Income Inequality and Entrepreneurship: Lessons from the 2020 COVID-19 Recession

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COVID-19 economic shock

The Covid-19 shock caused a massive recession worldwide, with unequal impact across income:



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- Large policy responses in support of workers and firms
- Support to firms: inefficient firms kept alive? Misallocation?
- This paper: New evidence on startup activity during the pandemic and its relation to income.

This paper: new evidence on startups during the pandemic

Why Startups?

- Reallocation through firm dynamics the entry and growth of new businesses - is a key factor for employment growth.
- Growth driven by a small subset of young high-growth firms: Haltiwanger et al. (2016); Pugsley et al. (2018), Sedlacek (2020)
- Role of motives for business creation for growth potential: Hurst and Pugsley (2012)
- Impact of business cycle and financial conditions on startups: Sedlacek and Sterk (2017), Albert and Caggese (2021)

This paper: new evidence on startups during the pandemic

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- Role of motives for business creation for growth potential: Hurst and Pugsley (2012)
- Impact of business cycle and financial conditions on startups: Sedlacek and Sterk (2017), Albert and Caggese (2021)

Research questions:

- What were the motives for business creation during Covid?
- How did the Covid shock affect startup creation and was there heterogeneity across income?
- Did the sources of financing change?
- Did the shock create new opportunities?

This paper: new direct evidence from the 2020 GEM survey

- We analyse the 2003-2020 GEM (Global Entrepreneurship Monitor) Spanish survey
 - Large, repeated cross section survey (more than 25k yearly observations). Representative of household and firm size distribution.
 - Both household characteristics and entrepreneurship data, special emphasis on startups.

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- Large, repeated cross section survey (more than 25k yearly observations). Representative of household and firm size distribution.
- Both household characteristics and entrepreneurship data, special emphasis on startups.
- 2020 survey conducted during Covid (July 13th-Nov 5th 2020), with additional Covid-related questions.
- Measure new startups, their growth potential, and compare the Covid recession with the Great Recession (2009-2010).
- Role of income shocks, financing and new opportunities ("digital" startups) for low- and high-income households.

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- Role of income shocks, financing and new opportunities ("digital" startups) for low- and high-income households.

Findings

- In 2020, significant overall drop in startups (relative to normal years), but a bit smaller than during a GR year. Drop in the share of high-growth startups larger than in a GR year.
- Key role of income differences in 2020:
 - Drop in both startup rate and high-growth share entirely accounted for by low/middle-income households
- Low-income entrepreneurs relied more on personal savings in 2020
 - \rightarrow Possible role of financial frictions
- Larger number of digital firms started in 2020, entirely driven by high-income entrepreneurs

Related literature

 Young, fast-growing firms: Haltiwanger et al. (2016), Pugsley et al. (2018), Sedlacek and Sterk (2017)

 Financial frictions and firm dynamics: Buera et al. (2011), Cole et al. (2016), Midrigan and Xu (2014), Albert and Caggese (2021)

 Economic impact of Covid-19 for small businesses (with emphasis on financial factors and government aid): Bartik et al. (2020), Fairlie (2020), Ferrando and Ganoulis (2020), Buera et al. (2020), Guerrero-Amezaga et al. (2020), Bennedsen et al. (2020)

 Equity funding of startups under Covid-19: Brown et al. (2020)

Empirical Analysis

Identifying heterogeneous startup decisions

- Data: Global Entrepreneurship Monitor (GEM) 2003-20 Surveys for Spain (more than 400k observations)
- Benchmark startup indicator: start=1 if actively trying to start a business (may or may not already be in operation and paying wages), 4.27% of all respondents.
- ▶ High-growth startups: expected size after 5 years above average size of firms ≥ 5 years old in same industry (Albert and Caggese, 2021).

Validation exercise:

- Match each firm with the share of high-growth startups in the 2-digit sector in the year they were born.
- High-growth startups on average 29% smaller at birth, but 25% larger at year 9 (controlling for sector and year fixed effects, and for demand proxies)

Admin data

Motives for business creation, 2019 vs 2020









Business and the Covid pandemic



Compared to a year ago, starting a business is ... 20 ŝ percent 30 8 2 at more difficult Much more afficult Much less difficult difficult as a year ago Somewhat less difficul Low income High income





Main specification

$$y_{i,t} = \beta_0 + \beta_1 COVID-19_t + \beta_2 GR_t + \sum_{k=0}^{K} \gamma_k^s X_{i,t}^k + \varepsilon_{i,t}.$$
 (1)

► *y*_{*i*,*t*}:

- Dummy indicating start
- Dummy indicating high-growth start (sample of starters only)
- COVID-19_t: Dummy equal to 1 in 2020
- ▶ *GR_t*: Dummy equal to 1 in 2009-2010
- Baseline controls: female, age, income, education

Probability to start a firm during COVID-19

	(1)	(2)	(3)	(4)
	Start	Start High Growth Share	Start	Start High Growth Share
COVID-19	-0.017***	-0.061**	-0.013***	-0.050*
	(0.0015)	(0.0269)	(0.0015)	(0.0271)
GR	-0.021***	-0.067***	-0.019***	-0.068***
	(0.0012)	(0.0222)	(0.0012)	(0.0222)
Female	-0.016***	-0.046***	-0.007***	-0.045***
	(0.0010)	(0.0134)	(0.0009)	(0.0134)
Age	0.003***	-0.007*	0.002***	-0.007*
	(0.0002)	(0.0040)	(0.0002)	(0.0040)
Age squared	-0.000***	0.000*	-0.000***	0.000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
High Income	0.018***	0.039***	0.012***	0.036**
	(0.0013)	(0.0142)	(0.0013)	(0.0143)
Educated	0.014***	0.036***	0.007***	0.034**
	(0.0011)	(0.0134)	(0.0011)	(0.0133)
Expected Opport.			0.044***	0.016
			(0.0015)	(0.0135)
Fear			-0.019***	-0.014
			(0.0009)	(0.0143)
Skill			0.062***	0.037*
			(0.0010)	(0.0198)
Constant	-0.002	0.468***	-0.007	0.441***
	(0.0044)	(0.0788)	(0.0044)	(0.0800)
Observations	390988	9253	390988	9253
R-squared	0.009	0.008	0.042	0.009

	(1)	(2)	(3)	(4)
	Start	Start High Growth Share	Start	Start High Growth Share
COVID-19	-0.017***	-0.107***	-0.011***	-0.109***
	(0.0015)	(0.0325)	(0.0020)	(0.0418)
COVID-19 × High Income	0.019***	0.132**	0.020***	0.134**
	(0.0048)	(0.0553)	(0.0048)	(0.0588)
COVID-19 × Educated			-0.007**	-0.008
			(0.0032)	(0.0566)
COVID-19 x Young			-0.009***	0.018
			(0.0032)	(0.0572)
GR	-0.015***	-0.063**	-0.015***	-0.023
	(0.0014)	(0.0286)	(0.0015)	(0.0412)
GR × High Income	-0.013***	-0.009	-0.011***	-0.009
	(0.0029)	(0.0450)	(0.0030)	(0.0451)
GR × Educated			-0.008***	-0.020
			(0.0026)	(0.0457)
GR x Young			0.006**	-0.052
			(0.0026)	(0.0422)
Controls	Yes	Yes	Yes	Yes
Observations	390988	9253	390988	9253
R-squared	0.042	0.010	0.043	0.010

Note: results confirmed if startups in the "Hotels and Restaurants" sector (11.6% of total) excluded

Summary of evidence

- Both the decline in startup creation and high-growth share in 2020 is entirely driven by low-income HH
- During the GR, the decline in startup creation was stronger for high-income HH and the decline in the high-growth share similar across income
- Why did income inequality matter more during Covid?
- Explore 3 possible channels:
 - Income shocks
 - Financing
 - New opportunities

Channel I: Income shocks

Negative income shocks stronger for low-income households:



	(1) Start	(2) Start High Growth Share
COVID-19 × Income Decreased	-0.012***	-0.134***
	(0.0024)	(0.0394)
COVID-19 × Income Not Decreased	-0.021***	-0.064
	(0.0017)	(0.0539)
COVID-19 × High Income × Income Decreased	0.000	0.146
	(0.0071)	(0.0897)
COVID-19 × High Income × Income Not Decreased	0.029***	0.093
	(0.0060)	(0.0751)
GR	-0.015***	-0.063**
	(0.0014)	(0.0286)
GR × High Income	-0.013***	-0.010
	(0.0029)	(0.0450)
Controls	Yes	Yes
Observations	390988	9253
R-squared	0.042	0.010

Effects of Income shocks among high and middle/low income households

- Both low- and high-income have 1.2% lower start rate when income decreased
- ▶ However, low-income have even a 2.1% lower start rate when income not decreased
- Small increase for high-income when income not decreased
- Lower high-growth share driven by low-income + income decreased → Consistent with job scarcity as motive to start business

Channel II: Financing

Worsening of credit conditions

A. Tightening of credit standards for SMEs due to economic conditions (banks)

B. Change in financing gap (SMEs)



Notes: A: Frequency of surveyed banks answering that the general economic outlook considerably contributed to a tightening of credit standards minus the frequency of answering that it considerably contributed to an easing of credit standards. Source: BLS.

B: Difference between the change in demand for and the change in the availability of external finance for surveyed SMEs. Source: SAFE.

Channel II: Financing

Larger increase in funding through personal savings for low-income entrepreneurs:

Sources of startup funding





Othe

2020

2019

We observe funding sources only for entrepreneurs that were successful in obtaining funding

 \rightarrow Estimate Heckman selection model with startup indicator as dep. variable and full set of controls in first step

- Only low-income entrepreneurs rely more on personal savings in 2020 relative to previous years.
- Possible explanation: low-income entrepreneurs used more internal finance because they opted for smaller projects

	(1) % Bank	(2) % Bank	(3) % Own	(4) % Own	(5) % Other	(6) % Other
COVID-19	-2.841 (3.0510)	-4.704 (3.6609)	8.360** (3.4799)	12.578*** (4.1311)	-5.528* (2.8834)	-7.414** (3.4718)
High Income		-1.193 (4.0609)		5.001 (3.9915)		-4.199 (3.0824)
COVID-19 × High Income		5.129 (5.5236)		-12.533* (6.5870)		6.423 (5.0538)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	92718	92718	92718	92718	92718	92718

Funding sources of entrepreneurs during COVID-19

Notes: The dependent variable is the percentage of funds coming from the indicated source.

- \rightarrow Use amount of required funding as dependent variable
 - Similar funding needs of low- and high-income entrepreneurs in 2020 relative to previous years.
 - Plausible interpretation: low-income entrepreneurs opted for projects of similar size but some could not realize them due to greater difficulty to obtain external finance

	(1) All	(2) LI	(3) HI
COVID-19	-0.740**	-0.784***	-0.686**
	(0.3009)	(0.3028)	(0.3436)
High Income	0.417		
	(0.3317)		
COVID-19 × High Income	0.005		
-	(0.4334)		
Share of own funding	-1.026****	-1.018***	-0.847***
-	(0.2852)	(0.2880)	(0.2291)
Share of own funding × High Income	0.176	. ,	. ,
	(0.3663)		
Share of bank funding	0.870**	0.865**	0.654**
0	(0.4208)	(0.4253)	(0.3066)
Share of bank funding × High Income	-0.234	. ,	. ,
0 0	(0.5196)		
Controls	Yes	Yes	Yes
Observations	93662	75506	18156

Amount of funding of entrepreneurs during COVID-19

Notes: The dependent variable is the (log) amount of funding required for the startup.

Channel III: Covid 19 and new opportunities

- Feature of GEM surveys since 2011: self-reported information on the type of business opened
- \rightarrow Identify digital startups using keywords (online, digital, web etc.)

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TIENDA DE COMESTIIBLE
IMPORTACION DE PRODUCTOS ARTESANALE
SERVICIOS SANITARIOS, Y TECNOLOGICO:
ENSEÑANZA IDIOMA:
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TIENE PREVISTOS DOS NEGOCIOS:MONTAR SERVICIOS FINANCIEROS Y UN BAR TAPERÍA TENDRÍA IMPACTO SOCIAL PORQUE DARÍA SERVICIO ALA ZONA RURAL DONDE VIVI
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Probability to start a 'digital' firm during COVID-19

	(1) Start Digital	(2) Start Digital	(3) Start No Digital	(4) Start No Digital
COVID-19	0.0009	-0.0002	-0.0117***	-0.0127***
	(0.0006)	(0.0005)	(0.0015)	(0.0015)
COVID-19 x High Income		0.0052**		0.0050
Controls	Yes	Yes	Yes	Yes
Observations	226235	226235	229732	229732
R-squared	0.008	0.008	0.033	0.033

- ▶ Unconditional probability to start a digital firm for high-income HH: 1%.
 - \blacktriangleright pprox 50% higher during Covid
- Thus, new opportunities are important to explain differences across income groups.
- Possible reason: digital startups harder to finance
 - Digital startups: 57% fully self-financed. Only 1% fully bank-financed
 - Non-digital startups: 29% fully self-financed. 7% fully bank-financed.

Table

Conclusions

- 1. During the Covid-19 crisis there was a significant drop in all startups, and especially high-growth startups.
 - Magnitude similar to a GR year
- 2. Drop in startups entirely driven by low-income households.
 - Negative income shocks "distorted" entrepreneurial decisions of low-income households.
 - Difficulty to obtain external external financing likely to play a role
 - Positive opportunity shocks exploited by high-income households.

Thank you!

Firm entry in Spain during Covid, administrative data



Notes: Data at monthly frequency come from INE. Panel A shows the deseasonalized number of new firms entering ("Constituidas"), which only includes firms recognized as independent legal entities. Panel B shows the cumulative deviations from the trend since the beginning of the crisis for the Great Recession (month 0 is April 2008) and the beginning of the Covid-19 shock (month 0 is Februrary 2020).

COVID and Firm Entry: mixed cross country evidence

Figure 1. Aggregate business registration: differences 2020 vs. 2019







	(1) Start	(2) Start High Growth Share	(3) Start Necessity Share	(4) Start	(5) Start High Growth Share	(6) Start Necessity Share
COVID-19	-0.017***	-0.107***	0.345***	-0.011***	-0.109***	0.359***
	(0.0015)	(0.0325)	(0.0339)	(0.0020)	(0.0418)	(0.0423)
COVID-19 x High Income	0.019***	0.132**	-0.009	0.020***	0.134**	-0.012
	(0.0048)	(0.0553)	(0.0511)	(0.0048)	(0.0588)	(0.0531)
COVID-19 × Educated				-0.007**	-0.008	0.026
				(0.0032)	(0.0566)	(0.0526)
COVID-19 x Young				-0.009***	0.018	-0.083
				(0.0032)	(0.0572)	(0.0544)
GR	-0.015***	-0.063**	-0.040**	-0.015***	-0.023	-0.072***
	(0.0014)	(0.0286)	(0.0156)	(0.0015)	(0.0412)	(0.0200)
GR × High Income	-0.013***	-0.009	0.029	-0.011***	-0.009	0.026
	(0.0029)	(0.0450)	(0.0234)	(0.0030)	(0.0451)	(0.0238)
GR × Educated				-0.008***	-0.020	0.027
				(0.0026)	(0.0457)	(0.0240)
GR × Young				0.006**	-0.052	0.035
				(0.0026)	(0.0422)	(0.0228)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	390988	9253	15893	390988	9253	15893
R-squared	0.042	0.010	0.042	0.043	0.010	0.043

Probability to start a firm during COVID-19: High vs Low income

Back

	(1) Bank	(2) Bank, LI	(3) Bank, HI	(4) Own	(5) Own, LI	(6) Own, HI	(7) Other	(8) Other, LI	(9) Other, HI
COVID-19	-2.878 (3.4905)	-4.013 (4.4106)	-1.588 (5.6605)	9.632** (3.9010)	12.699*** (4.7645)	4.113 (6.3698)	-7.144** (3.2293)	-8.829* (4.6089)	-3.461 (4.5242)
Digital	-12.784*** (3.0553)	-13.990*** (4.4319)	-11.185*** (4.1383)	16.747*** (4.1791)	11.384* (6.6646)	21.149*** (5.1979)	-4.632 (3.4098)	0.597 (5.3970)	-9.140** (4.3137)
COVID-19 × Digital	1.566 (5.6503)	2.615 (7.1233)	0.275 (9.0345)	-1.729 (7.2652)	16.278** (8.1976)	-19.987 [*] (11.2294)	2.504 (5.8973)	-13.286** (6.2551)	18.583* (9.9432)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	` Yes ´
Observations R-squared	92654	74781	17873	92654	74781	17873	92654	74781	17873

Funding sources of entrepreneurs during COVID-19

Notes: The dependent variable is the percentage of funds coming from the source indicated in the column headers among all sources of financing of the businesses of new entrepreneurs in the GEM. The coefficients are the second-stage results of a Heckman selection model, where the selection equation has a dummy variable indicating a new entrepreneur as dependent variable and the following explanatory variables; sex, age and age squared, education, income, and individual perceptions of skills to start a new firm, perception of fear of failure and expected opportunities within 6 months.

Back