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1. What the paper does

- It reviews the trend of US labor productivity and MFP growth particularly since the early 1970s and explains how such growth has evolved over time by also looking at manufacturing and services sub-sectors.
- It argues that the most recent growth slowdown took place in 2004 and onward.
- It finds that the sectors that grew fast in the 1995-2004 were the sectors that contributed to slowdown in the 2004-14 period.
- It then tries to identify factors that have contributed to growth slowdown in the 2004-14 period (or since 1973).
Changes in labor productivity by contribution over time

<table>
<thead>
<tr>
<th>Period</th>
<th>MFP</th>
<th>Capital Deepening</th>
<th>Labor Composition</th>
<th>Growth Rate (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948-1973</td>
<td>2.1</td>
<td>1.0</td>
<td>0.2</td>
<td>3.3</td>
</tr>
<tr>
<td>1973-1995</td>
<td>0.5</td>
<td>0.8</td>
<td>0.2</td>
<td>1.6</td>
</tr>
<tr>
<td>1995-2004</td>
<td>1.7</td>
<td>1.2</td>
<td>0.3</td>
<td>3.2</td>
</tr>
<tr>
<td>2004-2015</td>
<td>0.5</td>
<td>0.5</td>
<td>0.2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Growth Rate (percent)

Source: Baily and Montalbano (2016)
Industry multifactor productivity

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishery</td>
<td>-0.1</td>
<td>3.3</td>
<td>0.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Mining</td>
<td>1.8</td>
<td>-0.4</td>
<td>2.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Manufacturing Sector</td>
<td>0.8</td>
<td>2.0</td>
<td>0.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Utilities</td>
<td>2.4</td>
<td>-0.4</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Construction</td>
<td>0.1</td>
<td>-0.5</td>
<td>1.1</td>
<td>-0.6</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>1.3</td>
<td>2.8</td>
<td>-0.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>1.7</td>
<td>2.3</td>
<td>-0.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Transportation &amp; Warehousing</td>
<td>1.0</td>
<td>1.4</td>
<td>0.3</td>
<td>0.9</td>
</tr>
<tr>
<td>Information</td>
<td>0.3</td>
<td>1.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Finance, Insurance, Real Estate</td>
<td>-0.3</td>
<td>0.1</td>
<td>0.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Services</td>
<td>-0.8</td>
<td>0.3</td>
<td>0.0</td>
<td>-0.2</td>
</tr>
<tr>
<td>Private Business Sector</td>
<td>0.6</td>
<td>1.7</td>
<td>0.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: Calculations based on Bureau of Labor Statistics’ Multifactor Productivity Tables

Source: Baily and Montalbano (2016)
## Manufacturing multifactor productivity

![Manufacturing Multifactor Productivity by Timeframe](image)

### Source
Calculations based on Bureau of Labor Statistics' Multifactor Productivity Tables

**Source:** Baily and Montalbano (2016)
## Services multifactor productivity

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Services</td>
<td>-0.9</td>
<td>0.4</td>
<td>-1.8</td>
<td>-0.8</td>
</tr>
<tr>
<td>Computer Systems Design and Related Services</td>
<td>-1.1</td>
<td>0.3</td>
<td>1.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Miscellaneous Professional, Scientific, and Technical Services</td>
<td>-0.1</td>
<td>-0.1</td>
<td>-0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>-0.9</td>
<td>2.5</td>
<td>-0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Administrative and Support Services</td>
<td>-0.6</td>
<td>1.4</td>
<td>0.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Waste Management and Remediation Services</td>
<td>-0.9</td>
<td>0.4</td>
<td>-0.6</td>
<td>-0.4</td>
</tr>
<tr>
<td>Educational Services</td>
<td>-0.3</td>
<td>-0.9</td>
<td>-0.6</td>
<td>-0.4</td>
</tr>
<tr>
<td>Ambulatory Health Care Services</td>
<td>-2.1</td>
<td>0.0</td>
<td>-0.1</td>
<td>-0.7</td>
</tr>
<tr>
<td>Hospitals and Nursing and Residential Care Facilities</td>
<td>-1.3</td>
<td>-0.6</td>
<td>-0.3</td>
<td>-0.7</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>-2.6</td>
<td>1.3</td>
<td>0.0</td>
<td>-0.4</td>
</tr>
<tr>
<td>Performing Arts, Spectator Sports, Museums, and Related Activities</td>
<td>0.2</td>
<td>0.3</td>
<td>-0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Amusements, Gambling, and Recreation Industries</td>
<td>0.0</td>
<td>-1.1</td>
<td>0.4</td>
<td>-0.2</td>
</tr>
<tr>
<td>Accommodation</td>
<td>1.1</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>Food Services and Drinking Places</td>
<td>-0.4</td>
<td>0.7</td>
<td>-0.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Other Services, except Government</td>
<td>0.1</td>
<td>-0.9</td>
<td>-0.7</td>
<td>-0.5</td>
</tr>
<tr>
<td>Services</td>
<td>-0.8</td>
<td>0.3</td>
<td>0.0</td>
<td>-0.2</td>
</tr>
</tbody>
</table>

Source: Calculations based on Bureau of Labor Statistics' Multifactor Productivity Tables

Source: Baily and Montalbano (2016)
Difference in the contribution by industry to MFP growth, 2004-14 minus 1995-2004

Source: Baily and Montalbano (2016)
Negative relations between productivity growth in 1995-2004 and 2004-14 periods

Source: Baily and Montalbano (2016)
Observations from firm level data

- Increased productivity dispersion across firms within industries
  - The frontier is moving out, but many or most firms are not keeping pace with the frontier
- Declining dynamism (fewer startups and less productivity-enhancing reallocation of production among firms)
- Decline in the contribution to overall productivity growth due to “reallocation”
Summary of key findings

• MFP growth and the contribution of capital services move together. Since 2004, there has been slow MFP growth and a very small contribution from increased capital services per hour worked.

• Contributions to the acceleration of US productivity growth after 1995 were heavily concentrated in two sectors, services (particularly health) and manufacturing (particularly in computers and semiconductors).

• The deceleration of US productivity growth after 2004 was heavily concentrated in manufacturing (particularly in computers and semiconductors) and in wholesale and retail trade.

• The industries that accelerated the most after 1995 are also the industries that decelerated after 2004. This suggests that an earlier productivity surge impacted some but not all industries. Once the effect of this surge was passed, the industries that had grown rapidly fell back to their previous slow growth path.

• The gap between the most productive firms and the less productive firms has widened over time.

• There has been declining dynamism in the US economy.
Explanations of chronically slow productivity growth

Why the widening gap between best practices of frontier firms and the rest?

• Mismeasurement of productivity
  □ Measurement error does not explain the post-2004 slowdown
  □ Nonetheless measurement error is an important issue from the long-run perspective

• No more major innovations to be found (Gordon)
  □ The paper rejects the extreme technological pessimism of Gordon

• Barriers that prevent diffusion to
  □ Lack of competition ← anti-trust policy
  □ Economic regulation ← deregulation
  □ Capacity constraints (managerial skills, worker skills)

• Other factors
  □ Weak aggregate demand ← infrastructure investment
  □ Declining manufacturing ← corporate tax reduction, R&D support
2. The value of the paper

- Very useful paper on data and debate on US labor productivity and MFP growth
- Analysis on sectoral data on MFP growth very useful
- It summarizes some findings obtained by other authors on firm level data
- It offers various explanations for productivity slowdown since 2004 (and since 1973)
- It provides policy recommendations
3. Questions and comments

- What is the rationale for dividing the entire period into several sub-sample periods?
  - Did the most recent productivity growth slowdown take place in 2004? Not in 2003, or 2005, or 2008?
  - Has secular stagnation taken place since 2004, not after the global financial crisis?
  - All OECD countries for which data are available have seen productivity growth slowdown since the global financial crisis except for Ireland and Spain

- Is it valid to call the post-1973 period a period of productivity slowdown?
  - The productivity growth of 3.2% in the 1995-2004 period is as high as in the 1948-73 period (3.3%)
Labor productivity trend growth in G-7 countries, total economy

Source: Baily and Montalbano (2016)
Labor productivity growth (GDP per hour worked, % per year) in G-7 countries

Note: 5-year averages except in 2014 (3-year average) and 2015 (single year data)
Source: OECD data on labor productivity
Productivity growth (GDP per hour worked, % per year) in OECD countries

Source: OECD data on labor productivity
Questions and comments (cont’d)

• The negative relationship between growth in 1995-2004 and 2004-14 is an interesting observation, but does not explain factors causing declines in 2004-14
• Factors that explain productivity growth slowdown since 2004 are not always clearly separated from those since 1973
• Do authors regard the secular stagnation view of Lawrence Summers as valid for the post-GFC period?
• Authors seem to implicitly support at least part of Mr. Trump’s macroeconomic policy agenda, corporate tax cut (from 35% to 15%, which affects all firms, not simply manufacturing ones) and infrastructure investment: How should they be financed?
4. Summary

• An interesting, useful paper
• However, criteria for choosing sub-periods are not clear
• It is not clear from the paper that the US economy entered a period of slower productivity slowdown in 1973
• The paper has not provided clear views as to whether the secular stagnation proposition a la Lawrence Summers is a valid one or not
• How should the corporate tax cut and infrastructure investment be financed?