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# ‘SUCCESS TAXES’, ENTREPRENEURIAL ENTRY, AND INNOVATION

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Washington, DC  
November 12, 2004

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# Punch Lines

- Role of “entrepreneurial entry” in innovation raises questions for tax policy
- *A finding:* Progressivity’s impact on entry is negative and is traceable to ‘success taxes’
  - *And,* we find little evidence that tax effects reflect only decisions of less skilled or less promising interests
- More work needed on ‘who’ is discouraged.

# Tax Policy and Entrepreneurship: Channels for Tax Policy

- General tax policies
  - Why a differential effect on entrepreneurship relative to another activity?
  - Tax-sheltering; effects of marginal rate changes; capital gains taxation; risk-taking and nonlinearities (including loss offset rule)
- Target tax policies
  - Can policy increase 'good' behavior without windfalls?
  - R&D tax credit; favorable depreciation rules for small businesses; reduced capital gains taxes after IPOs of qualified small business stock

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# This Paper

- ...builds on our early work on progressivity and entry
- ...and burrows more deeply into *which* entrepreneurs are affected (e.g., education, industry, occupation)
- This is important...
  - Shape of the tax schedule can have substantial effects on whether individuals undertake risky investments
  - Such distortions receive relatively little discussion in tax policy
  - If the estimated responsiveness to nonlinear tax schedules carries over to corporate investment, then loss offset rules and other elements of corporate tax may generate larger investment distortions than previous estimates suggest.

# Tests and Data

- *In a perfect world:* Household-level panel data, with information on employment, entrepreneurial status and capital, and measures of the shape of the tax schedule over households and time
  - *Challenge:* *Ex ante* distribution of outcomes in entrepreneurship
- *Real world:* PSID; 'self employment' (some on 'business ownership'); 1979-93
- $ENTRY_{i,t+1} = f(e_j, x_{it}, z_{it}, \gamma_t, TAX_{it})$

# Tax Information

- *Straightforward*: Measuring marginal tax rates
  - NBER *TAXSIM* model
  - Household characteristics in year  $t$  + the year  $t+1$  tax code
- *More challenging*: Measuring tax convexity
  - Assume distribution of outcomes is related to opportunity cost, as measured by current labor income; we assume variability of outcomes is constant in percentage terms across households
  - Use the observed distribution of 3-yr. real wage growth of entrants to capture range of success
  - Calculate MTRs at various levels of success
  - Convexity = (Weighted average of MTRs | Successful) – (Weighted average of MTRs | Unsuccessful)

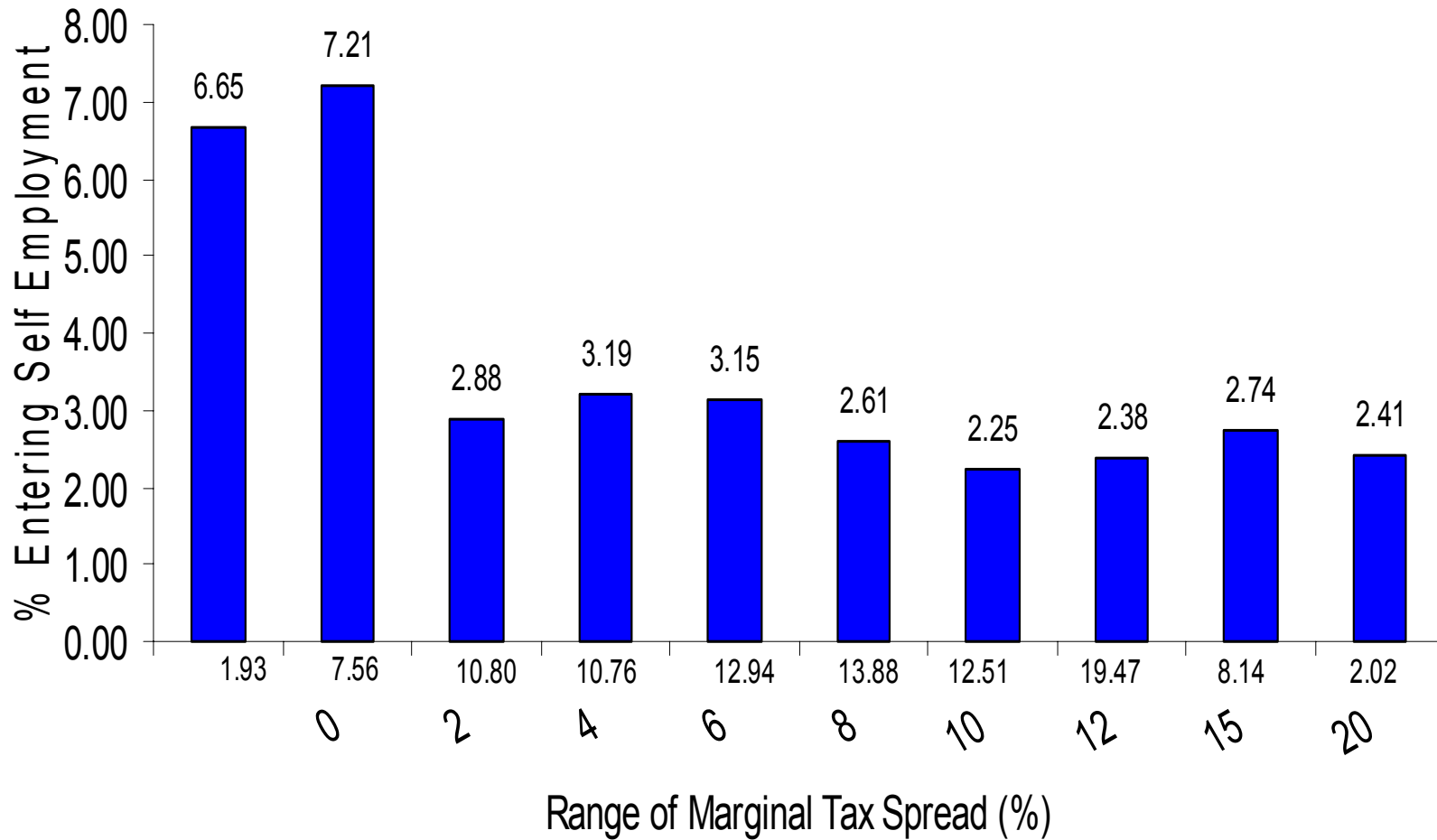
# Details on Convexity Measure

- Successful outcomes: Wage income increases by:
  - 25% (prob. = 0.4), 50% (prob. = 0.4), 100% (prob. = 0.15), and 200% (prob. = 0.05)
- Unsuccessful outcomes: Wage income falls by:
  - 10% (prob. = 0.5), 25% (prob. = 0.3), 50% (prob. = 0.15), and 75% (prob. = 0.05)

# Identification of Convexity

- Level and composition of income
- Changes in tax code over time
- State of residence
- Convexity need not be positively correlated with the level of the tax rate or with income

Figure 2: Entry Probability vs. Tax Spread



**Figure 1: Median Tax Spread vs. Income**

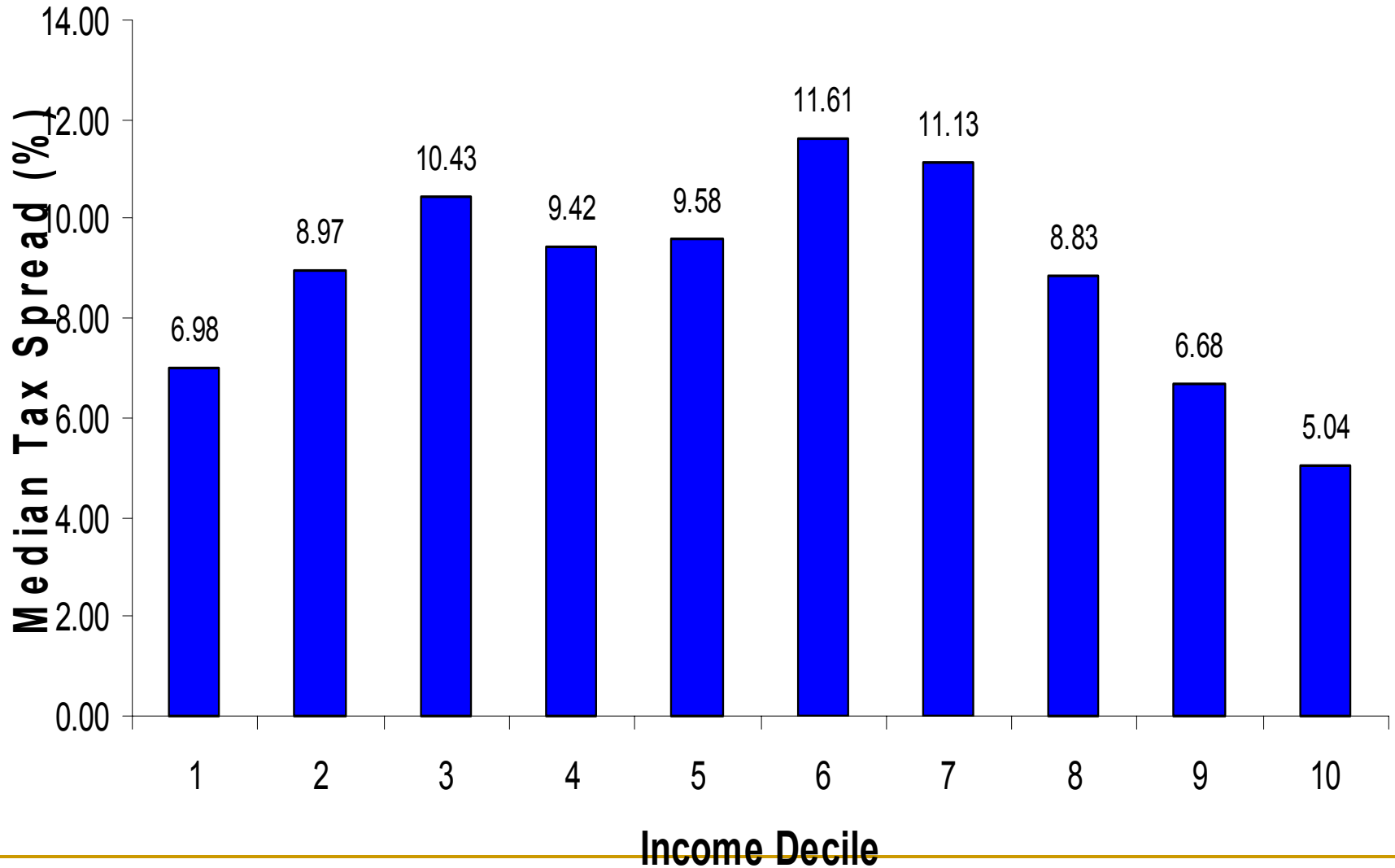
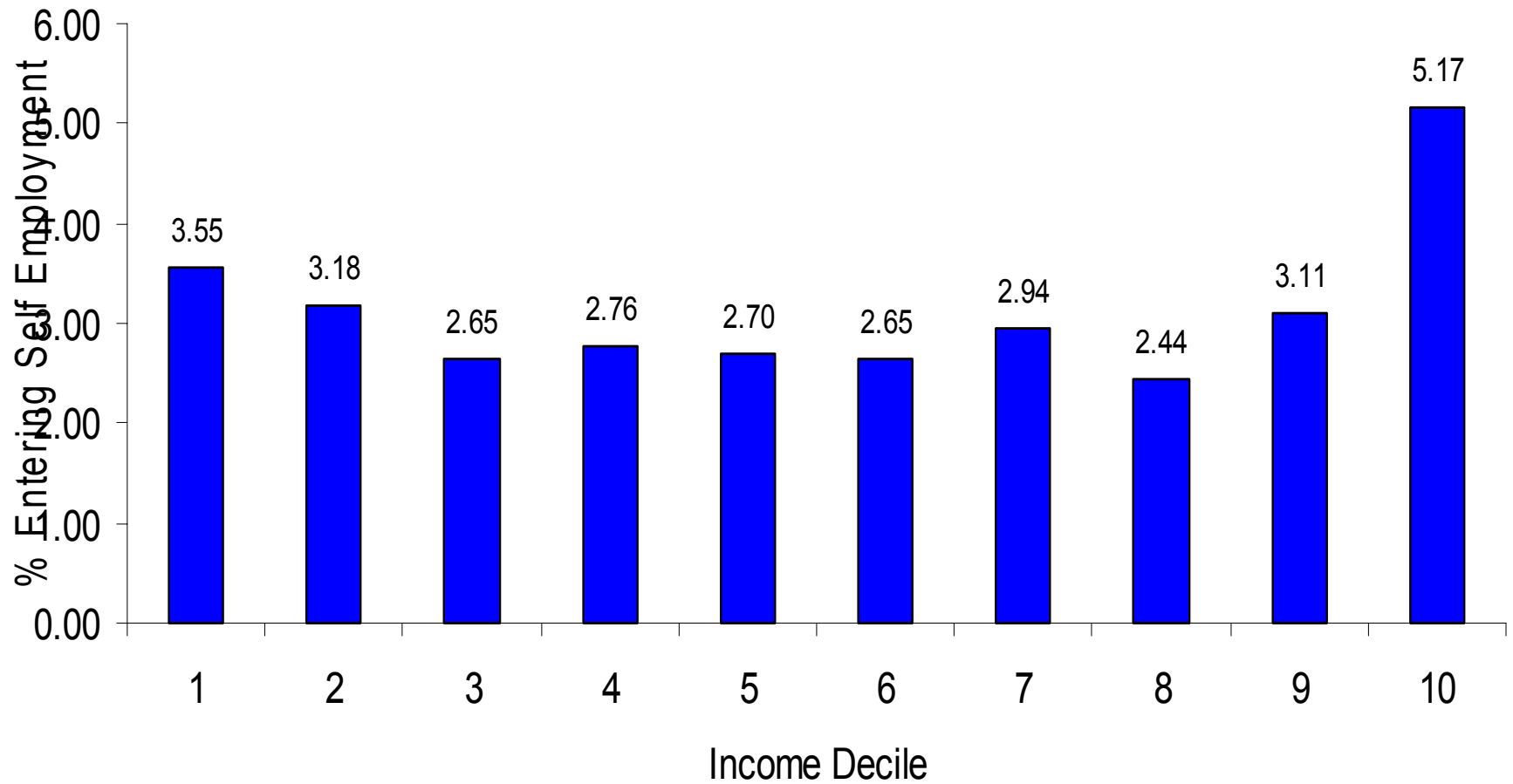


Figure 3: Entry Probability vs. Income



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# Link to Innovation

- Who/what is innovative?
  - Innovative *industries* (about 14% of sample)
  - Innovative *occupations* (about 8% of sample)
  - 'Origin' versus 'destination' (more emphasis on the former)
  - Differences by *education* groups?

# Results: Table 2

- Strong evidence for progressivity effect
  - 1-std-dev reduction in convexity would  $\uparrow$  the entry rate by 25%
- Weaker evidence for tax-sheltering hypothesis
  - Sensitivity analysis in earlier paper suggests the negative estimated coefficient on the tax rate variable is fragile
- ‘Innovative’ industries and occupations – generally not statistically different from others

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## Table 3: Upside or Downside?

- Tax effects are traceable to upside/‘success’ tax
- The estimated upside effects are about twice the size of the downside effects
- No pattern to the interactions with innovative industries or occupations

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## Table 4: Education

- Education may provide another proxy for how innovative a potential entrant is
- Estimated 'success tax' effect is larger for the most educated group
- Cannot reject hypothesis of equal effect across groups

# Bottom Line

- Level and convexity of tax rate has a negative effect on entrepreneurial entry → and mainly reflects ‘success tax’
- Prospective entrants from *a priori* innovative industries and occupations are no less affected than others
  - Is the “glass half full or half empty”?
    - Effects are not concentrated in innovative industries or occupations
    - Innovative industries and occupations are not immune from the effects that we have documented

# Further Questions

- Which types of businesses are most affected by tax policy?
- Might effects on innovation come through impacts on individuals' willingness to pursue education or change jobs or careers?
- Effects of tax policy on entrepreneurship in more general models of saving, investment, and growth?