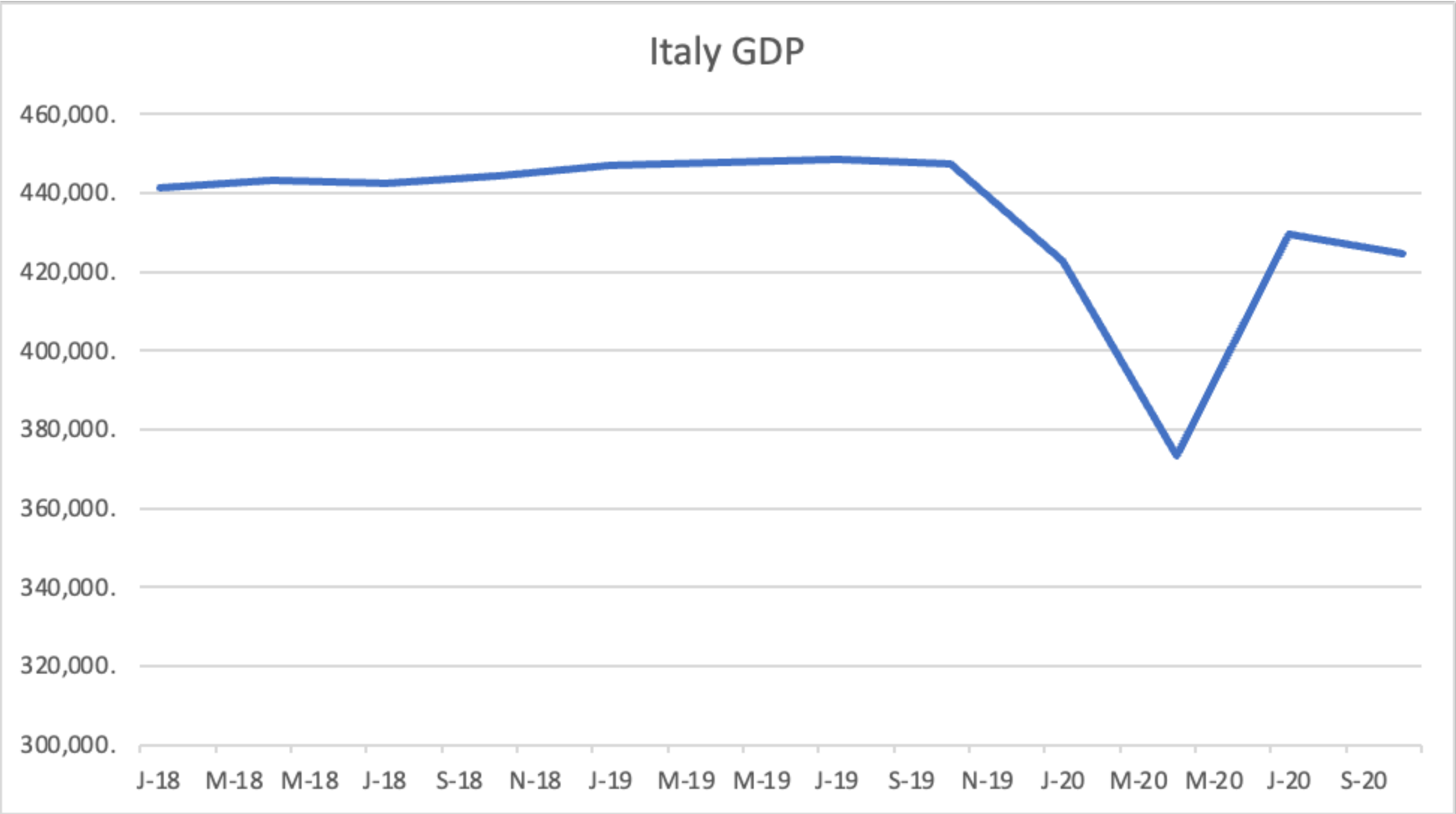# THE COVID-19 ECONOMIC CRISIS

Guido Lorenzoni
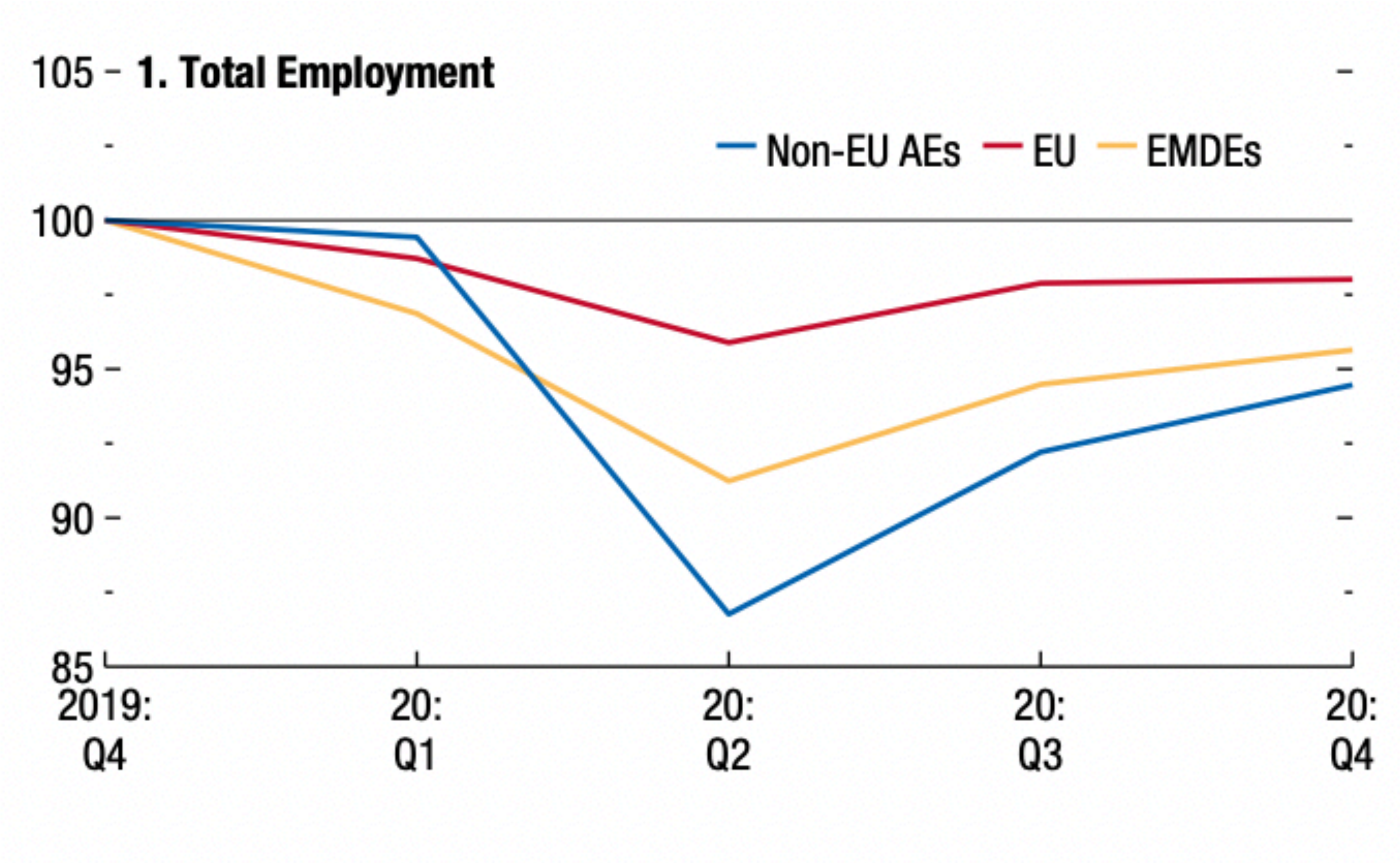
Lecture @Università di Firenze

CONTRACTION IN ECONOMIC ACTIVITY

Italy GDP

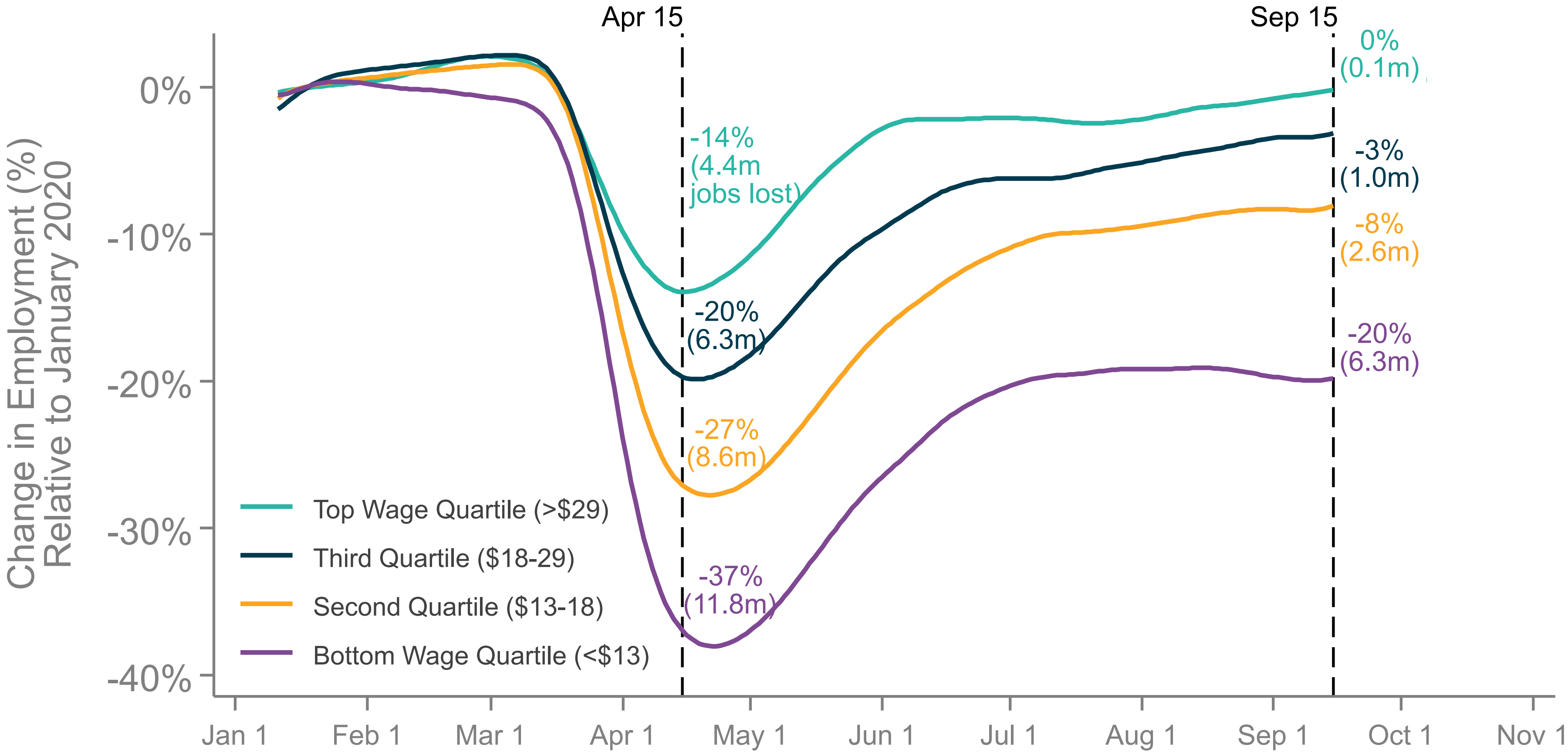# EMPLOYMENT IN DIFFERENT AREAS

Source: BLS

EMPLOYMENT ACROSS SECTORS (US)

Source: BLS

EMPLOYMENT BY WAGE QUARTILE (US)

Change in Employment (%) Relative to January 2020

Apr 15

Sep 15

-14%
(4.4m
jobs lost)

0%
(0.1m)

-20%
(6.3m)

-3%
(1.0m)

-27%
(8.6m)

-8%
(2.6m)

-20%
(6.3m)

-37%
(11.8m)

Top Wage Quartile (>$29)

Third Quartile ($18-29)

Second Quartile ($13-18)

Bottom Wage Quartile (<$13)

Jan 1   Feb 1   Mar 1   Apr 1   May 1   Jun 1   Jul 1   Aug 1   Sep 1   Oct 1   Nov 1

Source: Chetty et al. (2020)

PANDEMIC SHOCK

➤ Asymmetric effects: some sectors more directly hurt

➤ Heterogeneity: some workers more hurt

➤ Mix of supply and demand disturbances:

    ➤ Restaurants have to close, workers laid off have to adjust spending

    ➤ Some producers have to shut down, constraints on supply chain, disruption in payments

➤ **Policy debate: Role for stimulus? Stimulus or relief? What tools?**

➤ Textbook approach: **excess supply or excess demand?**

➤ Too simplistic: some sectors can be demand constrained other supply constrained, supply constraints in one sector can generate demand constraints in another

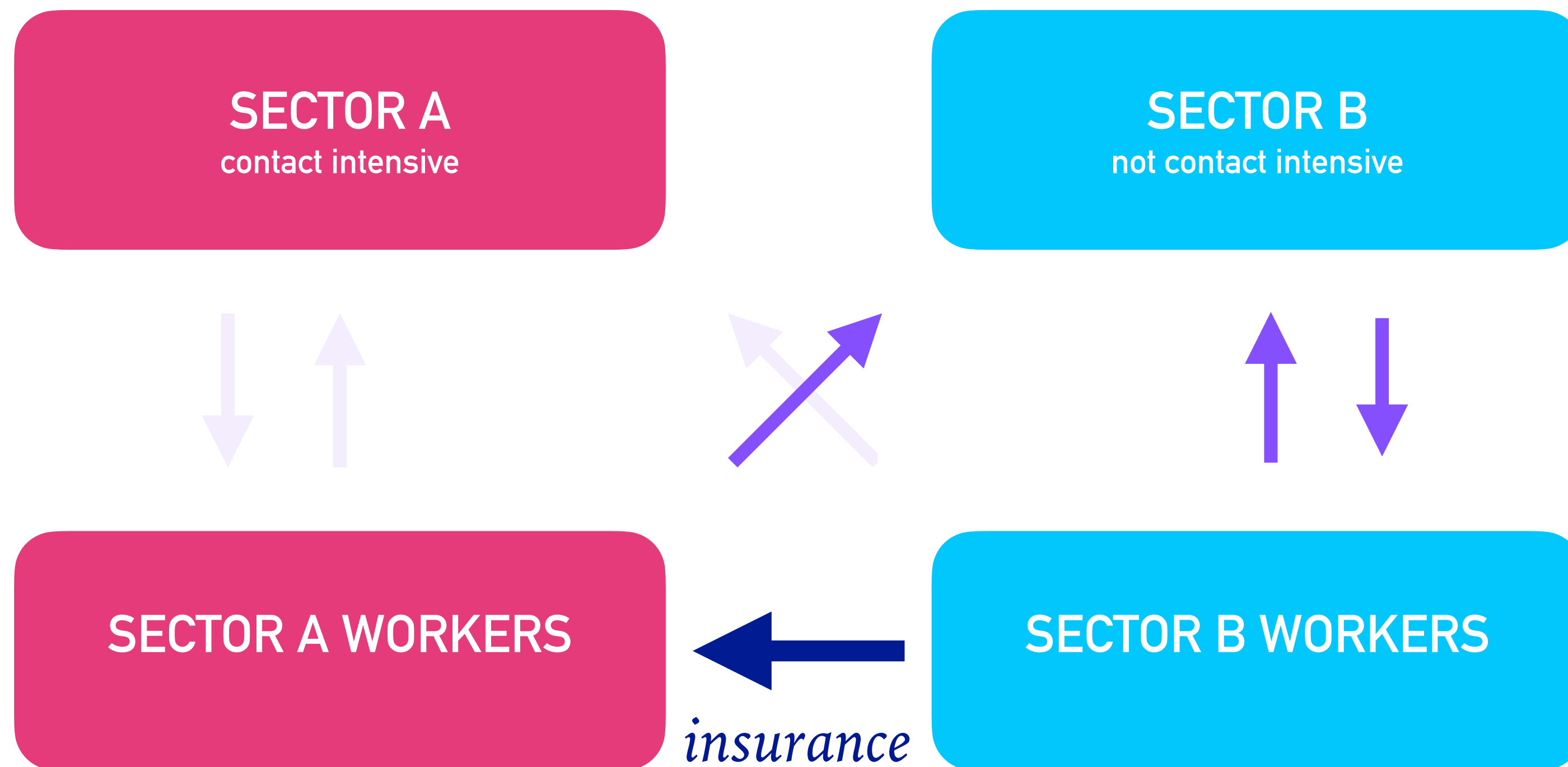➤ Analysis based on Guerrieri, Lorenzoni, Straub, Werning (2020)

BEFORE THE PANDEMIC SHOCK

➤ 2-sector economy: A contact-intensive and B not contact-intensive
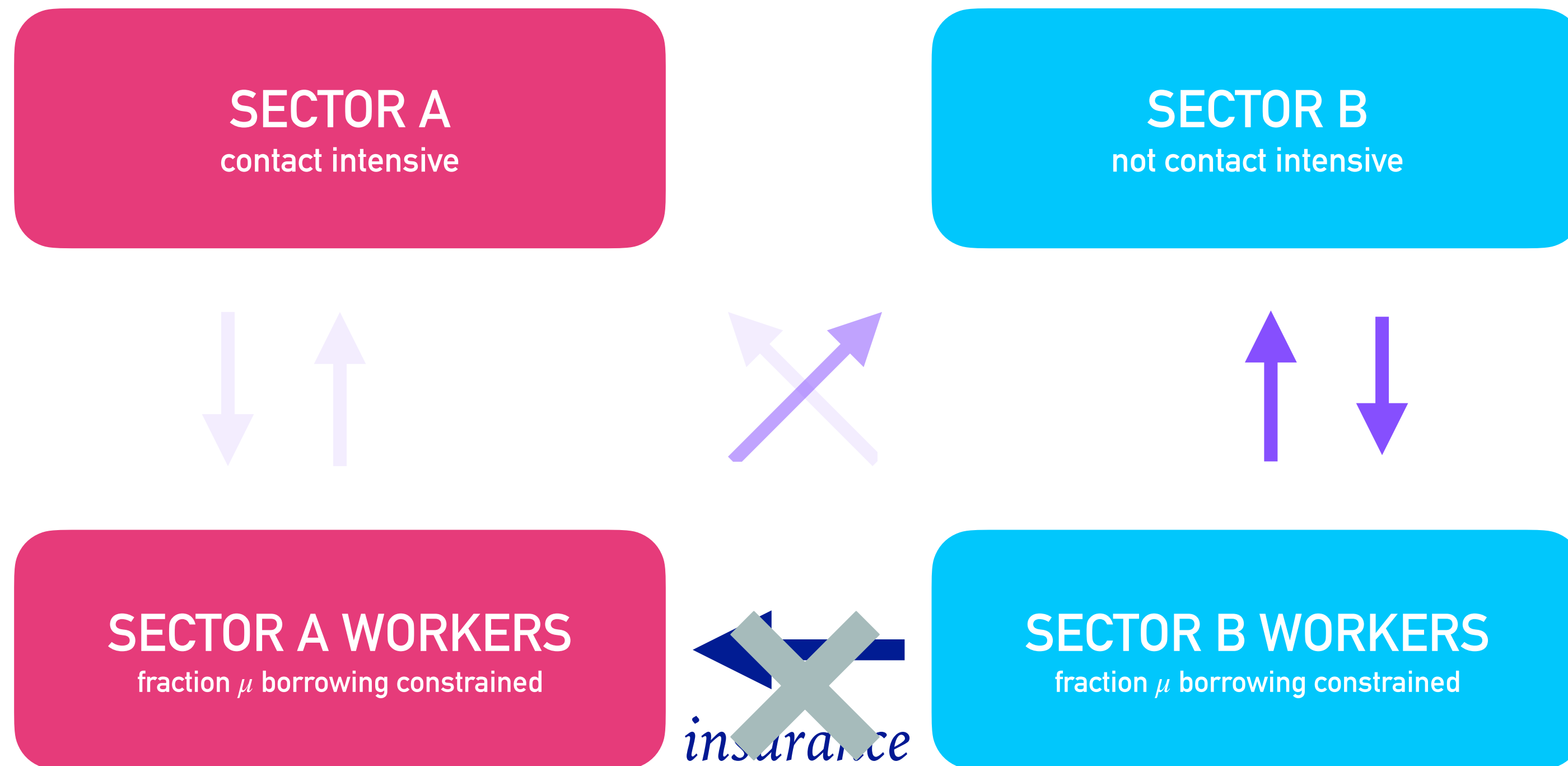
➤ The two sectors are symmetric before the pandemic
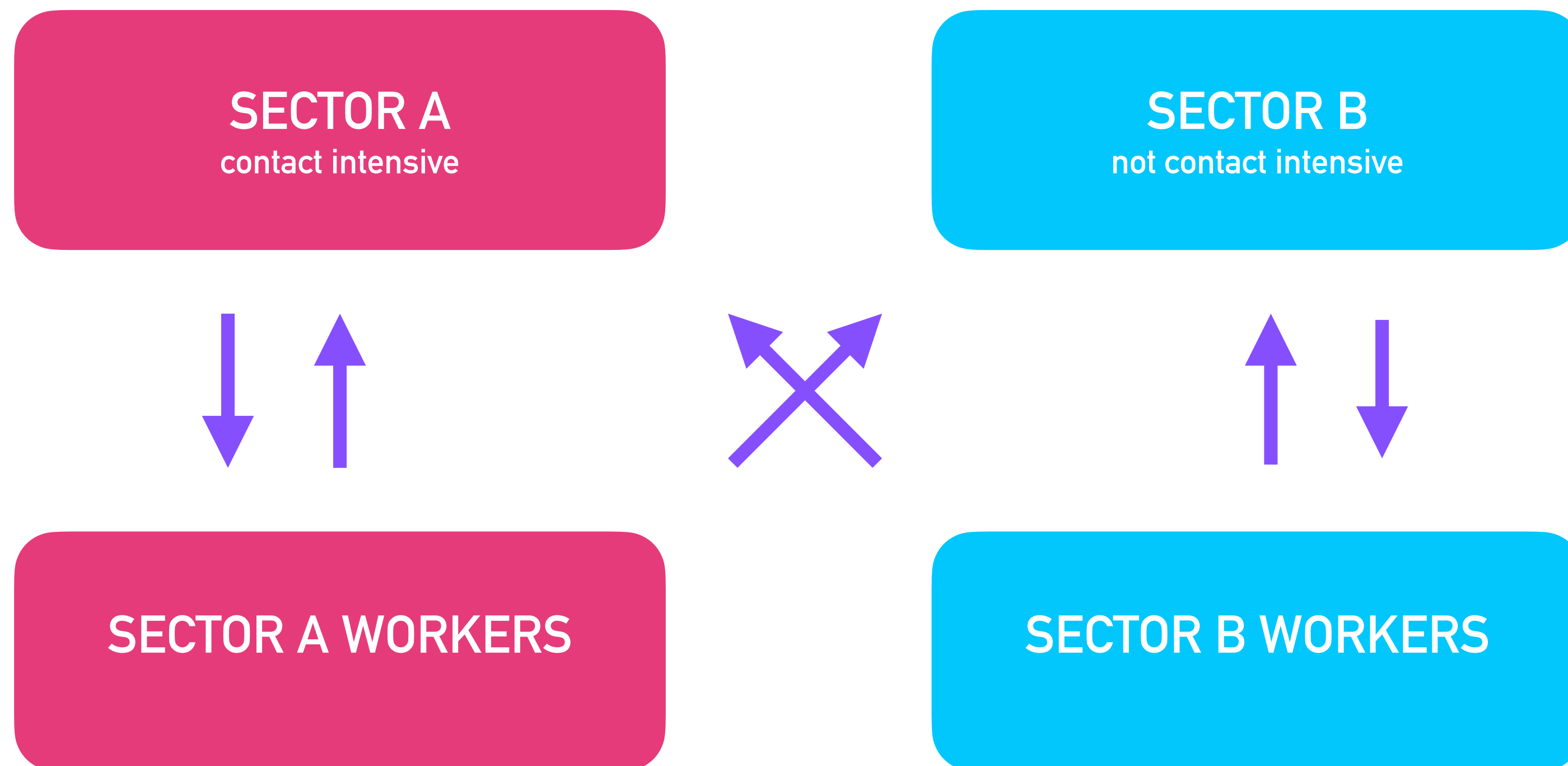
PROPAGATION WITH COMPLETE MARKETS

➤ Pandemic shock = complete shut down of sector A

➤ Key question: how does the shock propagate from A to B ?

PROPAGATION WITH INCOMPLETE MARKETS

➤ Incomplete markets: fraction of workers are borrowing constrained

➤ + workers are specialized in their sector

MODEL

MODEL

- Preferences

$$\sum_{t=0}^{\infty} \beta^t U(c_{At}, c_{Bt})$$

- Constant elasticity of substitution across goods ϵ

- Constant elasticity of intertemporal substitution σ

- Technology: for $j = A, B$

$$Y_{jt} = N_{jt}$$

- Immobile labor:

  - ϕ workers specialized in A

  - $1 - \phi$ workers specialized in B

MODEL (CONTINUED)

➤ Agents trade one-period bonds

➤ Budget constraint

$$p_{At}c_{iAt} + p_{Bt}c_{iBt} + a_{it} \leq w_t n_{it} + (1 + i_{t-1})a_{it-1}$$

➤ Fraction μ face borrowing constraint

$$a_{it} \geq 0$$

➤ Limit cases:

➤ $\epsilon \rightarrow \infty$: one sector model

➤ $\mu \rightarrow 0$: complete market model

PANDEMIC SHOCK

➤ Economy in steady state

➤ Time 0: **temporary reduction in labor supply in sector A**

➤ Shock generates an increase in the (shadow) price of sector A similarly to

  ◉ health risk associated to consuming in sector A

  ◉ tax wedge in sector A due to government intervention

➤ Time 1,2,3,…: back to normal (flexible price allocation)

➤ Assumptions:

  ➤ Nominal wages are downward rigid at time 0

  ➤ Central Bank keeps interest rate unchanged

Extreme case: zero labor supply (total shutdown)

KEYNESIAN SUPPLY SHOCKS

➤ Welfare-based CPI:

$$P = \left(\phi p_A^{1-\epsilon} + 1 - \phi \right)^{\frac{1}{1-\epsilon}}$$

➤ Individual demand at t=0

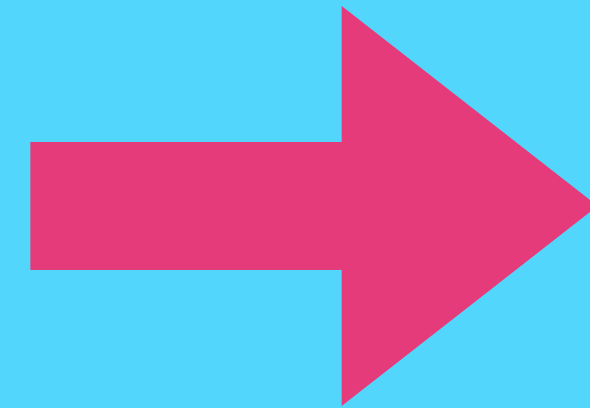$$Y_B = (1 - \phi) \left(\frac{1}{P} \right)^{-\epsilon} P^{-\sigma}$$

➤ **Keynesian Supply Shock:** shock to sector A generates demand shortage in sector B

$$Y_B < Y_B^* = 1 - \phi$$

COMPLETE MARKETS

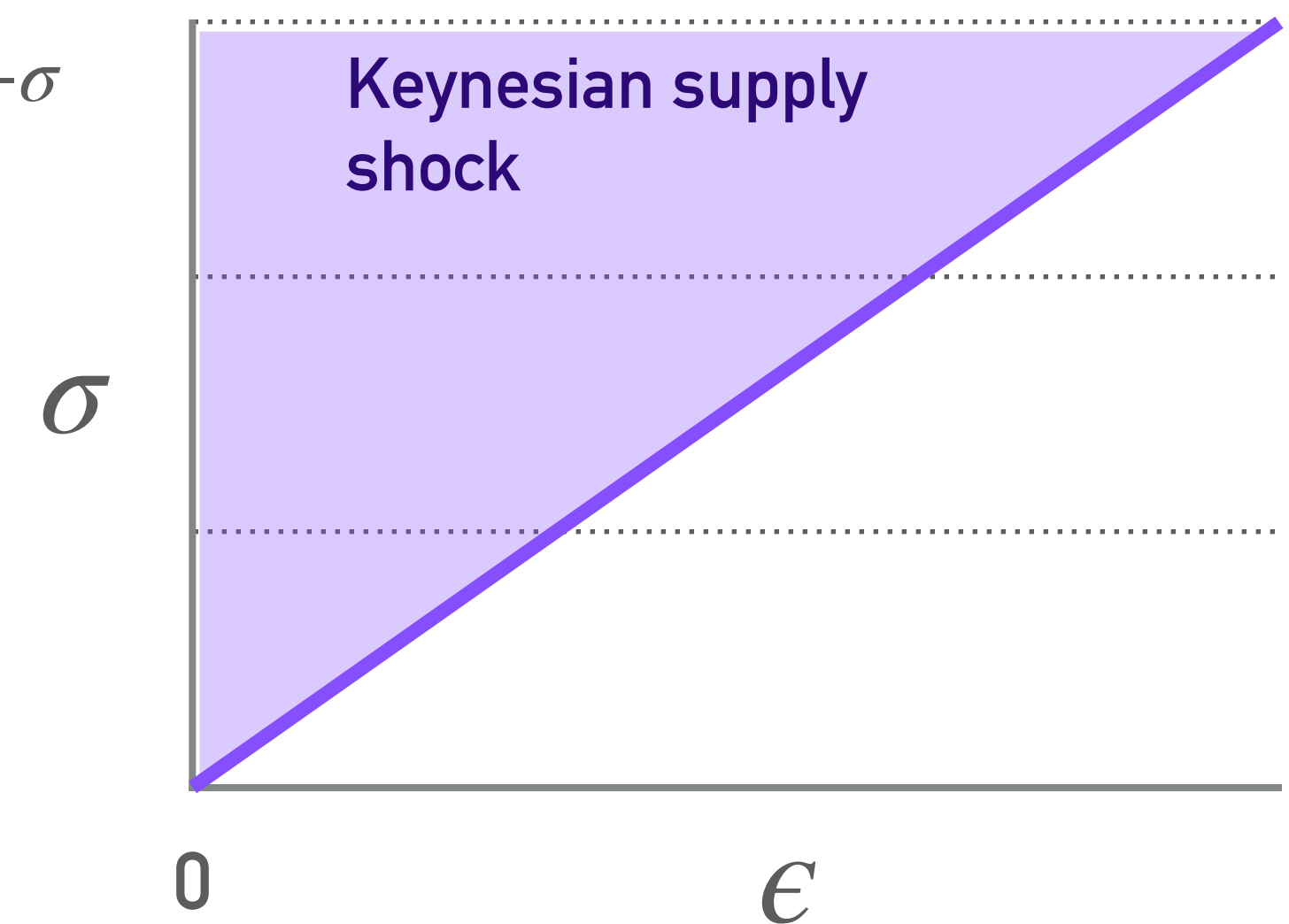Result: Multiple sectors + Complete Markets

Supply shock ➡ Demand shortage iff
$$\sigma > \epsilon$$

$$Y_B = (1 - \phi)\left(\frac{1}{P}\right)^{-\epsilon} P^{-\sigma}$$
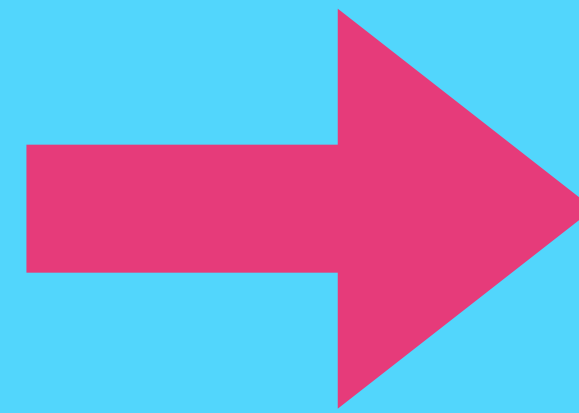
➤ When p_A increases, P increases → two effects:
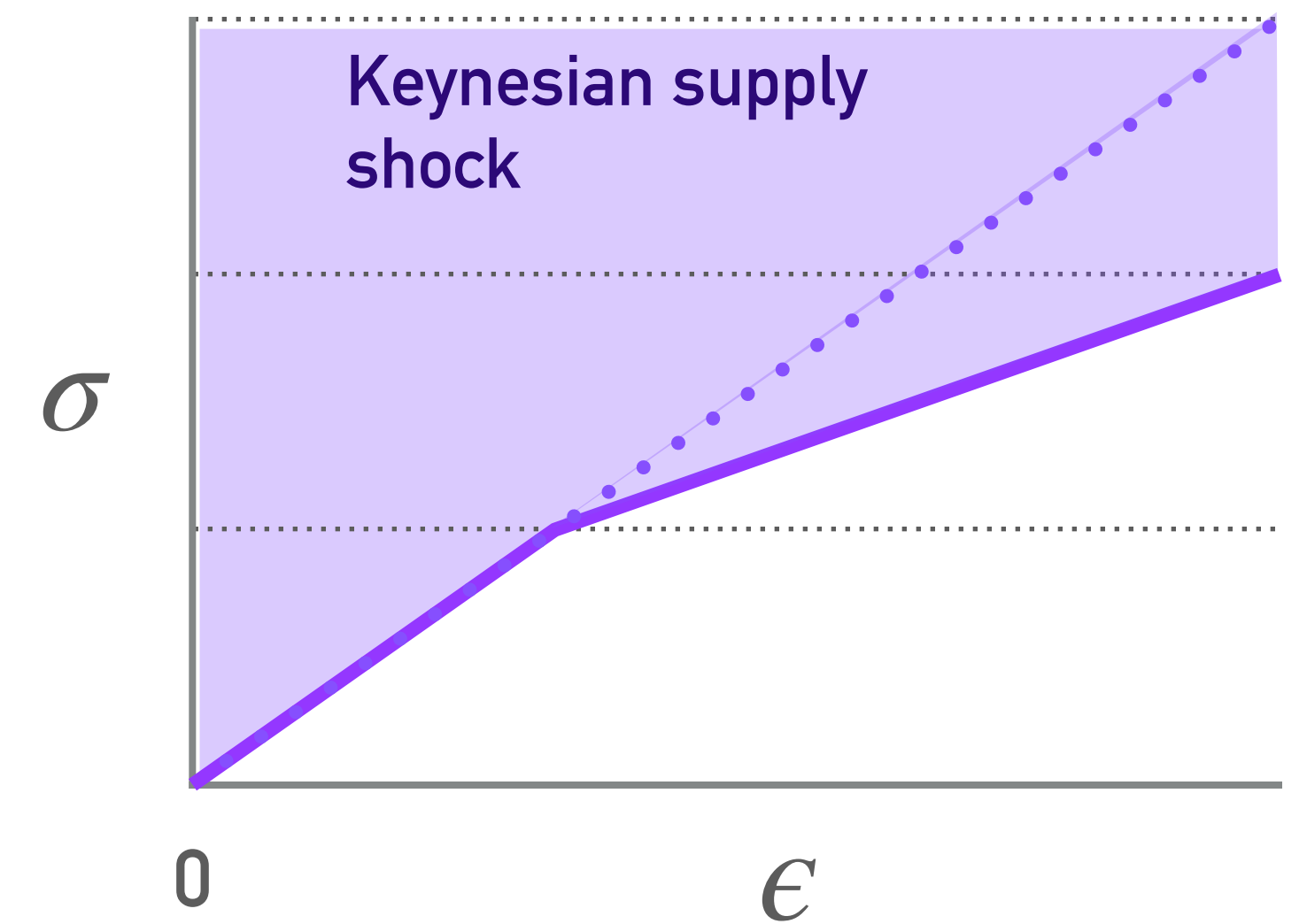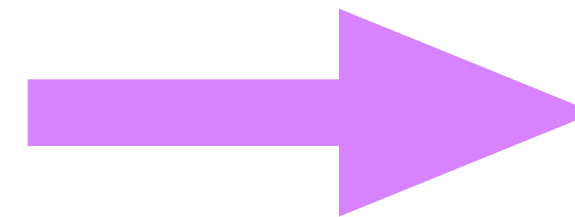
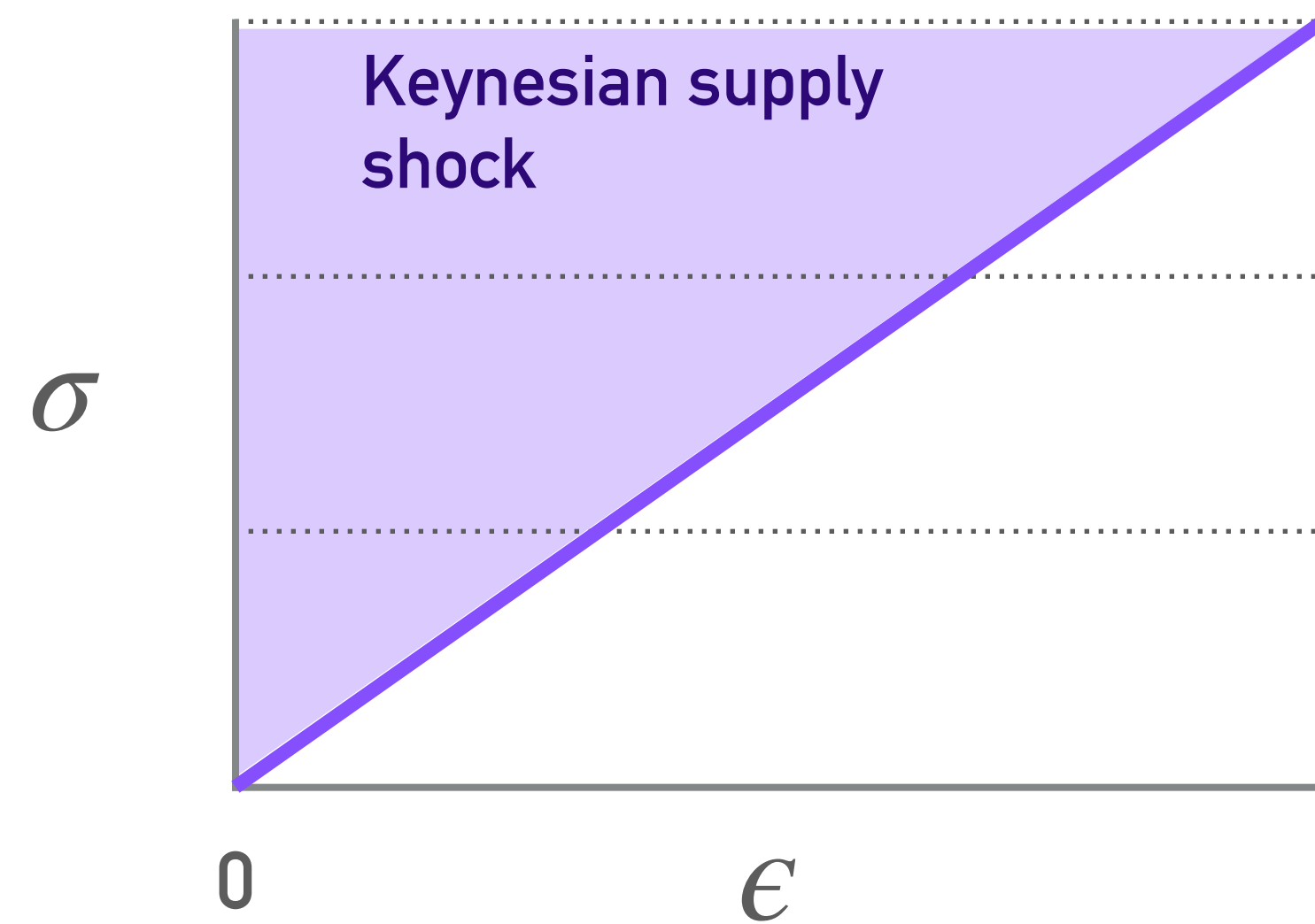1. cheaper to consume tomorrow

2. good B cheaper than good A

Keynesian supply shock

σ

0

ϵ

Result: Multiple sectors + Incomplete Markets

Supply shock ➡ Demand shortage iff
$$\sigma > f(\epsilon)$$

INCOMPLETE MARKETS EFFECT

➤ How many agents are unconstrained?

$$1 - \mu + \mu(1 - \phi)$$

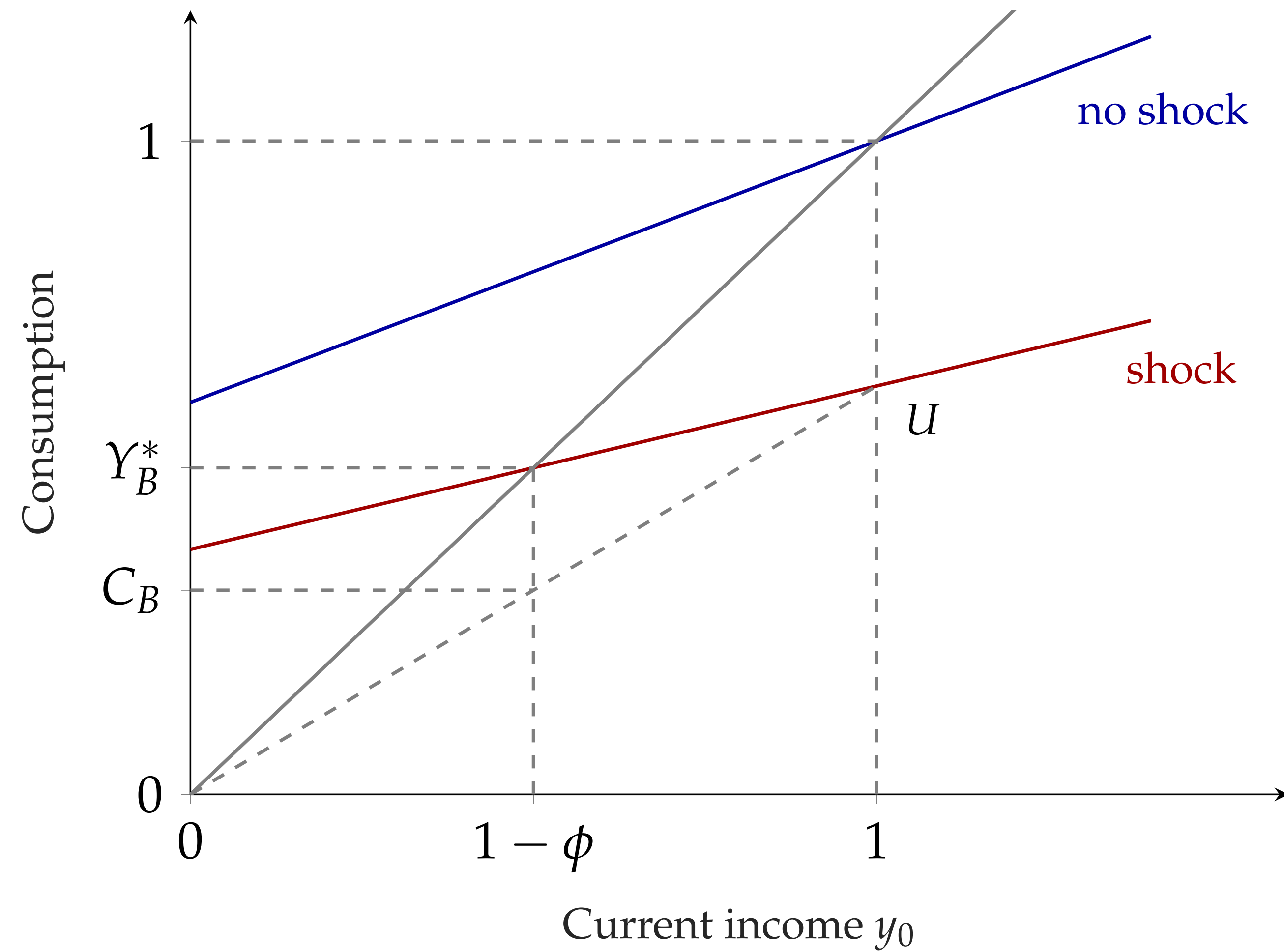*can borrow*   *employed in B (net savers)*

➤ Total demand:

$$Y_B = \left(1 - \mu\phi\right)(1 - \phi)\left(\frac{1}{P}\right)^{-\epsilon} P^{-\sigma}$$
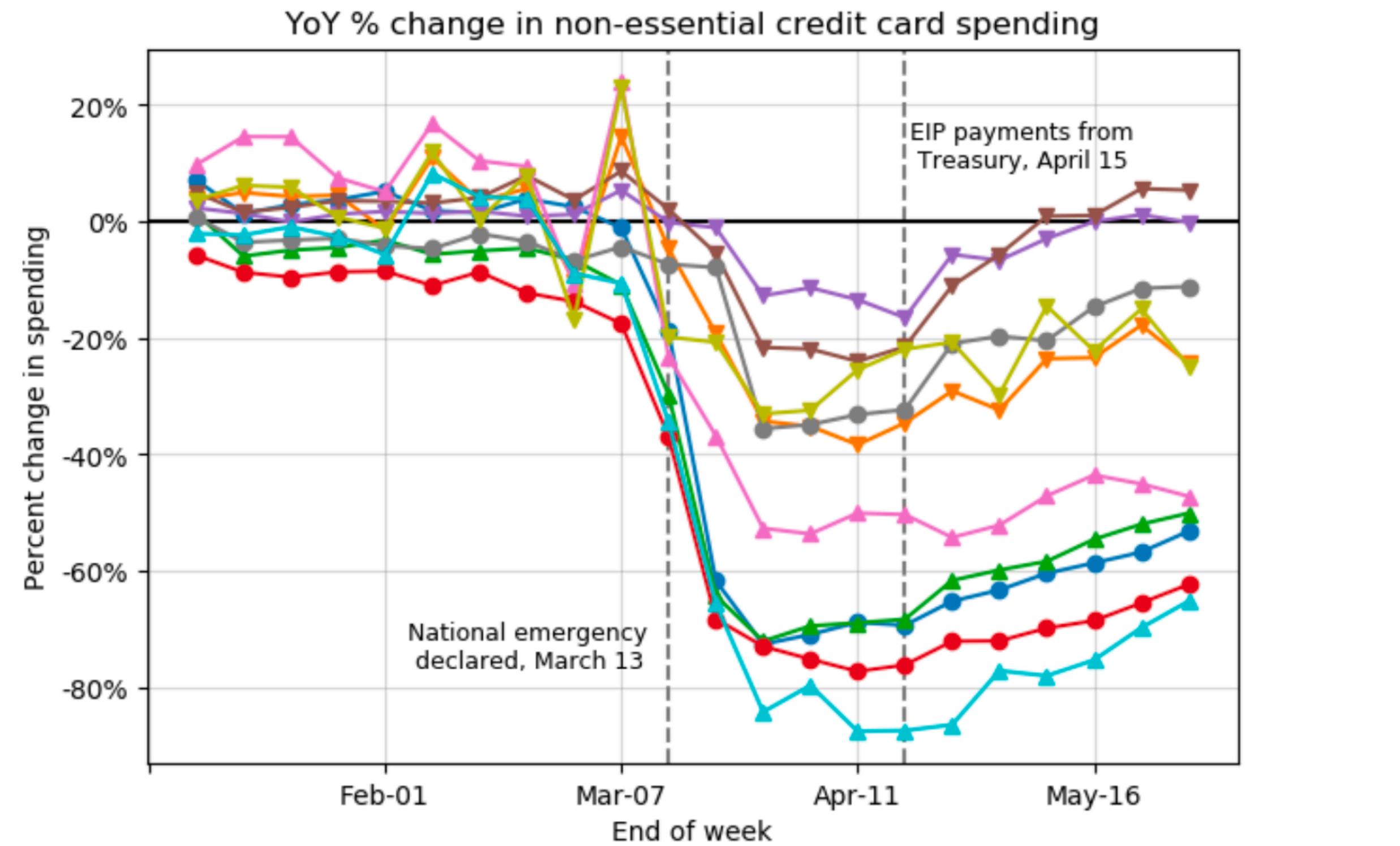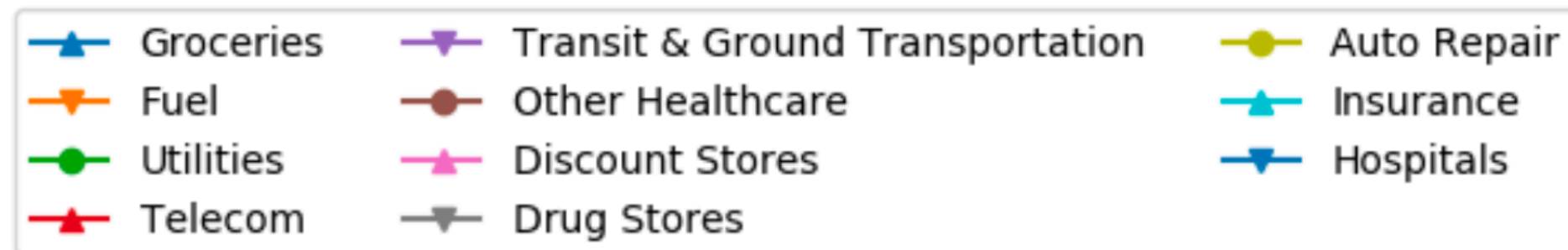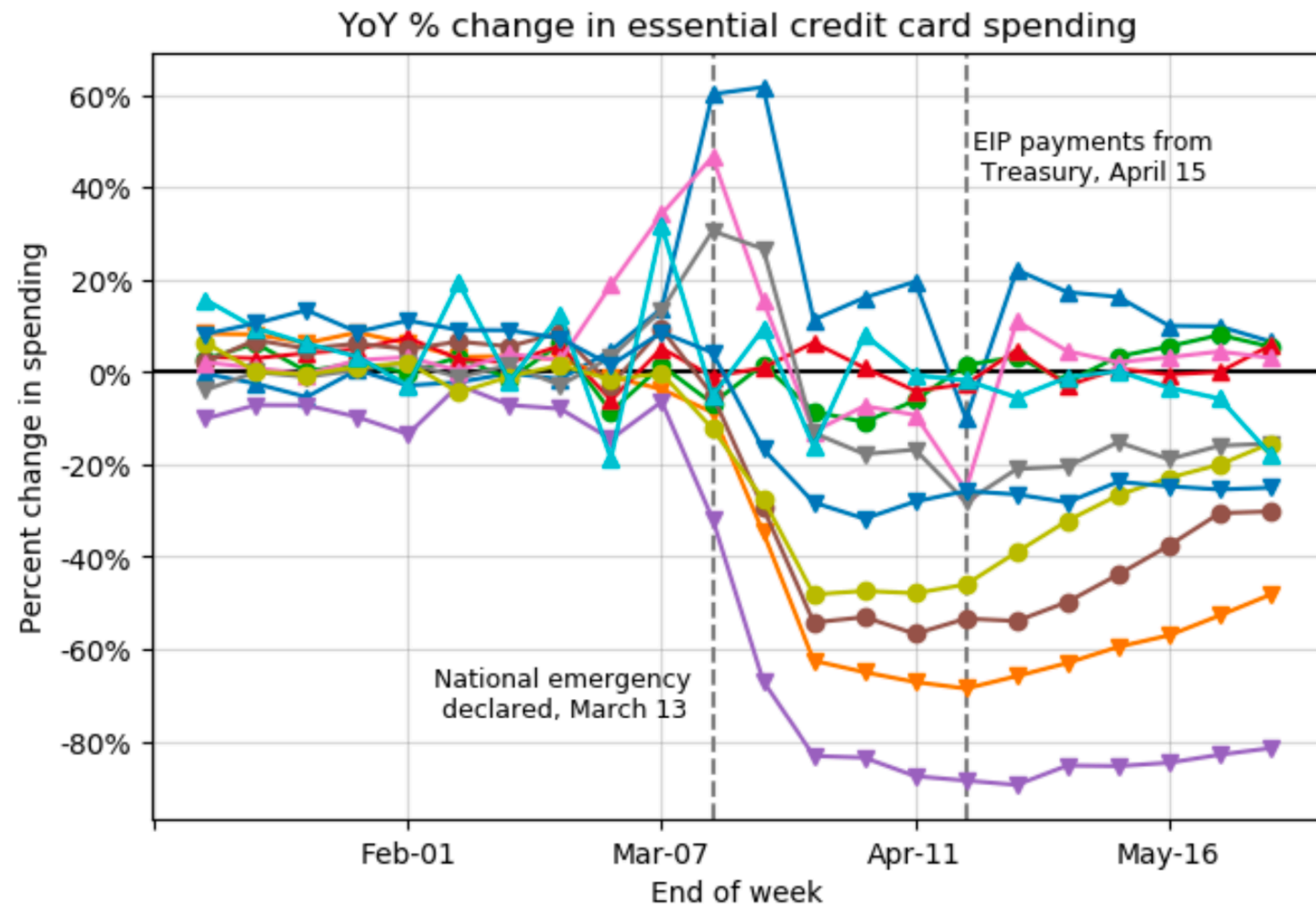
individual demand of unconstrained

Condition for KSS: $\left(1 - \mu\phi\right) P^{\epsilon - \sigma} < 1$

SPENDING ACROSS SECTORS

Figure 5: **Credit card spending growth across spending categories**

EMPLOYMENT ACROSS SECTORS
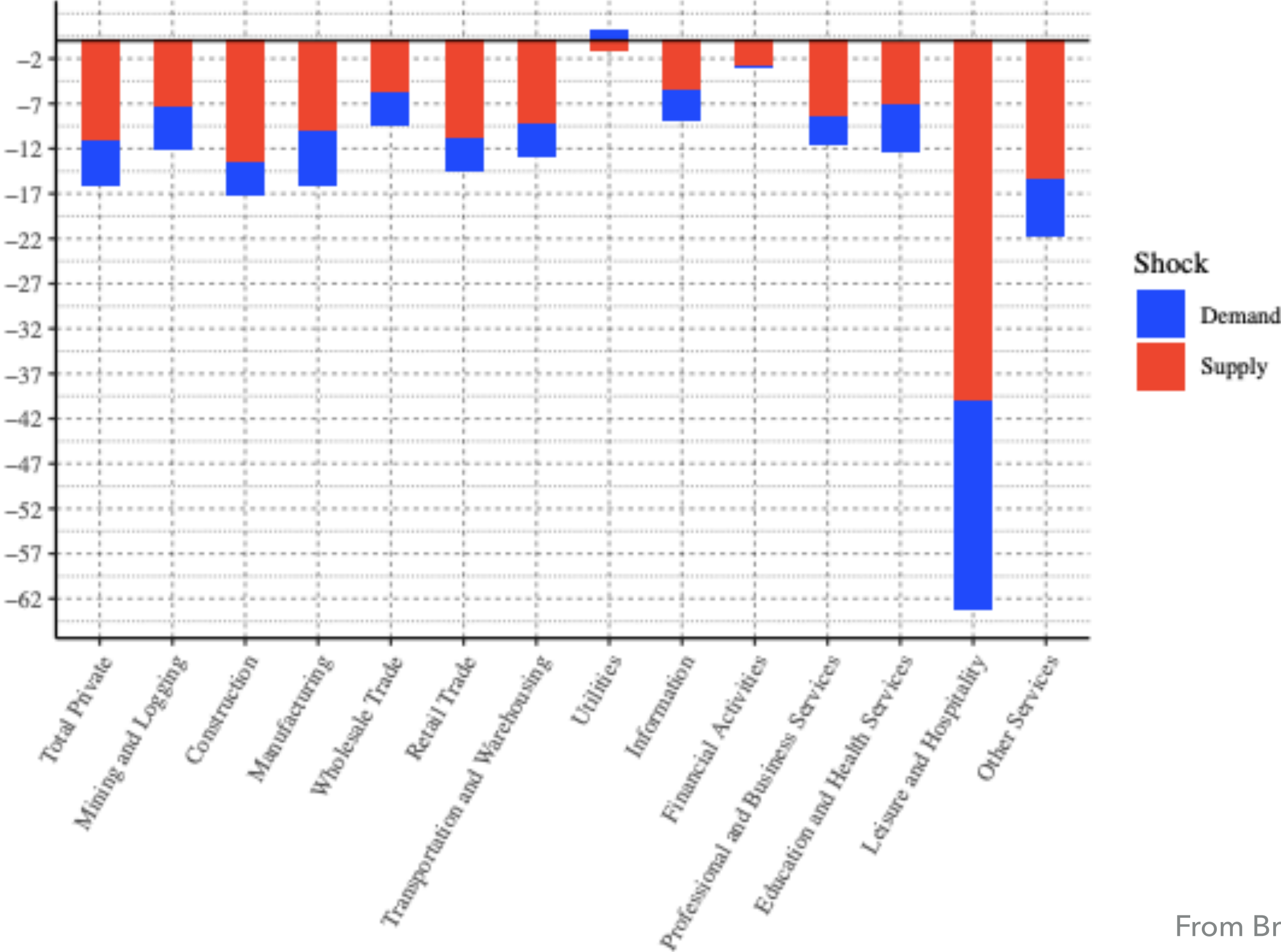
From Brinca, Duarte, Faria e Castro (2020)

FISCAL POLICY

# MULTIPLIER

➤ Spending and transfers at date 0

$$G + T = D$$

➤ Transfers with replacement rate ρ so income after transfers is:

$$n_{j0} + \rho(1 - n_{j0})$$

➤ Constant future tax, all on non-constrained agents

➤ **Result: multiplier on G = 1!**

➤ No 2nd round Keynesian cross operating because sector A incomes do not respond!

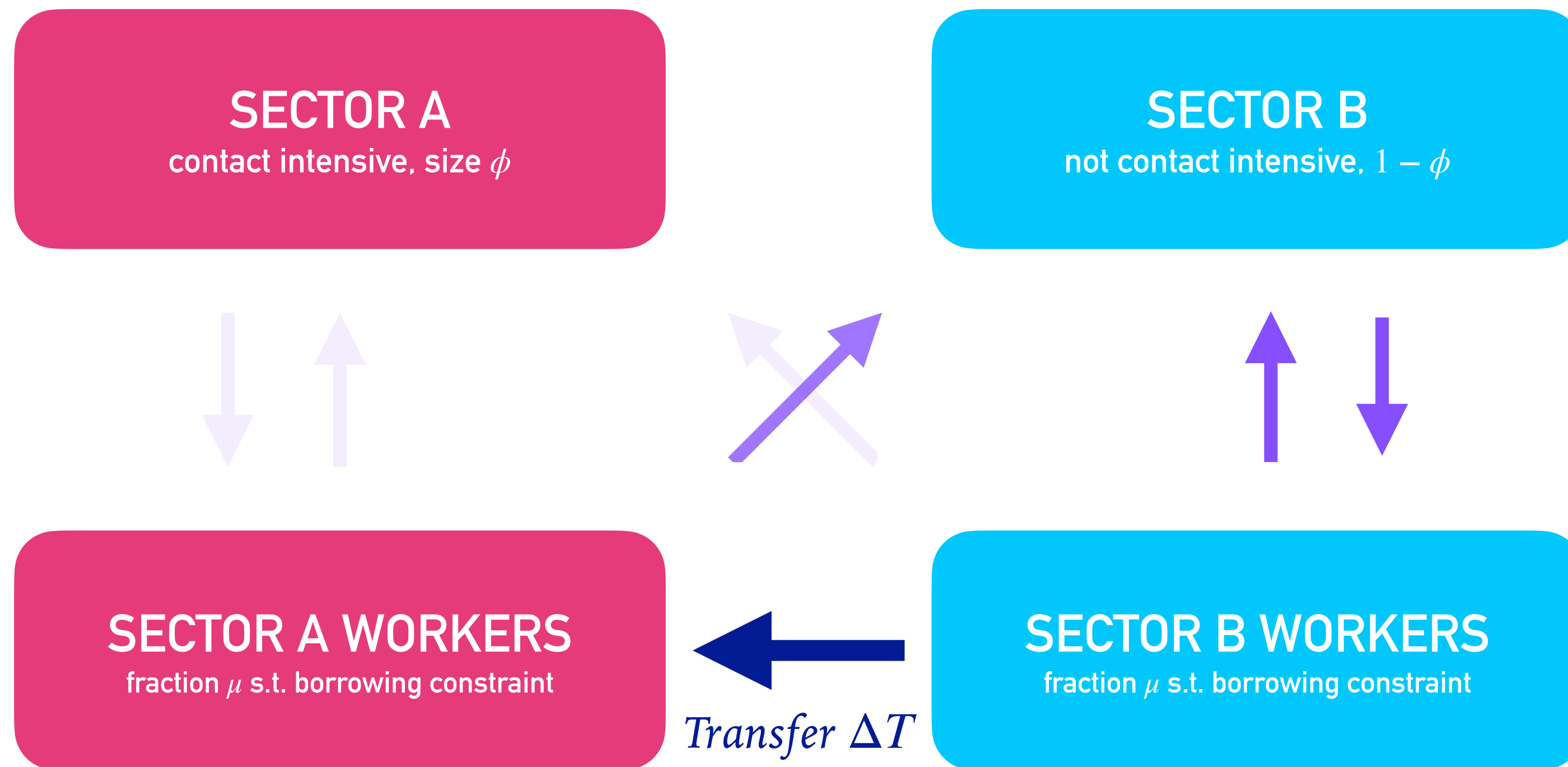➤ Distributional effect as in Patterson (2019), but in reverse!

FISCAL POLICY

➤ Focus on situation with Keynesian supply shock. How does fiscal policy help?
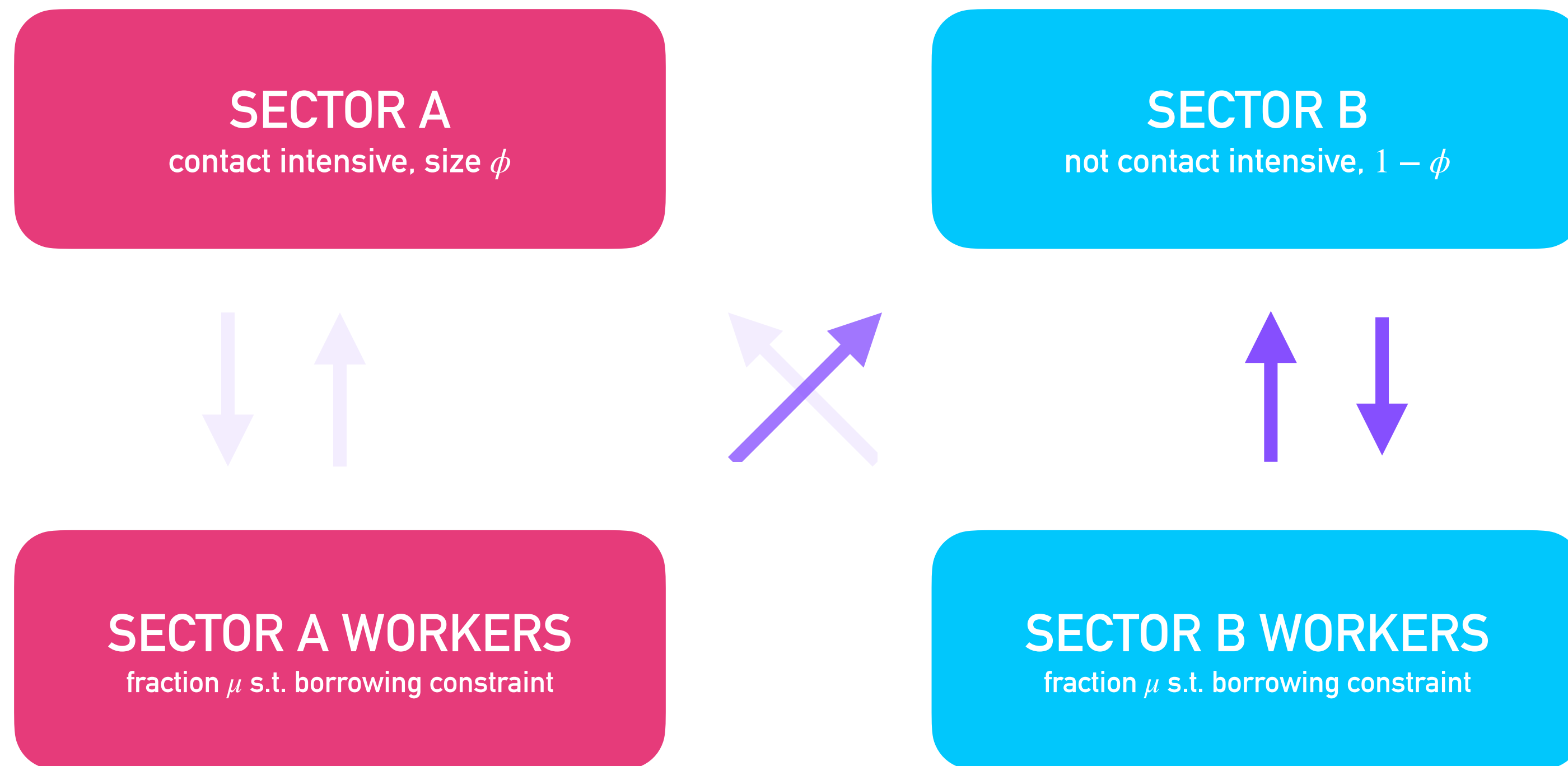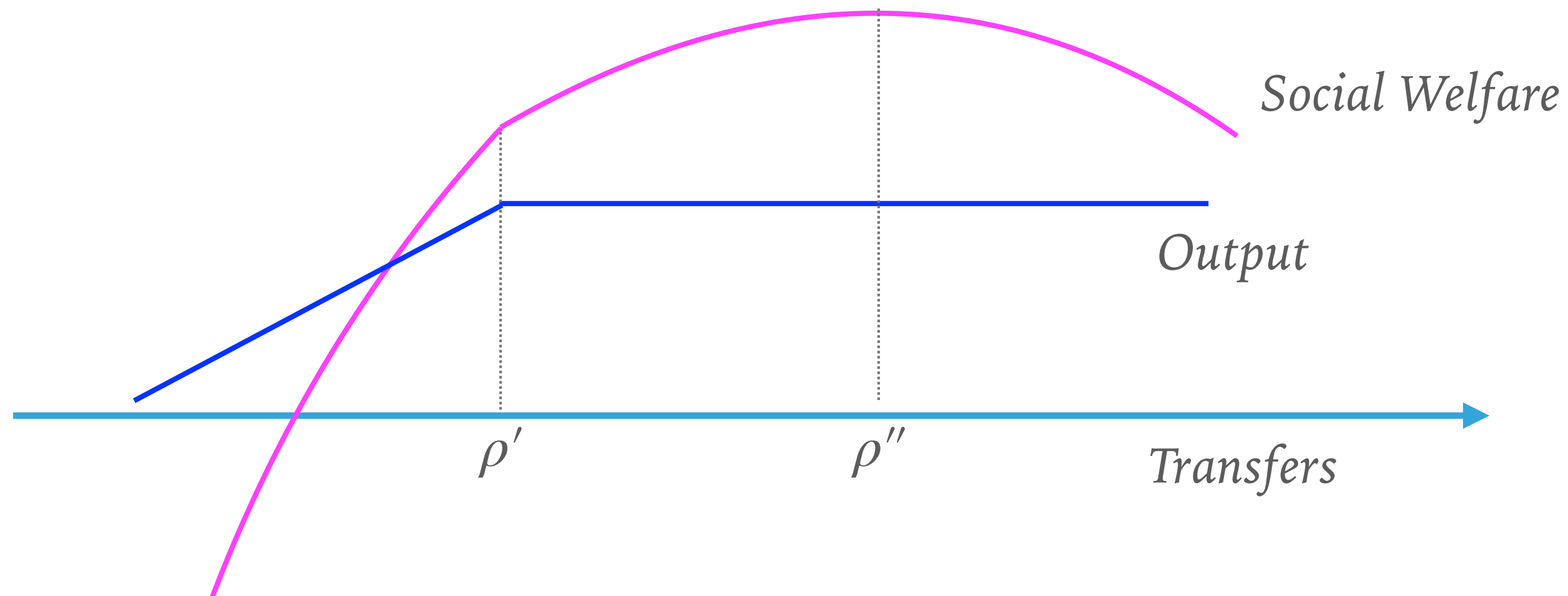
FISCAL POLICY

➤ Focus on situation with Keynesian supply shock. How does fiscal policy help?

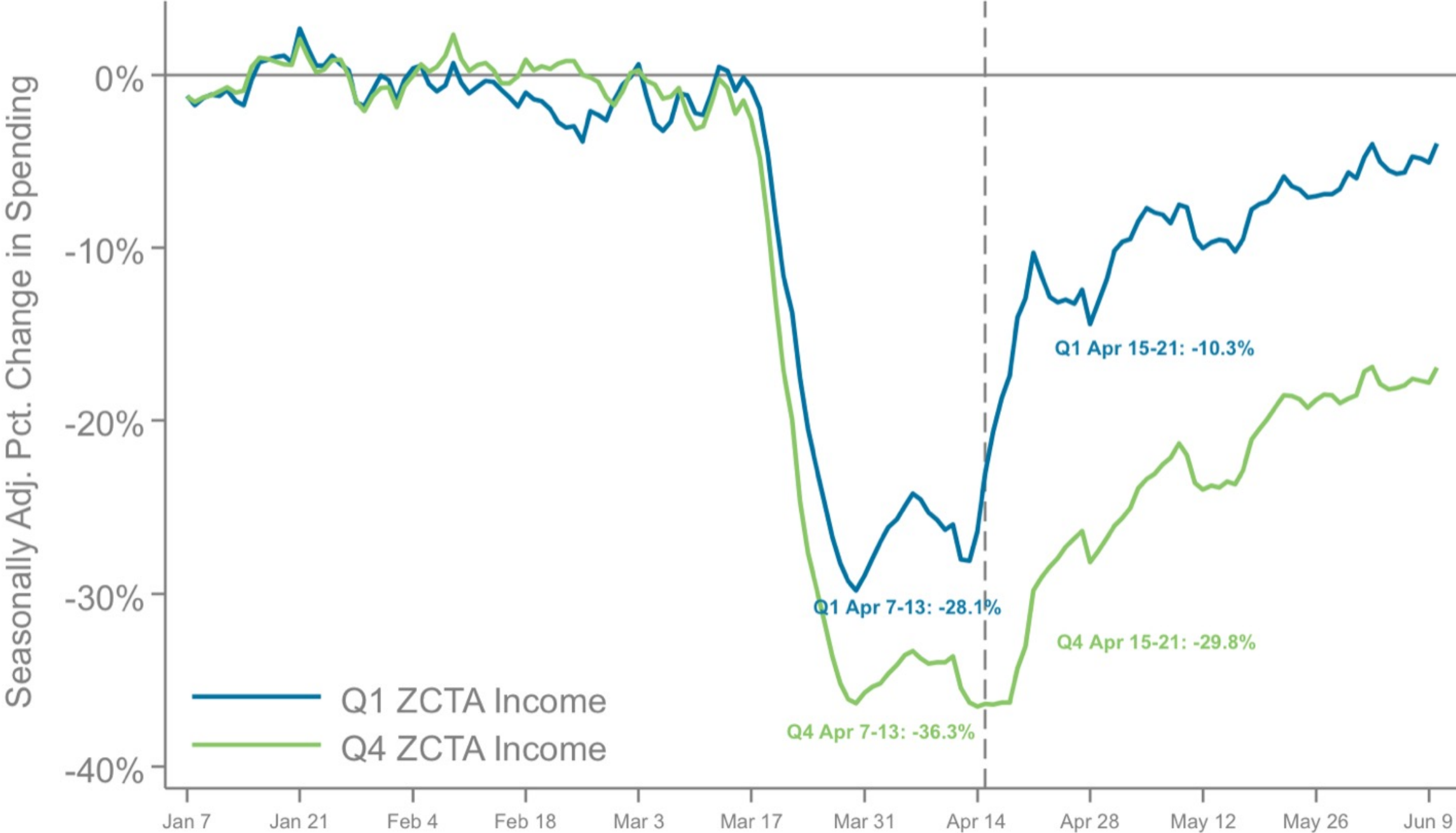But: **Insurance** value of transfer is **important** due to **asymmetry** of the shock!

STIMULUS AND RELIEF

➤ Fiscal transfers have two effects: stimulating demand and providing social insurance!

➤ Stimulus effect peters out before reaching full insurance…

A. Seasonally Adjusted Spending Changes by Income Quartile

Chetty, Friedman, Hendren, Stepner, Opportunity Insights Team (2000)
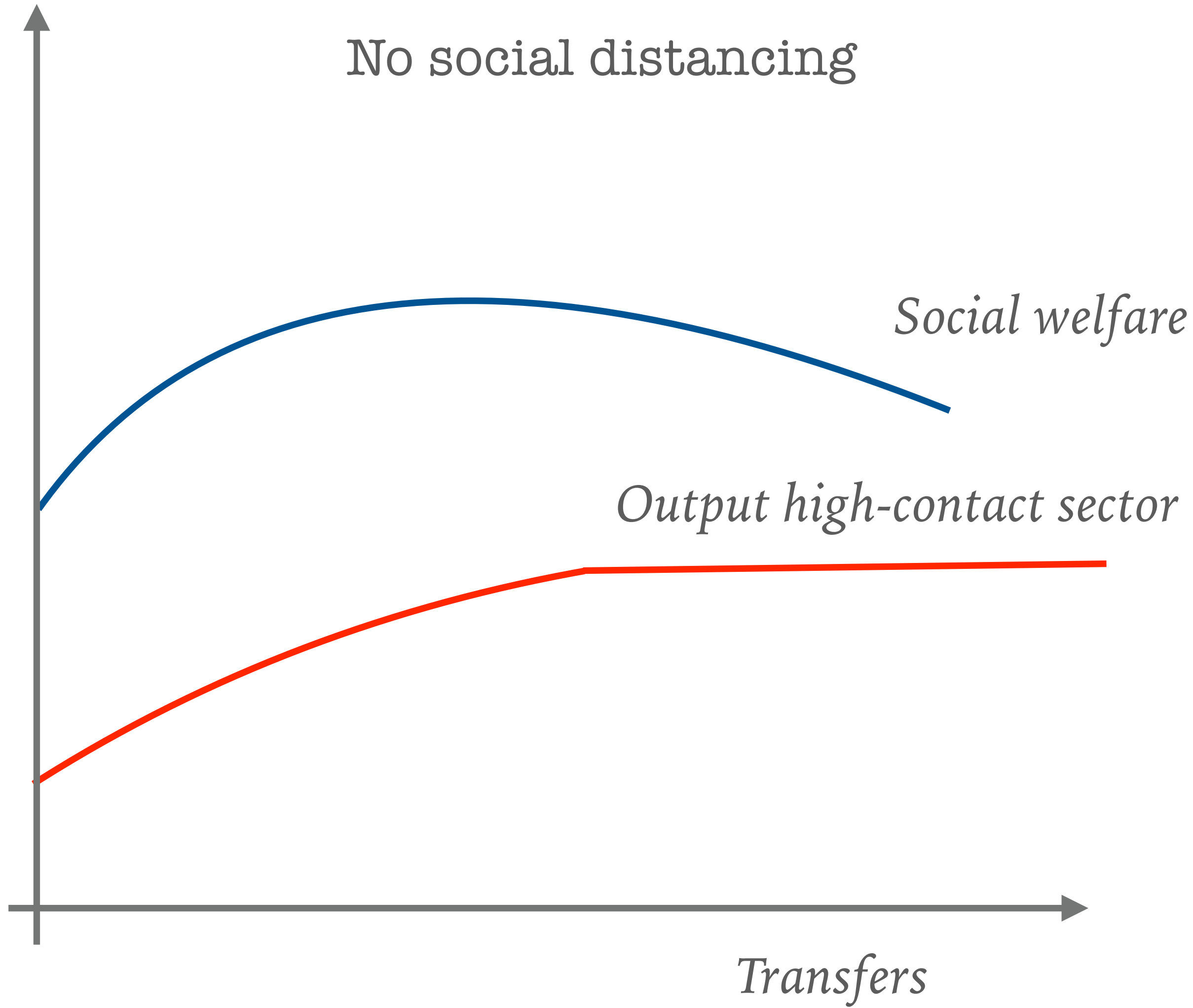
FISCAL POLICY AND PUBLIC HEALTH

➤ Add health dimension

$$\sum_{t=0}^{\infty} \beta^t \left(U(c_{At}, c_{Bt}) + \xi_t h(c_{At}, Y_{At}) \right)$$
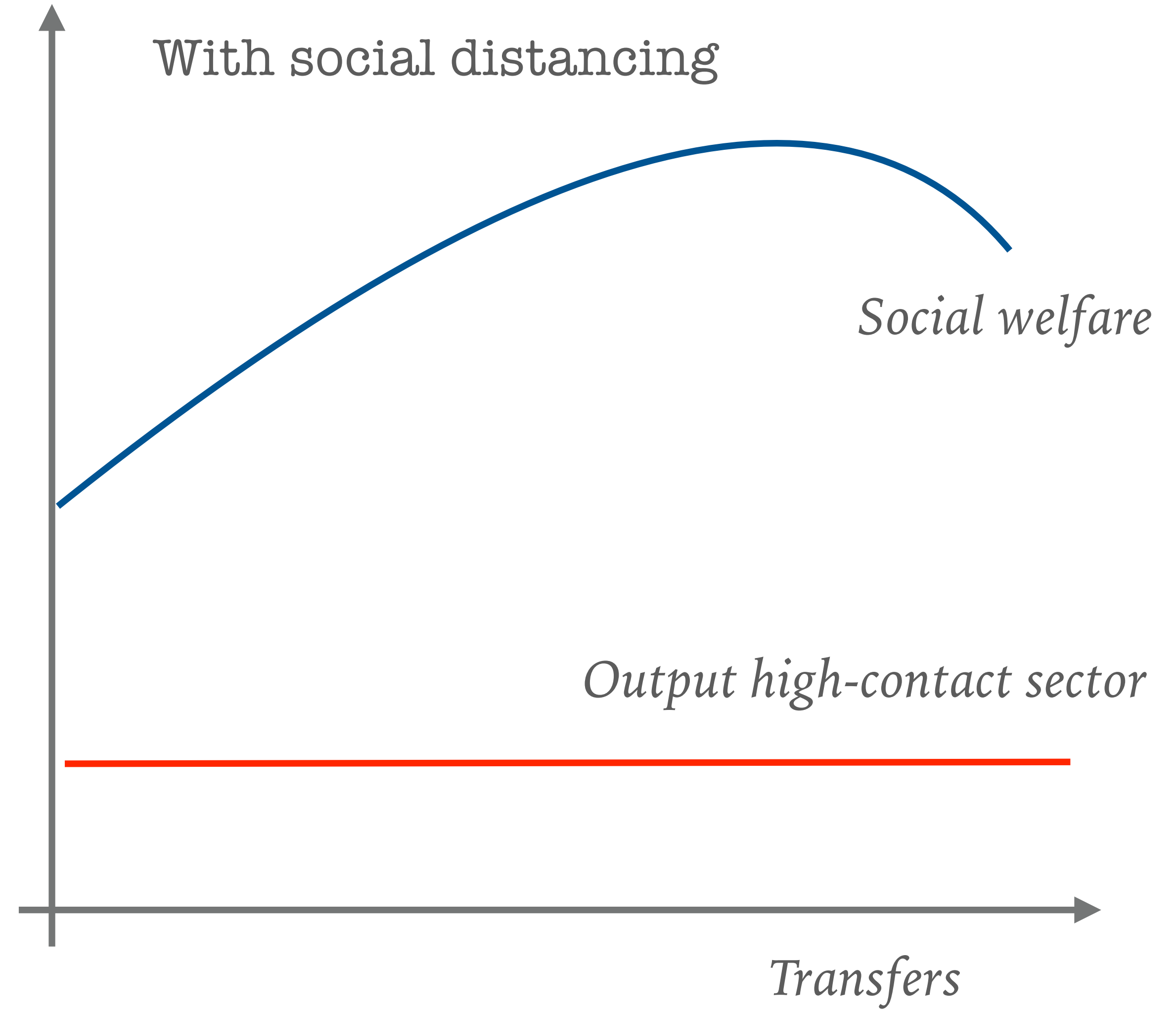
➤ 3 issues: demand shortage in sector B, lack of insurance, health externality

➤ What should happen to output in sector A? Trade-off between Keynesian wedge and Pigouvian externality

➤ Targeted transfers not only stimulate demand and help increase social insurance, but also help reduce the cost of public health policies and making them more desirable (complementarity)

COMPLEMENTARITY

No social distancing

Social welfare

Output high-contact sector

Transfers

With social distancing

Social welfare

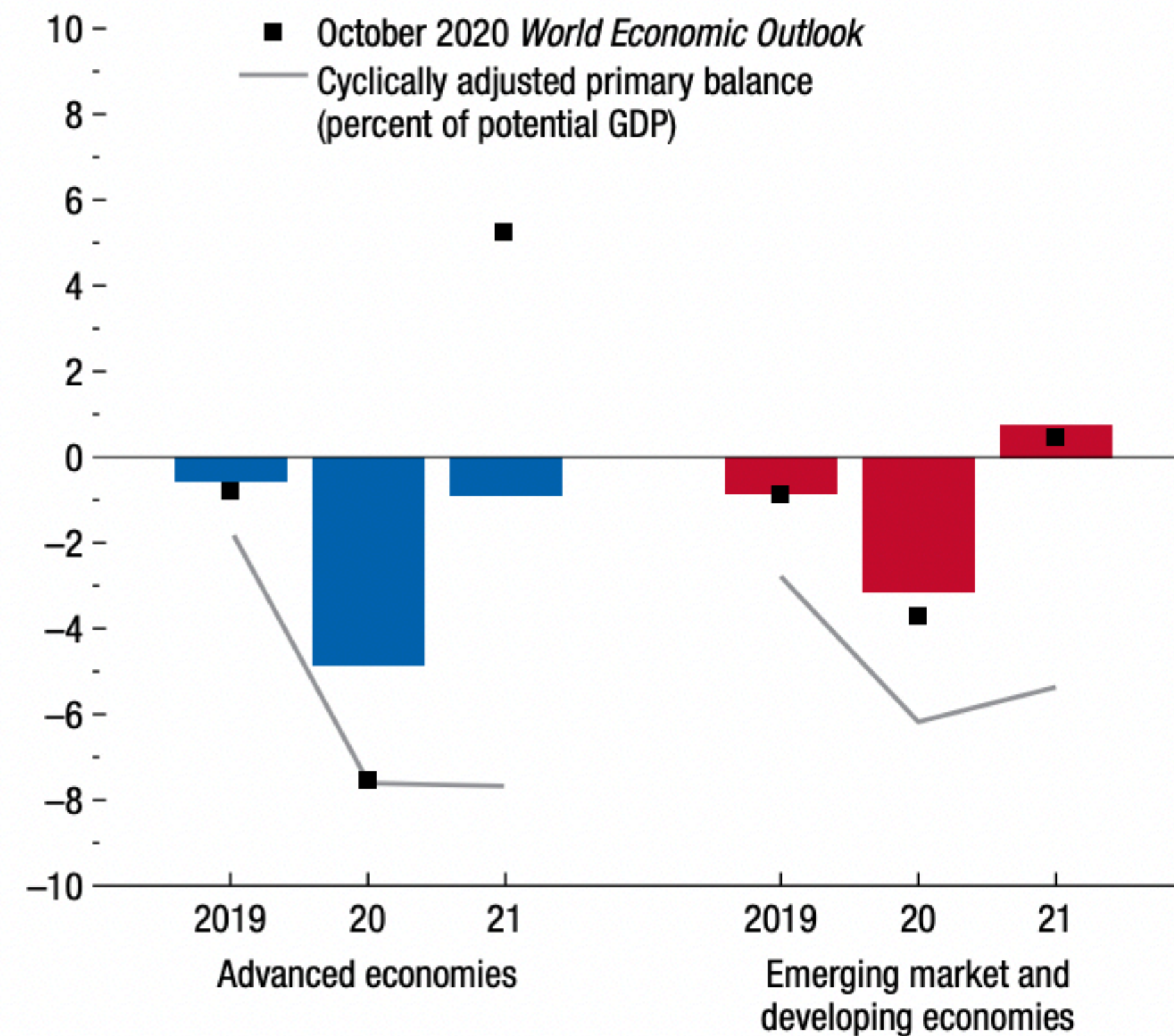Output high-contact sector

Transfers

FISCAL SUPPORT

➤ Fiscal support has been massive, but not everywhere

Figure 1.14. Fiscal Stance, 2019–21
(Change in structural primary fiscal balance, percent of potential GDP)

CONCLUSIONS

➤ Pandemic as an asymmetric sectoral shock

➤ Shock can propagate to the rest of the economy through demand shortages because of complementarities and incomplete markets

➤ Transfers both in US and EU have worked to prevent major spillovers

➤ Difference in emphasis:

  ➤ US more income support, less concern with preserving labor matches

  ➤ EU more emphasis on preserving matches (Kurzarbeit, Cassa integrazione)

➤ Concern for need of reallocation after reopening

➤ Current debate on stimulus, risk of overheating? Maybe good for reallocation?