



RESERVE BANK OF AUSTRALIA

# Explaining and Teaching Economic Concepts in the Classroom Productivity

## Teacher Immersion Event 2023

Education



RESERVE BANK OF AUSTRALIA

# Productivity

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Education



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1. What is productivity?
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*Productivity isn't everything, but in the long run it is almost everything.*

Paul Krugman, 'The Age of Diminished Expectations' (1994)



# Productivity measurement

**Labour productivity:** Output per worker or per hour worked

Labour productivity

=

Output

Labour input

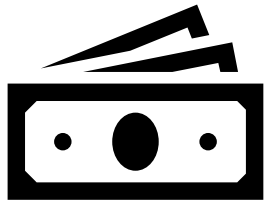
Output = Gross Domestic Product (GDP)

Labour input = number of hours worked

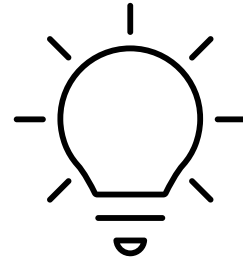


# Perspiration versus inspiration

GDP per capita = participation + labour productivity



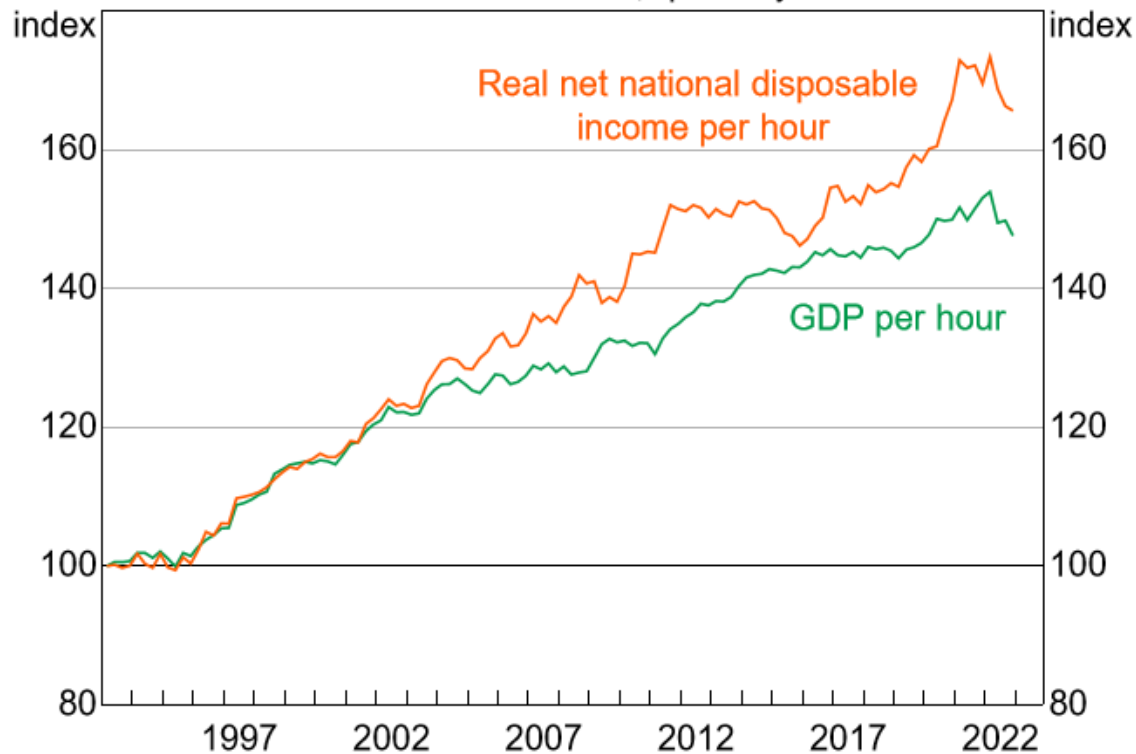
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# Productivity and Income

March 1993 = 100, quarterly



Sources: ABS; RBA.



# Technological change and efficiency



Labour productivity = capital deepening + multifactor productivity (MFP)



Capital deepening: more capital for each worker



MFP:

Technological change

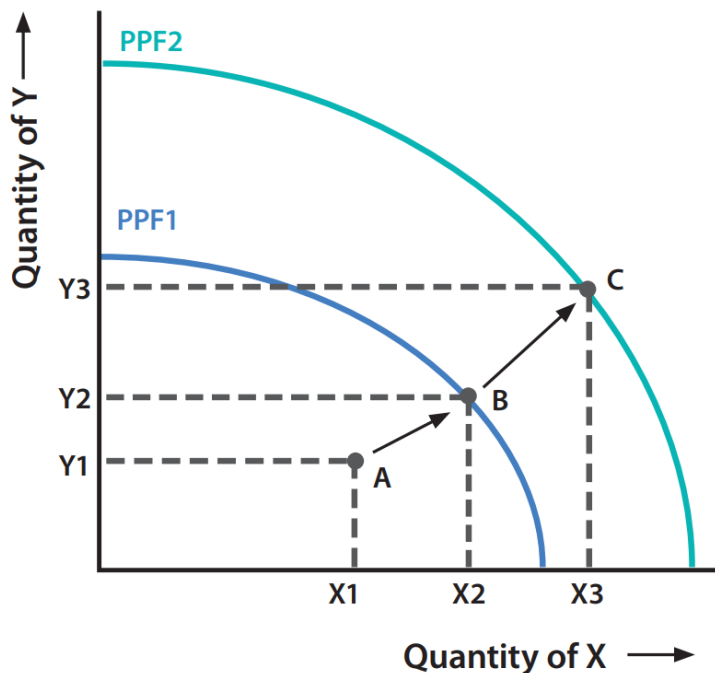
Other innovations - new or improved products, business processes, marketing methods, reallocation of labour/capital





# Technological change and efficiency

## Production Possibility Frontiers



**B → C**

Expansion of technology frontier e.g.  
Wi-Fi, world-first vaccine

**A → B**

Better utilisation of resources (efficiency improvements) – e.g. equipment upgrade, improved marketing



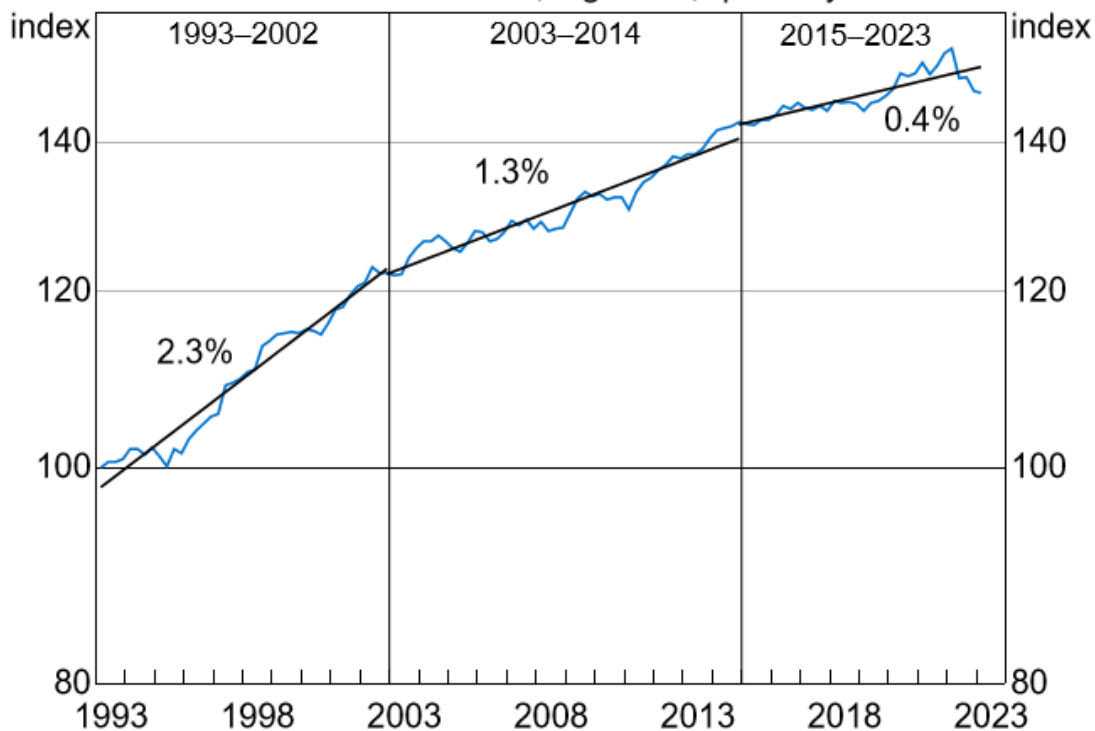
# Drivers of productivity

- Human capital investments (health and education)
- R&D and digital investments
- Strong institutions
- Climate/weather conditions
- Public infrastructure
- Competition and incentives
- Global trade



# Labour Productivity in Australia\*

March 1993 = 100, log scale, quarterly



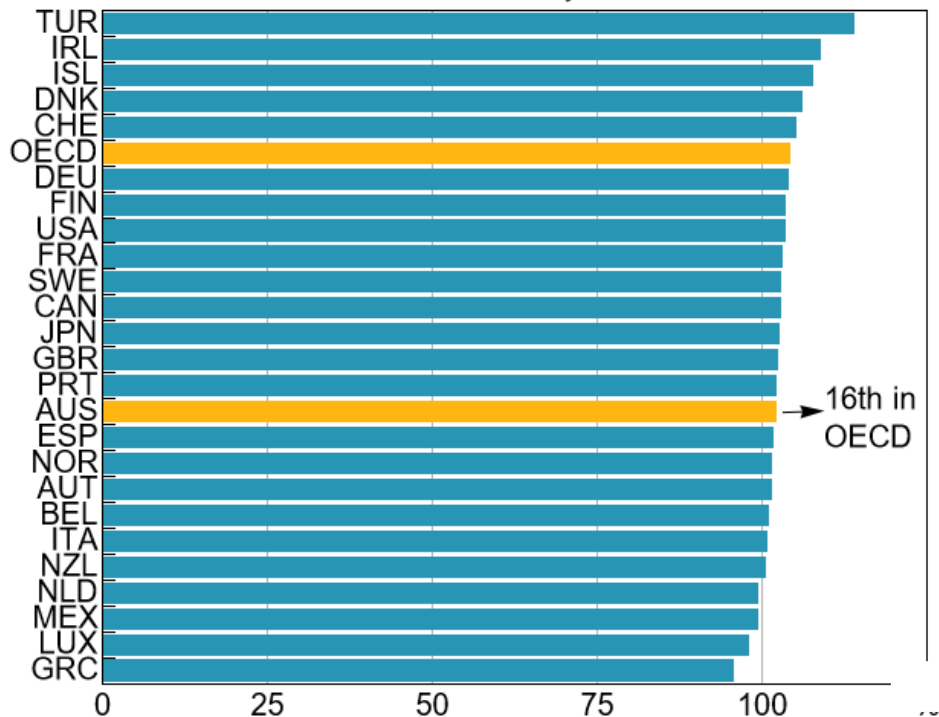
\* GDP per hour worked; black lines denote linear trend; labels show average annual growth.

Sources: ABS; RBA.



## Australia's Productivity Performance\*

Labour Productivity\*\* in 2019



\* Includes the 24 longest standing OECD countries.

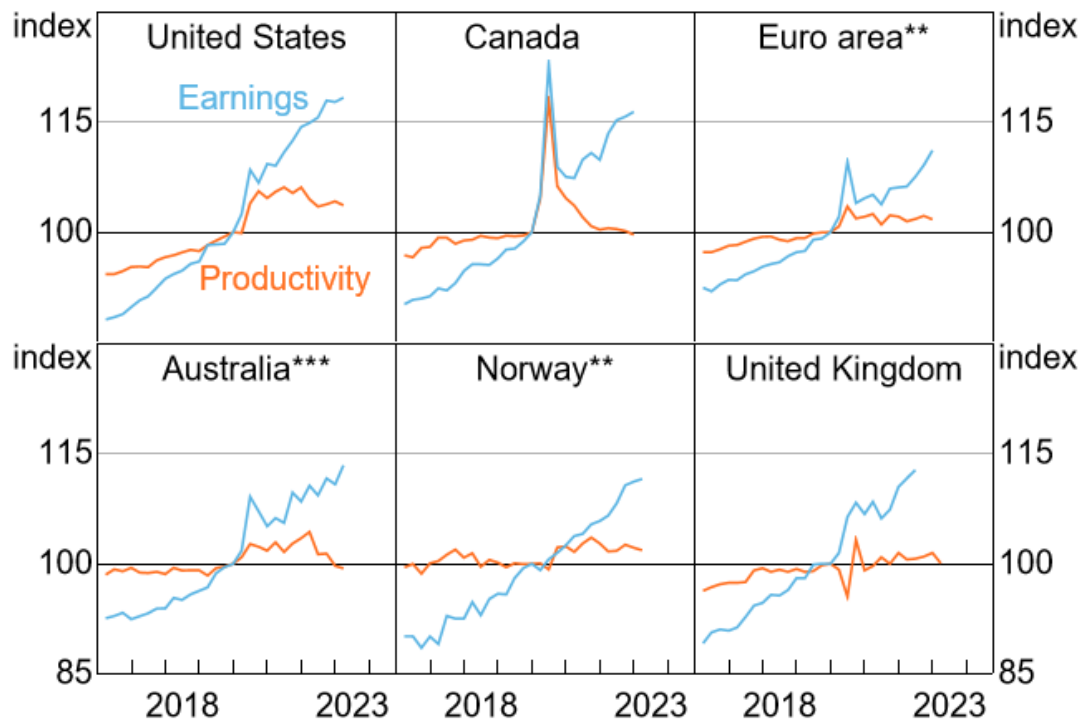
\*\* GDP per hour in US dollars using current PPPs.

Sources: OECD; RBA.



## Labour Productivity and Wages\*

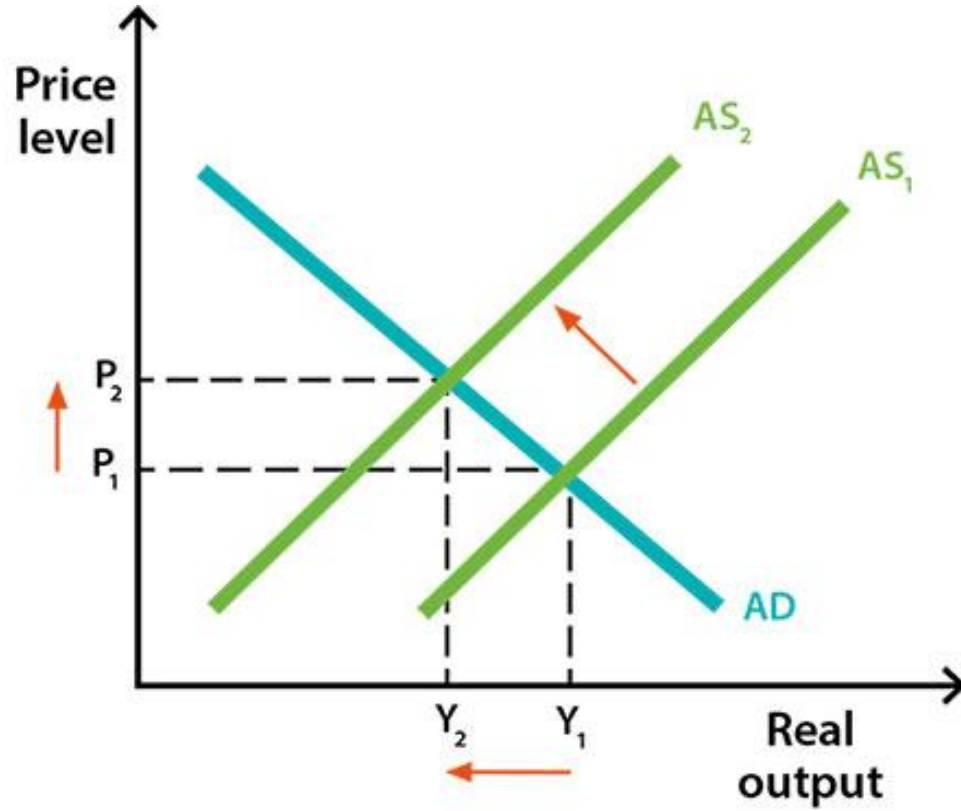
December 2019 = 100



\* Hourly, seasonally adjusted.

\*\* Wages imputed from ULC and productivity data.

Sources: ABS; ONS; RBA; Refinitiv.





# Why has productivity slowed in Australia?

- Slowdown in *economic dynamism*
  - Declining competition
  - Slowdown in knowledge/technology diffusion

## Other cited reasons:

- Running out of new ideas?
- Slowing gains from trade?
- Fit-for-purpose policy settings?
- Effects of the pandemic



# Slowing economic dynamism

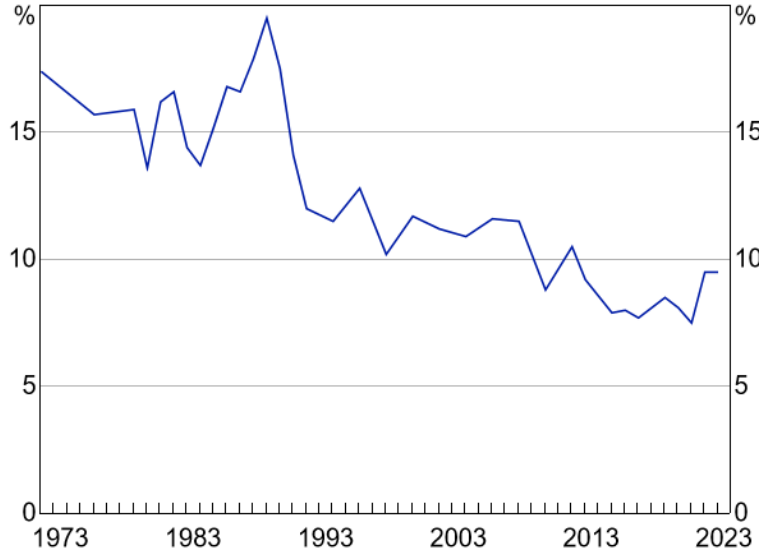
- People are switching jobs less
- Slower reallocation of labour and capital from low to high productivity firms
- Less new businesses (less young firms)
- Laggard firms are falling behind leader firms
- Measures of competition have declined





## Job Mobility\*

Proportion of employed persons who changed jobs during year

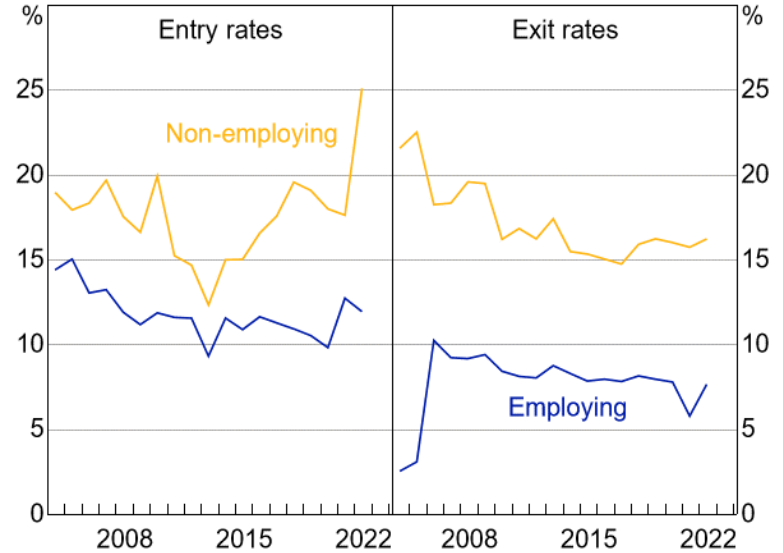


\* Data are interpolated between surveys, which are conducted annually in February

Source: ABS.

## Business Entry and Exit Rates

Employing and Non-employing Firms



Sources: ABS; RBA.



# Conclusion

- Productivity affects economic growth and inflation – so is an area the Bank is attuned to
- Policies that affect productivity tend to be longer-term in nature than monetary policy
- Many important syllabus links for teachers: growth, aggregate demand/supply, PPFs and government policy