# The innovation premium to low-skills jobs Aghion/Bergeaud/Blundell/Griffith

Discussion

Juan F Jimeno

6 December 2018

### The paper

- "More innovative firms pay higher wages and the premium to working in a R&D intensive firm is higher for workers in low-skilled occupations"
  - (Additionally, higher worker tenure and more outsourcing of low-skilled tasks)
- (Extensive) empirical evidence to prove the claim
  - Going from descriptive to causal
- Theoretical model to propose an explanation
  - Factor complementarities across firms
  - Segmented wage determination with replacement of lowskilled workers more risky than replacement of high-skilled workers

#### General assessment

 Interesting new fact about wages (and wage structures) across firms (counterintuitive ?)

 Excellent empirical documentation of wage premium across firms that invest (or not) in R&D

 Simple theoretical model: plausible explanation for the higher wage premium of low-skilled jobs in "innovative" firms (with only two assumptions).

### Comment #1: The relevance of the empirical fact

- Sample: UK firms with more than 400 employees
- General result? Across countries? Firms of smaller sizes?
- Heterogeneity within worker groups. Are wages in low-skilled jobs less disperse in innovative firms? (Apparently, YES)
- Why is the wage structure more compressed in "innovative" firms? Earnings vs. wages. Any role of worked hours?
- Why not partitioning data by industrial sector?
   (Since explanation mostly rely on technological assumption and nature of R&D expenditures change across sectors)

#### Comment #1:

#### The relevance of the empirical fact

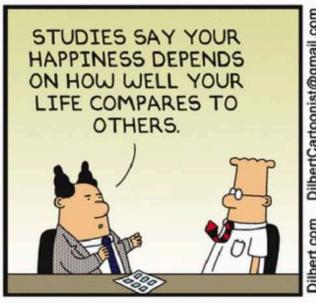
- Controlling for (worker) unobserved heterogeneity, composition effects, selection/endogeneity biases (see Tables 2 and 3)
- Firms' decision on R&D expenditures
  - Instrument for R&D intensity?
- Robustness: An attempt at controlling for firm unobserved heterogeneity (Table 7)
  - Changes in firm R&D expenditures cause changes in wages (and in the wage structure), despite wage inertia and the alike
  - Much lower wage premium in low-skilled jobs of innovative firms when firm fixed effects are included in the regressions

### Comment #2: What is "innovation"?

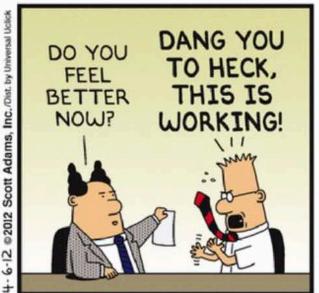
- In the model: Technology boils down to φ(λ,z)
  - Technologically advanced = Expenditures on R&D per employee (R&D intensity) = Innovativeness (z)
  - Higher complementarity high-skill/low-skill occupations (λ)
- Inconsistency?
  - Theory: Claim to selection of "better" low skill workers into more R&D intensive firms
  - Empirics: claim to clean out worker unobserved heterogeneity
- R&D: Is the input or the output?
  - Product vs. process innovation
  - Is there a link R&D-innovation-productivity?
  - Kogan, Papanikolau, Seru and Stoffman (QJE 2017) on the link between patents and stock market valuations
  - Andersen, Potočnik and Zhou (Journal of Management 2014) on innovation and creativity in organizations

# Comment #3: Wage determination

- Segmented wage determination.
  - Nash bargaining with different bargaining power, reservation wage for high/low skill workers
- (In all low skilled tasks) Low skills (non-cognitive) are more riskier to replace than high skills workers in high skilled task
  - Really true for all low skilled tasks?
  - Low skill workers acquire more "cognitive skills" by performing tasks on the jobs (Jimeno, Lacuesta, Martinez-Matute, Villanueva, 2018)
- Non-wage benefits of working in innovative firms
  - Age structure ? Life cycle in R&D activities?
- Efficiency vs. fairness in wage determination.
  - The role of relative wages?







(May work better if "pictures of people attacked by bears" are of some colleagues working in the same firm)

## Comment #4: Training and outsourcing

- Innovative firms invest more in training workers
  - Do high skill workers accumulate general human capital while low skill workers accumulate firm-specific human capital?
  - Accumulation and depreciation of human capital by occupations (Hernanz and Jimeno, 2018)
  - Poaching externality and hold up problem in investment in on-the-job training. Implications for worker tenure?
- Innovative firms outsource the less complementary low-skilled tasks
  - Because of capacity constraint (not comparative advantage)

### Concluding remarks

- Excellent paper
- Looking forward to extension of results
- Generality of the main finding?
- Alternative explanations?
  - What distinguishes firms with different "R&D intensity"?
  - Are wage setting and R&D decisions related somehow?