

Product Market Competition and Entrepreneurial Activity: Evidence from U.S. Households

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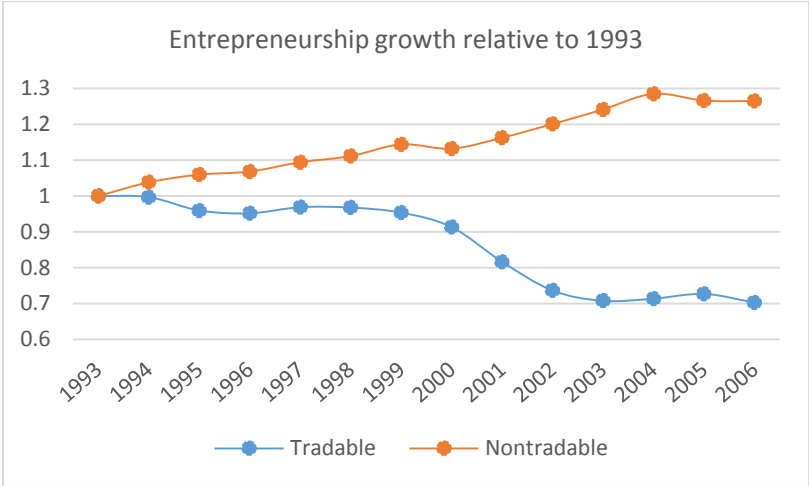
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- Entrepreneurial activity by households is a major component of new business formation and therefore the decline in U.S. entrepreneurship in the last two decades attracts substantial attention .
- The potential role of rising import competition is suggested both by existing international trade theory and by an initial look at the data.
- Figure 1 shows declining rates of business start-up growth in tradable industries versus the rising rates in non-tradable industries during 1993-2006.

Figure 1. Growth in entrepreneurship relative to 1993

Changes in US tradable (manufacturing, mining, agriculture) and nontradable entrepreneurship between 1993–2006. Entrepreneur counts are normalized to unity in 1993.



What We Do...

- Theoretically and empirically analyze the effects of increased competition from low-cost countries (due to globalization) on household entrepreneurial activity.
- Build a theoretical model of business entry by households in both tradable and non-tradable industries to generate refutable hypotheses.
- Utilize a unique panel dataset of U.S. households from 1993-2006 to test the predictions of the business entry model through calibration/simulation and formal estimation.
- Our data facilitates identification by allowing us to control for total wealth and human capital of individuals at the household level.

Feedback Effect on Innovative Firms

- The main predictions of the model are:

Hypothesis

The equilibrium likelihood that individuals will choose entry in the tradable sector is decreasing in the import penetration but is non-decreasing in their total wealth. The effect of human capital on the entry likelihood is generally ambiguous, but it is positive if the wage returns to human capital are not too high.

Hypothesis

In the non-tradable sector, the business entry likelihood is increasing with import-penetration (in the tradable sector), and is increasing in total wealth. The effect of human capital on the entry likelihood is generally ambiguous, but it is positive if the wage returns to human capital are not too high.

- **Survey of Income and Program Participation (SIPP) 1993-2006**
 - Sample of households drawn from the 1993, 1996, 2001, 2004 panels of the micro-level longitudinal SIPP data. Each SIPP panel tracks 60,000 to 80,000 individuals over a period of up to four years.
 - Data available on demographic attributes, employment and income, business ownership, profit/loss from business, and business size (number of employees).
- **Metropolitan Statistical Areas (MSA)**
 - Entry and business exit are analyzed at the “local market” level by identifying these with MSAs.
 - MSA-level demographic data are obtained from County Business Patterns (CBP).
- Similar to the recent literature, we use import penetration from China as the empirical proxy for low-cost import competition and obtain import data from U.S. Trade Online (USTO) Database.

- Higher penetration of low-cost imports significantly reduces entry by domestic entrepreneurs in the tradable sector.
- Lower wealth intensifies the negative effects of low-cost import-penetration on entrepreneurship, other things held fixed.
- College education dilutes the dampening effect of low-cost import competition.
- There are positive spillover effects of import competition on entrepreneurial activity in the *non-tradable* sector.

Model Calibration and Simulation

- Use Cournot equilibrium with a linear demand curve.
- The demand curve parameters are calibrated to match the observed average profits prior to foreign entry and ex post.
- The low, medium, and high wealth levels are also calibrated from the data at \$45,000, \$66,000 and \$90,000, respectively.
- Educational attainment levels match the categories in the data.

Figure 2. Optimal Response of Domestic Business Entrants Exposed to Foreign Entry: Effects of Wealth

This figure depicts the impact of individual wealth on the optimal response of domestic business entrants to foreign competition. The model is parameterized so that high wealth individuals can finance the fixed costs of entry. Medium and Low wealth individuals cannot finance entry beyond the number of foreign entrants indicated by the arrows.

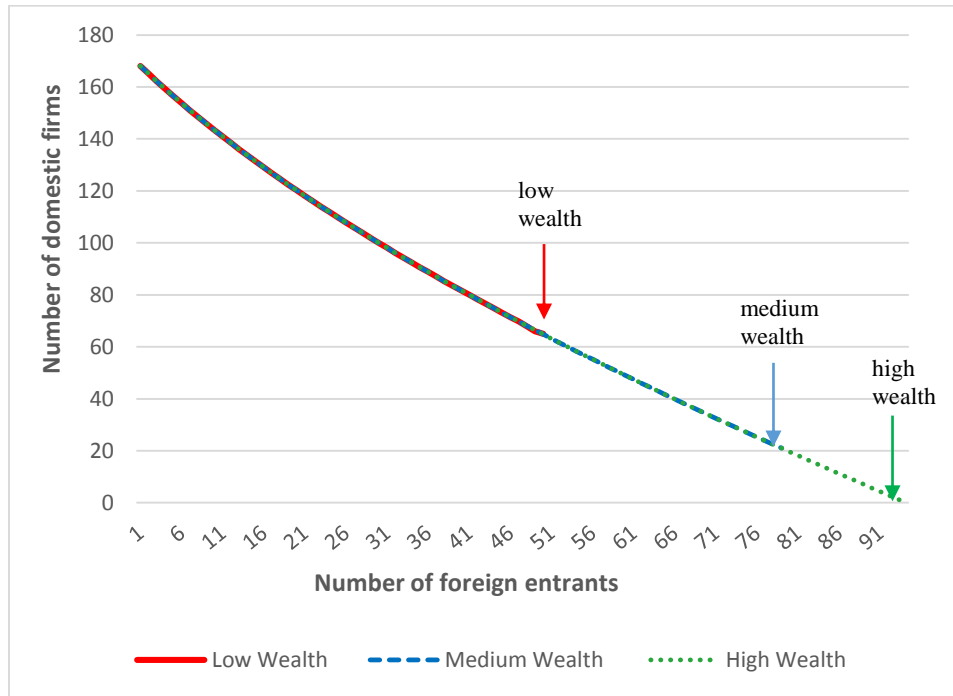
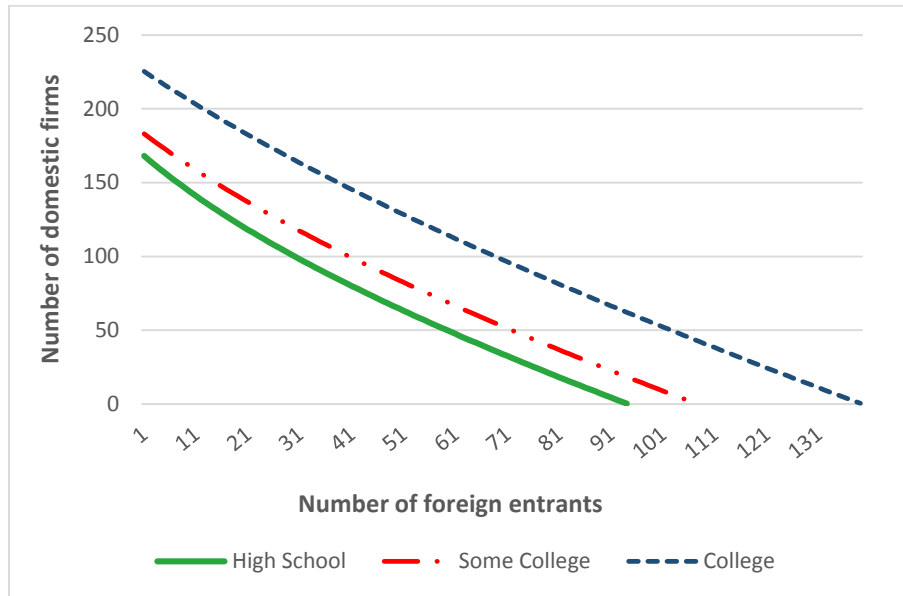


Figure 3. Optimal Response of Domestic Business Entrants Exposed to Foreign Entry: Effects of Education

This figure depicts the effects of individual education level on the optimal response of domestic business entrants to foreign competition. At every level of foreign competition, the optimal number of domestic entrants is negatively related to individuals' educational attainment.



Empirical Estimation

Empirical Measures

- Our measure of import penetration captures the changes MSA-level exposure in the tradable sector to low cost imports (from China).
- Agriculture, Manufacturing, and Mining industries comprise the tradable sector T .
- Construct a time-varying regional exposure to Chinese imports:

$$dIMP_{M,t} = \sum_{j \in J} \frac{N_{Mj,1993}}{N_{j,1993}} d^{US} Import_{j,1993 \rightarrow t}.$$

- $N_{Mj,1993}$ = number of establishments in (MSA) M and industry j in 1993
- $N_{j,1993}$ = number of establishments in industry j across all MSAs in 1993
- $d^{US} Import_{j,1993 \rightarrow t}$ = cumulative growth in U.S. imports from China in industry j between 1993 and year t .

Empirical Estimation

Baseline Specification



$$\text{Entry}_{iM,t+1} = \mathbf{z}'_{iM,t}\boldsymbol{\beta} + \gamma_1 \text{dIMP}_{M,t} + e_t + f_M + g_i + \varepsilon_{iM,t}$$

$\text{Entry}_{iM,t+1}$ = dummy variable equal to 1 if individual i in region M , surveyed in year t is self-employed at $t + 1$;

$\mathbf{z}_{iM,t}$ includes a rich set of time-varying observable individual- and MSA-level covariates

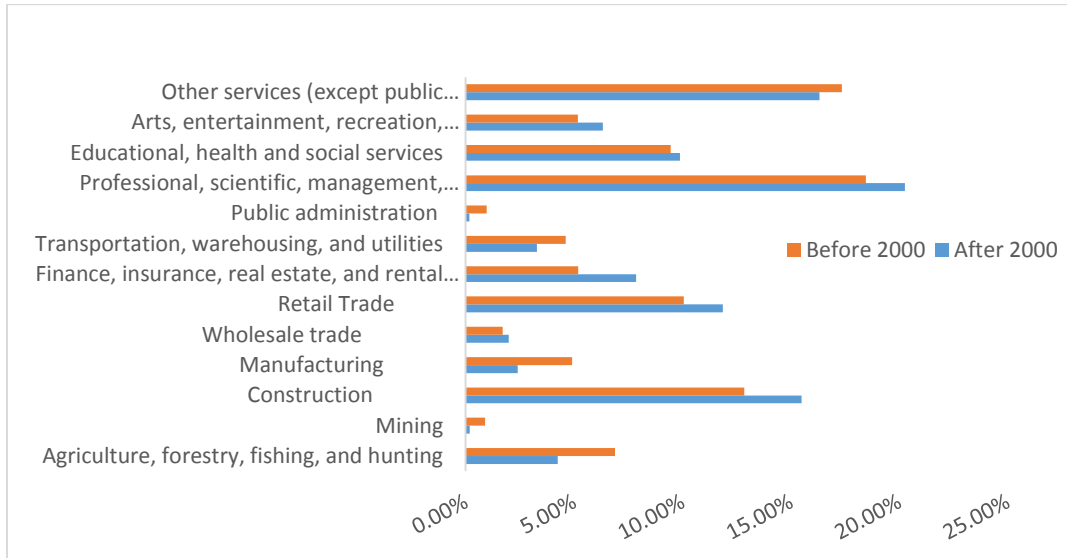
e_t are year fixed effects; f_M are MSA-level fixed effects; g_i are individual fixed effects.

- Main prediction: $\gamma_1 < 0$.

- There is strong support for the low-cost import exposure channel for a decline in entrepreneurship: Business creation during 1993–2006 is significantly lower across time in regions with large increases in Chinese import penetration.
- Other things held fixed, a one-standard-deviation increase in this import penetration results in about a 24% decline in the likelihood of creating a business.
- The dampening effect of import competition on entrepreneurship is concentrated in the manufacturing sector.

Figure 6. Sectoral distribution of business entry rates

This graph reports sectoral distribution of business entry rates. The sample includes respondents who are 18 or older in the SIPP for the 1993-1995, 1996-2000, 2001-2003, 2004-2006 waves. Respondents who were already entrepreneurs at time $t-1$ are excluded from the entry sample. The sector classification is based on the SIPP data.



Identification

IV for Import Growth

- Concern: Observed changes in import penetration may reflect domestic shocks to U.S. industries and MSAs.
- To isolate the supply-driven component in U.S. imports from China, use growth of Chinese imports in other high-income major trading partners of China as IV:

$$dIMPO_{M,t} = \sum_{j \in J} \frac{N_{Mj,1993}}{N_{j,1993}} d^O Import_{j,1993 \rightarrow t} \quad (1)$$

$d^O Import_{j,1993 \rightarrow t}$ = cumulative growth in imports from China in industry j from 1993 to t in other high-income countries excluding U.S.

Identification

Role of the Housing Market

- Our sample period coincides with the boom and bust in U.S. housing prices. Therefore, another concern is that changes in housing prices could impact entrepreneurial activity through the collateral channel. We do a number of robustness tests.
- First, we include individual, state, and year fixed effects, the growth in MSA-level housing price index (HPI), and other proxies for local economic conditions.
- Second, to address the possibility of an unobserved factor that simultaneously drives both house prices and entrepreneurial activity, we compare U.S. homeowners and renters in areas in with higher rates of house price appreciation.
- Third, we take advantage of the richness of our dataset to isolate the exogenous variation in home equity and property values by using the differences in house prices and housing supply elasticities across housing markets as instruments (Chetty, Sándor, and Szeidl, 2017).

Identification

Role of the Housing Market

- Fourth, we exclude the most obvious sectors that might directly be hurt by (or benefit from) lower (higher) house prices — namely, sectors linked to construction, and firms in the finance, insurance, real estate, rental, and leasing sectors.
- Fifth, we repeat our analysis only on the subsample of individuals who live in the MSAs with the most elastic housing supply, since, in those areas, the propensity to start a business is less likely to be correlated with the local price response to economy-wide changes in housing demand.
- Finally, we use joint MSA \times year fixed effects — in cross sectional tests — to identify variations across households residing in the same MSA at the same point in time.

Import Competition and Entrepreneurial Activity in Non-Tradable Sectors

- Our theoretical model generates the novel prediction that intensified low cost import-penetration will have *positive* spillover effects on entrepreneurial activity in non-tradable sectors.
- Our empirical tests support this prediction.
- Controlling for regional heterogeneity in sectors through $MSA \times \text{sector}$ fixed effects and *time-varying* MSA ($MSA \times \text{year}$) and sectorial effects ($\text{sector} \times \text{year}$), import penetration *increases* new business creation in non-tradable sectors: A a one-standard deviation increase in import exposure produces a higher likelihood of business creation in non-tradable sectors by 8%.

Summary and Conclusions

- Entrepreneurial activity is important for innovation and employment generation and an apparent decline in U.S. entrepreneurial activity in the last couple of decades attracts increasing attention.
- We theoretically develop and empirically test the hypothesis that explosive growth in imports from low-cost countries following the globalization of product markets has contributed to reduced entrepreneurship activity in sectors most exposed to such competition.
- The theoretical predictions are that higher penetration of low-cost imports reduces entry by domestic entrepreneurs in the tradable sector, especially for less wealthy and less educated individuals, but has positive spillover effects on entrepreneurial activity in the non-tradable sector.

Summary and Conclusions

- We utilize a unique panel dataset on individuals across the U.S. during 1993-2006, which allows observations of transitions from employment to entrepreneurship and vice versa, along with a host of personal characteristics.
- There is strong support for low-cost import competition as a channel contributing to lower entrepreneurial activity in the tradable sector, especially for less wealthy and less educated households.
- Our results are robust to the alternative hypotheses of latent shocks to U.S. industries and local regions, collateralization effects of the housing boom, and feedback effects between imports and business activity.
- We also find reliable evidence of a positive spillover effect of low-cost import penetration on entrepreneurship in non-tradable sectors, consistent with the prediction of our conceptual model.