GTAP Virtual Seminar Series

Incorporating Unemployment into the GTAP model: U.S. Perspective

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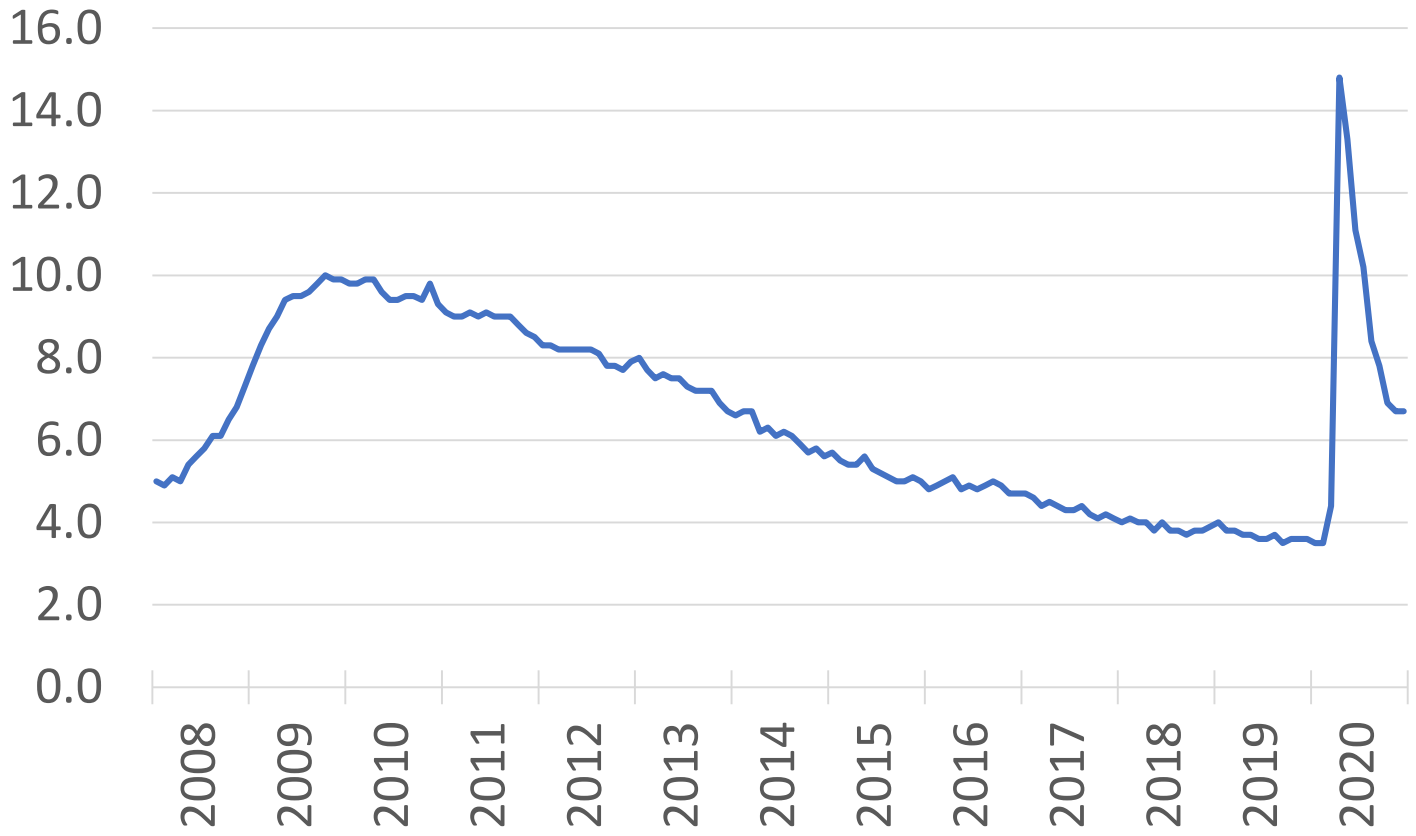
Very timely article

U.S. Unemployment Rate



Source: BLS, Current Population Survey

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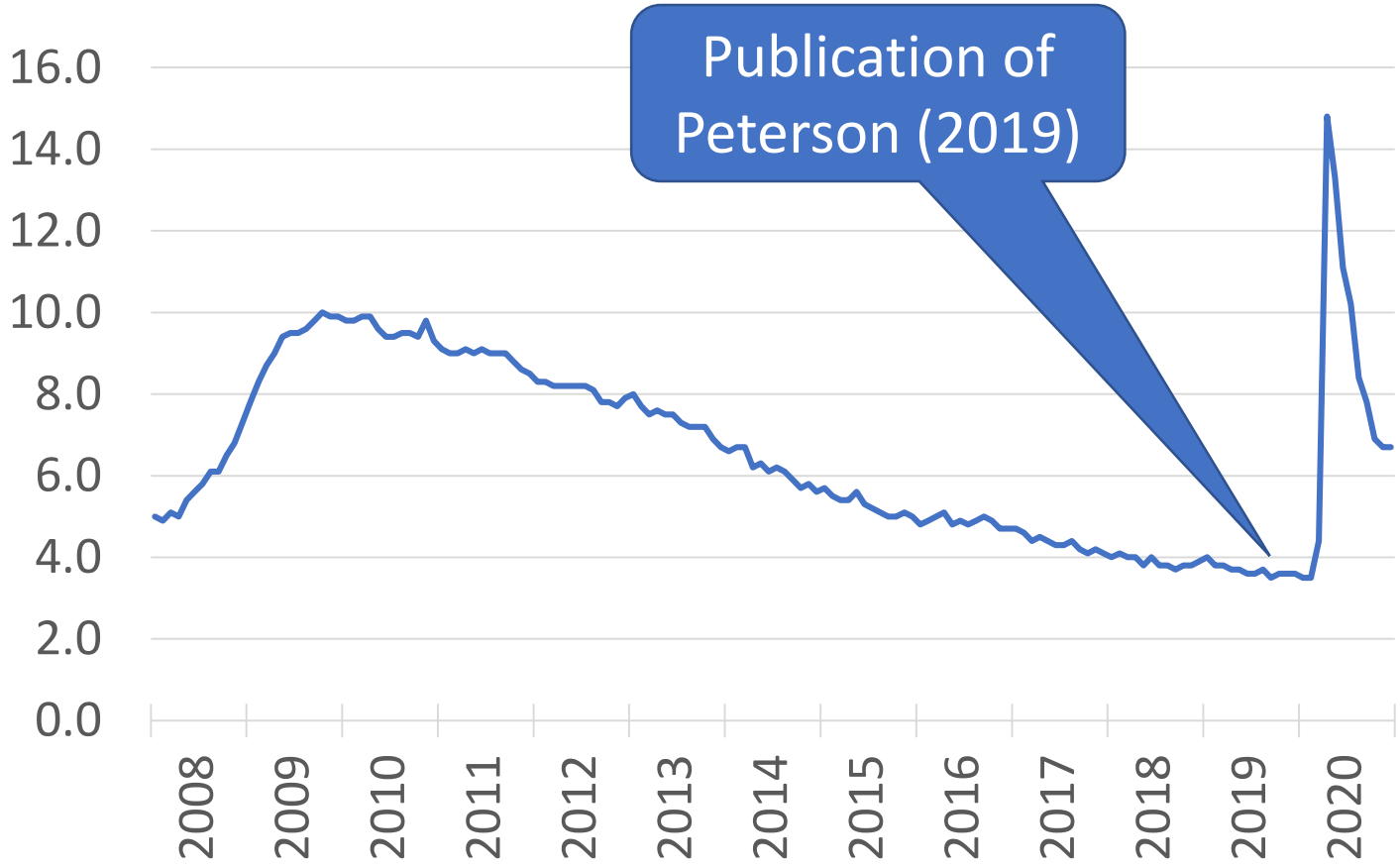

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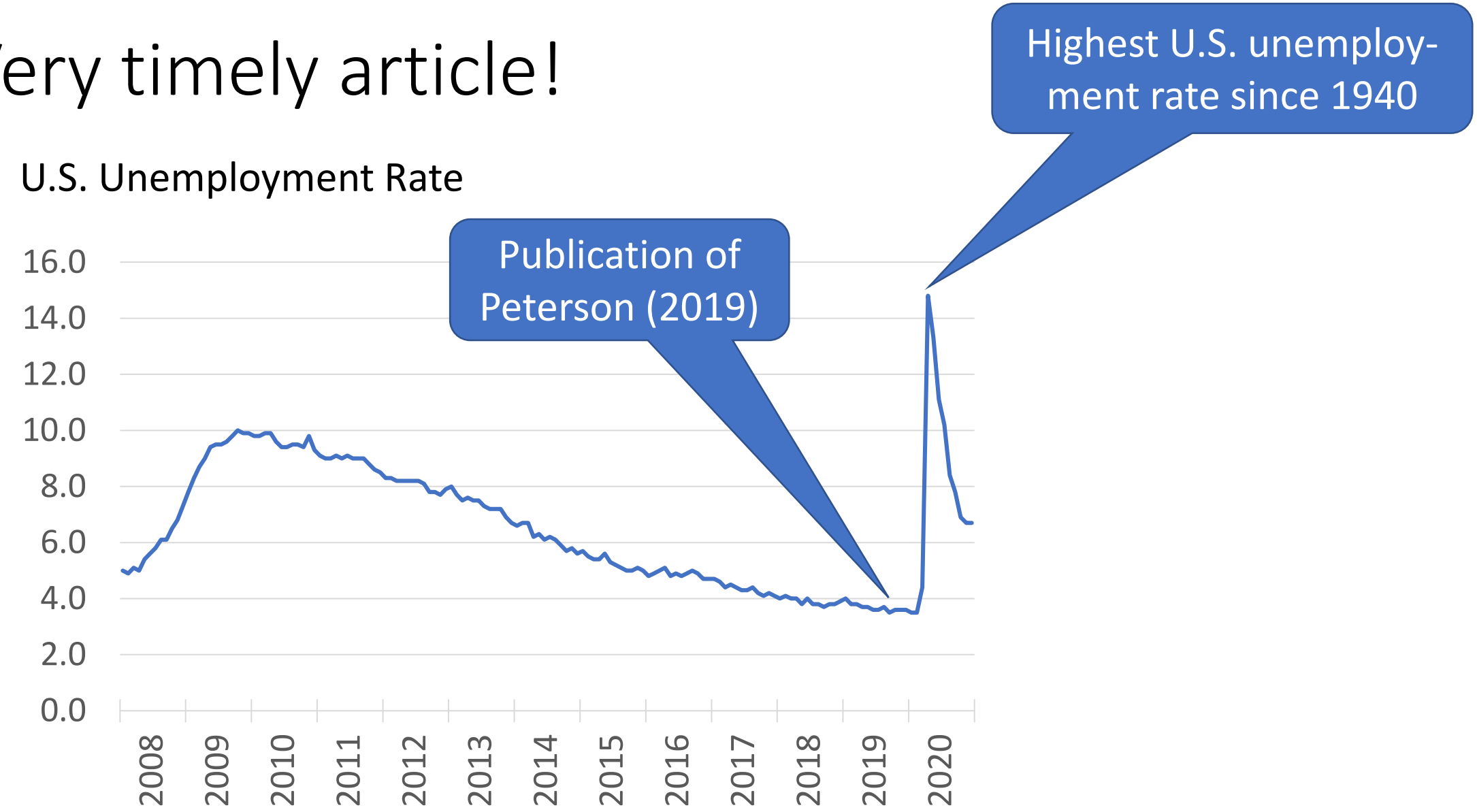

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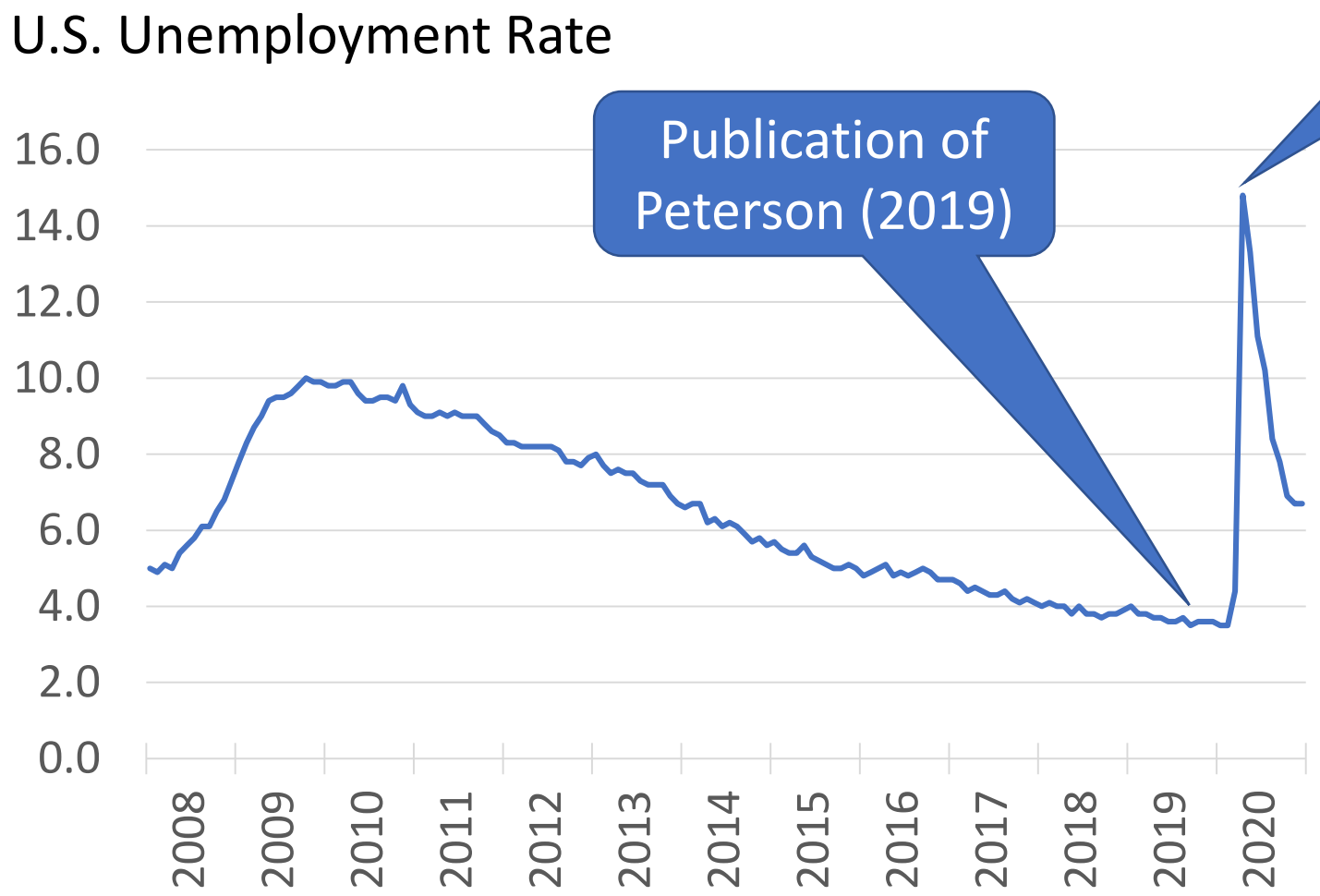

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- Dec 2020 rate (6.7%) still close to 2x pre-pandemic level (3.5%)
- All measures elevated: temporary layoffs, short- and long-term unemployed, weekly insurance claims, etc.
- Fed predicts return to pre-pandemic unemployment rate in 2023
- Latinos, mothers of school-age children, services sectors particularly affected

Why Peterson (2019) appeals to economists

- Applies equilibrium search unemployment to CGE framework
  - Includes key elements of the Diamond-Mortensen-Pissarides framework
  - Extends Hafstead and Williams (2018) beyond two sectors
- Cleverly integrates into GTAP framework
  - Utility: separable preferences incorporate existing GTAP equations for product demand
  - Labor extensions
    - Existing and matched workers are employed in production, while recruiters raise costs above MRPL
    - Producer expenditure based on a composite market price of existing, matched, and recruiters
- Data requirements are parsimonious and clear
  - Labor data (job separation or turnover, share of recruiters) by region and industry
  - New labor supply and substitution elasticities, and matching efficiency parameter
- Immobile labor matches a wealth of evidence in the U.S. and elsewhere
  - Artuç, Chaudhuri, and McLaren (2010); Topolova (2010); Autor Dorn and Hanson (2013, 2016); Dix-Carneiro and Kovak (2017, 2019)

Why Peterson (2019) should appeal to policymakers

- Immobile labor matches outcomes the public and policymakers believe
  - Wage rates in directly affected sector differ from those in the rest of the economy
  - Wage rates for existing labor move in the same direction as sectoral output
  - Declines in workforce not specified as an amorphous "shift" of resources
    - Reduction in labor use achieved through change in level of matched labor

Effects of a 25% tariff increase on metal products

Effect in metals sector	GTAP-LAB	GTAP
Wages	+7.2%	–0.1%
Output	+7.8%	+11.8%
Capital deepening	Yes	Almost none

“The importance of labor markets and the potential path forward”

- The importance of labor markets cannot be overstated
  - Current economic conditions for workers
  - Current political focus on workers
- Going forward
  - Peterson (2019) is a big step forward
    - Brings realistic labor dynamics into GTAP model
    - Shows we can model equilibrium search unemployment in a CGE model
  - Is this enough?
    - Do we need to be looking at disequilibrium unemployment (cyclical, structural)?
    - What do wage and employment outcomes look like in this model in a dynamic setting?