however, and have become insignificant after 2015. These results raise several interesting and economically relevant questions, which we hope will inspire future research.

First, through what mechanisms does entrepreneurship reduce inequality and how can they be fostered by policy? Our results suggest that creative destruction could be one of these mechanisms. New opportunity-driven, growth-oriented or innovative entrepreneurs could reduce top income inequality by contesting the market power of large, established firms, thereby reducing their opportunities to charge high markups and pay their owners and top managers excessive income (Jones and Kim, 2018). Job creation could be a mechanism through which entrepreneurship affects the lower tail of the income distribution. While there is some indirect empirical evidence in support of this channel, its theoretical and empirical foundations warrant more research.

Second, why have the effects of entrepreneurship on top income inequality weakened over time while those on bottom income inequality have not? One reason for this could be that technological progress made it more difficult for young firms to successfully challenge the market power of incumbent firms, as the “decline of business dynamism” literature suggests (e.g., Akcigit and Ates, 2021). Another reason could be an increase in platform-based entrepreneurship or less productive types of entrepreneurship (Hartmann et al., 2022) during the last decade that do not have the potential to impact significantly on top income inequality. More research is needed to solve this puzzle.

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