Wage Growth Puzzles and Technology

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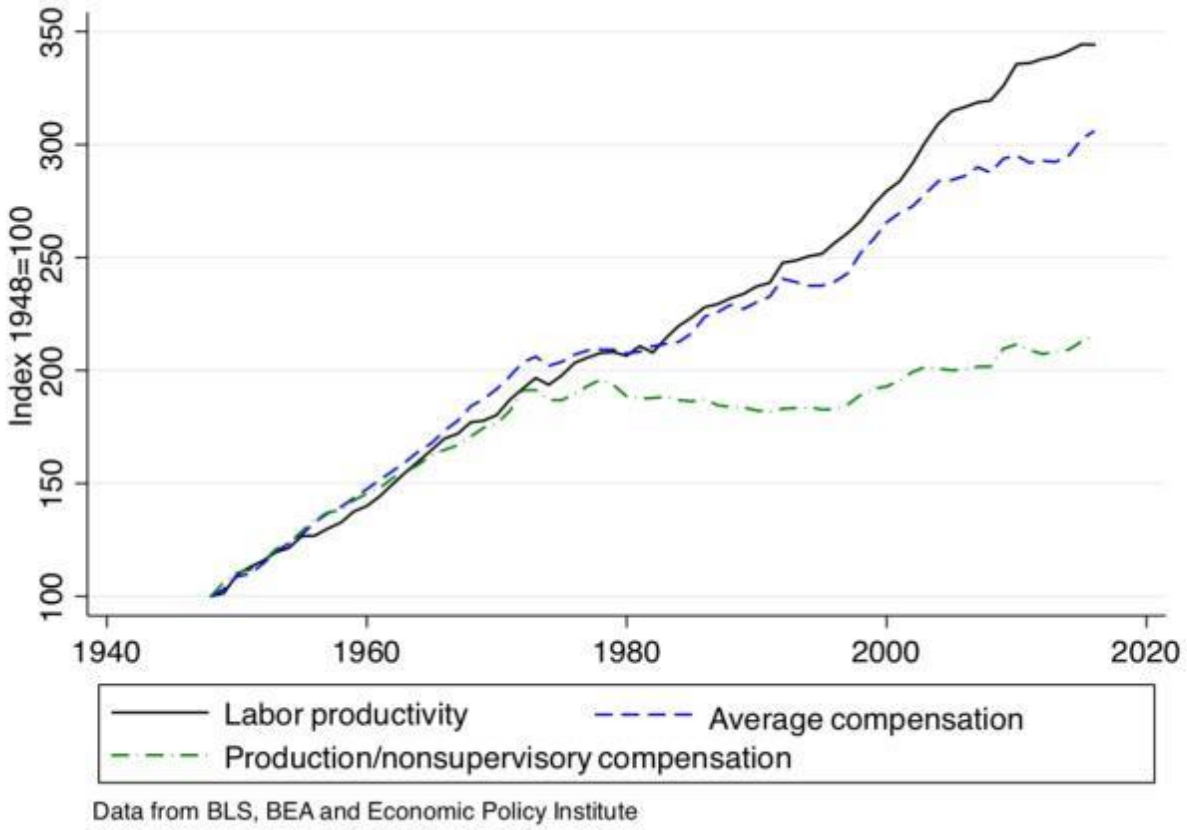
Why Look at Factor Income Shares?

- **Growth and employment:**
  - 1980's real wage overhang debate

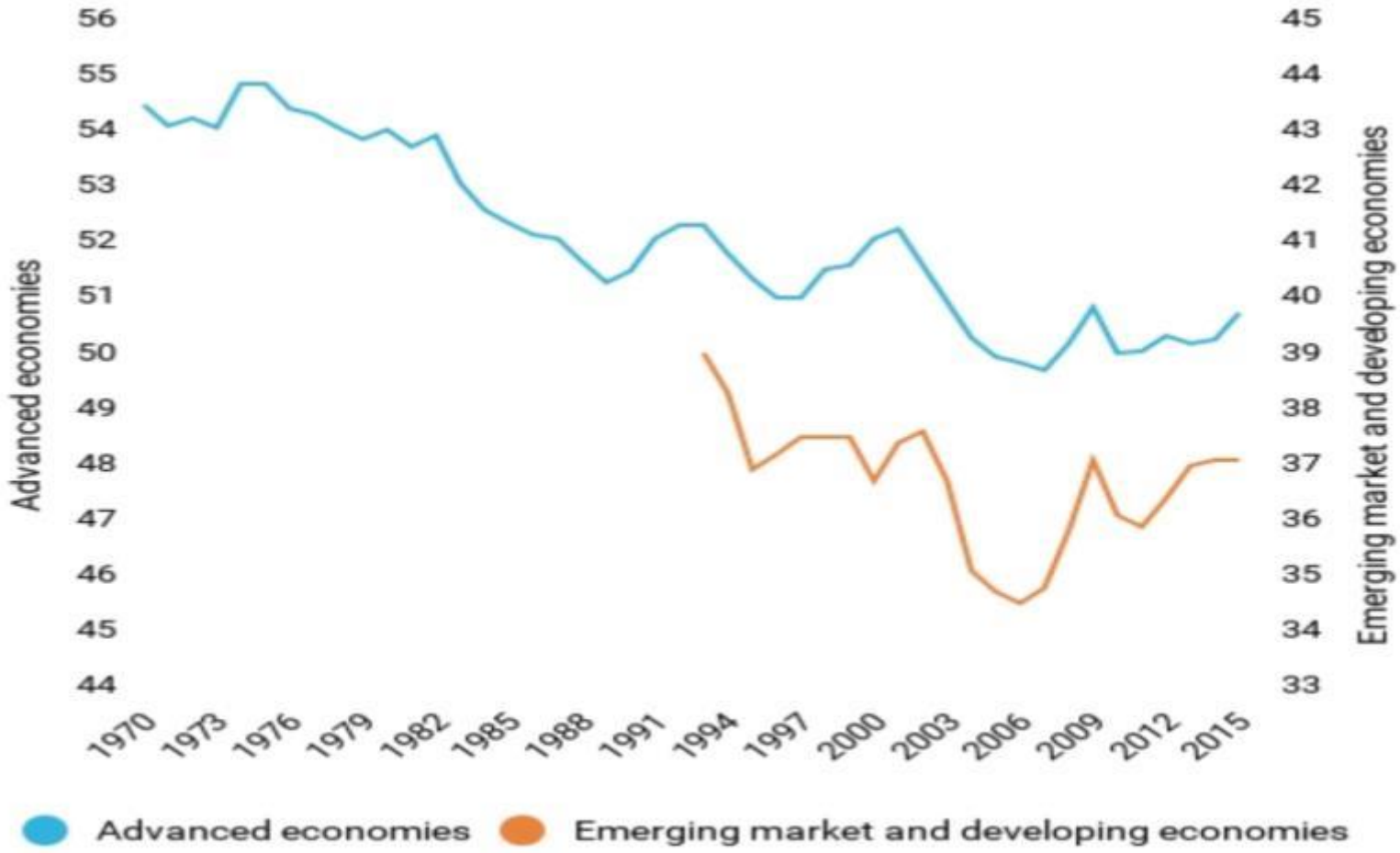
- **Real wages, income distribution and political repercussions**:
  - Kuznets curve not working for many
  - Gini coefficient = L_S x G_L + C_S x G_C
  - The political cost of stagnant living standards for many and rising income inequality

- **Short and Long Run Wage Puzzles:**
  - possible links

Kuznets Curve: the U.S.

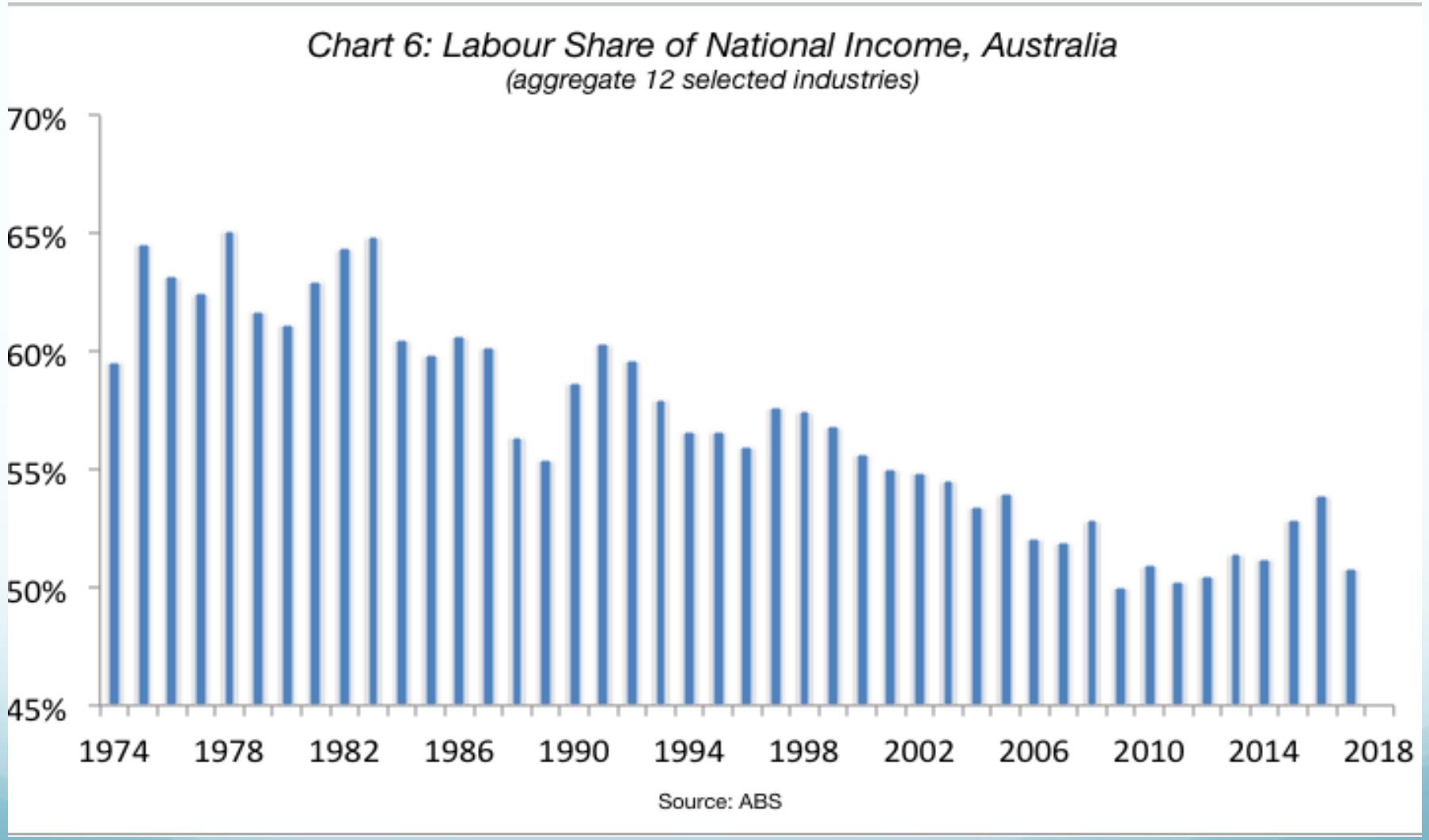


Labour Share:International



Source: IMF, *World Economic Outlook*, April 2017.

Labour Share:Australia



Earlier Explanations

- **Filters:**
  - Shift share analysis: within industry, between firms
  - Elasticity of substitution less than 1
  - Common causal factors across countries since 1980's
  - Shifts in bargaining power

- **Main perceived causal factors:**
  - Data issues
  - Globalisation
  - Bargaining power and institutional changes
  - Technology and relative factor prices

Recent Explanations: The 'Superstar' Hypothesis

- **2015 OECD (2015) study on technology diffusion**:
  - At the global frontier level, productivity growth remains robust, but the productivity level and growth gap between high productivity firms and the rest has been rising.
  - High productivity frontier firms are more capital intensive, more profitable, larger in terms of sales but **not significantly larger in terms of employment.**
- **Autor et al (2017): The 'superstar' hypothesis:**
  - Uneven take-up of new technology is resulting in 'superstar' firms with high profits but a low share of labour in value added (due to fixed labour costs, higher profit mark-up).
  - These firms are using most of their higher productivity to lower output prices so as to increase market share, and partly to increase profit margins
  - As the importance of superstar firms increases, the aggregate labour share will fall.

Testing the Superstar Hypothesis

- **Testable predictions**:

  (a) Industry sales will increasingly concentrate in a small number of firms. *Yes*

  (b) Industries where concentration rises most will have the largest declines in labour's share. *Yes*

  (c) The fall in labour's share will be driven mainly by between-firm reallocations. *Yes*

  (d) Between-firm component of the fall in labour's share will be greatest in sectors with the largest rise in concentration. *Yes*

  (e) These patterns should also be present in other countries. *Yes for (b); (a) and (d) not tested; (c) yes but only tested for manufacturing.*

Possible Links to the Nominal Wage Growth Puzzle: Hypothesis

- High productivity firms are primarily using their higher productivity levels and growth rates to increase profit mark-ups and/or restrain output prices, rather than to raise the wages of their workforce. **Either way**, lower productivity 'laggard' firms are under increasing competitive pressure to contain costs, including wage costs.
- The employment share of high productivity firms within their industry is not increasing significantly, if at all.
- These two factors are holding down average wage growth.

Possible Links to the Nominal Wage Growth Puzzle: Some Overseas Supporting Evidence

- *Kehrig and Vincent (2017*):
  - while there is a massive difference in the value added growth rates of 'hyperproductive' US manufacturing plants relative to less productive plants, this has come "with very little divergence in the growth of the wage bill, either through wages or employment."

- *OECD (2017; 2018):*
  - Wage dispersion across firms is substantially less than productivity divergence; and
  - less productive firms are paying their employees increasingly less relative to the median firm.

Possible Links to the Nominal Wage Growth Puzzle: Some Australian Supporting Evidence

- *Treasury (2017)*:
  - While high productivity businesses were 7.1 times as productive as the mid category, they paid only 1.6 times as much in average real wages. For mid and low productivity categories there was little difference;
  - Real wage *growth* was also somewhat higher for the high productivity firms but not substantially so.

- *RBA (unpublished)*
  - Some preliminary support for 'superstar' explanation of declining labour share in Australia, but mainly concentrated in a few sectors of the economy.

Some Research Suggestions

- Using BLADE database, examine rates of growth in productivity, profit margins and nominal wages for high, medium and low productivity firms in each industry group.
- Once the data are available, examine whether lower productivity firms are paying wages and wage increases that are significantly below industry averages for the same job classification.
- Examine shares of industry employment over time for high, medium and low productivity firms in each industry and how this has impacted on industry level wage growth.

Concluding Thoughts

- Finding enough data observations and variations to robustly test hypotheses is a common problem across many areas of empirical research, including with respect to wage growth determination.
- Firm-level databases may facilitate stronger econometric testing for structural factors impacting on wage growth, and more robust results.
- They allow work to be done centred around a framework that allows for heterogeneous productivity growth across firms, changes in industry concentration and changes in profit mark-ups.
- The RBA and Treasury are conducting research work along these lines.