

DEMOCRATIZING THE ECONOMY OR INTRODUCING
ECONOMIC RISK?
GIG WORK DURING THE COVID-19 PANDEMIC

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What I am sharing with you today

- Motivation of this project.
- Data, variables and method.
- Results and policy implications.

Motivation

- The gig economy and its promises
 - Allowing people to become entrepreneurs.
 - Giving people freedom to work on their own time while pursuing their passions.
- → Reducing economic inequality.

Motivation

- The growth of the gig economy has coincided with increased economic precarity in the new economy.
- Unclear how gig work fuels economic insecurity among American families.

Gig work and Economic Insecurity

- Gig workers lack the social protections associated with standard employment arrangements (Kalleberg 2018: 3; Vallas and Schor 2020).
- Precarity of gig employment came into sharp relief during the pandemic (Ravenelle et al. 2021).
- For some workers, gig work may not be a sign of economic insecurity (Ravenelle et al. 2021; Moulton and Scott 2016).
- People's experiences with gig work vary by their family situations (Ricketts & Boshara 2020).

Data and Methods

- Sample of 4,756 workers, Socio-Economic Impacts of COVID-19 survey (April 27 to May 12, 2020).
- Qualtrics online panels (Panels of a large number of potential respondents).

Measuring Self-Employment and Gig Work

Measuring Self-Employed

Which best describes your current employment situation?

- Self-employed, full-time for pay (include contract work)
- Self-employed, part-time for pay (include contract work)

Measuring Gig Work

In the past 3 months, has anyone in your household been paid for any of the following activities? (Yes/No)

- Child or elder care services
- Dog walking, feeding pets, or house sitting
- House cleaning, yard work, or other property maintenance work
- Driving or ride-sharing, such as with Uber or Lyft
- Paid tasks online, such as posting YouTube videos (do not include online surveys)
- Other personal tasks, such as deliveries, grocery shopping, running errands, or helping people move

Financial Distress Outcomes, by Gig Employment Status (Propensity Score Weighted)

| Outcome | Sample % | Gig Worker | Non-Gig Worker | p-value |
|-------------------------------------|----------|------------|----------------|---------|
| Skipped Bills, Past 3 Months | 0.12 | 0.21 | 0.08 | 0.000 |
| Behind on Credit Card, Now | 0.08 | 0.18 | 0.04 | 0.000 |
| Unpaid Credit Card Balance, Now | 0.30 | 0.33 | 0.28 | 0.006 |
| Lost Job/Income due to COVID-19 | 0.29 | 0.40 | 0.24 | 0.000 |
| Skipped Housing, Past 3 Months | 0.07 | 0.15 | 0.15 | 0.000 |
| Evicted, Past 3 Months | 0.03 | 0.09 | 0.01 | 0.000 |
| Skipped Medical Care, Past 3 Months | 0.10 | 0.20 | 0.06 | 0.000 |
| Food Insecurity, Past 3 Months | 0.25 | 0.40 | 0.19 | 0.000 |
| Weighted Observations | 4756 | 1358 | 3398 | |

Other Key Variables & Controls

| Characteristic | Sample (4,756) | Gig Worker (1,358) | Non-Gig Worker (3,398) | Diff | p-value |
|----------------------------------|-----------------------|---------------------------|-------------------------------|-------------|----------------|
| Liq. Assets pre-COVID, Mean (SD) | 27469.9 (59481.7) | 25392.0 (58532.2) | 28300.3 (59845.3) | 0 | 0.963 |
| Liq. Assets pre-COVID, Median | 4450 | 4450 | 6000 | | |
| Children, 0 (%) | 0.74 | 0.63 | 0.78 | -0.35 | 0 |
| Children, 1 (%) | 0.13 | 0.17 | 0.11 | 0.18 | 0 |
| Children, 2 (%) | 0.1 | 0.15 | 0.08 | 0.25 | 0 |
| Children, 3+ (%) | 0.03 | 0.05 | 0.03 | 0.11 | 0 |

Results

Figure 1. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers.

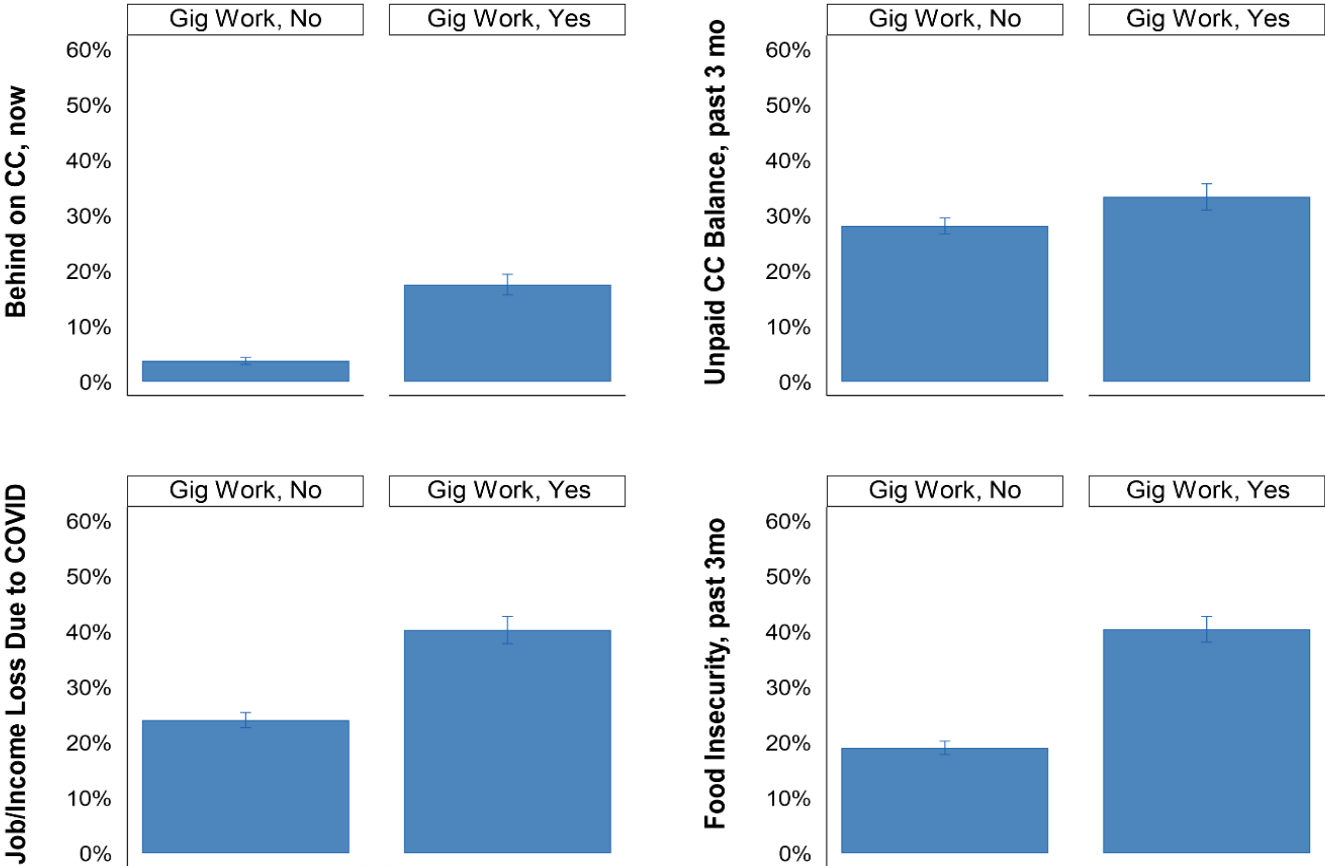


Figure 2. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers.

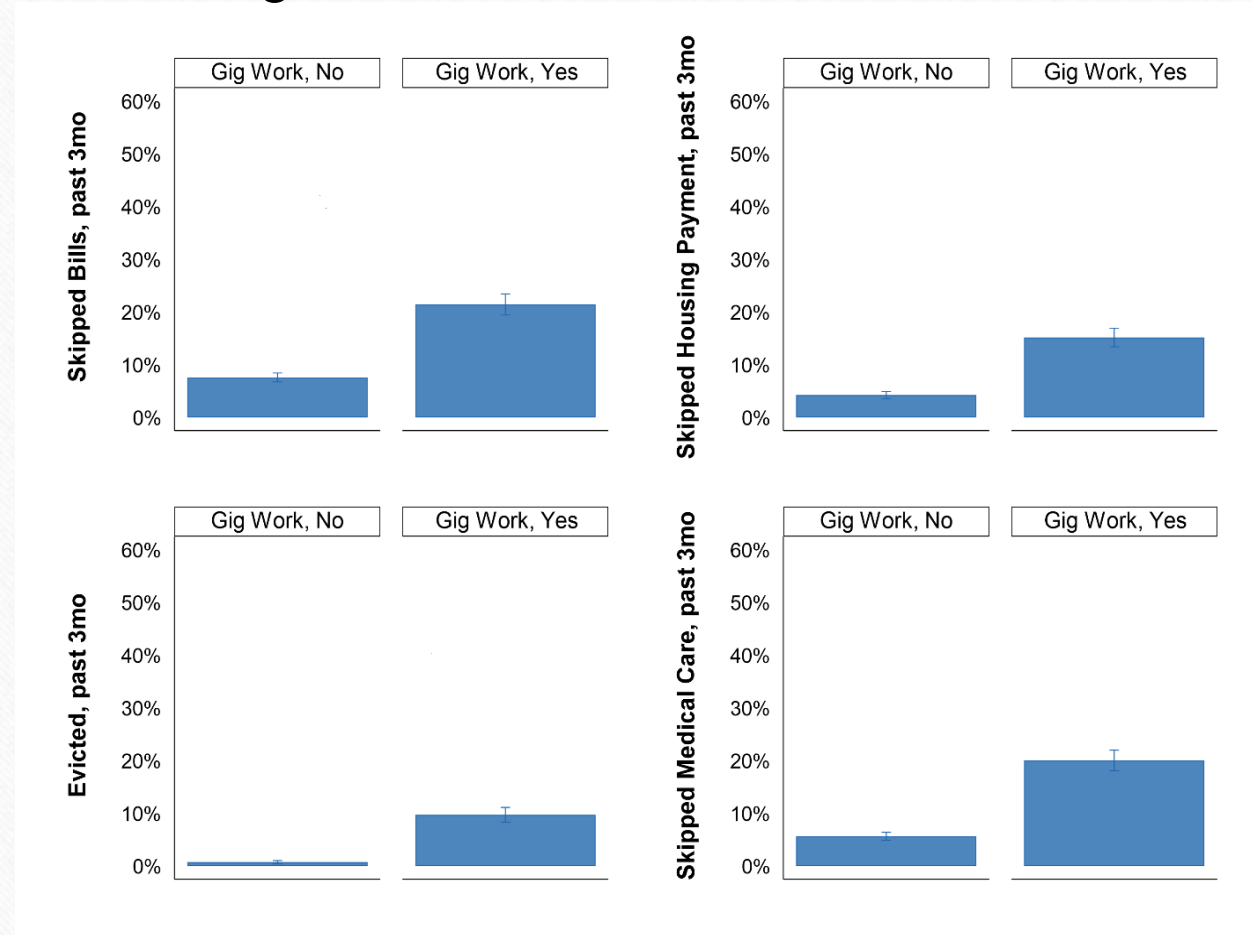
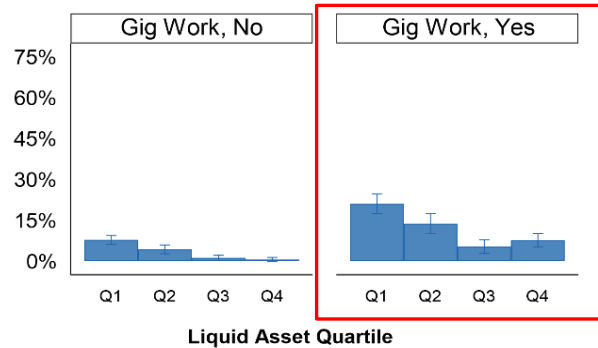
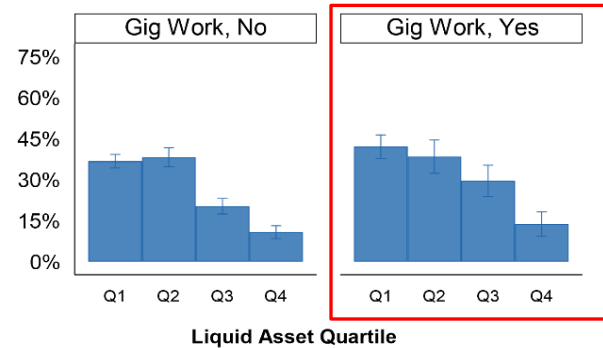


Figure 3. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers by Liquid Asset Endowment.

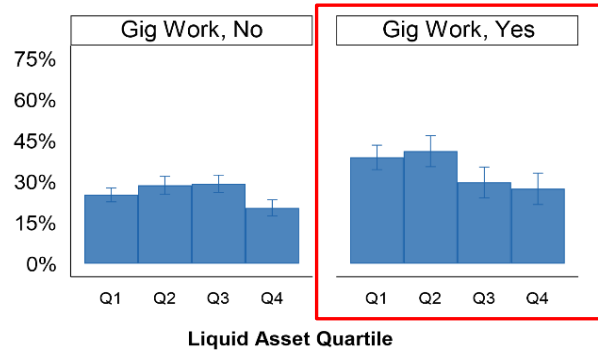
Behind on CC, now



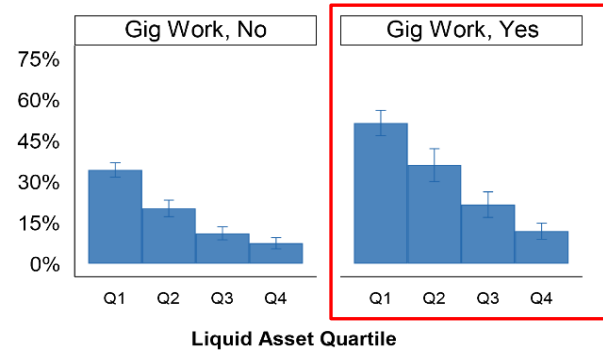
Unpaid CC Balance, past 3 mo



Job/Income Loss Due to COVID



Food Insecurity, past 3mo



Q1: \$0-\$2,000

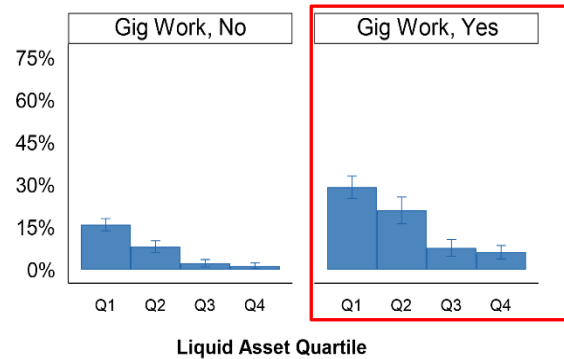
Q2: \$2,001-\$8,250

Q3: \$8,251-\$28,900

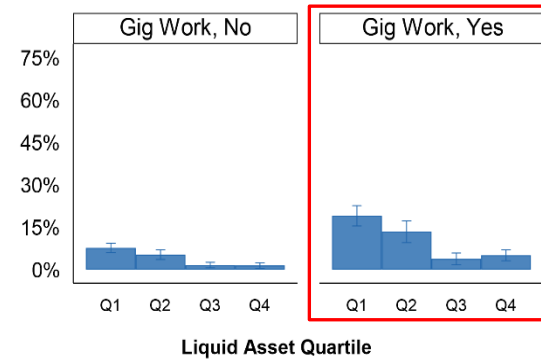
Q4: >\$28,900

Figure 4. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers by Liquid Asset Endowment.

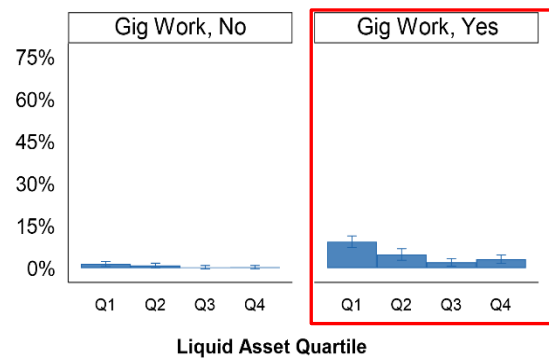
Skipped Bills, past 3mo



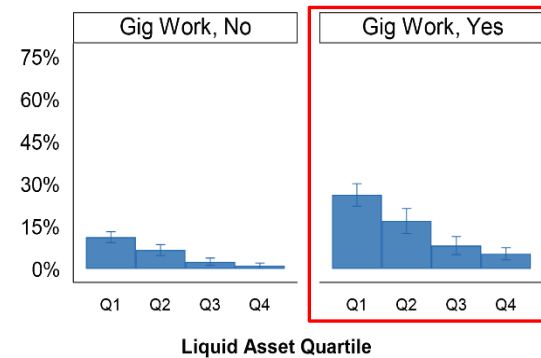
Skipped Housing Payment, past 3mo



Evicted, past 3mo



Skipped Medical Care, past 3mo



Q1: \$0-\$2,000

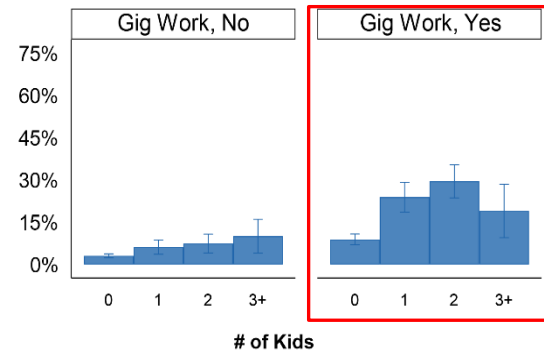
Q2: \$2,001-\$8,250

Q3: \$8,251-\$28,900

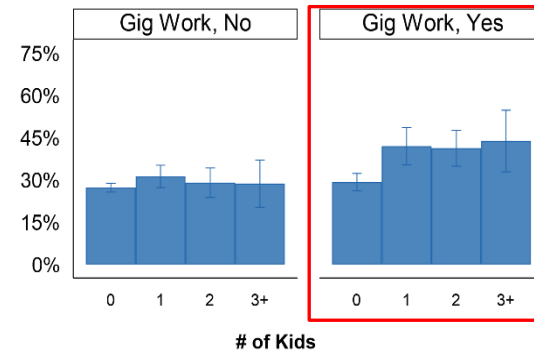
Q4: >\$28,900

Figure 5. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers by Number of Dependent Children in the Household.

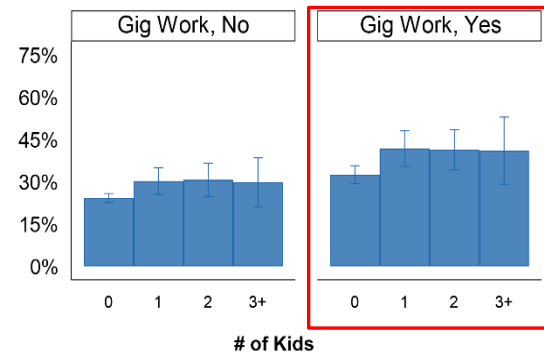
Behind on CC, now



Unpaid CC Balance, past 3 mo



Job/Income Loss Due to COVID



Food Insecurity, past 3mo

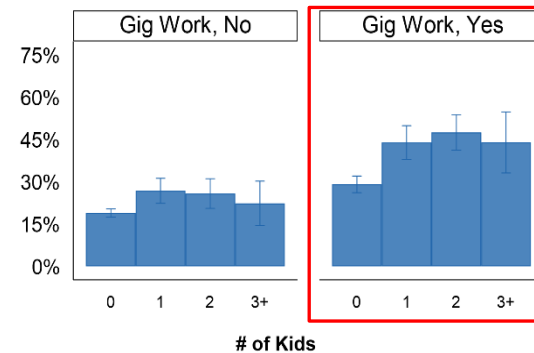


Figure 6. Probability of Experiencing Economic Hardship among Gig and Non-Gig Workers by Number of Dependent Children in the Household.



Self-Employed and Gig Workers Only

Figure 7. Probability of Experiencing Economic Hardship Among Gig and Self-Employed Workers.

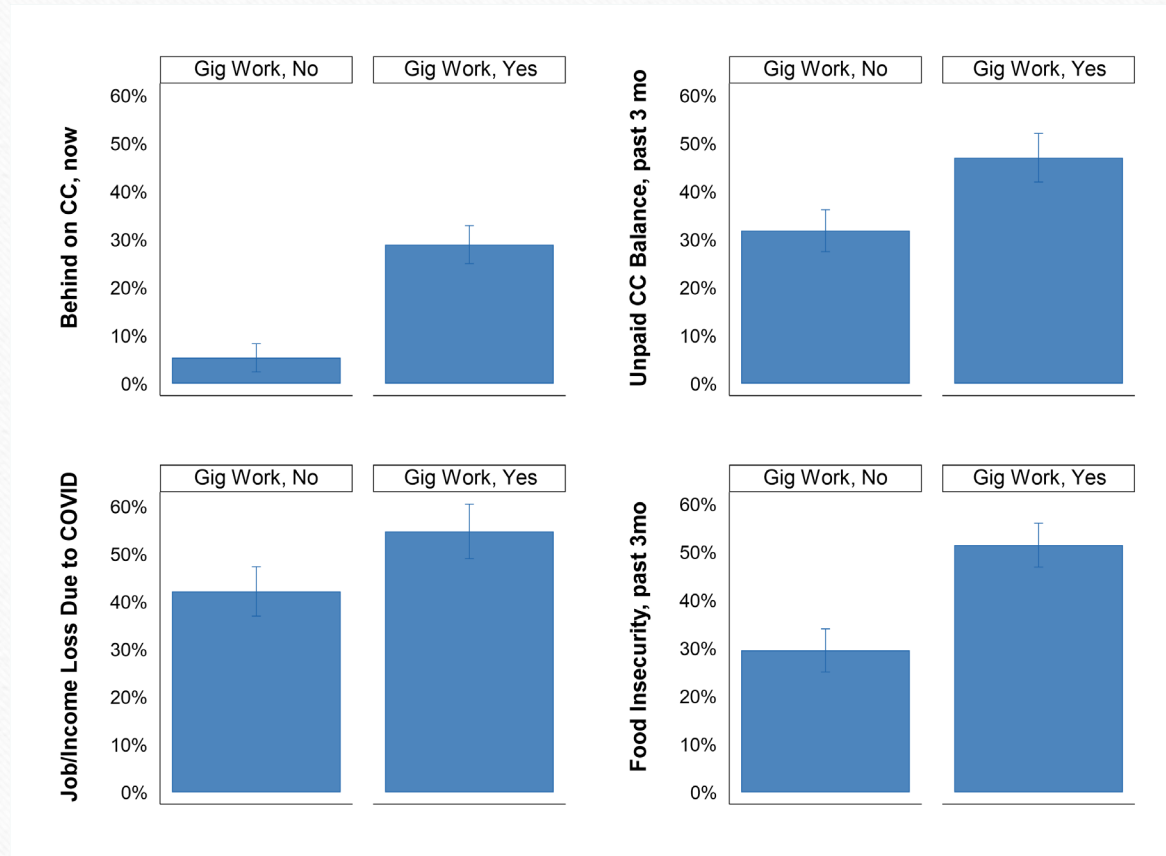
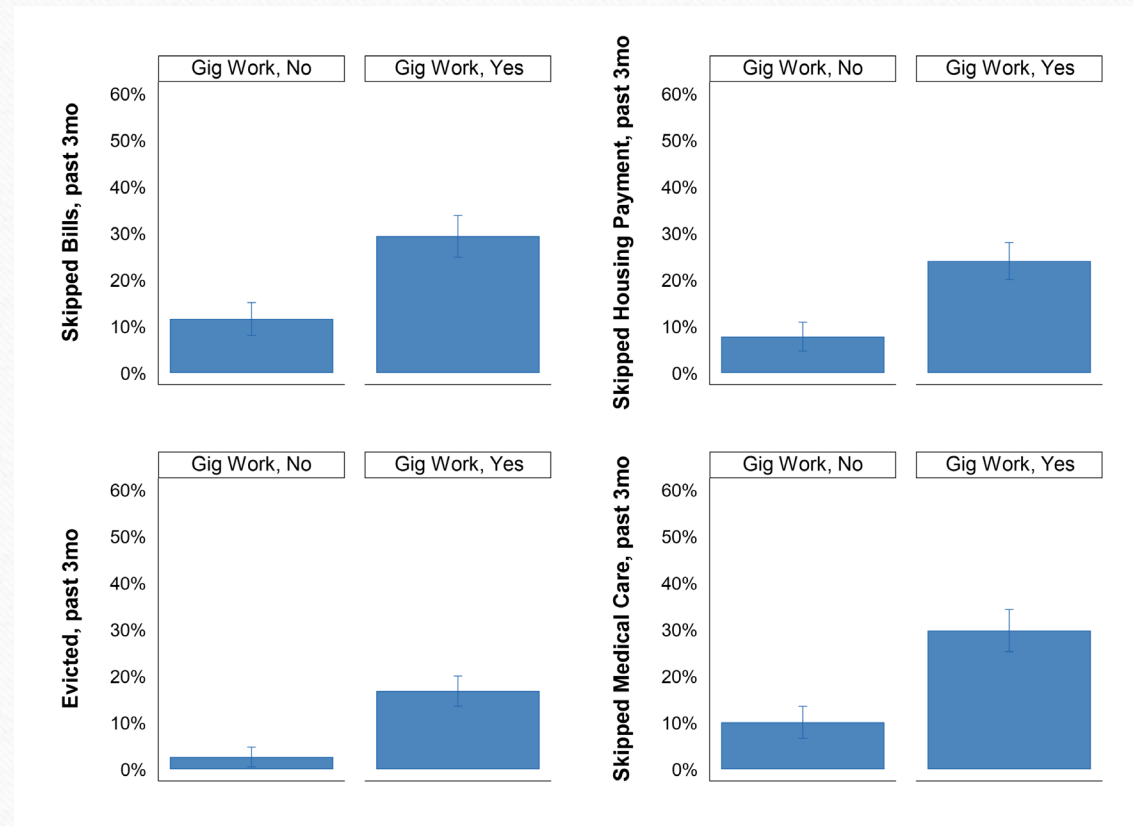


Figure 8. Probability of Experiencing Economic Hardship Among Gig and Self-Employed Workers.



Conclusion and Policy Implications

- Economic hardship is starker among gig workers compared with non-gig and other self-employed workers.
- Gig economy is associated with distinct labor mechanisms.
- These findings highlight the protective power of wealth.
- Labor market stability and family economic wellbeing are interconnected issues.
- Gig workers experience starker economic hardships despite that the pool of workers eligible for unemployment benefits was broadened to include gig workers.

Thank You

References

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- Moulton, J. G., & Scott, J. C. (2016). Opportunity or necessity? Disaggregating self-employment and entry at older ages. *Social Forces*, 94(4), 1539–1566.
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- Ricketts, L. R., & Boshara, R. (2020). *Which Families Are Most Vulnerable to an Income Shock such as COVID-19?* Federal Reserve Bank of St. Louis; Federal Reserve Bank of St. Louis. <https://ideas.repec.org/a/fip/fedlib/87880.html>
- Ricketts, L. R., & Boshara, R. (2020). *Which Families Are Most Vulnerable to an Income Shock such as COVID-19?* Federal Reserve Bank of St. Louis; Federal Reserve Bank of St. Louis. <https://ideas.repec.org/a/fip/fedlib/87880.html>
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Q&A

Gig work and Entrepreneurship

Analytic Sample Comparison to U.S. Census Data

| Characteristic | Analytic Sample | U.S. Population (2019) |
|------------------------------------|-----------------|------------------------|
| Age (mean) | 46.9 | 48.2 |
| Female | 50.1 | 51.3 |
| Married | 51.4 | 49.0 |
| Has Children<18 | 25.9 | 26.5 |
| Bachelor's Degree or Higher | 57.7 | 33.1 |
| Employed (Full-Time or Part-Time) | 66.3 | 60.7 |
| 2019 Household Income (mean) | 87012.0 | 92324.0 |
| Race | | |
| White | 76.5 | 72.0 |
| Asian | 5.9 | 5.7 |
| Black | 13.3 | 12.8 |
| Native American/Pacific Islander | 2.5 | 1.1 |
| Other | 4.1 | 8.5 |
| Hispanic | 17.4 | 18.4 |
| Region | | |
| Northeast | 20.3 | 17.1 |
| Midwest | 20.7 | 20.8 |
| South | 34.8 | 38.3 |
| West | 23.1 | 23.9 |
| Observations | 4756 | |

Note: U.S. population characteristics are drawn from the 2019 1-year estimates of American Community Survey data.

Method

- Generalized boosted regression modeling (utilizing machine learning) to account for potential endogeneity.
- We then estimated the relationship between gig employment and household hardship outcomes using linear probability models of the following general form:

- $$y_i = \beta_0 + \beta_1 \text{Gig_Worker}_i + \beta_2 \text{Liq_Quartile}_i + \beta_3 \text{Num_Kids}_i + \gamma_i \pi + \varepsilon_i$$

Conceptual Difference Between Entrepreneurial Self-Employment and Gig Work

- Entrepreneurial self-employed workers have full autonomy over the direction of their work.
- Entrepreneurial self-employed stands to benefit the most from the success of their self-employment activity.

Control Variables

| | |
|---------------------------|-------------------------------------|
| Gender | Emp., Self-Emp. Full-Time |
| Race | Emp., Self-Emp. Part-Time |
| Age | Emp., Wage/Salary Full-Time |
| Education | Emp., Wage/Salary Part-Time |
| Housing, Own w/ Mortgage | Partner Emp., Self-Emp. Full-Time |
| Housing, Own In Full | Partner Emp., Self-Emp. Part-Time |
| Housing, Rent | Partner Emp., Wage/Salary Full-Time |
| Housing, Neither Own/Rent | Partner Emp., Wage/Salary Part-Time |
| Health Insurance | Partner Emp., Unemp. |
| HH Income in 2019 | Partner Emp., Retired/Disabled |
| Region, Midwest | Partner Emp., Single |
| Region, Northeast | Region, West |
| Region, South | Region, Other |

Research Questions

- To what extent did gig workers experience economic hardship during the COVID-19 pandemic compared with non-gig and other self-employed workers?
- To what extent did the level of household financial endowment prior to the COVID-19 pandemic influence the degree to which gig and non-gig workers experienced economic hardship during the COVID-19 pandemic?
- To what extent did household composition, such as the presence of dependent children in the household, influence the degree to which gig and non-gig workers experienced economic hardship during the COVID-19 pandemic?

Hypotheses

- Gig workers experience greater economic hardship during the COVID-19 pandemic compared with non-gig and other self-employed workers.
- Household financial endowment prior to the COVID-19 pandemic reduces the likelihood of experiencing economic hardship, whereas the presence of dependent children in the household increases this likelihood.

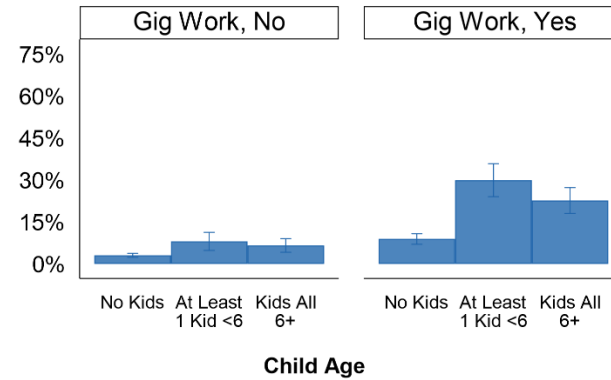
*Financial Distress Outcomes Attributed to COVID-19, by Gig Employment Status
(Propensity Score Weighted)*

| Outcome | No Gig Work (n=3,398) | Any Gig Work (n=1,358) | Type of Gig Work | | | |
|---------------------------------------|--------------------------|---------------------------|--------------------------|------------------------------|--|------------------------------|
| | | | Services Only (n=409) | Online Tasks Only (n=315) | Offline Sales/Misc. Activities Only (n=104) | Multiple Gig Jobs (n=530) |
| Lost Job/Income due to COVID-19 | 0.26 | 0.35*** | 0.31* | 0.3* | 0.33 | 0.43*** |
| Skipped Bills due to COVID-19 | 0.05 | 0.14*** | 0.1** | 0.1 | 0.09 | 0.22*** |
| Behind on Credit Card due to COVID-19 | 0.02 | 0.09*** | 0.04** | 0.05** | 0.01 | 0.19*** |
| Skipped Housing due to COVID-19 | 0.02 | 0.08*** | 0.05 | 0.03 | 0.06 | 0.17*** |
| Food Insecurity due to COVID-19 | 0.18 | 0.3*** | 0.21** | 0.26* | 0.18 | 0.47*** |

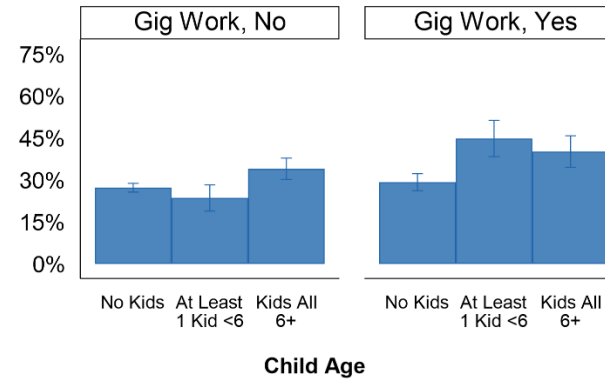
Notes: All significance tests conducted in relation to "No Gig Work" category. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Figure A1. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers by Age of Dependent Children in the Household.

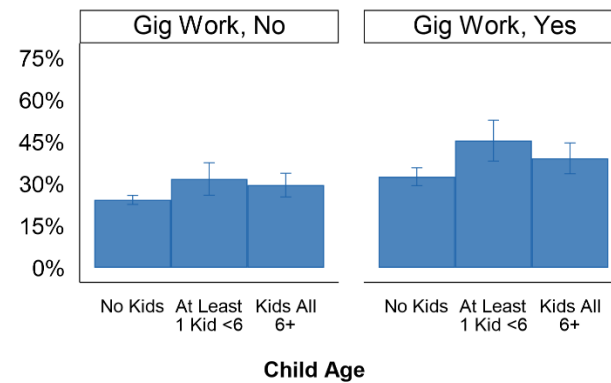
Behind on CC, now



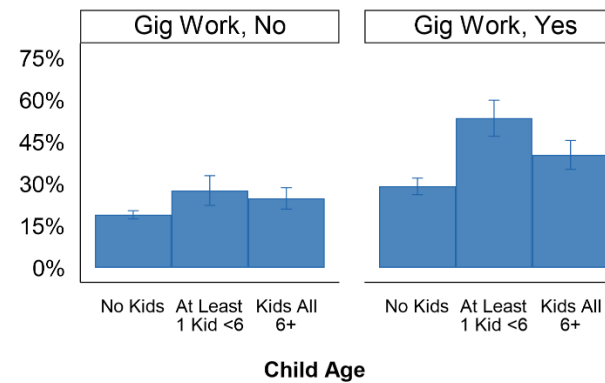
Unpaid CC Balance, past 3 mo



Job/Income Loss Due to COVID



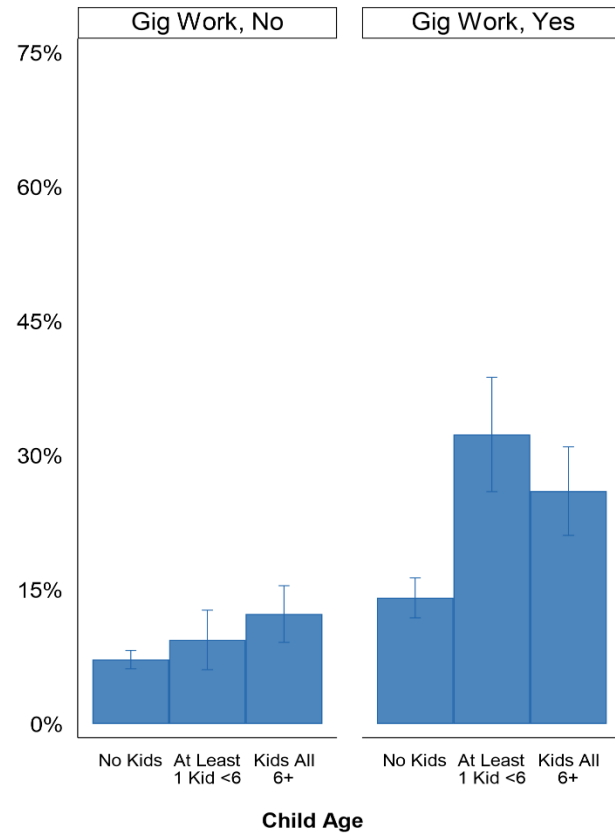
Food Insecurity, past 3mo



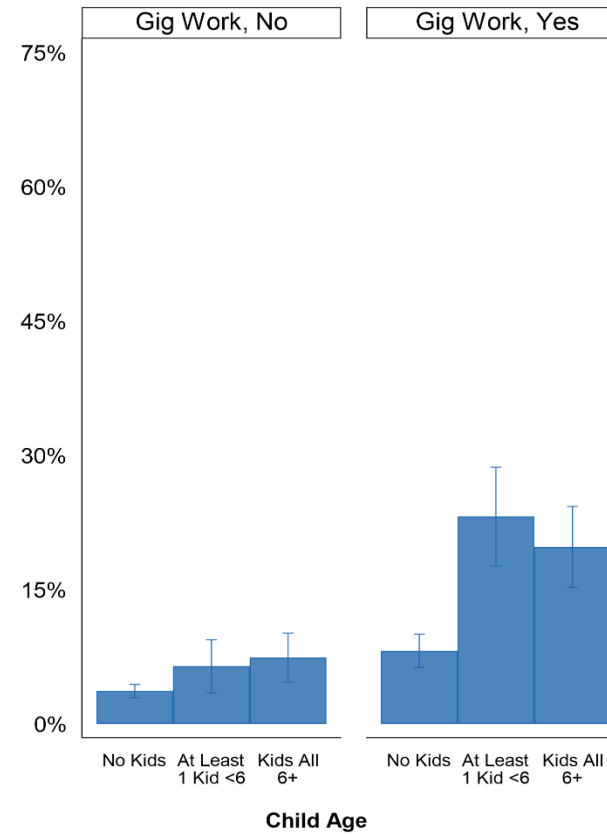
Note: The bracketed lines = 95 percent confidence interval of the point estimate.

Figure A2. Probability of Experiencing Economic Hardship Among Gig and Non-Gig Workers by Age of Dependent Children in the Household.

Skipped Bills, past 3mo



Skipped Housing Payment, past 3mo



Measuring Self-Employed

Which best describes your current employment situation?

- Self-employed, full-time for pay (include contract work) (1)
- Self-employed, part-time for pay (include contract work) (2)
- Work full-time for pay (3)
- Work part-time for pay (4)
- Temporarily laid off (furloughed) (5)
- Unemployed, looking for work (6)
- Unemployed, not looking for work (7)
- Disabled, not able to work (8)
- Retired (9)
- Homemaker (10)
- Full-time caregiver for family member (11)
- Prefer not to say (12)

Gig work: We use the Fed's two questions on gig work.

In the past 3 months, has anyone in your household been paid for any of the following activities? (Yes/No)

- Child or elder care services
- Dog walking, feeding pets, or house sitting
- House cleaning, yard work, or other property maintenance work
- Driving or ride-sharing, such as with Uber or Lyft
- Paid tasks online, such as posting YouTube videos (do not include online surveys)
- Other personal tasks, such as deliveries, grocery shopping, running errands, or helping people move

In addition, has anyone in your household been paid for any of the following activities in the past 3 months? (Yes/No)

- Selling goods yourself at flea markets or garage sales
- Selling goods at consignment shops or thrift stores
- Selling goods on-line, such as on eBay, Craigslist, or Etsy
- Renting out property, such as your car or your house
- Any other paid activities that you have not already mentioned in the survey (do not include online surveys)

| Characteristic | Sample | Gig Worker | Non-Gig Worker | Differences | p-value |
|---------------------------------------|-----------|------------|-------------------|-------------|---------|
| Housing, Own w/ Mortgage (%) | 0.40 | 0.39 | 0.40 | -0.02 | 0.000 |
| Housing, Own In Full (%) | 0.27 | 0.23 | 0.29 | -0.13 | 0.000 |
| Housing, Rent (%) | 0.28 | 0.30 | 0.27 | 0.07 | 0.000 |
| Housing, Neither Own/Rent (%) | 0.05 | 0.07 | 0.04 | 0.16 | 0.000 |
| Health Insurance, Yes (%) | 0.94 | 0.93 | 0.95 | -0.11 | 0.001 |
| | 87012.0 | 84573.6 | | | |
| HH Income in 2019, Mean (SD) | (70250.7) | (73882.8) | 87986.5 (68732.6) | -0.05 | 0.142 |
| HH Income in 2019, Median | 70000.0 | 65000.0 | 72000.0 | | |
| | 27469.9 | 25392.0 | | | |
| Liq. Assets pre-COVID, Mean (SD) | (59481.7) | (58532.2) | 28300.3 (59845.3) | 0.00 | 0.963 |
| Liq. Assets pre-COVID, Median | 4450.0 | 4450.0 | 6000.0 | | |
| Emp., Self-Emp. Full-Time (%) | 0.07 | 0.12 | 0.05 | 0.27 | 0.000 |
| Emp., Self-Emp. Part-Time (%) | 0.03 | 0.06 | 0.03 | 0.19 | 0.000 |
| Emp., Wage/Salary Full-Time (%) | 0.45 | 0.45 | 0.46 | -0.01 | 0.000 |
| Emp., Wage/Salary Part-Time (%) | 0.10 | 0.13 | 0.09 | 0.15 | 0.000 |
| Partner Emp., Self-Emp. Full-Time (%) | 0.05 | 0.09 | 0.01 | 0.09 | 0.000 |
| Partner Emp., Self-Emp. Part-Time (%) | 0.01 | 0.02 | 0.40 | 0.09 | 0.000 |

| Characteristic (%) | Sample (4,756) | Gig Worker (1,358) | Non-Gig Worker (3,398) | Differences | p-value |
|------------------------------|---------------------------|-------------------------------|-----------------------------------|--------------------|----------------|
| Total (%) | 100 | 28.55 | 71.45 | | |
| Age, Mean (SD) | 46.9 (16.8) | 39.11 (15.32) | 50 (16.4) | -0.65 | 0.000 |
| Gender, Female | 0.50 | 0.51 | 0.50 | 0.03 | 0.309 |
| Race, Asian (%) | 0.05 | 0.04 | 0.06 | -0.09 | 0.000 |
| Race, Black (%) | 0.12 | 0.09 | 0.14 | -0.16 | 0.000 |
| Race, Hispanic (%) | 0.17 | 0.17 | 0.17 | 0.00 | 0.000 |
| Race, White (%) | 0.62 | 0.67 | 0.60 | 0.15 | 0.000 |
| Race, Other (%) | 0.03 | 0.03 | 0.03 | -0.02 | 0.000 |
| Children, 0 (%) | 0.74 | 0.63 | 0.78 | -0.35 | 0.000 |
| Children, 1 (%) | 0.13 | 0.17 | 0.11 | 0.18 | 0.000 |
| Children, 2 (%) | 0.10 | 0.15 | 0.08 | 0.25 | 0.000 |
| Children, 3+ (%) | 0.03 | 0.05 | 0.03 | 0.11 | 0.000 |
| Ed, Less than HS (%) | 0.01 | 0.01 | 0.01 | 0.01 | 0.003 |
| Ed, HS Degree (%) | 0.28 | 0.31 | 0.27 | 0.09 | 0.003 |
| Ed, Bachelor's Degree | 0.36 | 0.37 | 0.36 | 0.04 | 0.003 |
| Ed, Graduate Degree | 0.22 | 0.19 | 0.23 | -0.08 | 0.003 |

| Characteristic | Sample | Gig Worker | Non-Gig Worker | Differences | p-value |
|---|--------|------------|----------------|-------------|---------|
| Partner Emp., Wage/Salary Full-Time (%) | 0.27 | 0.27 | 0.27 | -0.01 | 0.000 |
| Partner Emp., Wage/Salary Part-Time (%) | 0.04 | 0.04 | 0.05 | -0.02 | 0.000 |
| Partner Emp., Unemp. (%) | 0.09 | 0.09 | 0.09 | 0.00 | 0.000 |
| Partner Emp., Retired/Disabled (%) | 0.13 | 0.06 | 0.16 | -0.29 | 0.000 |
| Partner Emp., Single (%) | 0.41 | 0.44 | 0.40 | 0.09 | 0.000 |
| Region, Midwest | 0.21 | 0.20 | 0.21 | -0.02 | 0.948 |
| Region, Northeast | 0.20 | 0.20 | 0.21 | -0.02 | 0.948 |
| Region, South | 0.35 | 0.35 | 0.35 | 0.01 | 0.948 |
| Region, West | 0.23 | 0.24 | 0.23 | 0.02 | 0.948 |
| Region, Other | 0.01 | 0.01 | 0.01 | 0.01 | 0.948 |
| Observations | 4756 | 1358 | 3398 | | |

Table 4. Linear Probability Regressions of Household Hardship on Gig Work

Notes: Suppressed demographic controls include age, gender, marital/partner status, and education. Suppressed financial controls include spousal employment, health insurance, homeownership, vehicle ownership, and bank account ownership. Suppressed geographic controls include Census region.

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|---|------------------------|------------------------------|----------------------|------------------------|--------------------------------|------------------------|--------------------------------|--------------------------------|
| | Lost Job/Income, COVID | Skipped Bills, past 3 months | Behind on CC, Now | Unpaid CC Balance, Now | Skipped Housing, past 3 months | Evicted, past 3 months | Skipped Medical, past 3 months | Food Insecurity, past 3 months |
| <i>Gig Employment (Ref = Non-Gig Worker)</i> | | | | | | | | |
| Gig Worker | 0.082*** (0.016) | 0.094*** (0.011) | 0.090*** (0.010) | 0.043** (0.015) | 0.069*** (0.010) | 0.044*** (0.005) | 0.095*** (0.011) | 0.122*** (0.014) |
| <i>Employment Status (Ref = Self-Employed Full-Time)</i> | | | | | | | | |
| Self-Employed Part-Time | 0.082 (0.051) | -0.111** (0.036) | -0.132*** (0.031) | -0.153*** (0.042) | -0.134*** (0.031) | -0.100*** (0.021) | -0.171*** (0.034) | -0.149*** (0.044) |
| Wage+Salary Full-Time | -0.168*** (0.032) | -0.109*** (0.025) | -0.131*** (0.024) | -0.089** (0.030) | -0.107*** (0.023) | -0.090*** (0.018) | -0.130*** (0.025) | -0.188*** (0.029) |
| Wage+Salary Part-Time | 0.094* (0.041) | -0.087** (0.032) | -0.112*** (0.028) | -0.098** (0.035) | -0.111*** (0.027) | -0.080*** (0.019) | -0.113*** (0.030) | -0.164*** (0.036) |
| Unemployed | -0.189*** (0.037) | -0.069* (0.031) | -0.105*** (0.027) | -0.118*** (0.033) | -0.113*** (0.026) | -0.106*** (0.018) | -0.126*** (0.029) | -0.161*** (0.033) |
| <i>Liquid Asset Quartile (Ref. = 1st Quartile, \$0 - \$2,000)</i> | | | | | | | | |
| 2nd Quartile (\$2,001 - \$8,250) | 0.053* (0.021) | -0.045* (0.017) | -0.055*** (0.015) | -0.053* (0.022) | -0.025 (0.015) | -0.027*** (0.008) | -0.043* (0.017) | -0.083*** (0.022) |
| 3rd Quartile (\$8,251 - \$28,900) | 0.022 (0.022) | -0.113*** (0.014) | -0.108*** (0.013) | -0.189*** (0.022) | -0.082*** (0.013) | -0.045*** (0.007) | -0.091*** (0.015) | -0.158*** (0.020) |
| 4th Quartile (\$28,901+) | -0.005 (0.024) | -0.101*** (0.014) | -0.096*** (0.013) | -0.297*** (0.022) | -0.072*** (0.014) | -0.043*** (0.008) | -0.099*** (0.015) | -0.174*** (0.020) |
| <i>Number of Children (Ref. = 0 Children)</i> | | | | | | | | |
| 1 Child | 0.020 (0.023) | 0.055** (0.018) | 0.066*** (0.016) | 0.057* (0.023) | 0.068*** (0.016) | 0.045*** (0.011) | 0.060** (0.019) | 0.073*** (0.021) |
| 2 Children | 0.009 (0.028) | 0.100*** (0.022) | 0.103*** (0.019) | 0.071** (0.025) | 0.067*** (0.018) | 0.073*** (0.015) | 0.051* (0.020) | 0.088*** (0.024) |
| 3+ Children | -0.014 (0.040) | 0.079* (0.035) | 0.071* (0.030) | 0.069 (0.038) | 0.052 (0.029) | 0.043* (0.022) | 0.003 (0.029) | 0.036 (0.037) |

Table 5. The Interaction between Gig Work, Financial Endowment, and Household Hardship (Linear Probability Models)

Notes: Suppressed demographic controls include age, gender, marital/partner status, race/ethnicity, # of children, and education. Suppressed financial controls include household income in 2019, respondent employment status, spousal employment, health insurance, homeownership, vehicle ownership, and bank account ownership. Suppressed geographic controls include Census region.

| | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 | Model 15 | Model 16 |
|--|------------------------------|------------------------------------|----------------------|------------------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|
| | Lost Job/Income, COVID | Skipped Bills, past 3 months | Behind on CC, Now | Unpaid CC Balance, Now | Skipped Housing, past 3mo | Evicted, past 3mo | Skipped Medical, past 3mo | Food Insecurity, past 3mo |
| <i>Gig Employment (Ref = Non-Gig Worker)</i> | | | | | | | | |
| Gig Worker | 0.116*** (0.026) | 0.131*** (0.024) | 0.122*** (0.020) | 0.029 (0.026) | 0.110*** (0.021) | 0.075*** (0.012) | 0.147*** (0.023) | 0.169*** (0.027) |
| <i>Liquid Asset Quartile (Ref. = 1st Quartile)</i> | | | | | | | | |
| 2nd Quartile (\$2,001 - \$8,250) | 0.055* (0.022) | -0.038* (0.016) | -0.040** (0.012) | -0.048* (0.023) | -0.007 (0.013) | -0.006 (0.007) | -0.015 (0.015) | -0.066** (0.021) |
| 3rd Quartile (\$8,251 - \$28,900) | 0.066** (0.023) | -0.078*** (0.014) | -0.075*** (0.011) | -0.225*** (0.021) | -0.045*** (0.012) | -0.020** (0.007) | -0.052*** (0.013) | -0.132*** (0.020) |
| 4th Quartile (\$28,901+) | 0.025 (0.024) | -0.057*** (0.014) | -0.069*** (0.011) | -0.295*** (0.021) | -0.035** (0.013) | -0.018* (0.007) | -0.046*** (0.013) | -0.108*** (0.020) |
| <i>Gig Worker-Liquid Asset Interaction</i> | | | | | | | | |
| Gig Worker*2Q Liquid Assets | -0.003 (0.043) | -0.013 (0.036) | -0.030 (0.028) | -0.011 (0.044) | -0.039 (0.030) | -0.044** (0.016) | -0.057 (0.034) | -0.034 (0.044) |
| Gig Worker*3Q Liquid Assets | -0.091* (0.042) | -0.071* (0.029) | -0.067** (0.025) | 0.075 (0.041) | -0.076** (0.024) | -0.051*** (0.014) | -0.080** (0.029) | -0.051 (0.038) |
| Gig Worker*4Q Liquid Assets | -0.062 (0.033) | -0.090*** (0.028) | -0.057* (0.016) | -0.003 (0.023) | -0.077*** (0.024) | -0.051*** (0.011) | -0.108*** (0.026) | -0.136*** (0.032) |
| <i>Other Controls</i> | | | | | | | | |
| Demographic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Financial | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4756 | 4756 | 4756 | 4756 | 4756 | 4756 | 4756 | 4756 |
| R-squared | 0.124 | 0.156 | 0.146 | 0.214 | 0.110 | 0.143 | 0.137 | 0.222 |

Table 6. The Interaction between Gig Work, Children, and Household Hardship (Linear Probability Models)

Notes: Suppressed demographic controls include age, gender, marital/partner status, race/ethnicity, and education. Suppressed financial controls include household income in 2019, liquid asset quartiles, respondent employment status, spousal employment, health insurance, homeownership, vehicle ownership, and bank account ownership. Suppressed geographic controls include Census region.

| | Model 17 | Model 18 | Model 19 | Model 20 | Model 21 | Model 22 | Model 23 | Model 24 |
|---|------------------------------|-------------------------------|----------------------|------------------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|
| | Lost Job/Income, COVID | Skipped Bills, past 3mo | Behind on CC, Now | Unpaid CC Balance, Now | Skipped Housing, past 3mo | Evicted, past 3mo | Skipped Medical, past 3mo | Food Insecurity, past 3mo |
| <i>Gig Employment (Ref = Non-Gig Worker)</i> | | | | | | | | |
| Gig Worker | 0.075*** (0.019) | 0.066*** (0.013) | 0.060*** (0.010) | 0.017 (0.018) | 0.046*** (0.010) | 0.016*** (0.004) | 0.071*** (0.012) | 0.098*** (0.017) |
| <i>Number of Children (Ref. = 0 Children)</i> | | | | | | | | |
| 1 Child | 0.006 (0.027) | 0.022 (0.017) | 0.015 (0.014) | 0.022 (0.023) | 0.025 (0.014) | -0.007 (0.005) | 0.007 (0.017) | 0.048 (0.025) |
| 2 Children | -0.004 (0.033) | 0.031 (0.024) | 0.026 (0.019) | 0.010 (0.030) | 0.023 (0.021) | 0.015 (0.017) | 0.003 (0.022) | 0.027 (0.029) |
| 3+ Children | -0.027 (0.047) | 0.000 (0.032) | 0.047 (0.032) | -0.010 (0.045) | 0.006 (0.026) | 0.001 (0.015) | -0.000 (0.031) | -0.039 (0.042) |
| <i>Gig-Child Interaction</i> | | | | | | | | |
| Gig Worker*1 Child | 0.029 (0.045) | 0.070* (0.035) | 0.104** (0.032) | 0.071 (0.043) | 0.090** (0.032) | 0.108*** (0.022) | 0.109** (0.036) | 0.054 (0.042) |
| Gig Worker*2 Children | 0.027 (0.051) | 0.140*** (0.041) | 0.155*** (0.036) | 0.124** (0.046) | 0.090* (0.035) | 0.117*** (0.031) | 0.097** (0.037) | 0.125** (0.045) |
| Gig Worker*3+ Children | 0.026 (0.078) | 0.160* (0.066) | 0.051 (0.058) | 0.160* (0.073) | 0.093 (0.056) | 0.088* (0.041) | 0.009 (0.055) | 0.153* (0.070) |
| <i>Other Controls</i> | | | | | | | | |
| Demographic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Financial | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4756 | 4756 | 4756 | 4756 | 4756 | 4756 | 4756 | 4756 |
| R-squared | 0.123 | 0.158 | 0.153 | 0.216 | 0.111 | 0.157 | 0.137 | 0.222 |

* p < 0.05; ** p < 0.01; *** p < 0.001.

Table 7. Linear Probability Regression of Household Hardship on Gig Work and Among Self-Employed Households

Notes: Suppressed demographic controls include age, gender, marital/partner status, and education. Suppressed financial controls include spousal employment, health insurance, homeownership, vehicle ownership, and bank account ownership. Suppressed geographic controls include Census region.

| | Model 25 | Model 26 | Model 27 | Model 28 | Model 29 | Model 30 | Model 31 | Model 32 |
|---|------------------------------|-----------------------------------|----------------------|------------------------------|---|------------------------------|---|---|
| | Lost Job/Income, COVID | Skipped Bills, past 3months | Behind on CC, Now | Unpaid CC Balance, Now | Skipped Housing, past 3 months | Evicted, past 3 months | Skipped Medical, past 3 months | Food Insecurity, past 3 months |
| <i>Gig Employment (Ref = Non-Gig Worker)</i> | | | | | | | | |
| Gig Worker | 0.104* (0.042) | 0.147*** (0.031) | 0.223*** (0.027) | 0.142*** (0.036) | 0.132*** (0.028) | 0.132*** (0.021) | 0.176*** (0.031) | 0.187*** (0.035) |
| <i>Liquid Asset Quartile (Ref. = 1st Quartile, \$0 - \$2,000)</i> | | | | | | | | |
| 2nd Quartile (\$2,001 - \$8,250) | 0.012 (0.058) | -0.037 (0.047) | -0.027 (0.041) | -0.046 (0.053) | -0.037 (0.043) | -0.059 (0.033) | -0.068 (0.046) | -0.076 (0.052) |
| 3rd Quartile (\$8,251 - \$28,900) | -0.001 (0.060) | -0.159*** (0.041) | -0.187*** (0.034) | -0.196*** (0.054) | -0.157*** (0.036) | -0.151*** (0.026) | -0.152*** (0.043) | -0.164** (0.052) |
| 4th Quartile (\$28,901+) | -0.004 (0.062) | -0.126** (0.047) | -0.152*** (0.037) | -0.386*** (0.052) | -0.129** (0.041) | -0.117*** (0.034) | -0.187*** (0.045) | -0.196*** (0.051) |
| <i>Number of Children (Ref. = 0 Children)</i> | | | | | | | | |
| 1 Child | 0.088 (0.056) | 0.129** (0.045) | 0.148*** (0.043) | 0.143** (0.050) | 0.112** (0.040) | 0.093** (0.033) | 0.157** (0.049) | 0.185*** (0.048) |
| 2 Children | 0.126 (0.068) | 0.202*** (0.061) | 0.288*** (0.054) | 0.208*** (0.058) | 0.174** (0.054) | 0.166*** (0.050) | 0.188** (0.059) | 0.222*** (0.057) |
| 3+ Children | -0.119 (0.098) | 0.100 (0.074) | 0.026 (0.063) | 0.033 (0.079) | 0.106 (0.078) | 0.043 (0.050) | 0.052 (0.078) | 0.128 (0.075) |
| Other Controls | | | | | | | | |
| Demographic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 676 | 676 | 676 | 676 | 676 | 676 | 676 | 676 |
| R-squared | 0.101 | 0.226 | 0.356 | 0.293 | 0.257 | 0.328 | 0.257 | 0.334 |

* p < 0.05; ** p < 0.01; *** p < 0.001.

Q&A

Race and Entrepreneurial Return to Education

**Table 2: White-Black Mean Differences
(Entrepreneurs)**

| | Mean(white) | Mean(Black) | Diff. | Std. Error | Obs. |
|-------------------------------|--------------|-------------|---------------|------------|-------|
| Business profit | 22,798.92 | 8,889.89 | 13,909.03*** | 3,401.60 | 9,258 |
| Positive profit | 0.56 | 0.37 | 0.19*** | 0.02 | 9,258 |
| Profit \$10k+ | 0.42 | 0.26 | 0.16*** | 0.02 | 9,258 |
| Household student loan debt | 7,538.58 | 12,158.94 | -4,620.36*** | 1,064.55 | 9,258 |
| Household Net worth | 1,522,849.56 | 599,739.88 | 923,109.68*** | 280,015.93 | 9,258 |
| High school degree or less | 0.36 | 0.40 | -0.04** | 0.02 | 9,258 |
| Some college/associate degree | 0.27 | 0.33 | -0.06*** | 0.02 | 9,258 |
| College degree | 0.22 | 0.15 | 0.07*** | 0.02 | 9,258 |
| Graduate degree | 0.15 | 0.12 | 0.03** | 0.01 | 9,258 |

Figure 1: Probability of Making a Positive Profit by Race and Education Levels.

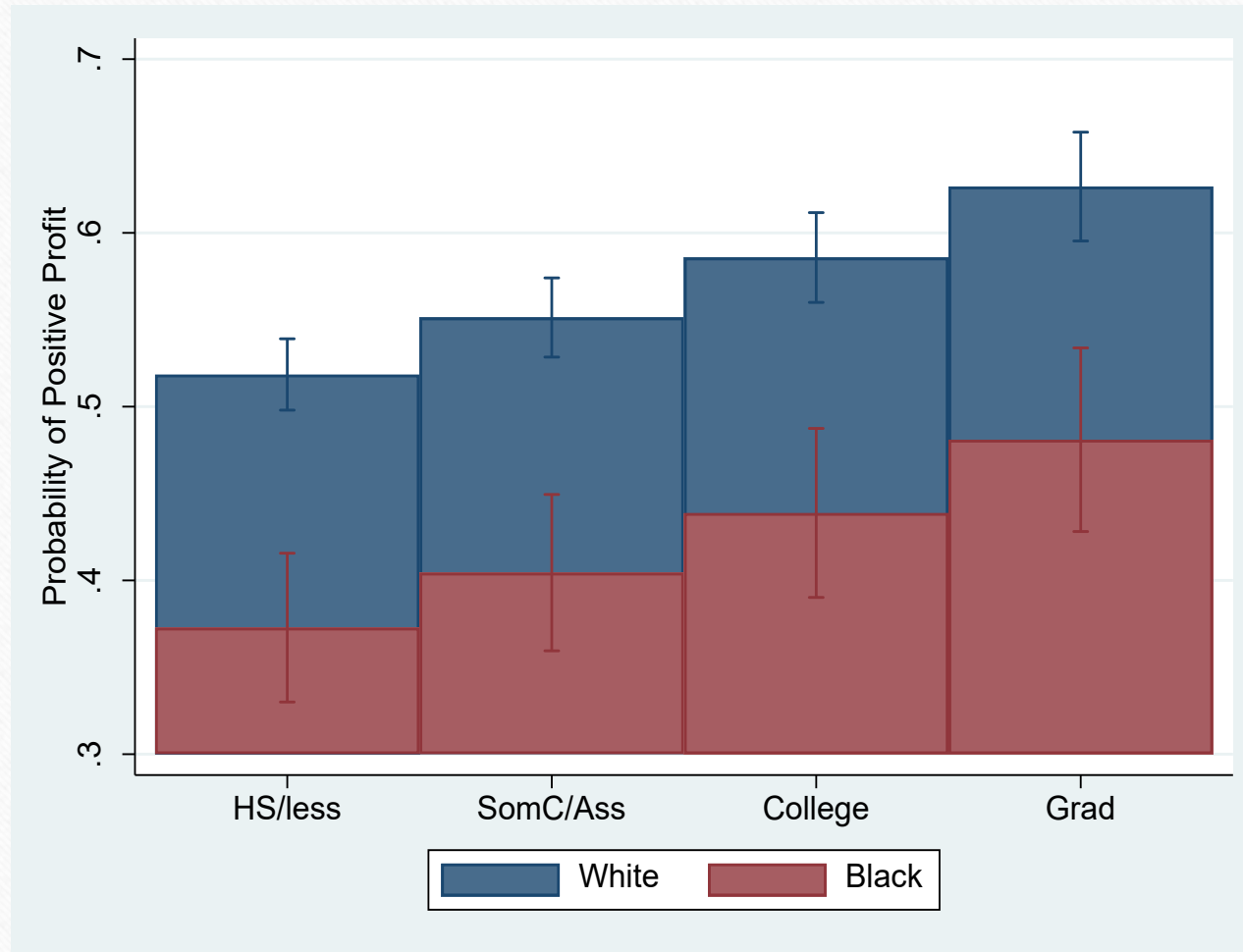


Figure 2: Probability of Making a Profit of \$10K+ by Race and Education Levels.

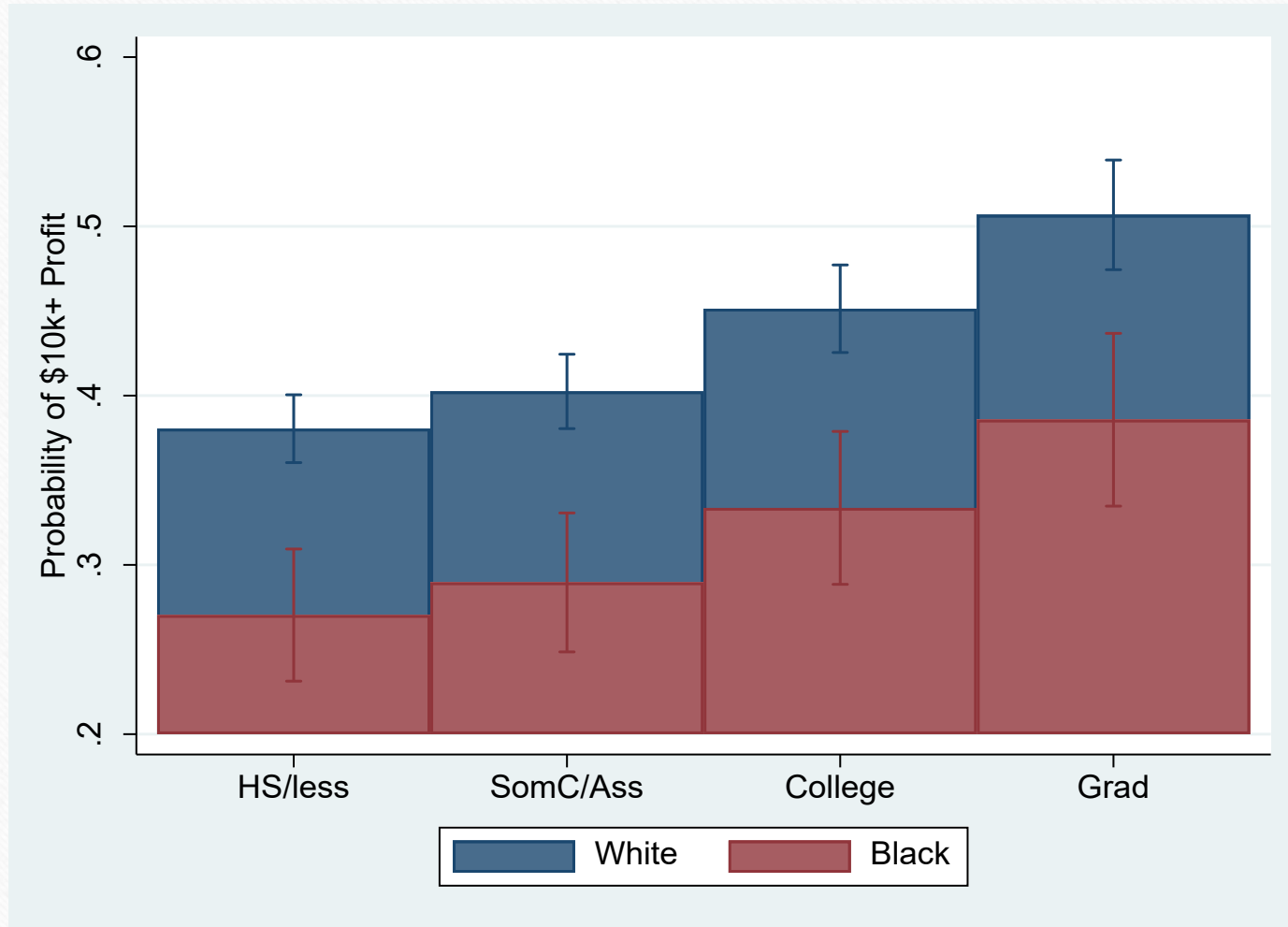
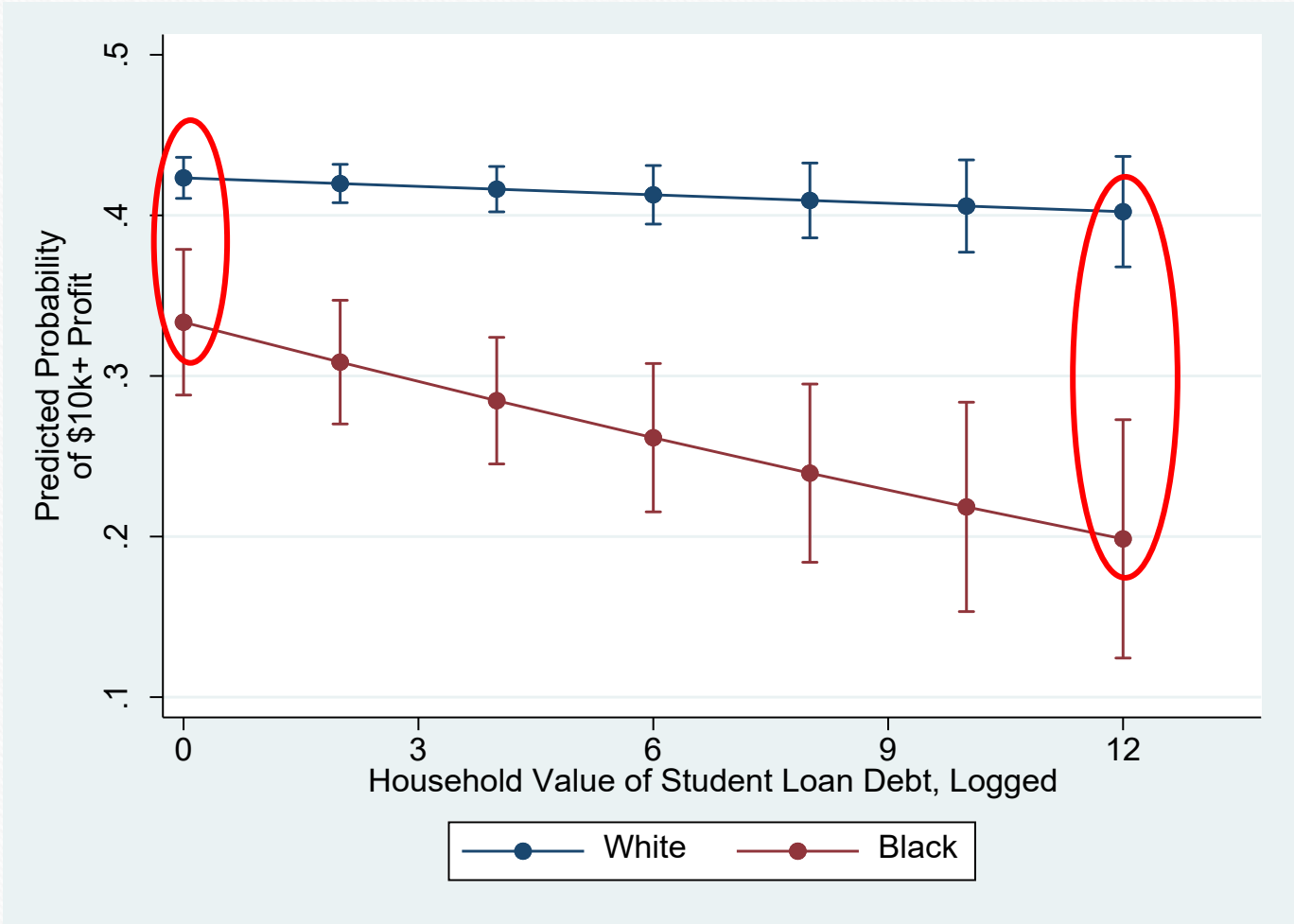
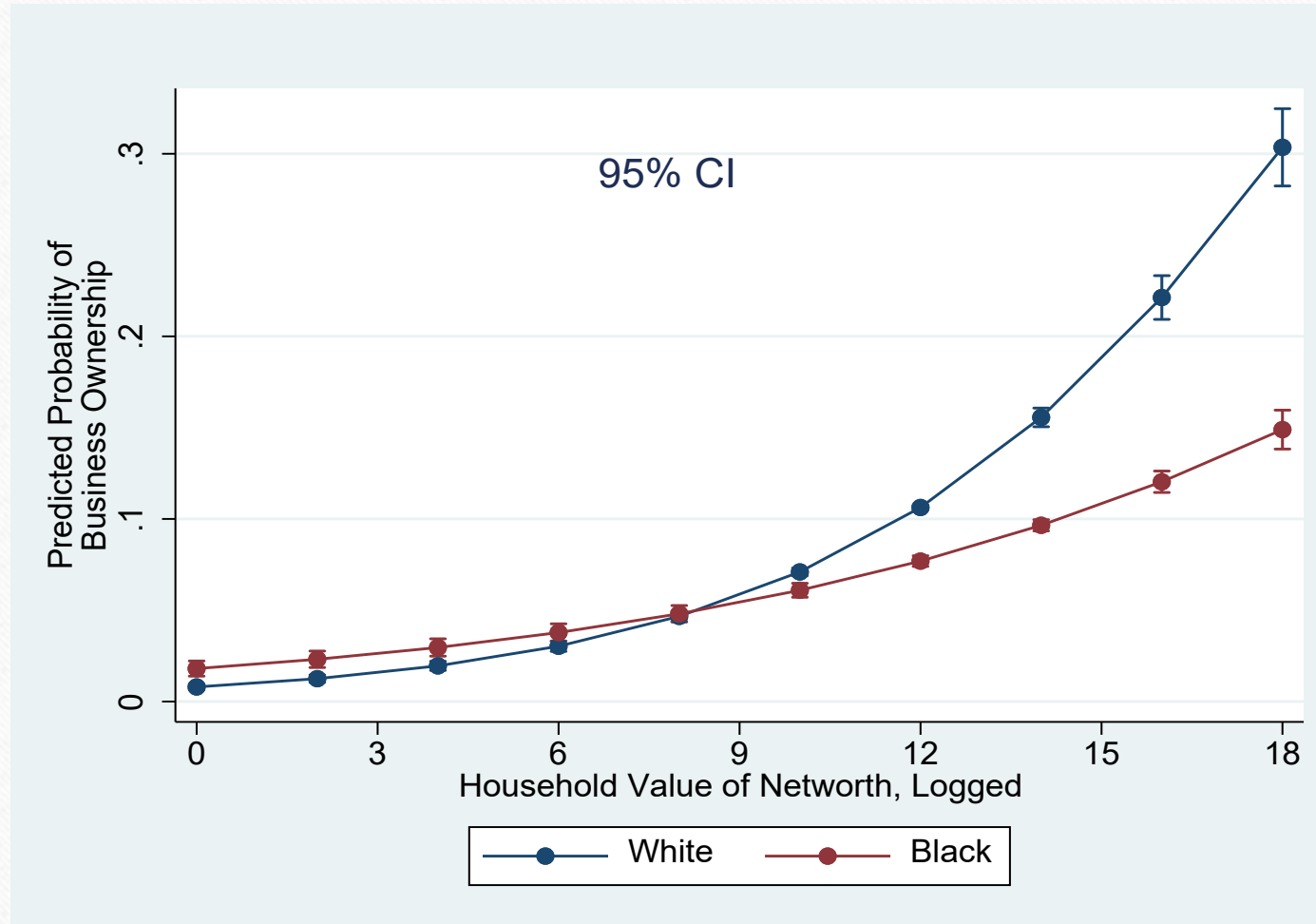


Figure 3: Probability of Making a Profit of \$10K+ by Household Level Student Loan Debt.



Predicted Probability of Business Ownership by Household Value of Net Worth for Black and White.



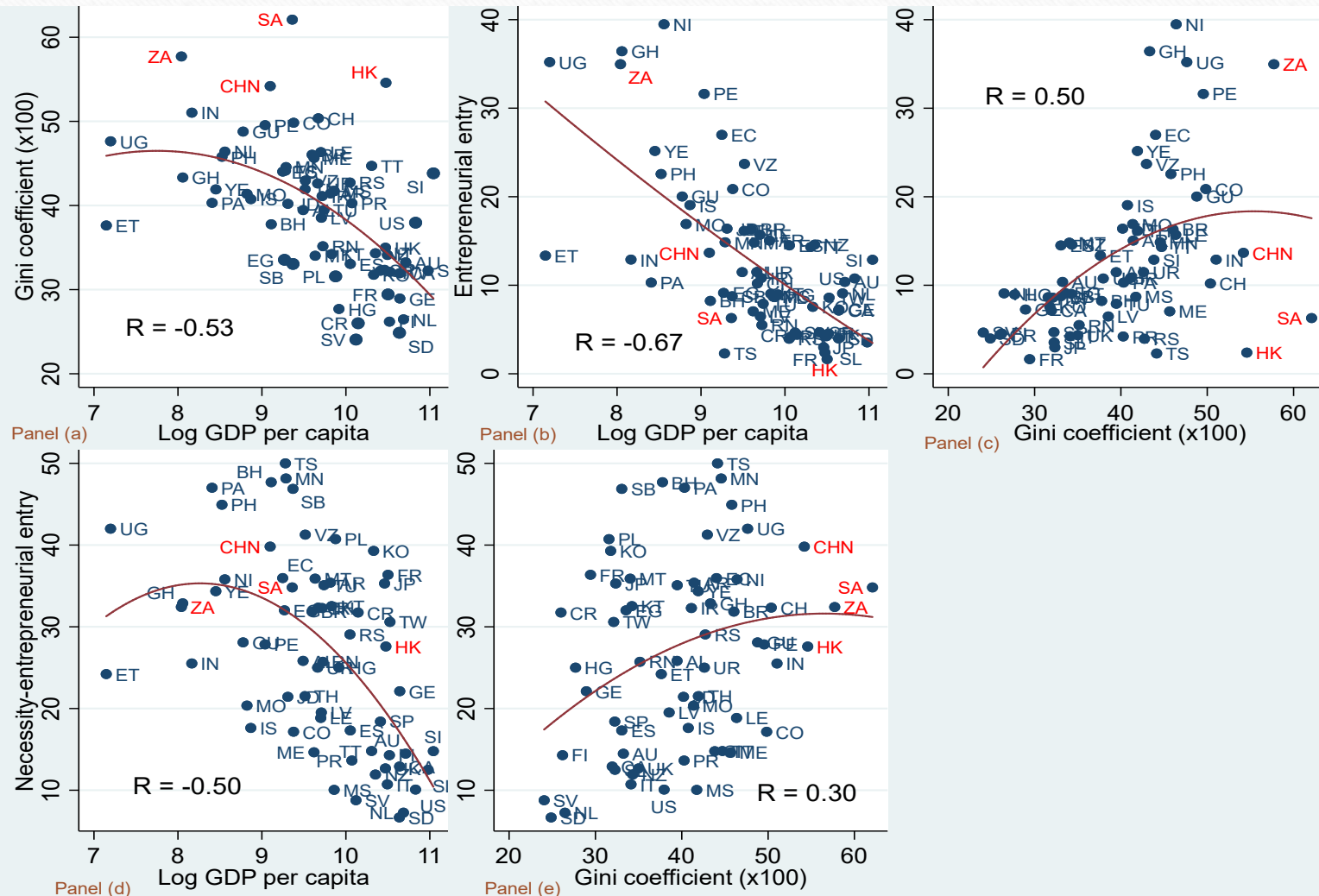
Q&A

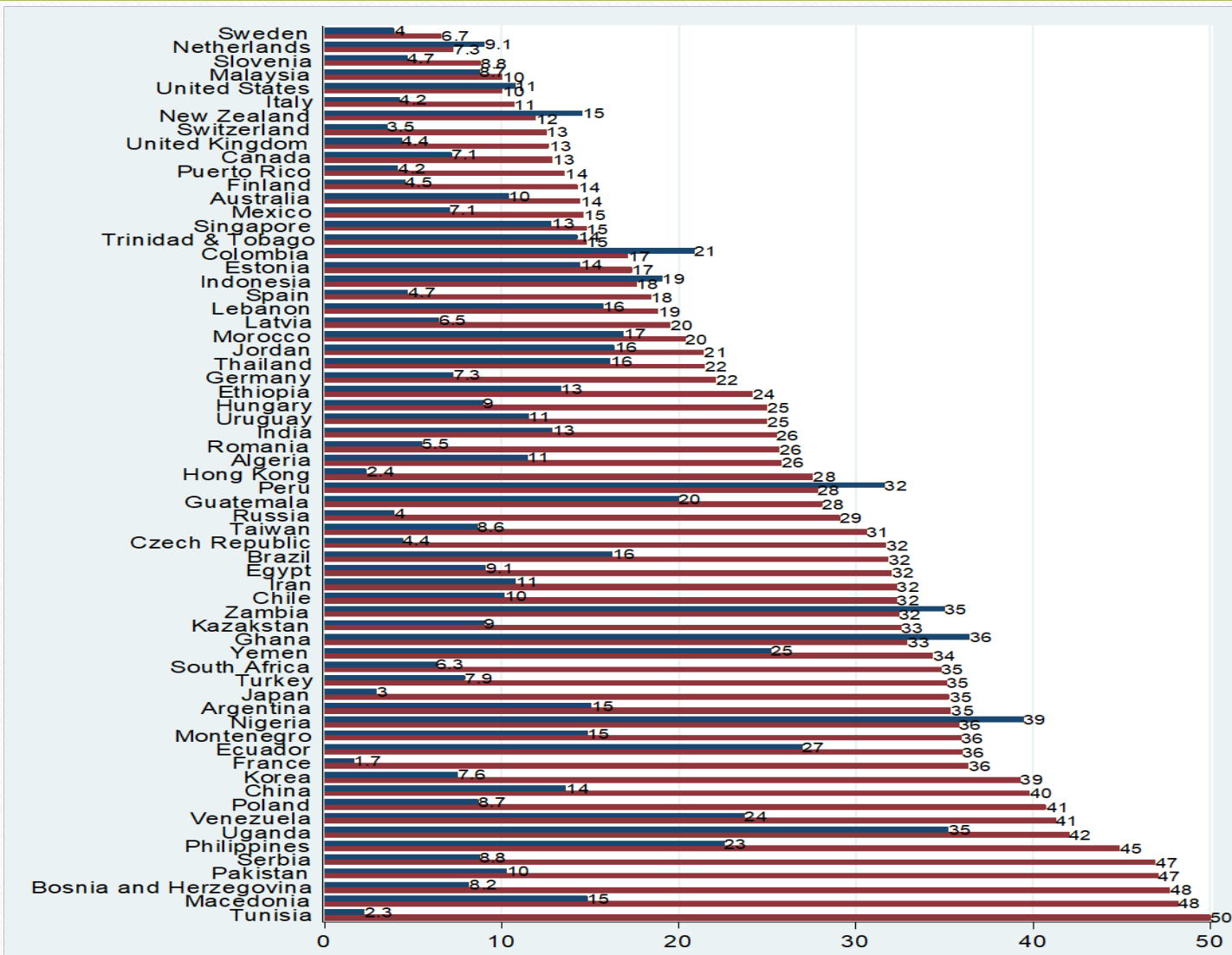
Income Inequality and Entrepreneurship

Correlation between Entrepreneurial Entry and Necessity-Entrepreneurial Entry, Income Inequality and Development.

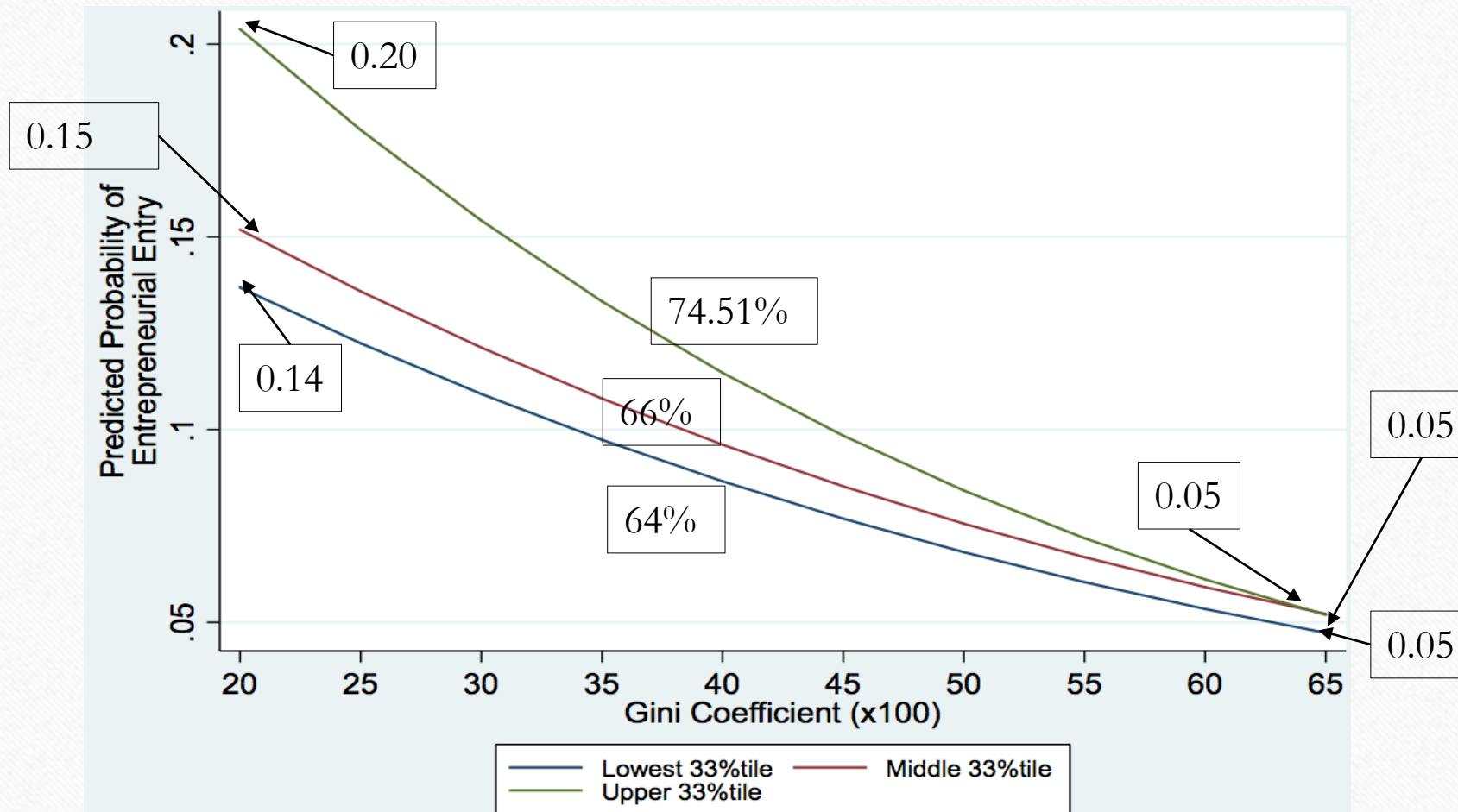


China (CHN), Hong Kong (HK), and South Africa (SA) and Zambia (ZA) included

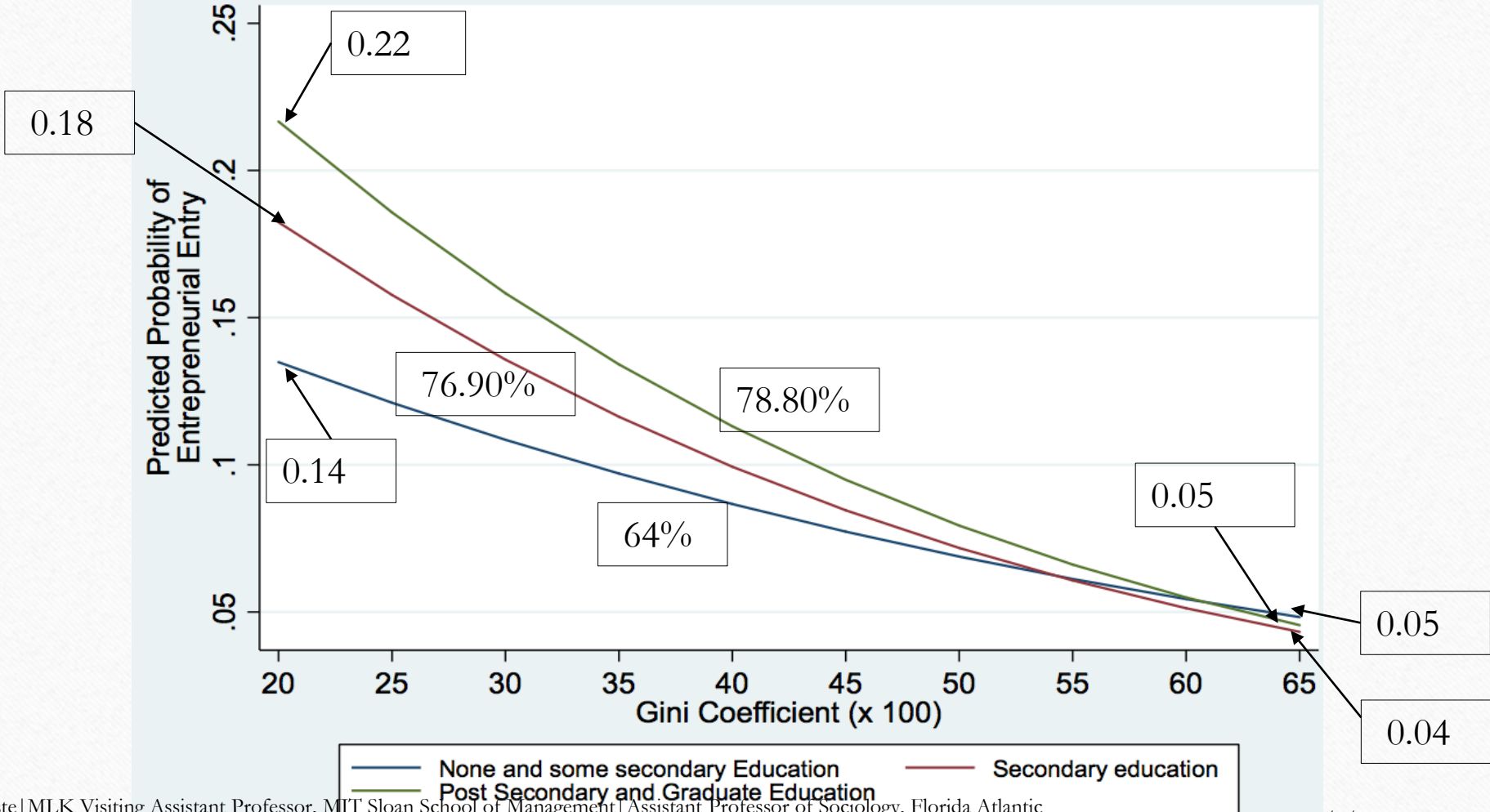




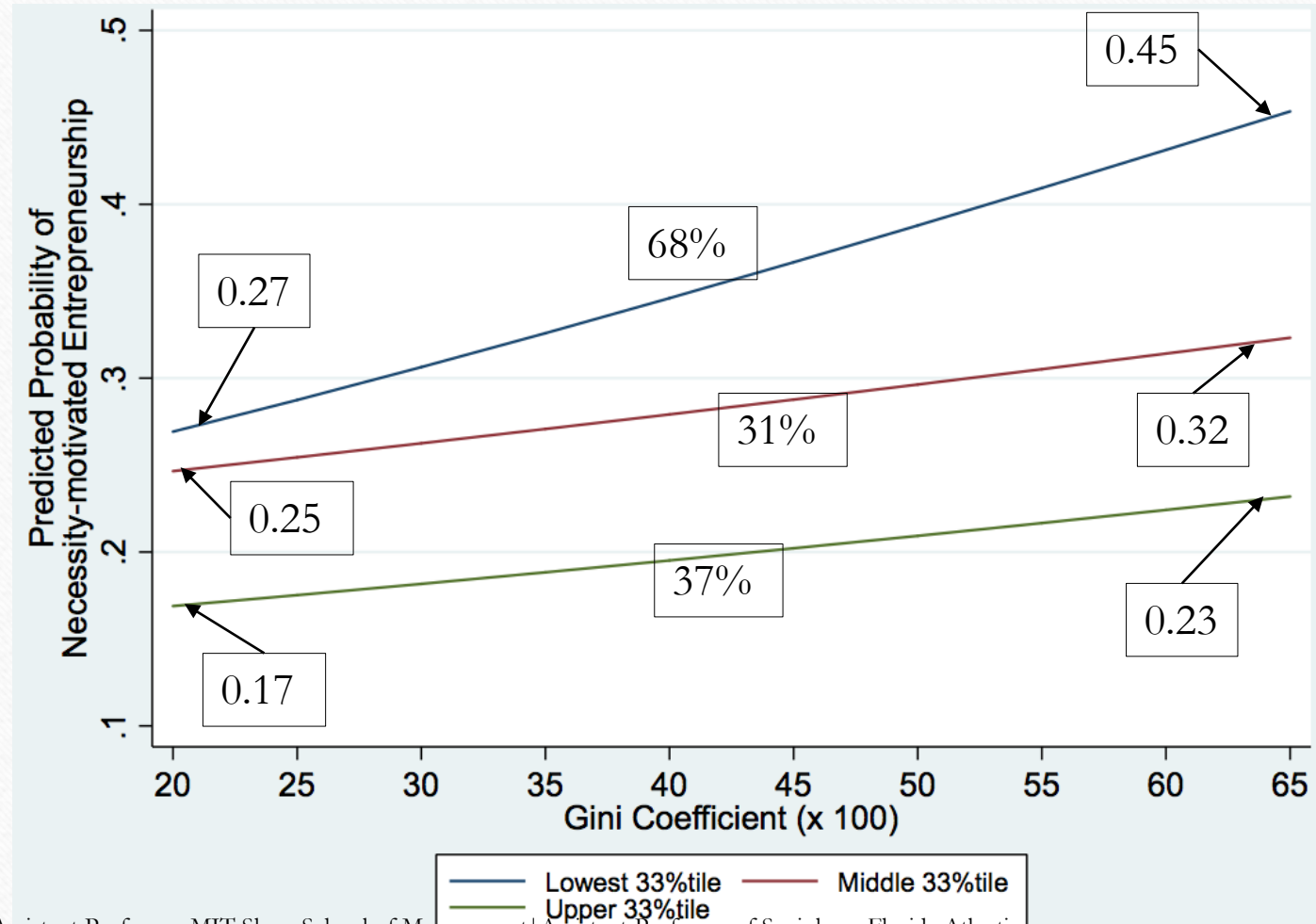
Inequality Weakens Entrepreneurship More at the Top Income Strata



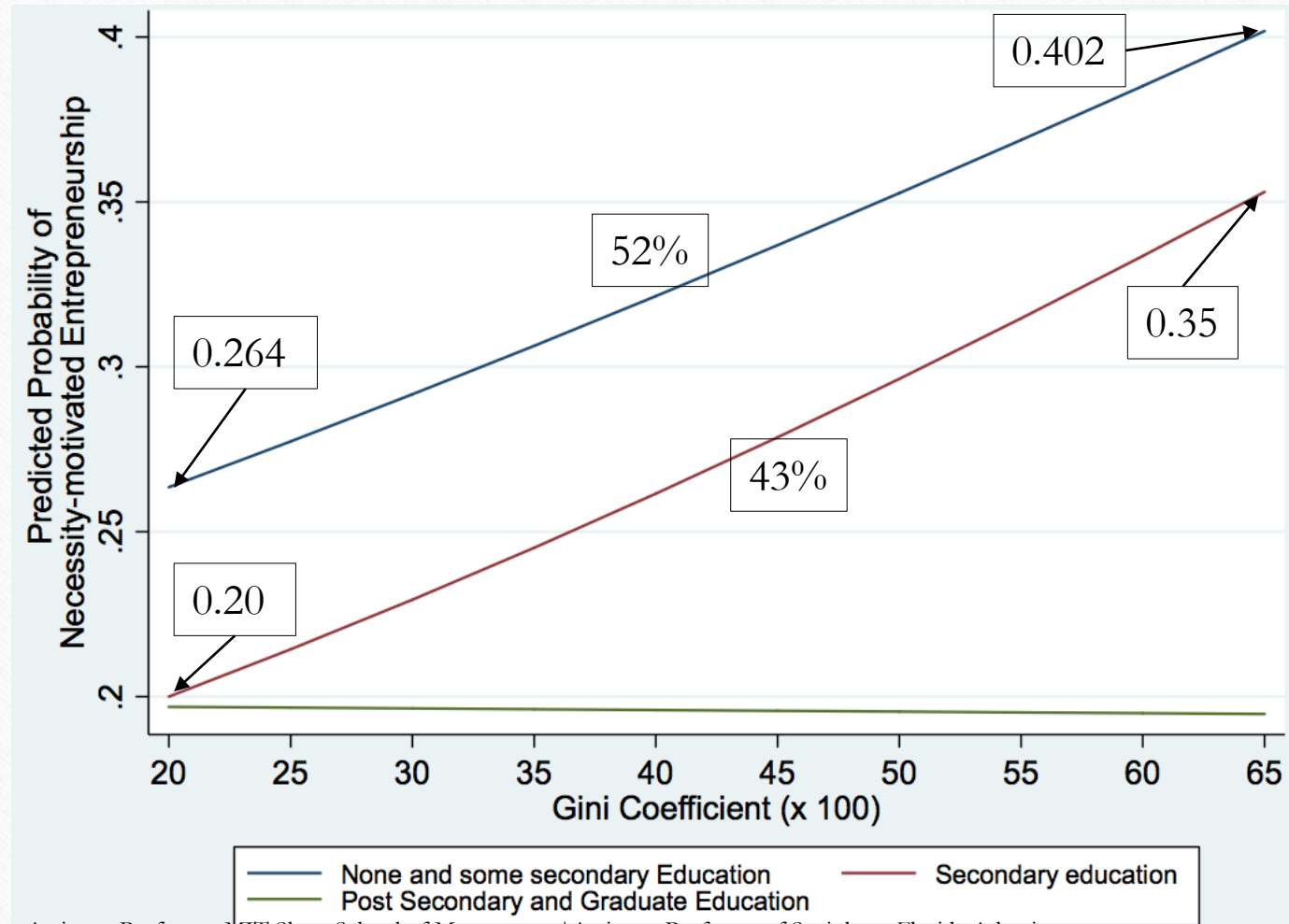
Inequality Weakens the Importance of Human Capital More for Higher Educated Groups



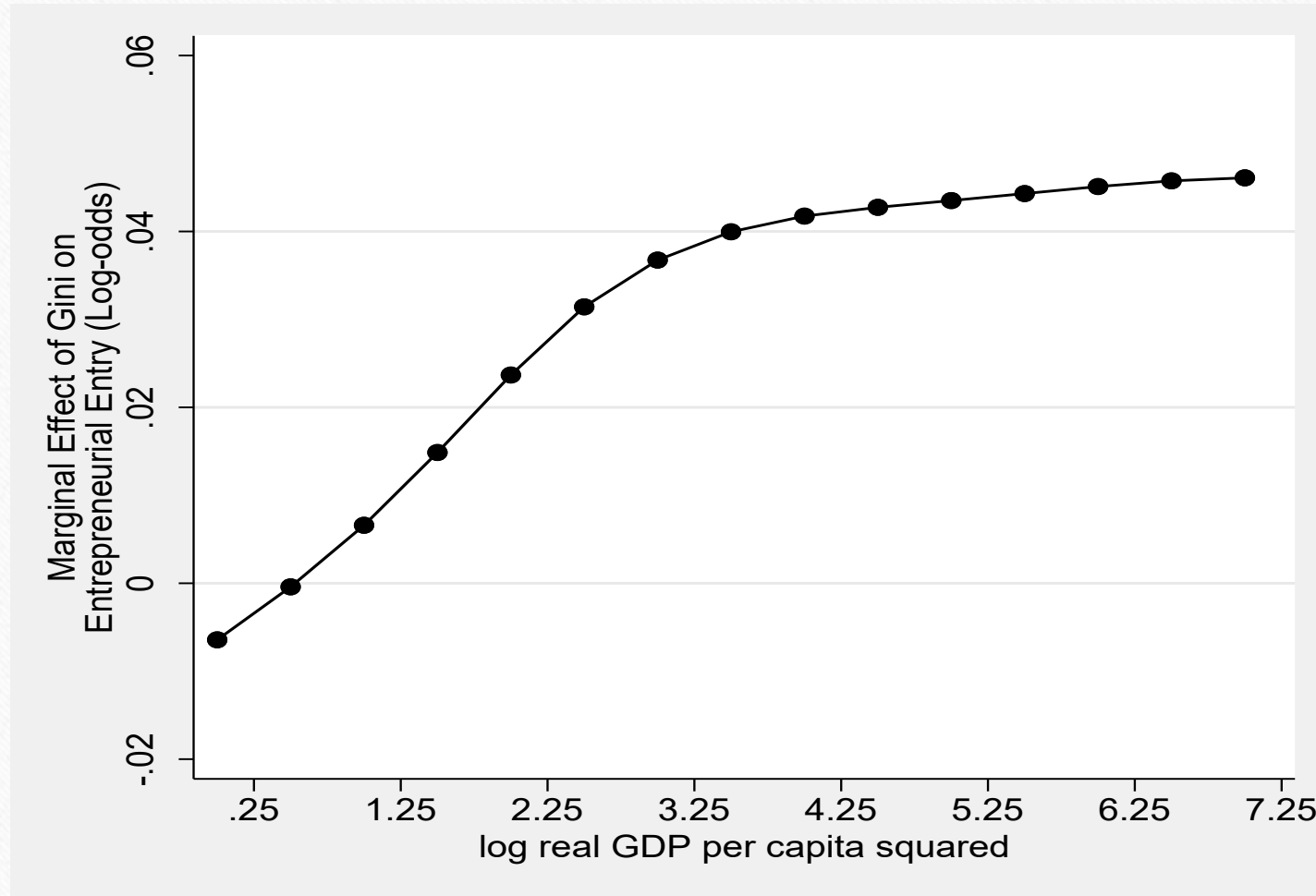
Inequality Increases Necessity-motivated Entrepreneurship More Lower-Income Strata.



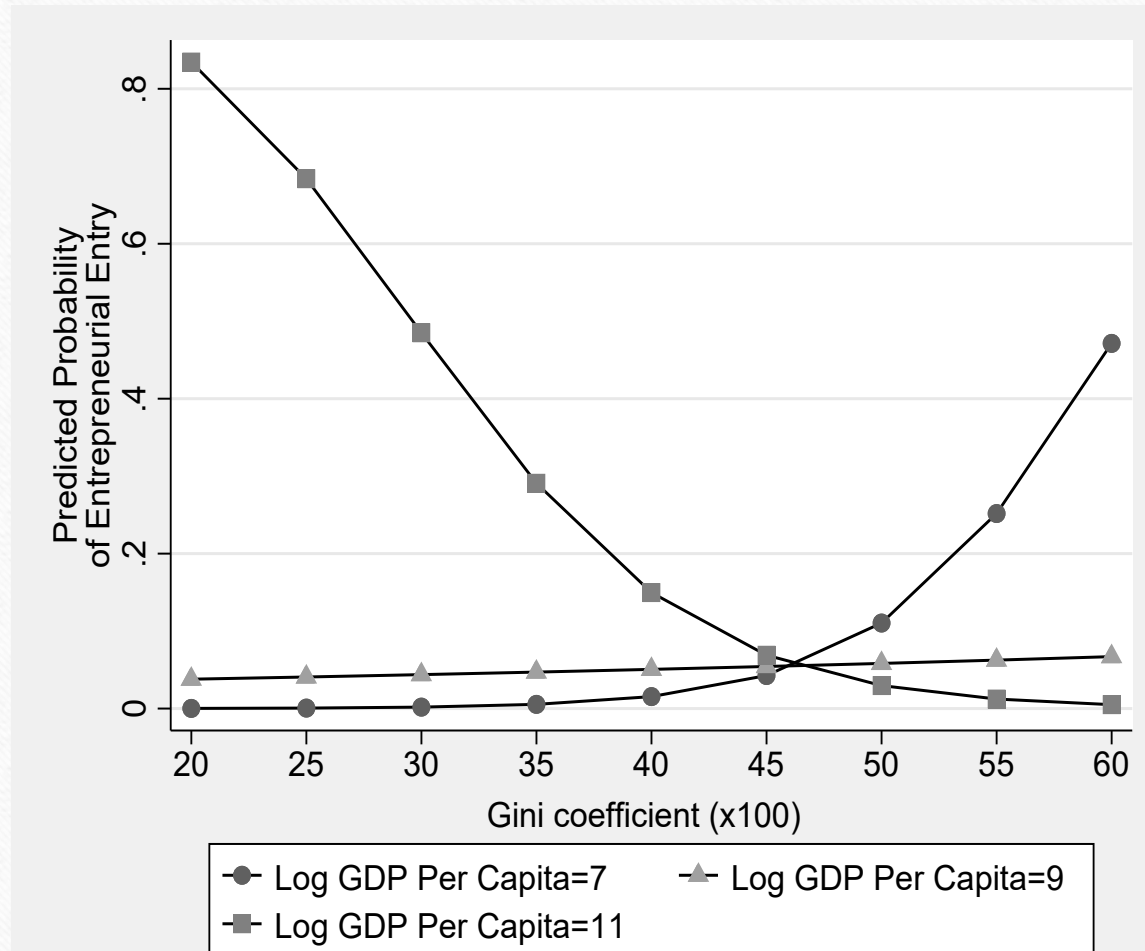
Inequality Increases Necessity-motivated Entrepreneurship More Among Lower-Education Strata.



Inequality is More Harmful for Entrepreneurship in Economies Like the U.S.



Inequality is More Harmful for Entrepreneurship in Advanced Economies Like the U.S.



| Pairwise correlations | | 1 | 2 | 3 |
|---|---|-----------|-----------|----------|
| Entrepreneurial entry | 1 | N/A | N/A | |
| Motivated by lack of better option for generating income | 2 | N/A | N/A | |
| Income (Upper 33%tile) | 3 | 0.0540*** | -0.175*** | |
| Educational attainment (postsecondary Graduate Education) | 4 | 0.024** | -0.189*** | 0.283*** |

Figure 1: Predicted Probability of Entrepreneurial Entry for three Income Categories, by Societal level Income Inequality (95% CI).

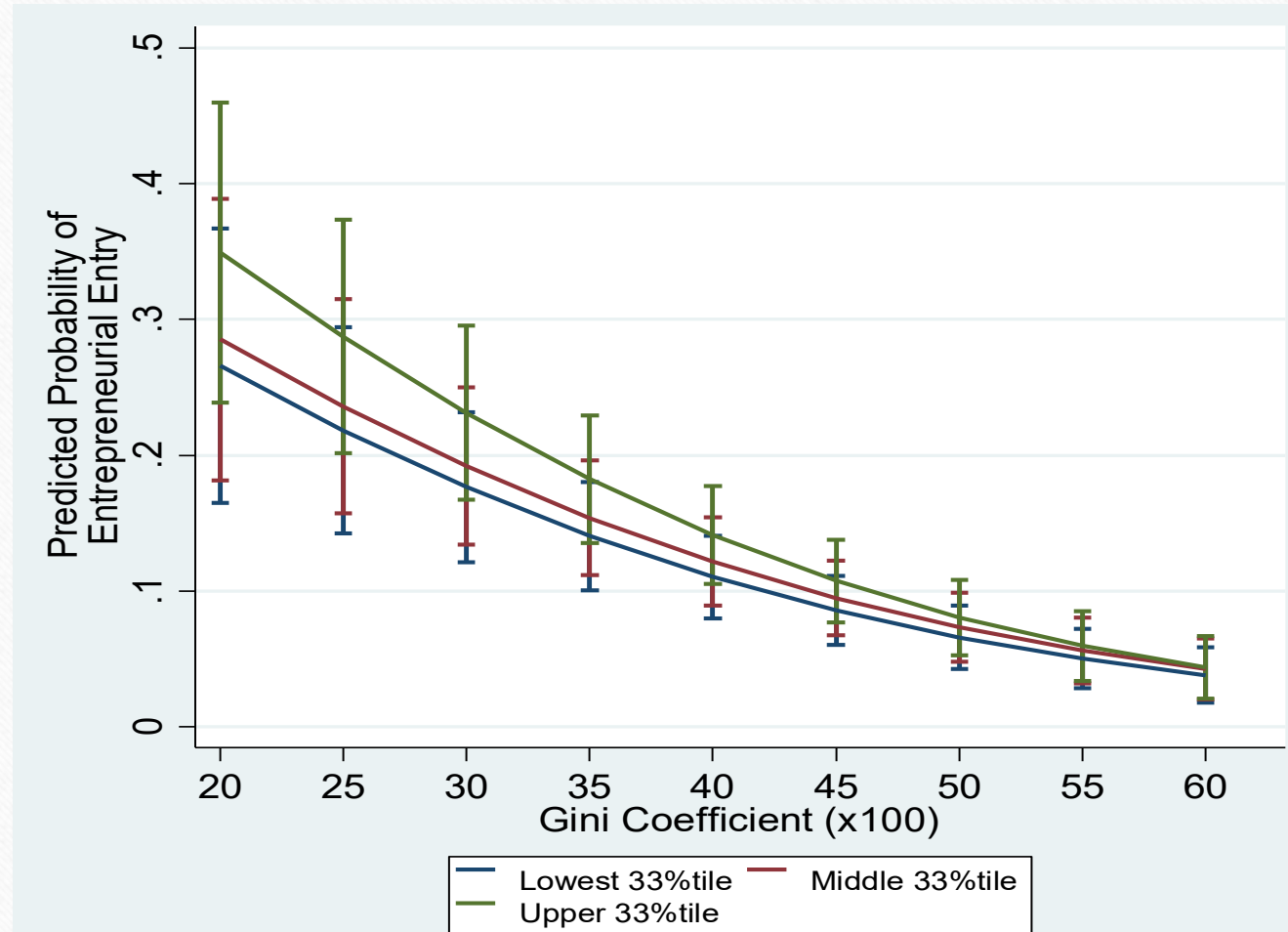


Figure 2: Predicted Probability of Entrepreneurial Entry for the three Education Categories, by Societal level Income Inequality (95% CI).

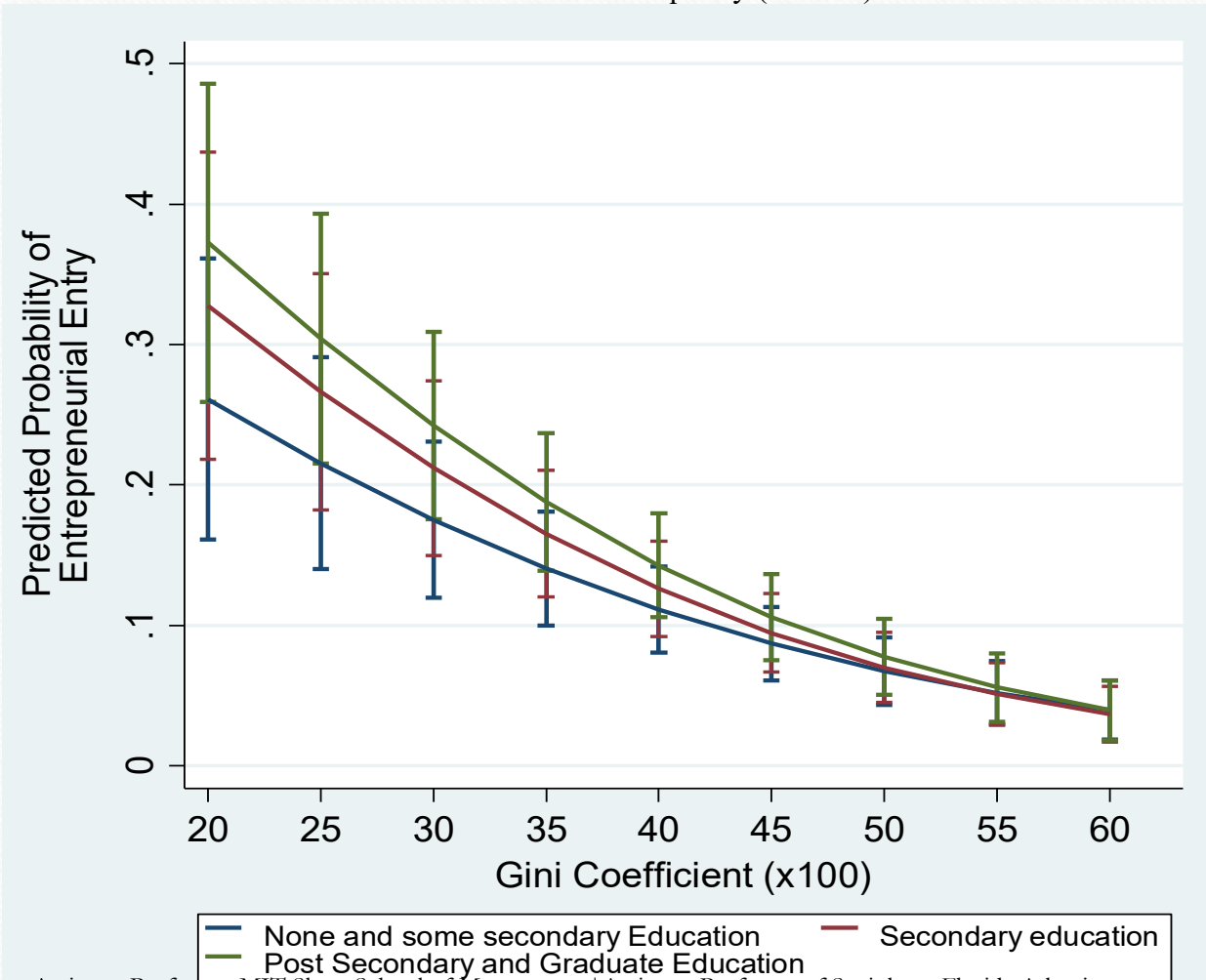


Figure 3: Predicted Probability of Necessity-motivated Entrepreneurship for the three Income Categories, by Societal level Income Inequality (95% CI).

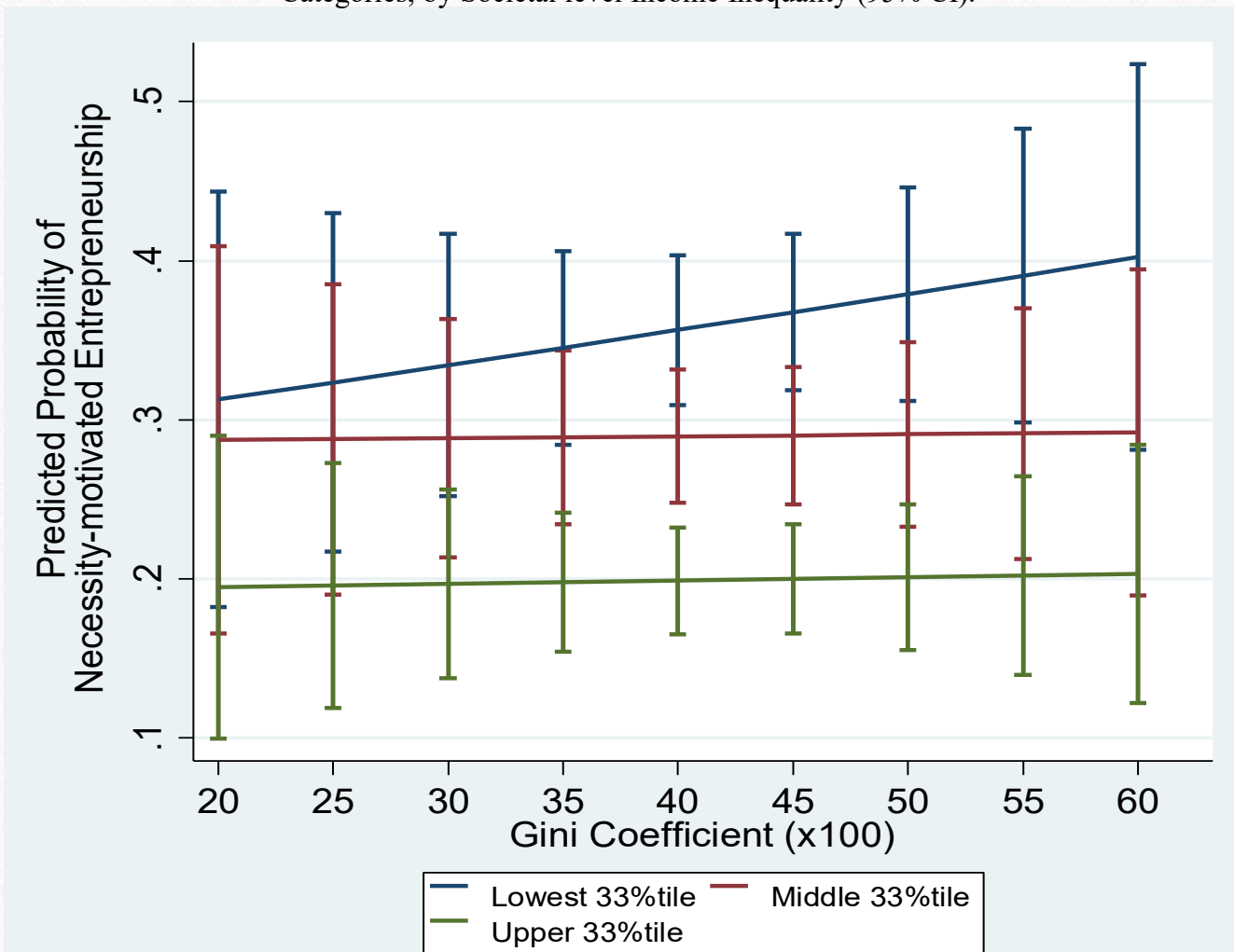


Figure 4: Predicted Probability of Necessity-motivated Entrepreneurship for the three Education Categories, by Societal level Income Inequality (95% CI).

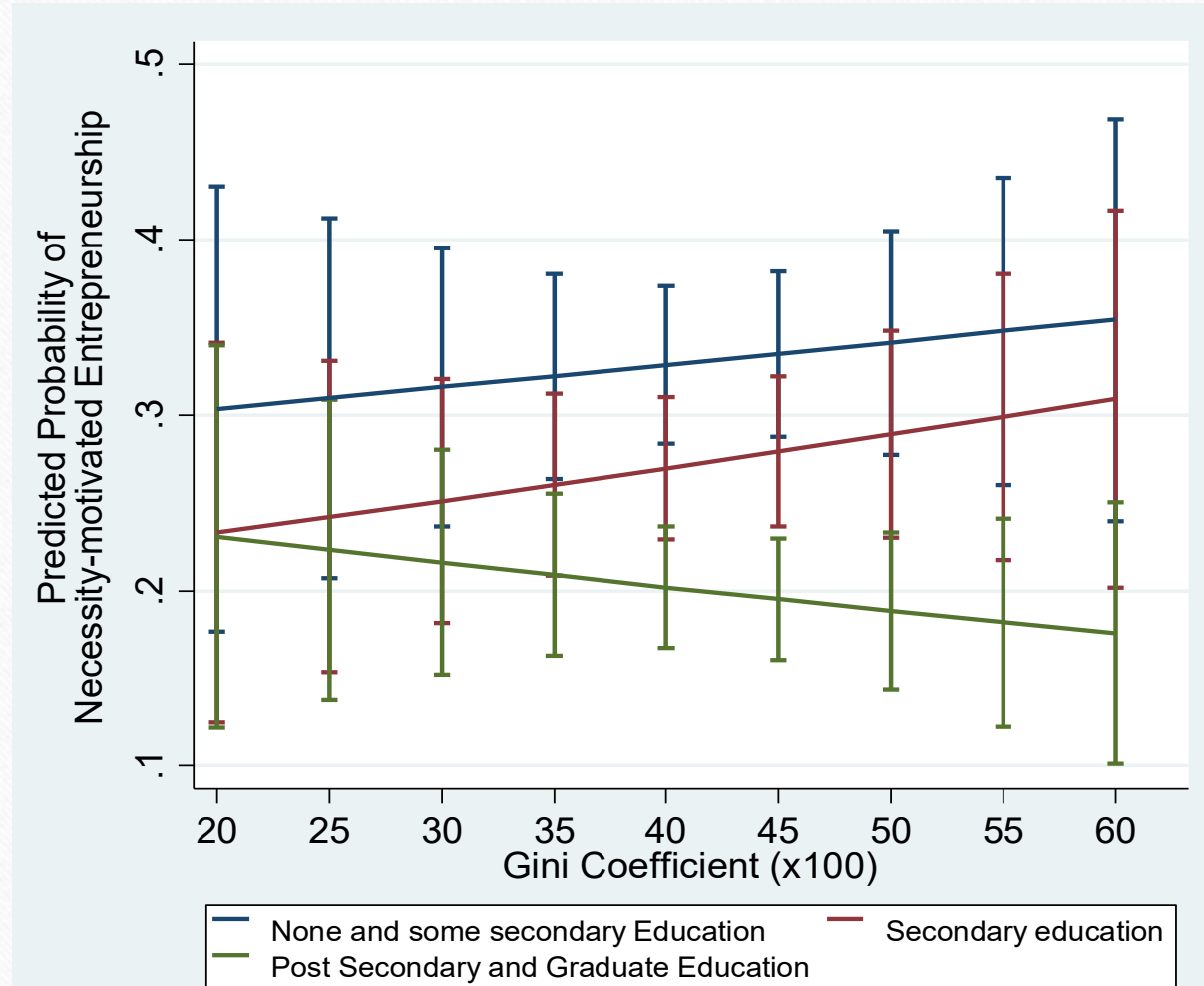


Table 3: Mixed-effects Regression Estimates of the Moderating Effect of Inequality on the Effect of Education and Income on the Log-odds of Entrepreneurial Entry.

| | (1) | Income X Gini (2) | Education X Gini (3) |
|--|----------------------|-------------------------|----------------------------|
| Constant | -4.043* (1.979) | 1.976 (2.401) | 1.954 (2.414) |
| Middle 33 rd income percentile | 0.124*** (0.0241) | 0.108 (0.122) | 0.123*** (0.0241) |
| Upper 33 rd income percentile | 0.308*** (0.0246) | 0.626*** (0.118) | 0.305*** (0.0247) |
| Secondary education | 0.123*** (0.0242) | 0.126*** (0.0242) | 0.618*** (0.127) |
| Postsecondary and graduate education | 0.281*** (0.0254) | 0.288*** (0.0255) | 0.945*** (0.124) |
| Gini Coefficient | | -0.0612*** (0.0130) | -0.0589*** (0.0130) |
| <i>Cross-level interactions</i> | | | |
| Middle 33 rd income percentile X Gini Coefficient | | 0.000299 (0.00285) | |
| Upper 33 rd income percentile X Gini Coefficient | | -0.00790** (0.00279) | |
| Secondary education X Gini Coefficient | | | -0.0115*** (0.00291) |
| Postsecondary and graduate education X Gini Coefficient | | | -0.0158*** (0.00290) |
| <i>Individual controls</i> | Yes | Yes | Yes |
| <i>Country level controls</i> | Yes | Yes | Yes |
| Between-country intercept s. d. | 1.058 (0.272) | 1.211 (0.297) | 1.236 (0.302) |
| Observations | 142,840 | 142,840 | 142,840 |
| Number countries | 50 | 50 | 50 |
| Log likelihood | -43,867.3 | -43,847.5 | -43,838.6 |
| Chi-squared | 1,392.5 | 1,433.3 | 1,443.6 |

Standard errors in parentheses

$p < 0.05$, * $p < 0.01$, ** $p < 0.001$

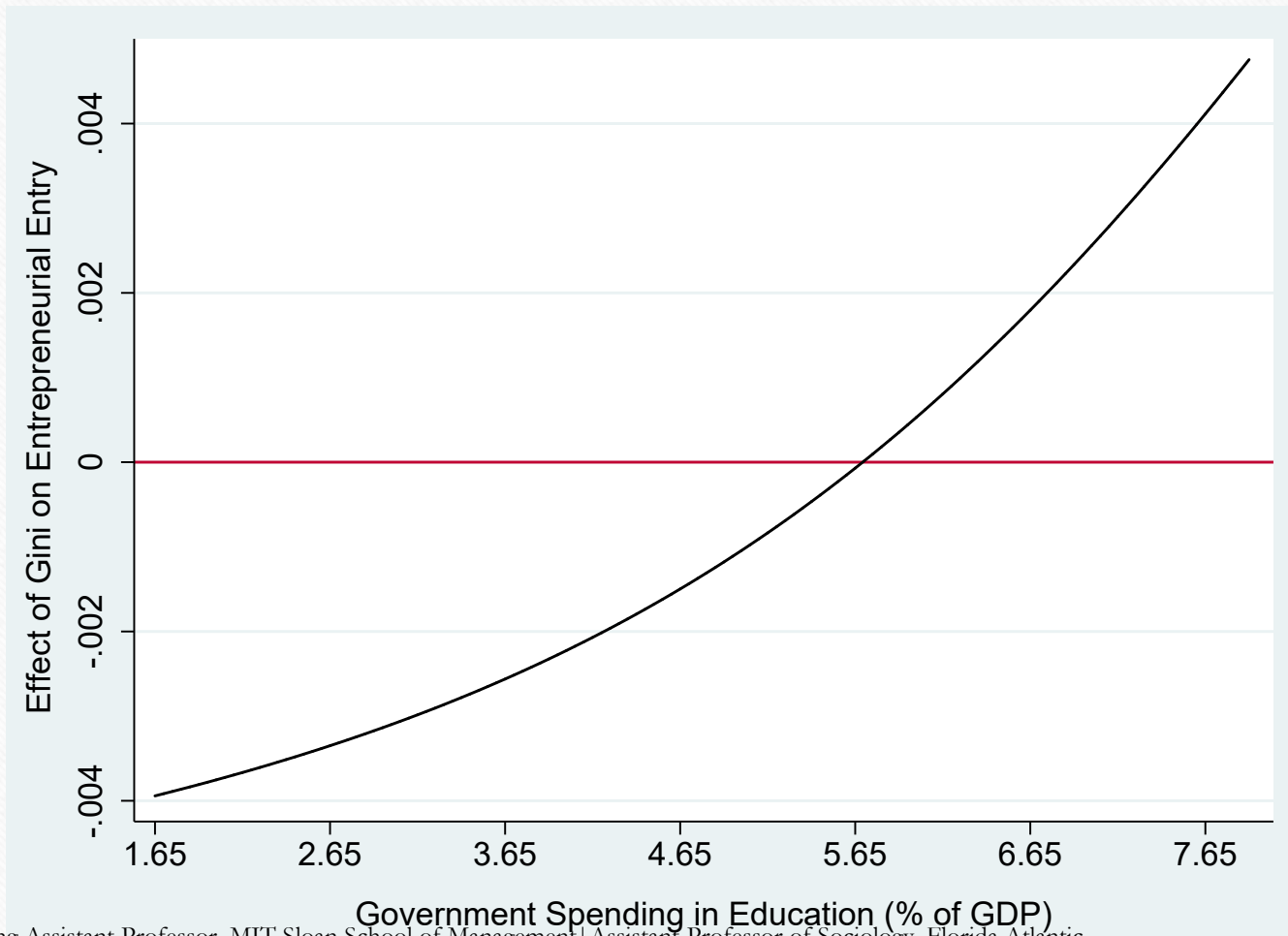
Table 4: Mixed-effects Regression Estimates of the Moderating Effect of Inequality on the Effect of Education and Income on the Log-odds of Necessity Entrepreneurship.

| | (4) | Income X Gini (5) | Education X Gini (6) |
|--|-----------------------|-------------------------|----------------------------|
| Constant | 5.741** (2.104) | 5.016* (2.420) | 5.368* (2.441) |
| Middle 33 rd income percentile | -0.362*** (0.0493) | 0.0791 (0.272) | -0.361*** (0.0493) |
| Upper 33 rd income percentile | -0.881*** (0.0527) | -0.476 (0.278) | -0.876*** (0.0529) |
| Secondary education | -0.293*** (0.0491) | -0.287*** (0.0492) | -0.461 (0.277) |
| Postsecondary and graduate education | -0.727*** (0.0562) | -0.722*** (0.0563) | -0.0914 (0.282) |
| Gini Coefficient | | 0.0115 (0.0141) | 0.00621 (0.0141) |
| <i>Cross-level interactions</i> | | | |
| Middle 33 rd income percentile X Gini Coefficient | | -0.0102 (0.00621) | |
| Upper 33 rd income percentile X Gini Coefficient | | -0.00945 (0.00640) | |
| Secondary education X Gini Coefficient | | | 0.00394 (0.00621) |
| Postsecondary and graduate education X Gini Coefficient | | | -0.0152* (0.00650) |
| <i>Individual controls</i> | Yes | Yes | Yes |
| <i>Country level controls</i> | Yes | Yes | Yes |
| Between-country intercept s. d. | 0.359*** (0.101) | 0.350*** (0.0988) | 0.360*** (0.102) |
| Observations | 15,760 | 15,760 | 15,760 |
| Number countries | 50 | 50 | 50 |
| Log likelihood | -8,170.6 | -8,169.0 | -8,165.4 |
| Chi-squared | 808.5 | 812.7 | 814.1 |

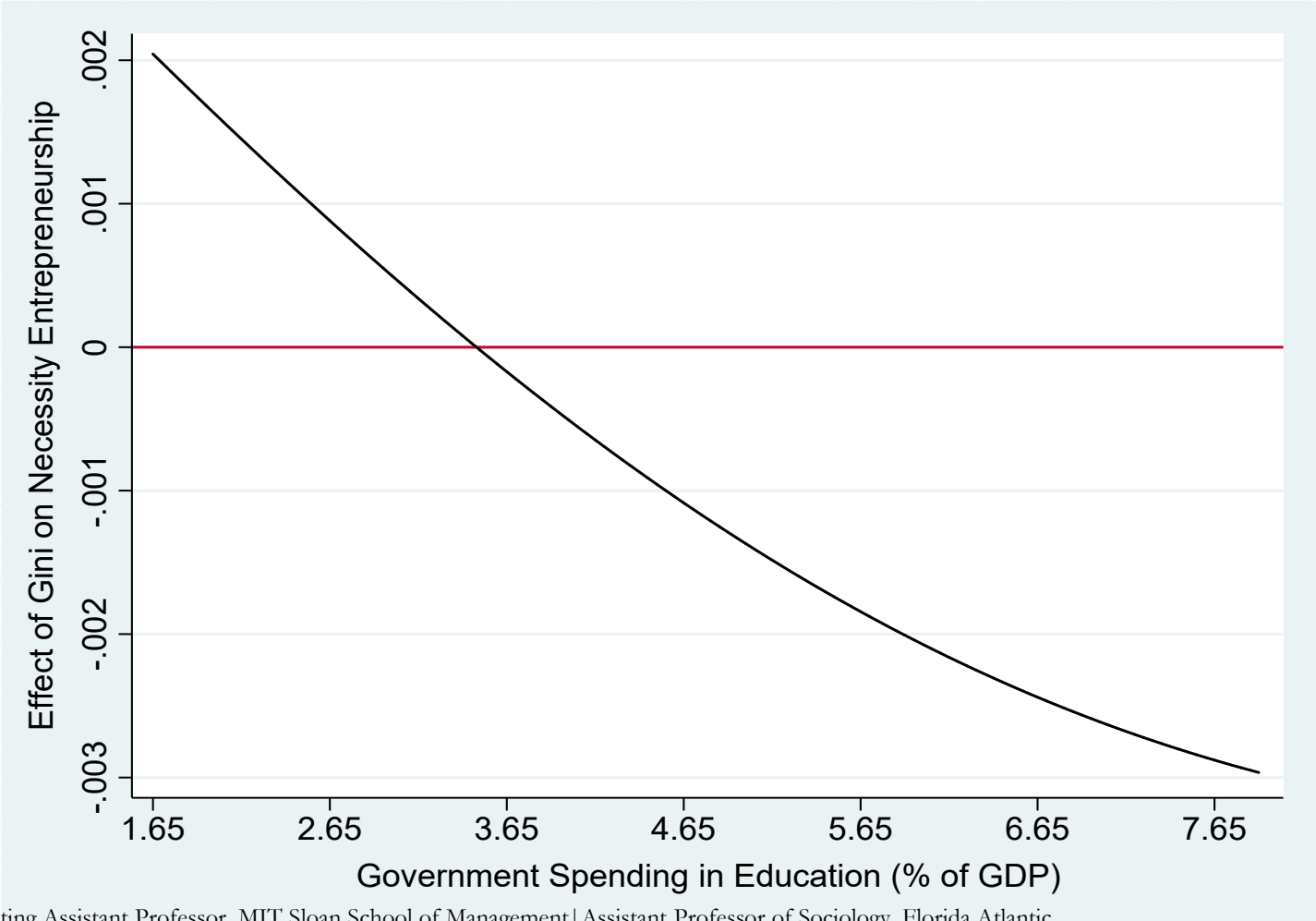
Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

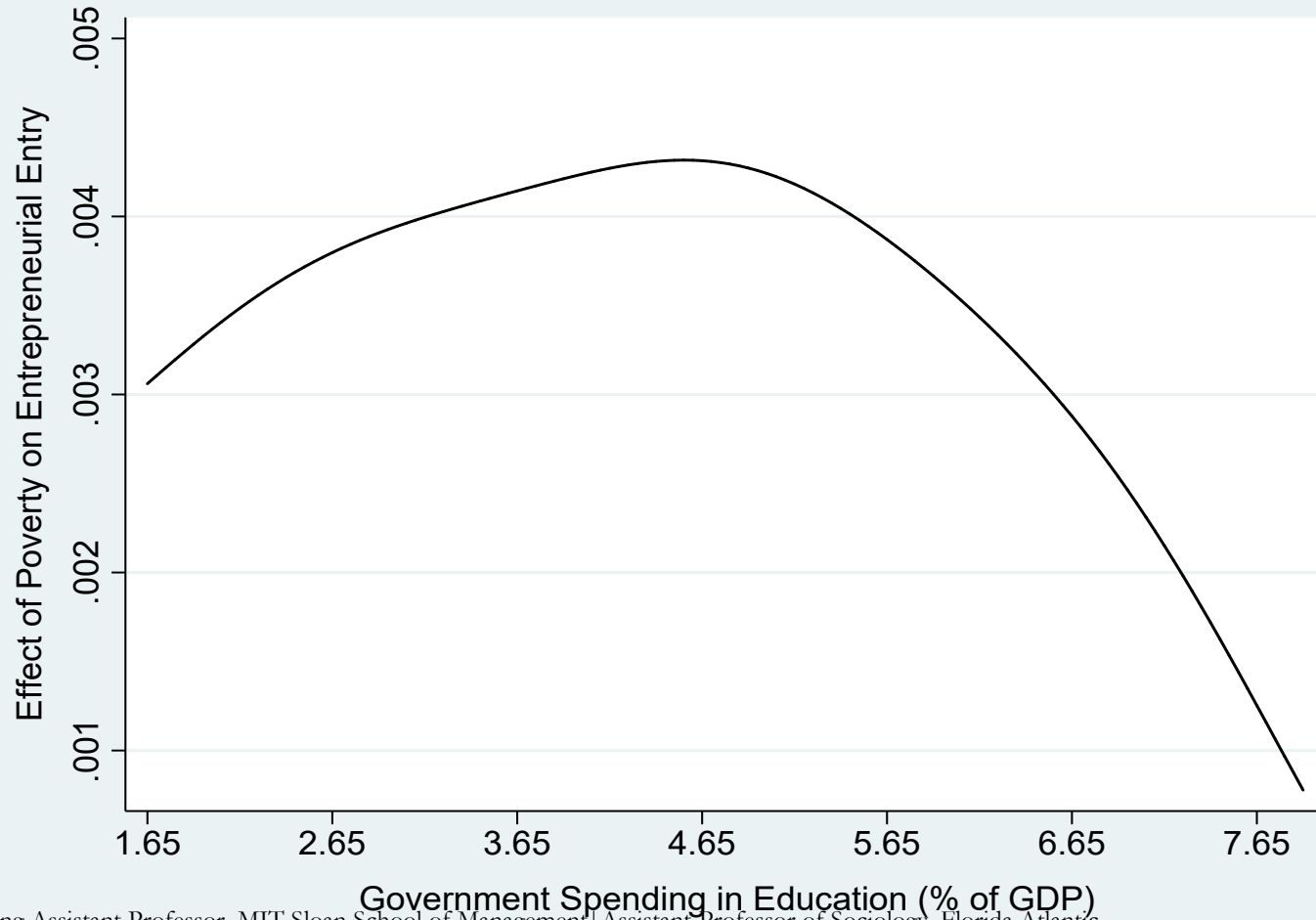
Effect of Income Inequality on Entrepreneurial Entry by Government Spending in Education (in Log-odds)



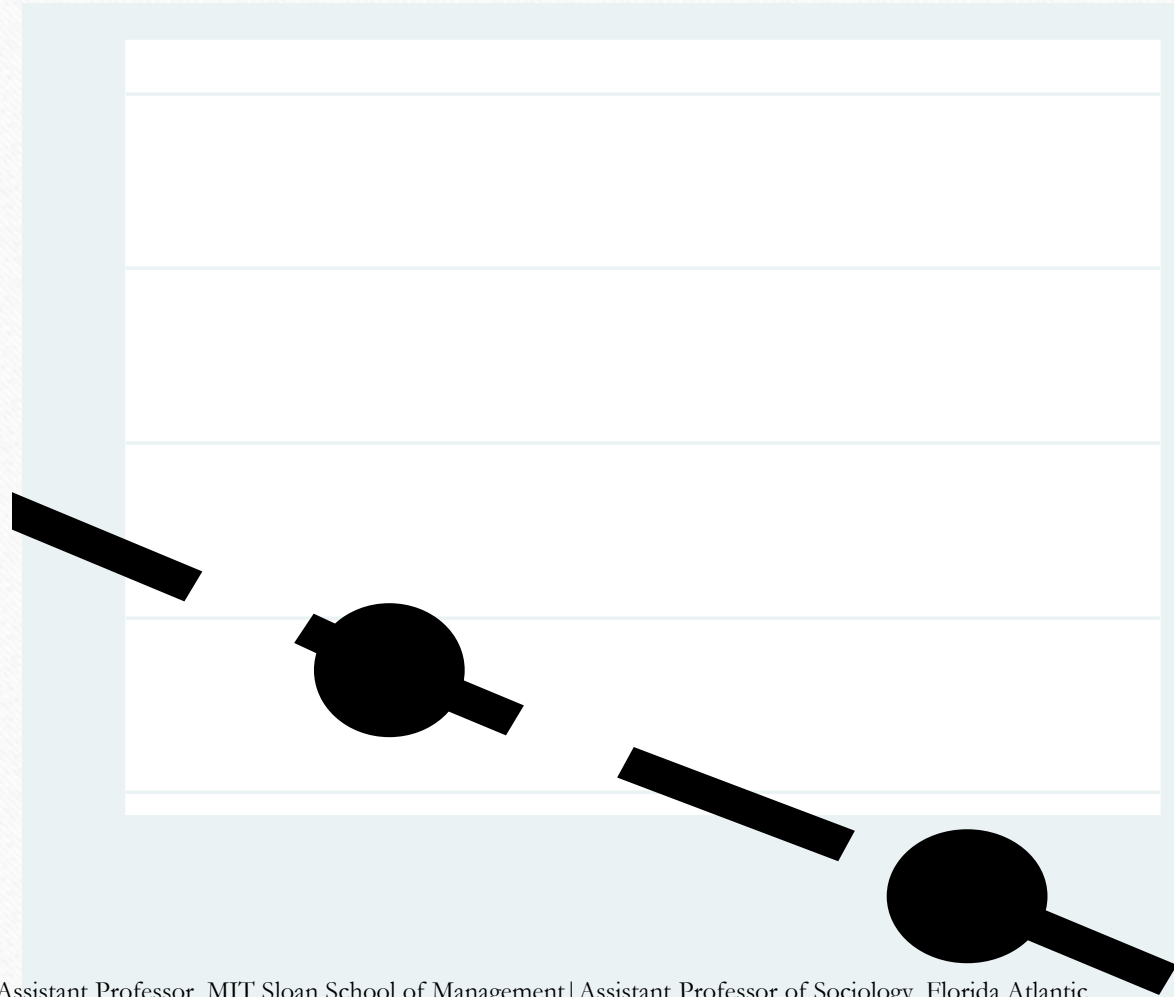
Effect of Income Inequality on Necessity Entrepreneurship by Government Spending in Education (in Log-odds)



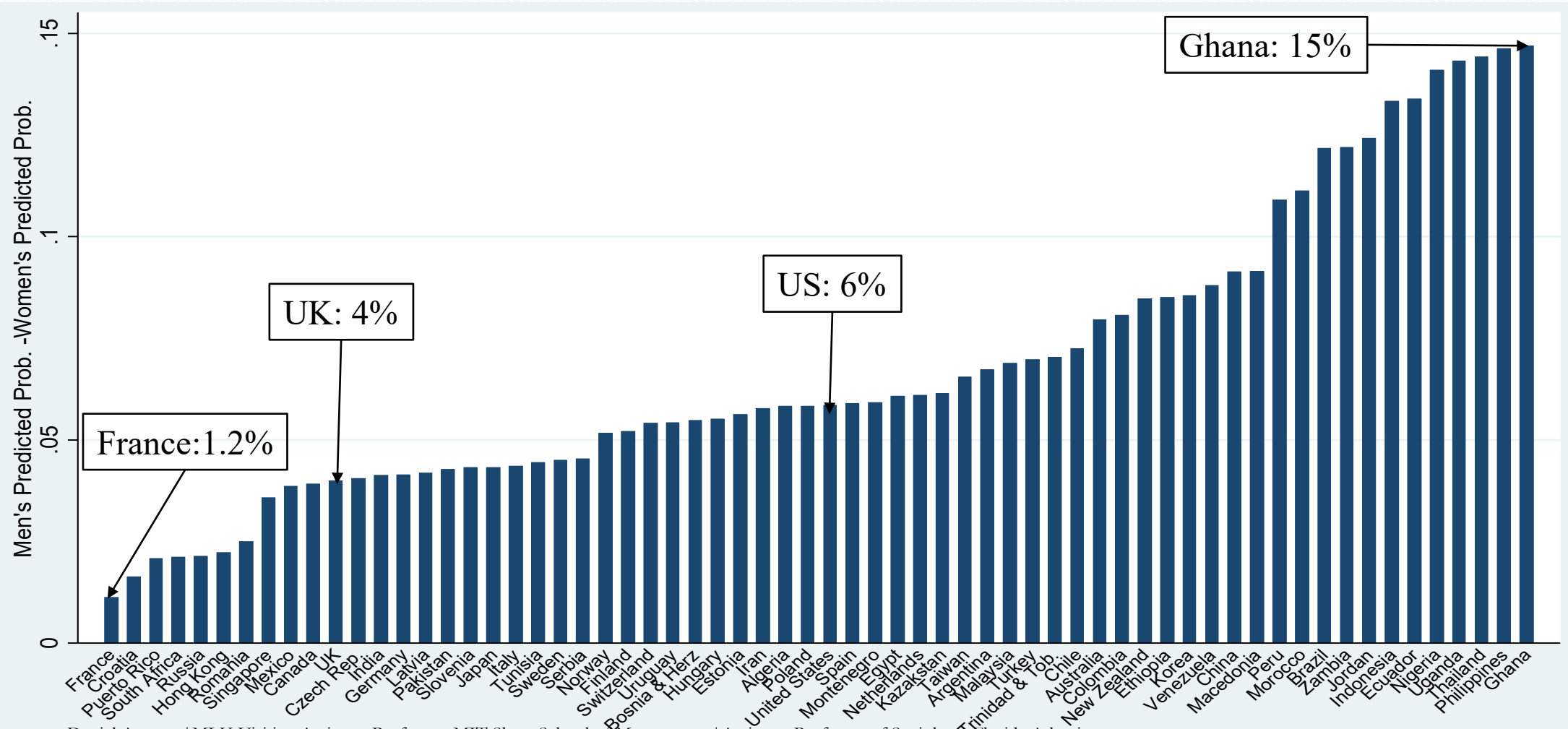
Effect of Poverty on Entrepreneurial Entry by Government Spending in Education (in Log-odds)



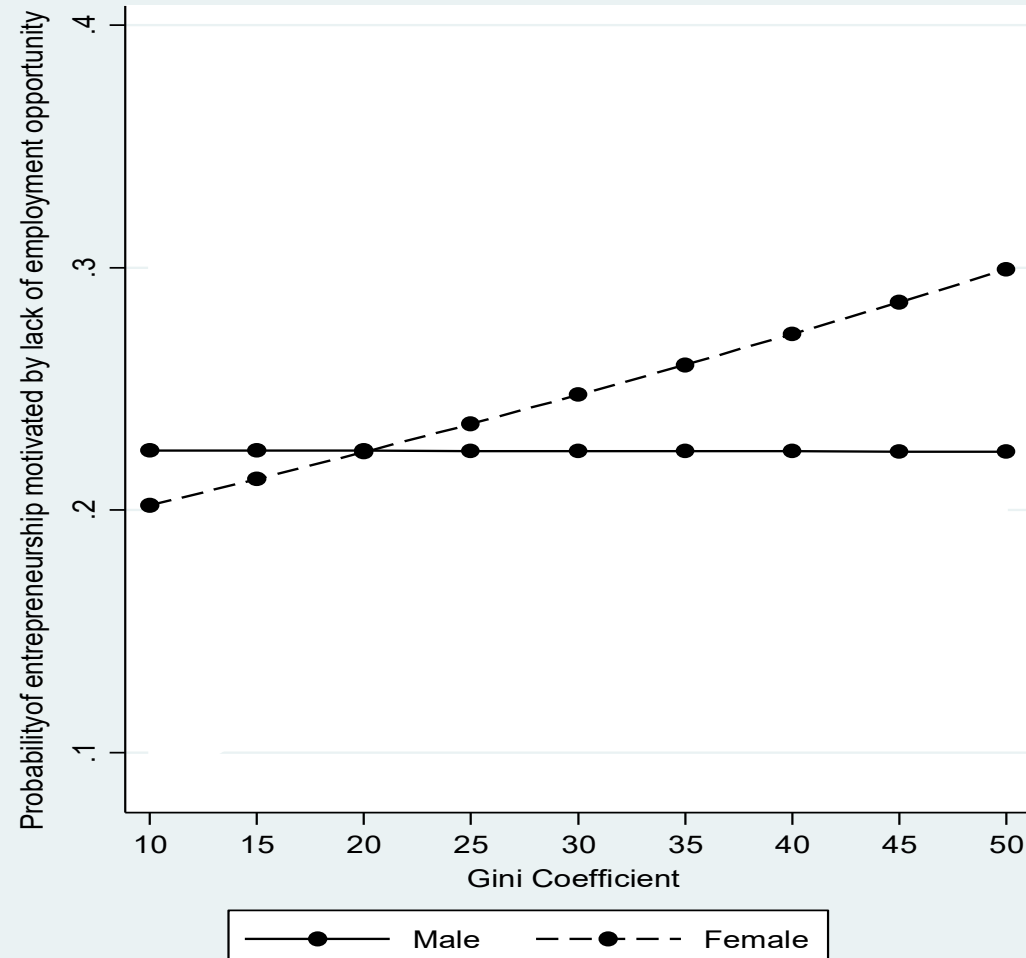
Predicted probabilities of business ownership for men and women, by country-level belief that men have more right to jobs.



The Gender Gap in Established Business Ownership, By Country



Predicted probabilities of Necessity motivated entrepreneurship by Country-level Economic Inequality.



Predicted probabilities of Opportunity Motivated Entrepreneurship, by country-level Economic Inequality.

