

Discussion of

# **Slicing the Pie: Quantifying the Aggregate and Distributional Effects of Trade**

BY SIMON GALLE, ANDRÉS RODRIGUEZ-CLARE AND MOISES YI

OLEG ITSKHOKI  
Princeton University

JRC 7th Annual Conference  
Princeton, 2018

## This paper

- The goal: develop a benchmark framework for quantifying gains and losses from trade, including distributional effects
  - Much of trade literature moved away from HO and SF models and lost focus on distributional consequences
  - In particular, the leading quantitative framework, the Ricardian EK model, does not allow for distributional effects

## This paper

- The goal: develop a benchmark framework for quantifying gains and losses from trade, including distributional effects
  - Much of trade literature moved away from HO and SF models and lost focus on distributional consequences
  - In particular, the leading quantitative framework, the Ricardian EK model, does not allow for distributional effects
- Ricardian trade model + Roy labor market sorting model
  - Country  $i$  has comparative productivity advantage in industry  $s$

$$\text{Frechet}(T_{is}, \theta) \longrightarrow \lambda_{ijs} = \frac{T_{is}(\tau_{ij}w_{is})^{-\theta}}{\sum_{\ell} T_{\ell s}(\tau_{\ell j}w_{\ell s})^{-\theta}}$$

- Workers  $g$  have comparative advantage in working in sector  $s$

$$\text{Frechet}(A_{igs}, \kappa) \longrightarrow \pi_{igs} = \frac{A_{igs}w_{is}^{\kappa}}{\sum_k A_{igk}w_{ik}^{\kappa}}$$

## This paper

- The goal: develop a benchmark framework for quantifying gains and losses from trade, including distributional effects
  - Much of trade literature moved away from HO and SF models and lost focus on distributional consequences
  - In particular, the leading quantitative framework, the Ricardian EK model, does not allow for distributional effects

- Ricardian trade model + Roy labor market sorting model
  - Country  $i$  has comparative productivity advantage in industry  $s$

$$\text{Frechet}(T_{is}, \theta) \longrightarrow \lambda_{ijs} = \frac{T_{is}(\tau_{ij}w_{is})^{-\theta}}{\sum_{\ell} T_{\ell s}(\tau_{\ell j}w_{\ell s})^{-\theta}}$$

- Workers  $g$  have comparative advantage in working in sector  $s$

$$\text{Frechet}(A_{igs}, \kappa) \longrightarrow \pi_{igs} = \frac{A_{igs}w_{is}^{\kappa}}{\sum_k A_{igk}w_{ik}^{\kappa}}$$

- A very elegant and tractable formulation  
An obvious model for a textbook to teach economic intuition.

## Main insights

- Sharp characterization of group-specific welfare gains:

$$\Delta \log W_g = \underbrace{\left( -\frac{1}{\theta} \sum_s \omega_s \Delta \log \lambda_s \right)}_{= \text{Consumer Gains}} + \underbrace{\left( -\frac{1}{\kappa} \sum_s \omega_s \Delta \log \pi_{gs} \right)}_{= \text{Income Gains}}$$

- Workers in group  $g$  lose if sectors of their comparative advantage are disadvantaged by trade, a neoclassical story.

## Main insights

- Sharp characterization of group-specific welfare gains:

$$\Delta \log W_g = \underbrace{\left( -\frac{1}{\theta} \sum_s \omega_s \Delta \log \lambda_s \right)}_{= \text{Consumer Gains}} + \underbrace{\left( -\frac{1}{\kappa} \sum_s \omega_s \Delta \log \pi_{gs} \right)}_{= \text{Income Gains}}$$

— Workers in group  $g$  lose if sectors of their comparative advantage are disadvantaged by trade, a neoclassical story.

- ① More gains than in the baseline EK model if  $\kappa < \infty$
- ② Aggregate welfare depends on group-specific income effects
- ③ Aggregate welfare can be adjusted for inequality aversion

## Main insights

- Sharp characterization of group-specific welfare gains:

$$\Delta \log W_g = \underbrace{\left( -\frac{1}{\theta} \sum_s \omega_s \Delta \log \lambda_s \right)}_{= \text{Consumer Gains}} + \underbrace{\left( -\frac{1}{\kappa} \sum_s \omega_s \Delta \log \pi_{gs} \right)}_{= \text{Income Gains}}$$

- Workers in group  $g$  lose if sectors of their comparative advantage are disadvantaged by trade, a neoclassical story.
  - ① More gains than in the baseline EK model if  $\kappa < \infty$
  - ② Aggregate welfare depends on group-specific income effects
  - ③ Aggregate welfare can be adjusted for inequality aversion
- Potentially large heterogeneity in outcomes within group  $g$ 
  - How much residual inequality given estimated  $\kappa$  (dual role)

## Main insights

- Sharp characterization of group-specific welfare gains:

$$\Delta \log W_g = \underbrace{\left( -\frac{1}{\theta} \sum_s \omega_s \Delta \log \lambda_s \right)}_{= \text{Consumer Gains}} + \underbrace{\left( -\frac{1}{\kappa} \sum_s \omega_s \Delta \log \pi_{gs} \right)}_{= \text{Income Gains}}$$

- Workers in group  $g$  lose if sectors of their comparative advantage are disadvantaged by trade, a neoclassical story.
  - ① More gains than in the baseline EK model if  $\kappa < \infty$
  - ② Aggregate welfare depends on group-specific income effects
  - ③ Aggregate welfare can be adjusted for inequality aversion
- Potentially large heterogeneity in outcomes within group  $g$ 
  - How much residual inequality given estimated  $\kappa$  (dual role)
  - Adjust welfare for residual inequality
  - Are changes in residual inequality consistent with the data?

## Skilled vs unskilled

- The paper finds overall gains, which however vary considerably across groups  $g$ 
  - Groups  $g$  in the paper correspond to detailed geography  $\times$  two educational bins
- One surprising result is the high correlation (0.87) between the outcomes of high and low skill groups across geographies

## Skilled vs unskilled

- The paper finds overall gains, which however vary considerably across groups  $g$ 
  - Groups  $g$  in the paper correspond to detailed geography  $\times$  two educational bins
- One surprising result is the high correlation (0.87) between the outcomes of high and low skill groups across geographies
- This seemingly contrasts with the empirical findings of ADH:
  - higher skill workers in affected geographies experience less unemployment and income loss
- What feature of the data ensures this result?

## Relationship to the real world

- ① The paper focuses on the long-run distributional effects after the adjustment to trade is complete
  - Arguably, the key disruptions empirically are transitory, along the adjustment to trade shocks
  - Yet, these transitions can last very long
  - What is the right model to use?

## Relationship to the real world

- ① The paper focuses on the long-run distributional effects after the adjustment to trade is complete
  - Arguably, the key disruptions empirically are transitory, along the adjustment to trade shocks
  - Yet, these transitions can last very long
  - What is the right model to use?
- ② What are worker groups  $g$ ?
  - Why geography is a fixed characteristic of workers?
  - Why worker productivity is geography-specific?

## Relationship to the real world

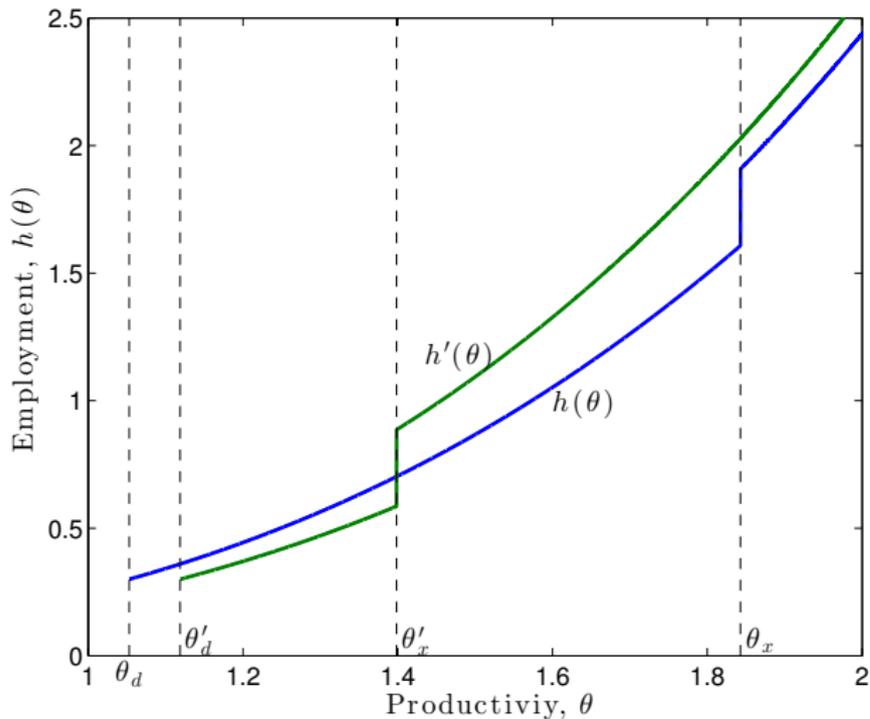
- ① The paper focuses on the long-run distributional effects after the adjustment to trade is complete
  - Arguably, the key disruptions empirically are transitory, along the adjustment to trade shocks
  - Yet, these transitions can last very long
  - What is the right model to use?
- ② What are worker groups  $g$ ?
  - Why geography is a fixed characteristic of workers?
  - Why worker productivity is geography-specific?
  - This points to the role of firms, absent in a neoclassical model. Why firms do not move towards workers? Agglomeration.

## Relationship to the real world

- ① The paper focuses on the long-run distributional effects after the adjustment to trade is complete
  - Arguably, the key disruptions empirically are transitory, along the adjustment to trade shocks
  - Yet, these transitions can last very long
  - What is the right model to use?
- ② What are worker groups  $g$ ?
  - Why geography is a fixed characteristic of workers?
  - Why worker productivity is geography-specific?
  - This points to the role of firms, absent in a neoclassical model. Why firms do not move towards workers? Agglomeration.
- ③ The model features no unemployment and no non-employment, two important margins in the data

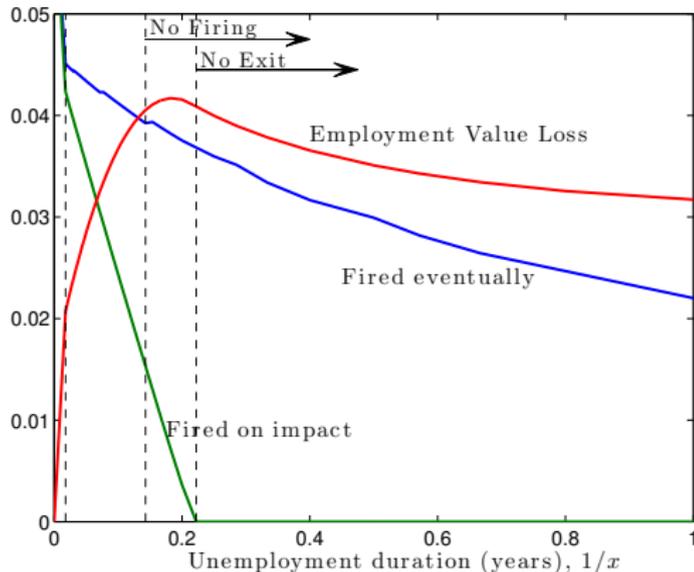
## A frictional model

- Itskhoki and Helpman (2015): adjustment to trade in a Melitz model with DMP search and matching friction



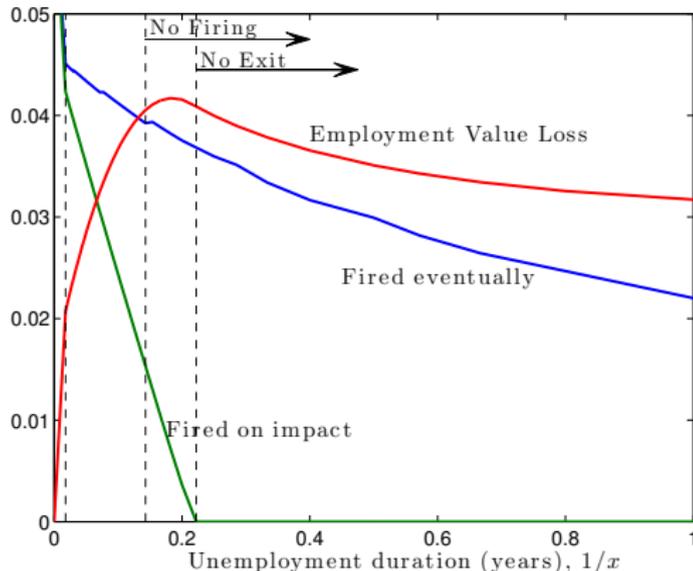
## A frictional model

- With labor search frictions alone, trade shocks create either little unemployment or little income loss



## A frictional model

- With labor search frictions alone, trade shocks create either little unemployment or little income loss



- Two counterfactual features:
  - ① if search frictions are large, firms do not fire workers
  - ② free entry forces firm to enter where workers are