Discussion: "How Should Taxes be Designed to Encourage Entrepreneurship?"

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Summary: what is this paper about?

- **Research Question**
  - Optimal Tax Policy to encourage entrepreneurship
- **Pressumptions of the paper**
  - There is too little entrepreneurial activity
  - Innovation + potential is concentrated in **entrepreneurial start-ups**
  - Market failures cause start-ups & innovations deficit
    - **Externalities** in both production (informational spillovers among firms) and consumption (+ U gains of new products)
    - **Financial frictions** (lemons problems) in debt and equity markets create **liquidity constraints**

Summary: Theoretical Framework

- **Stylised Model of Optimal Taxation**
  - Constrained set of policy tools. e.g. linear tax rate
  - Efficient market allocations (Diamond and Mirrlees 1971)
    - Scope for tax policy in the presence of market failures
  - Useful to examine **entrepreneurs' incentives**
    - Entry decision
    - Intensive margin investment decisions: take + risks
- **Key assumptions drive the results**
  - Entrepreneurial start-ups differ from the non-entrepreneurial start-ups
    - Cost structure: upfront costs (increasing in risk taking-innovation)
    - Gov. observes **behavioral difference: only start-ups report losses**

Summary: Optimal Taxation

- **Benchmark**: no market failures
  - Allow for full (uniform) **compensation of tax losses**
- Tax policy correct inefficient market allocations
  - **Externalities** in consumption or production
    - Pigouvian tax subsidy implemented with **bonus** in tax loss provisions
    - Tax code: start-ups unable to use tax losses until obtain profits
  - **Lemons problems** (credit and equity market)
    - Combine tax loss provisions + subsidy of inputs (capital and labor)
    - Compensate with higher tax rates in future profits
  - **Extensions**: qualitative discussion on forecasted policies
    - income shifting and losses reporting, externalities created by existing (big) firms, size-dependent targeting, international tax planning

Strenghts of the paper

- **Paper addresses a relevant topic**
  - Examine incentives can cause the deficit of start-ups & innovation
- **Simple model with clean policy prescriptions**
  - Tax policy recommendations at odds with current OCDE practices
  - Focus on the tax base (tax loss provisions) not differential tax rates
- **Broad approach to innovation**
  - No constrained to R+D expenditures or intangible assets
- **Policy prescriptions apply not only to innovation**
  - Under-investment during downturns
  - Sunk costs of small firms constraint firms' scale

Pressumption: The Deficit of Start-Ups and Innovation

- **US decline in start-ups rates and their share of employment**
  - Persistent and widespread across industries and geographic markets
    - Patterns and estimates for the US in Alon et al. (2017 JME).
  - Firms' ageing $\longrightarrow$ contribution to labor productivity slowdown
    - US start-ups deficit: cumulative 3-4pp labor productivity since 1980
  - Young firms contribution to productivity, Levinsohn and Petrin (2012)
- **What are the roots of this declining trend?**
  - Paper takes a position on 4 market failures behind lack of entrepreneurship
  - ... were market failures strenghten in the last 3 decades?
  - $\downarrow$ Size of externalities? Financial Frictions?

Roots of the secular downward trend in start-ups

- $\uparrow$ **Complexity of the innovation process**
  - $\downarrow$ Research productivity in the US (Bloom et al., 2017)
    - New ideas are harder to find
    - Broader research teams (individual inventor)
  - Implications in Gordon and Sarada's model
    - Increasingly (huge) upfront costs for + risky/innovative projects
    - Is the tax loss subsidy ($\alpha >> \beta$) feasible? effective tax policy?
    - Some simple calibration of the model?

Other Tax Distortions (subsidies to established firms)

- **Does current innovation tax policy contributes to $\downarrow$ start-ups?**
  - OECD countries focus resources on existing large firms
    - Tax credits on R&D expenditures on mature firms
    - Lower tax rates on R+D generated income: IP-Patent box
  - Full tax system (PIT and CIT) affects innovation
    - $>$ 70% labor productivity growth not related with intangible assets or R&D expenditures that use to be targeted
    - pushing start-up requires relax (eliminate) some incentives?
- **UK Bonus R&D tax deductions closer to optimal policy?**
  - cash credit for SMEs in a loss making position
    - + effect for small young firms (Guceri and Liu 2018)

Extending the Model

- **Key assumption: losses reveal entrepreneurial start-ups**
  - Asymmetric information problems are too constraining in practice
    - One of the main reasons no refunds in tax losses (OCDE 2014)
  - Potential extension: mechanism design *ala* Akcigit et al. (2016) with financial frictions
- **Extension of the model** keeping it simple
  - Succesful start-ups use to face initial losses but also above normal returns (+ innovative firms) along their *infancy stage*
  - Discrete multiperiod (3) model to relax mimickers' impact
    - Age-dependent tax treatment of losses
    - Business optimize the present discounted value of I-returns
    - Bonus on tax loss carryforwards inversely related with profit margin
    - Bonus on fixed assets depreciation [start-ups are intensive]

Extensions and policy prescriptions

- **Paper recognizes limitation of key assumption**
  - Tax losses are not restricted to start-ups entrepreneurs
  - Make a qualitative discussion of the $\downarrow$ size of tax loss subsidy
  - More quantitative analysis of the optimal policy?
- **Paper considers policy targeting eases implementation**
  - Size-dependent regulations (restrict to small firms)
    - Peter-pan effects, artifical division of activity
    - Costly policy (2015 Spain: tax loss provisions $>$40% of CIT receipts)
  - $\uparrow$ monitoring effort on reported losses of young-small firms
    - Unefficient monitoring cost for small firms (Dharmapala et al. 2011)

Potential further investigation

- **Broader scope of theoretical predictions?**
  - Useful stylized model: intensive margin decisions of investment
    - Financial frictions in credit markets
  - Tax Policy to (partially) correct underinvestment
    - Economic downturns or small firms that face adjustment (sunk) costs
    - Empirical papers (Edgerton 2010, Zwick and Mahon 2017) on the effectiveness of bonus depreciation and tax losses
  - + role of **tax loss provisions and inputs' subsidies**
    - Practitioners focuses on tax rates differentials
    - Tax losses limitations (carry fowards and carry backs)