

ROCKWOOL FOUNDATION

BERLIN

INSTITUTE FOR THE ECONOMY AND THE FUTURE OF WORK



CReAM

Centre for Research &
Analysis of Migration



Migration and the Minimum Wage

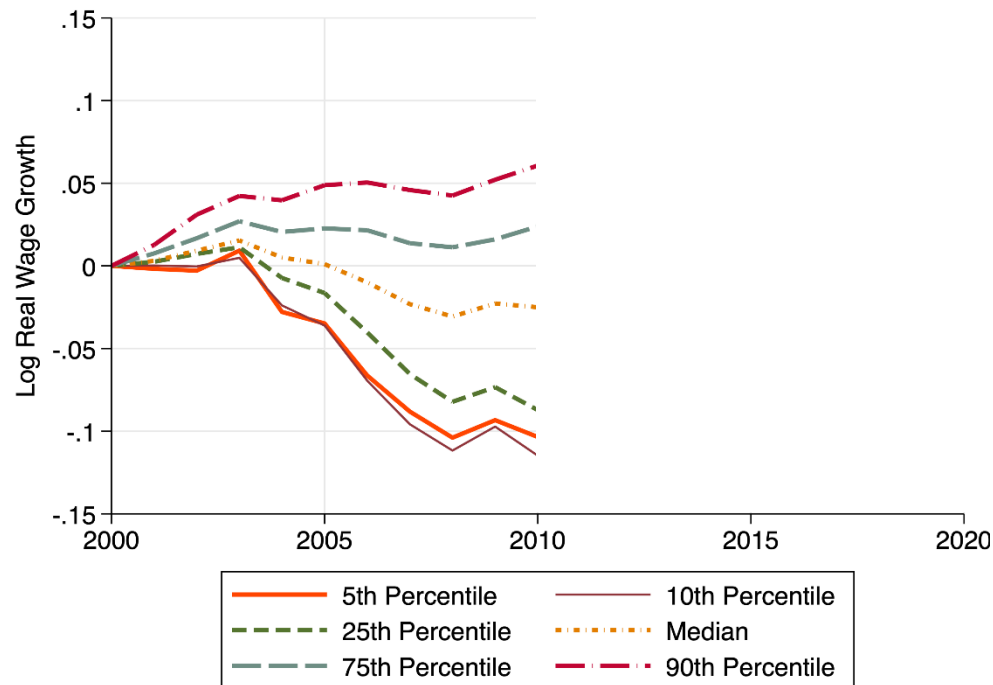
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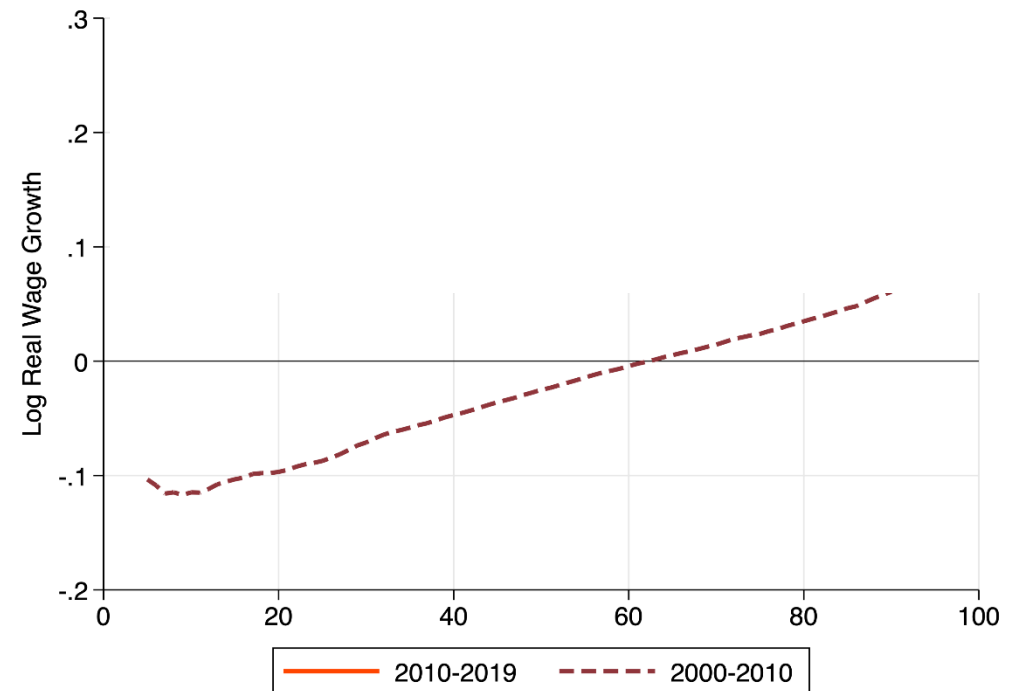
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Wage Inequality in Germany – The Past Two Decades

• Wage Growth Across Percentiles

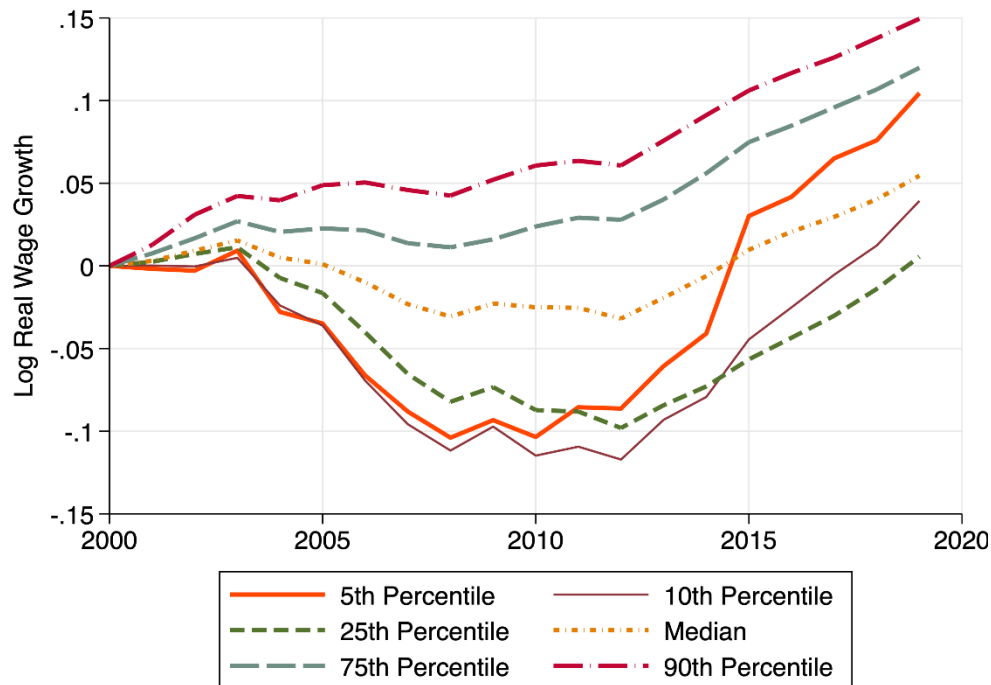


• Wage Growth Along the Distribution

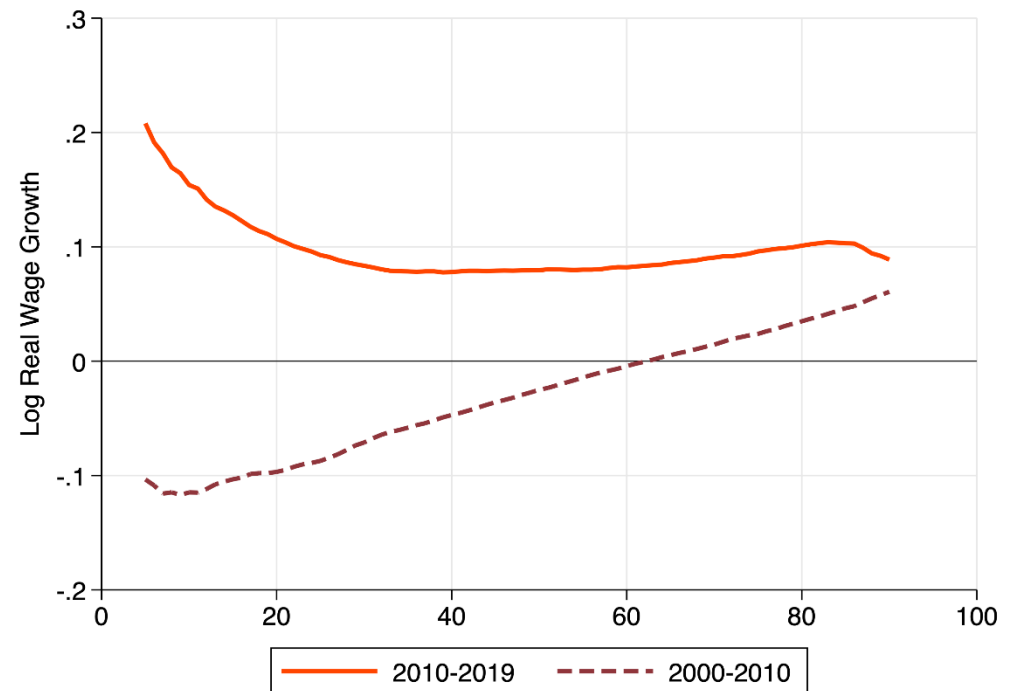


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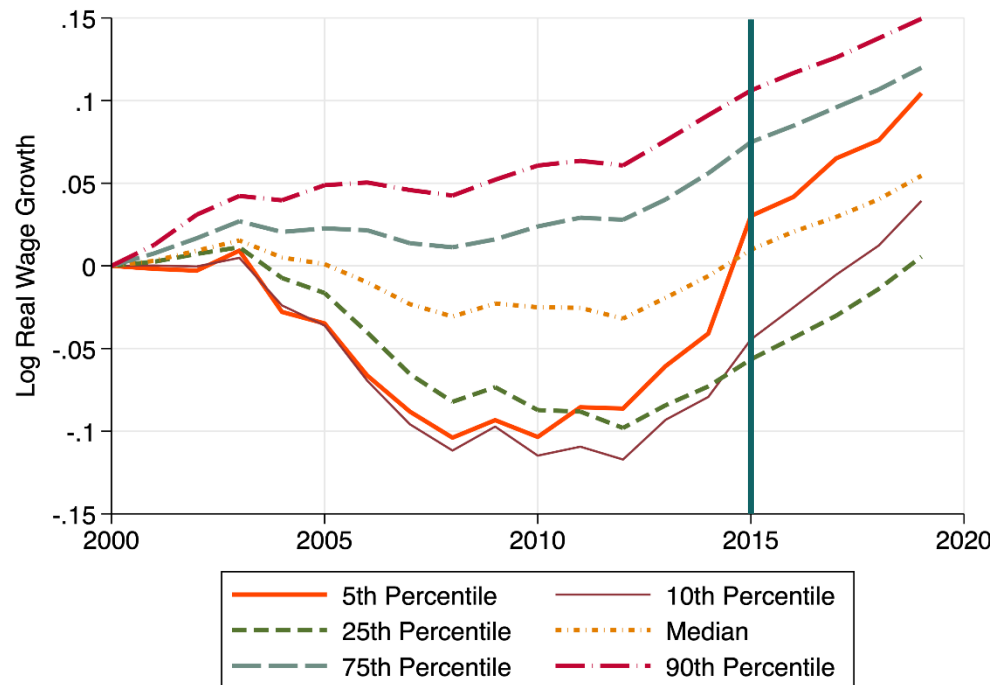


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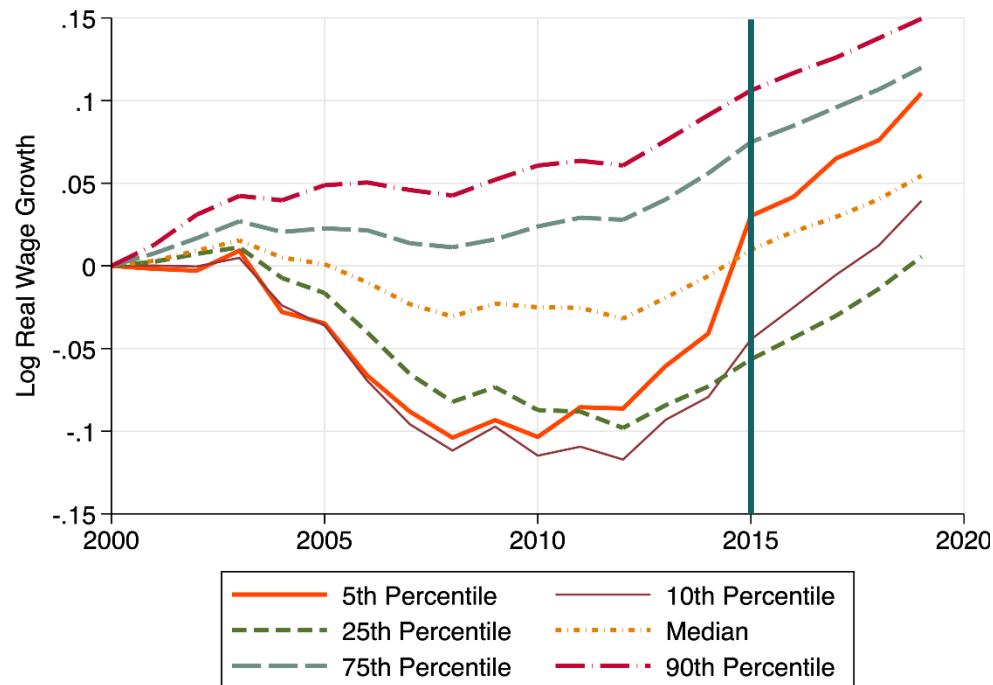
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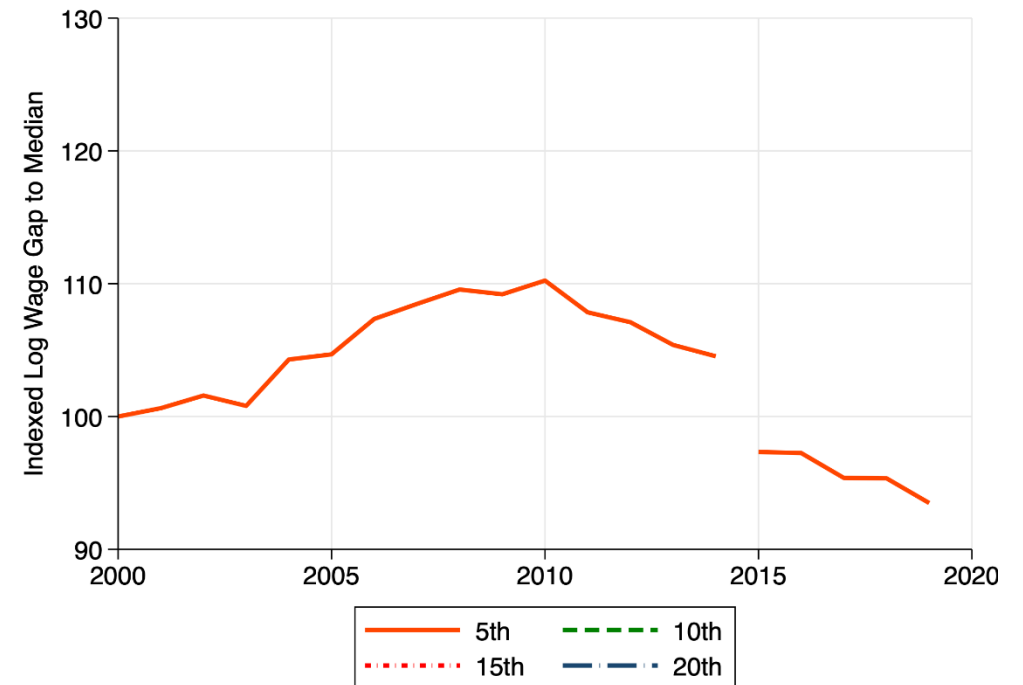


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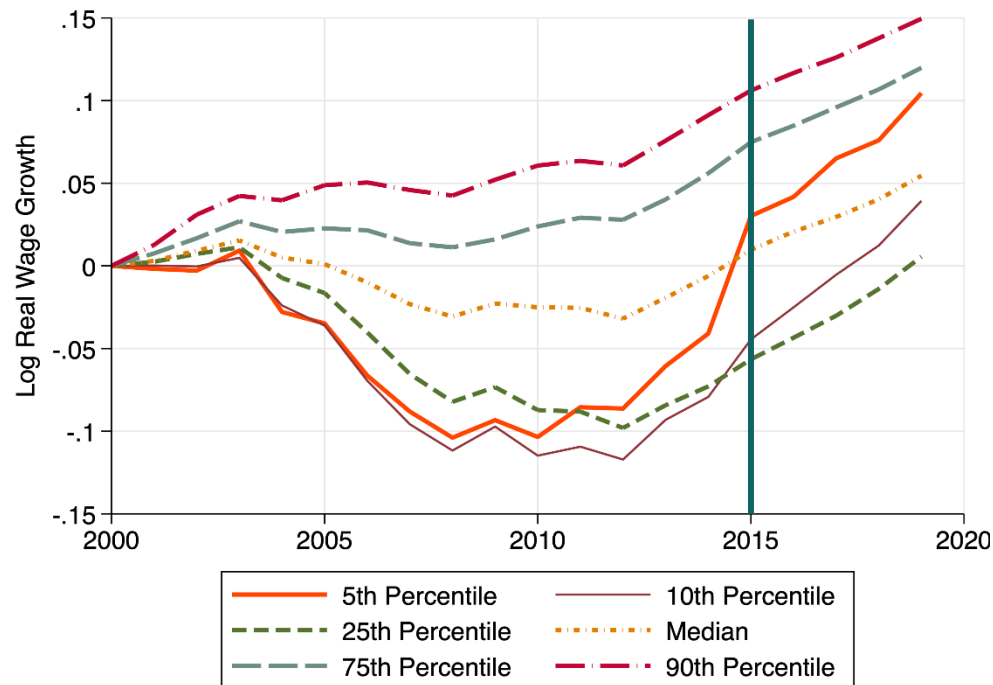


• The Minimum Wage

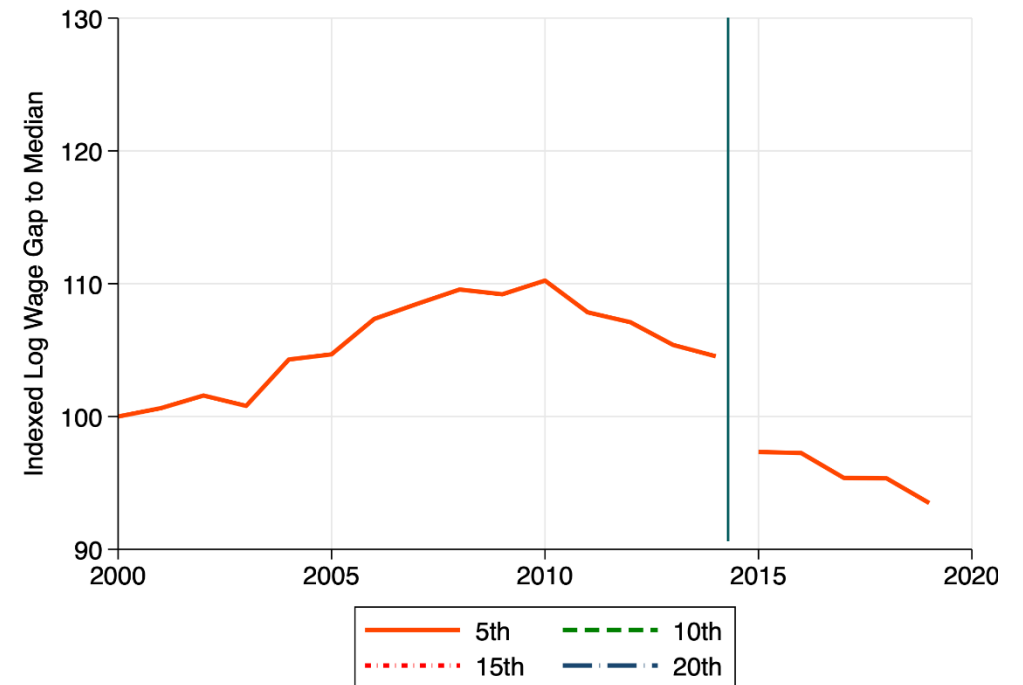


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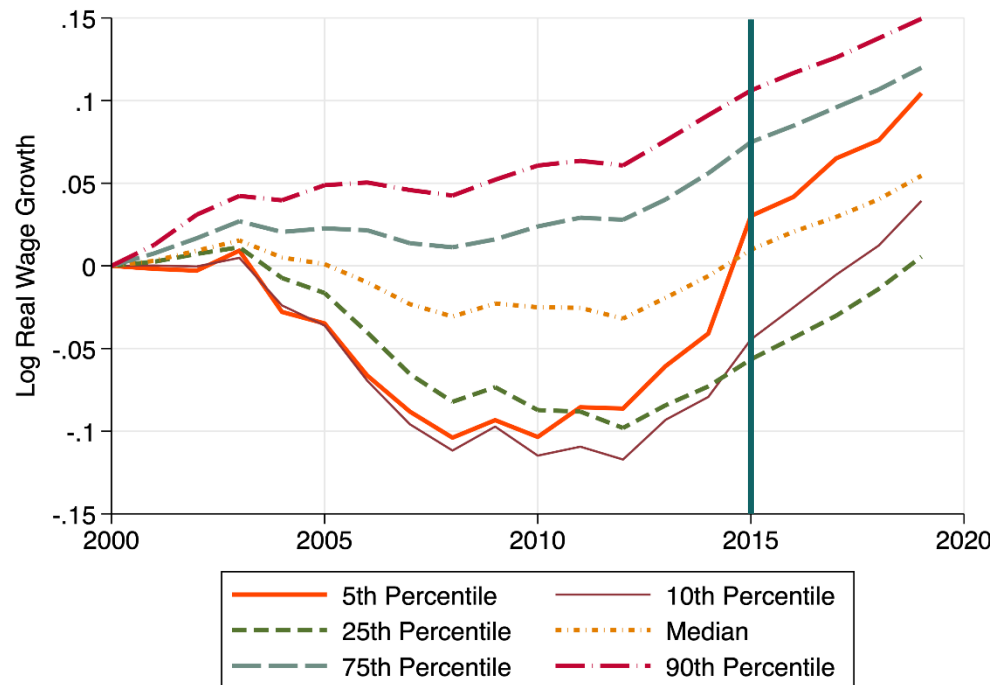


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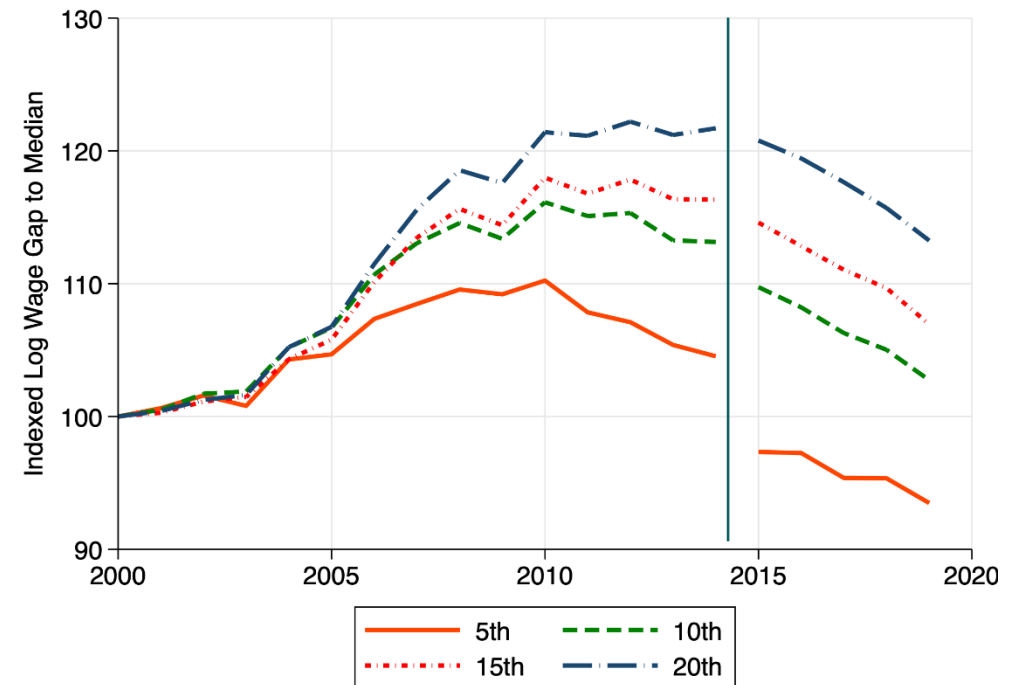


Wage Inequality in Germany – The Past Two Decades

• Wage Growth Across Percentiles



• The Minimum Wage



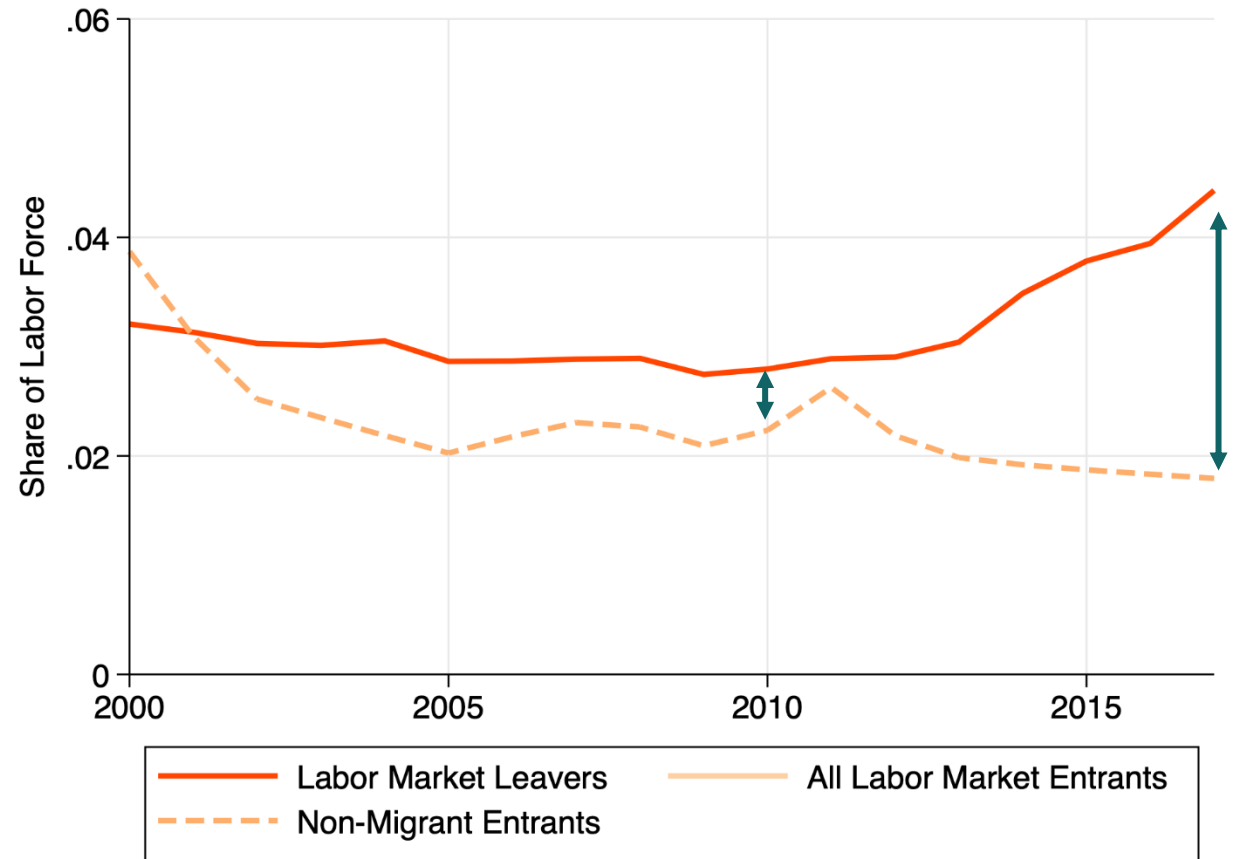
Real value of the minimum wage had increased by 2.6% by 2019

Wage growth at 5th and 10th percentiles: in excess of 7% relative to 2015

Causes of Labor Market Tightness: Supply Factors

- **Demographic Change**

Upward Pressure on Tightness



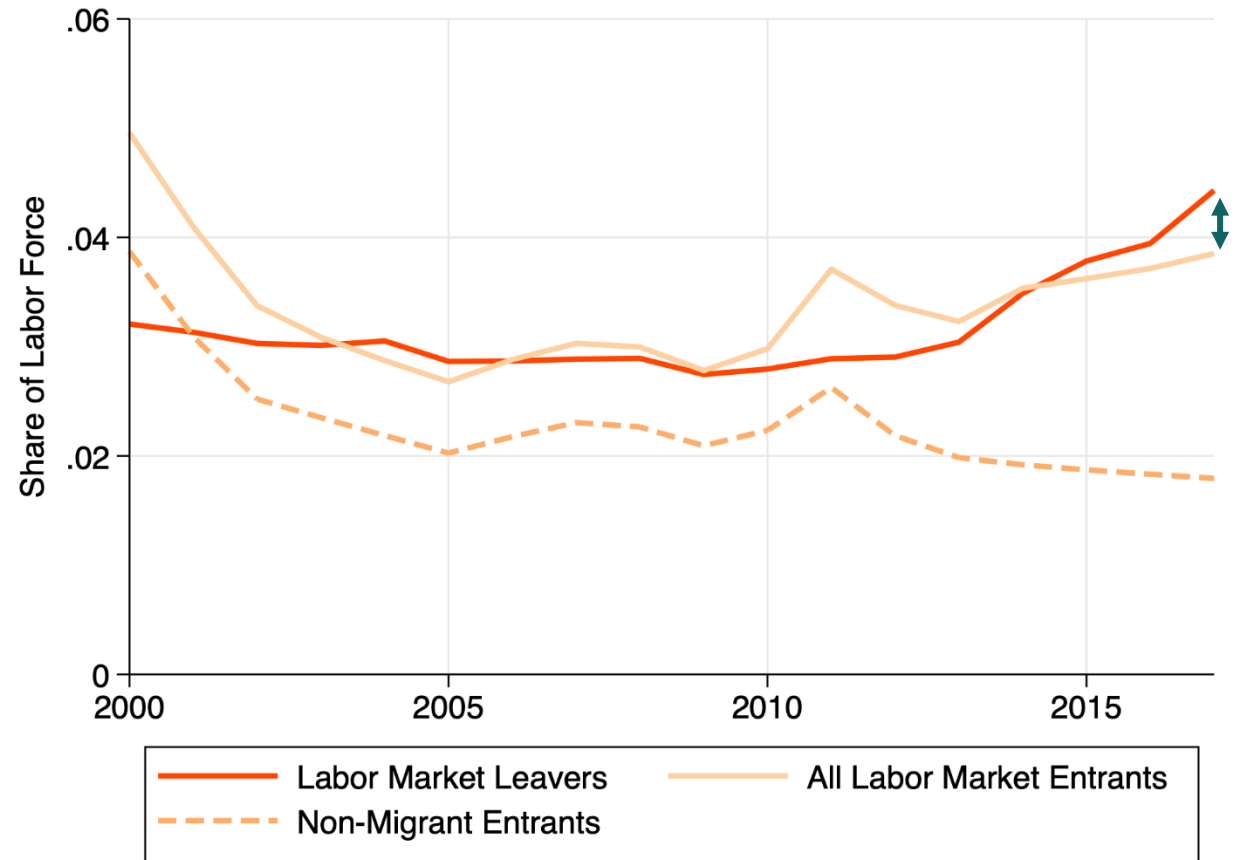
Causes of Labor Market Tightness: Supply Factors

- **Demographic Change**

Upward Pressure on Tightness

- **Migration**

Reducing Market Pressure



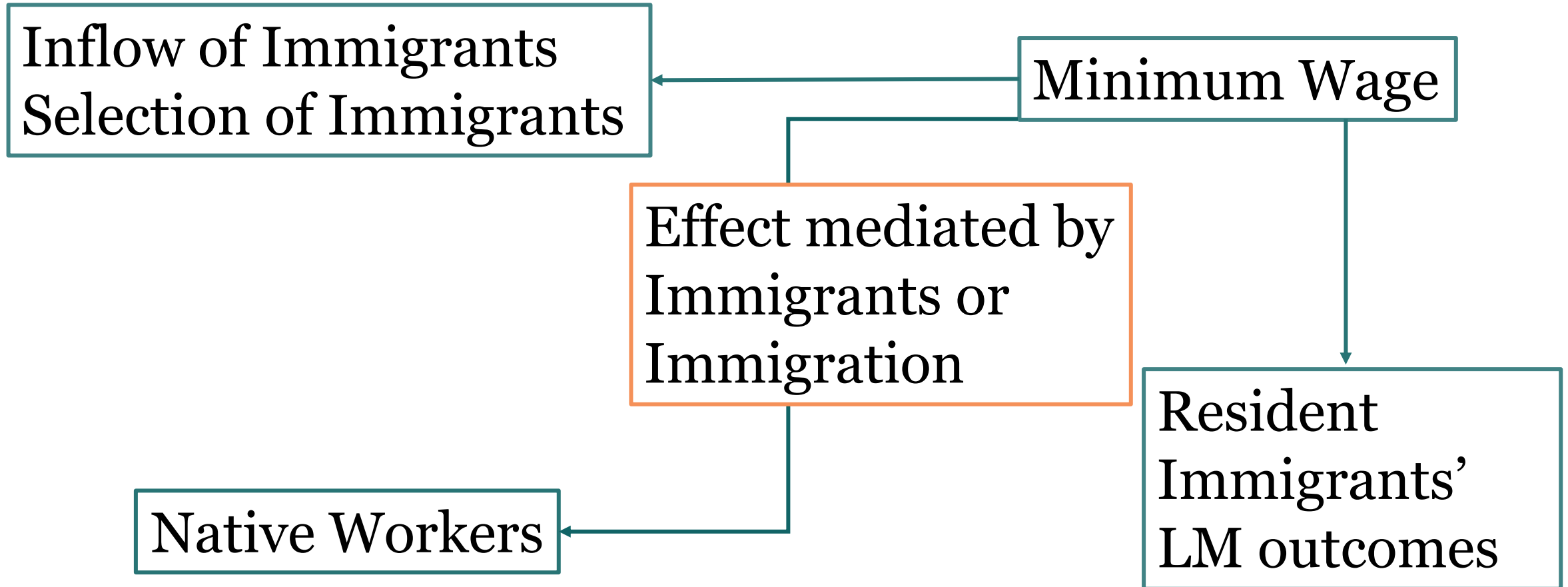
Migration and the Minimum Wage

Questions

- Does the minimum wage (MW) represent a pull factor that attracts immigrants?
- Does the minimum wages play a role for the labour market integration of immigrants?
- What is the relationship between the minimum wage and immigration across countries, for example in Germany compared to other European or OECD countries?

There is very little work on the relation between the MW and Migration

What is the Relation between Migration and the Minimum Wage?



**Effect of Minimum
Wage on Immigration
Case 1: No Non-
Employment**

Effect of Minimum Wage on Immigration

Case 1: No Non-Employment

Migration decision depends on comparison of earnings Y in the two countries:

$$\begin{aligned} Y_D &= \mu_D + b_D S \\ Y_E &= \mu_E + b_E S \end{aligned}$$

where:

- μ_j are mean earnings in country $j \in \{\text{Destination, Emigration}\}$
- b_j are return to skills S in country j
- S are skills distributed across the population as $N(0,1) \Rightarrow Y_j \sim N(\mu_j, b_j^2)$

Migration takes place if:

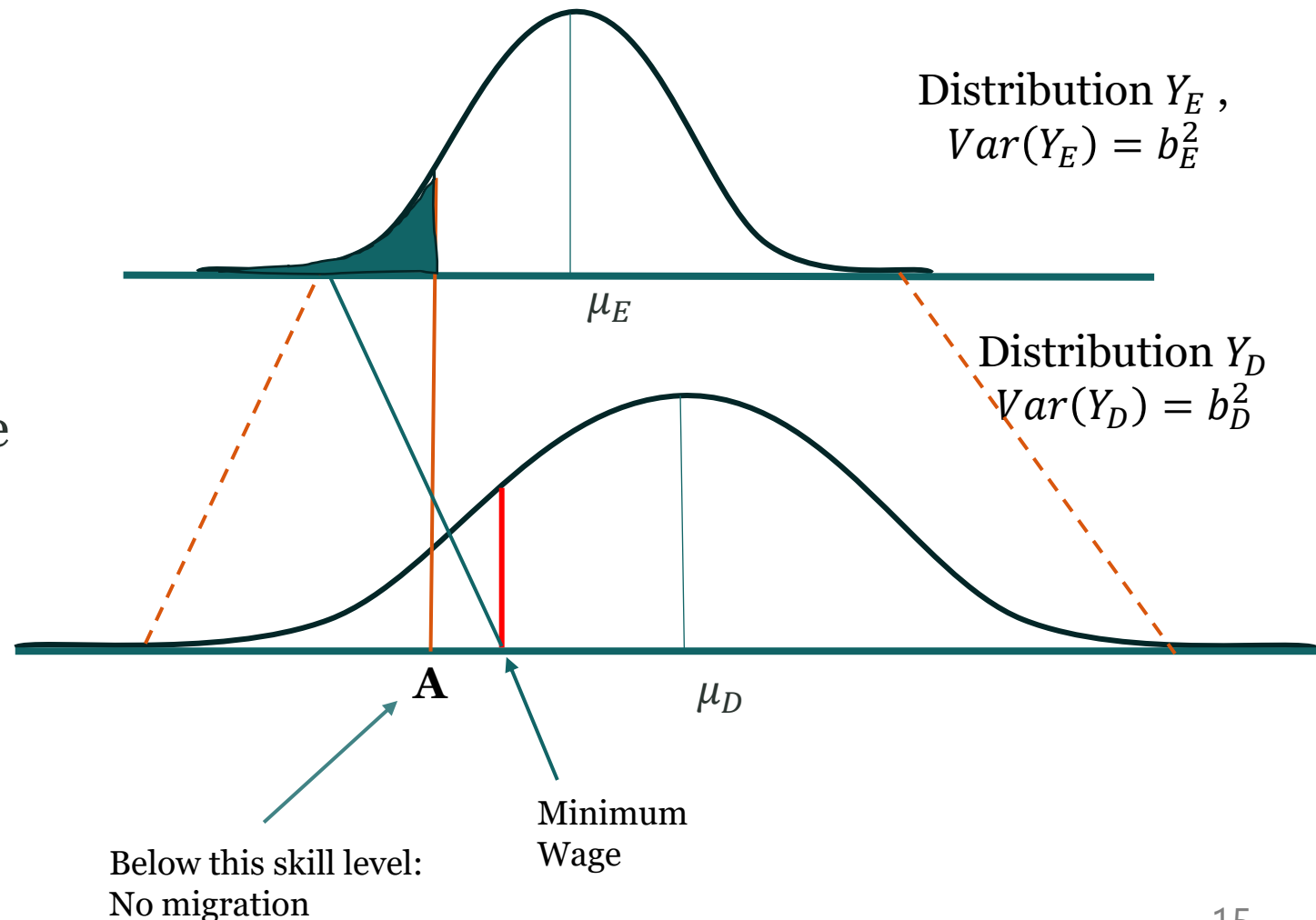
$$\Delta Y = Y_D - Y_E > 0$$

So that $\Pr(M = 1) = \Pr(\Delta Y > 0) = \Pr\left(S > \frac{\mu_E - \mu_D}{b_D - b_E}\right) = 1 - \Phi\left(\frac{\mu_E - \mu_D}{b_D - b_E}\right) = 1 - \Phi(A)$

Effect of Minimum Wage on Immigration

Case 1: No Non-Employment

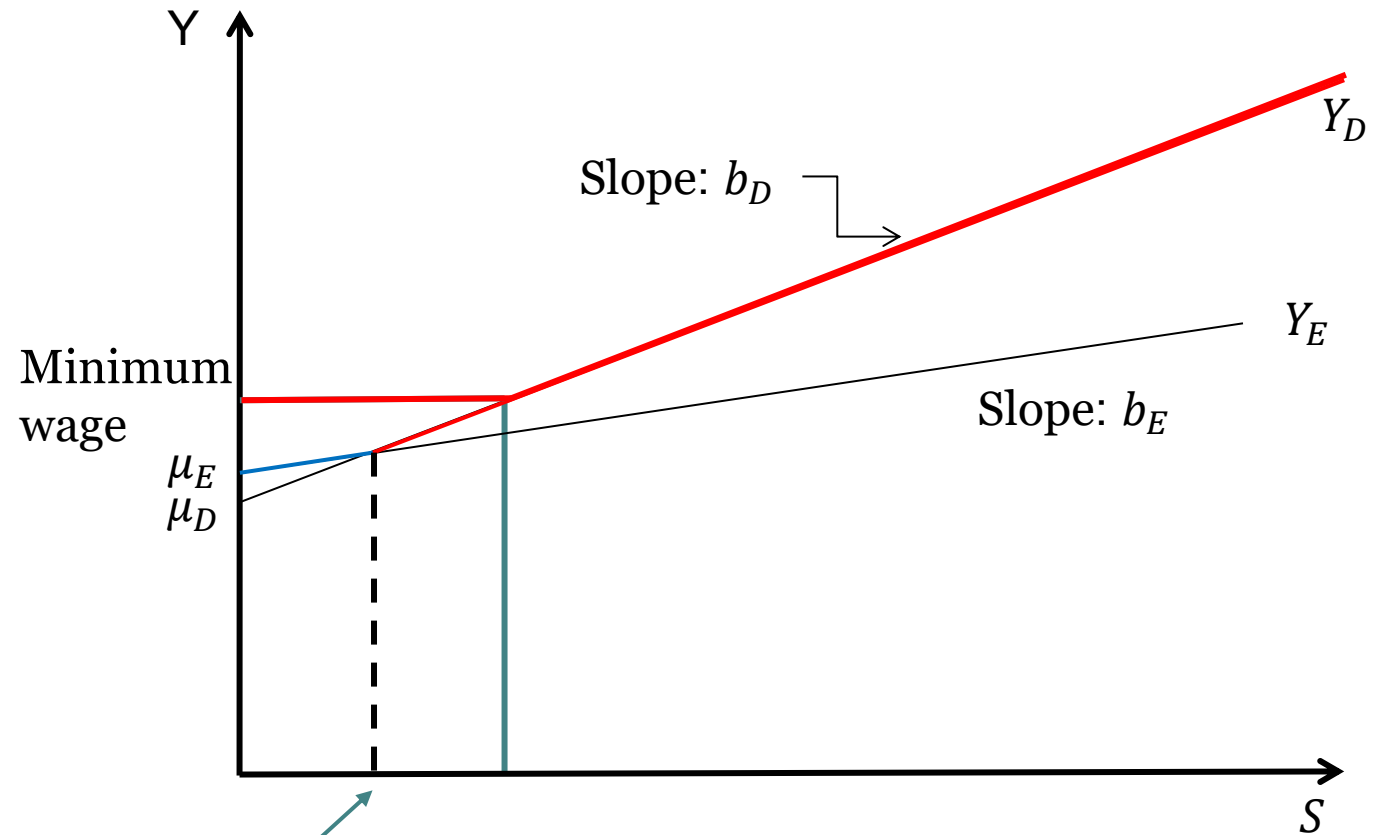
- If $b_D > b_E$, and if immigrants end up at the same position in the wage distribution in the receiving country, immigration will be positively selective.
- Minimum Wage will incentivize individuals at the low end of the distribution to emigrate.
- This will increase immigration, but of low-skilled individuals.



Effect of Minimum Wage on Immigration

Case 1: No Non-Employment

- Minimum wage will increase immigration, but negative selection.
- **BUT:** Our model assumes full employment.
- If MW decreases employability of immigrants than the higher non-employment risk may *decrease* immigration.



Below this skill level:
No migration

Case 2:
Employment only if
Productivity > MW

Employment Only If Productivity > MW

- Suppose that immigrants whose productivity is below the MW w_M will not be employed. Then probability of migration:

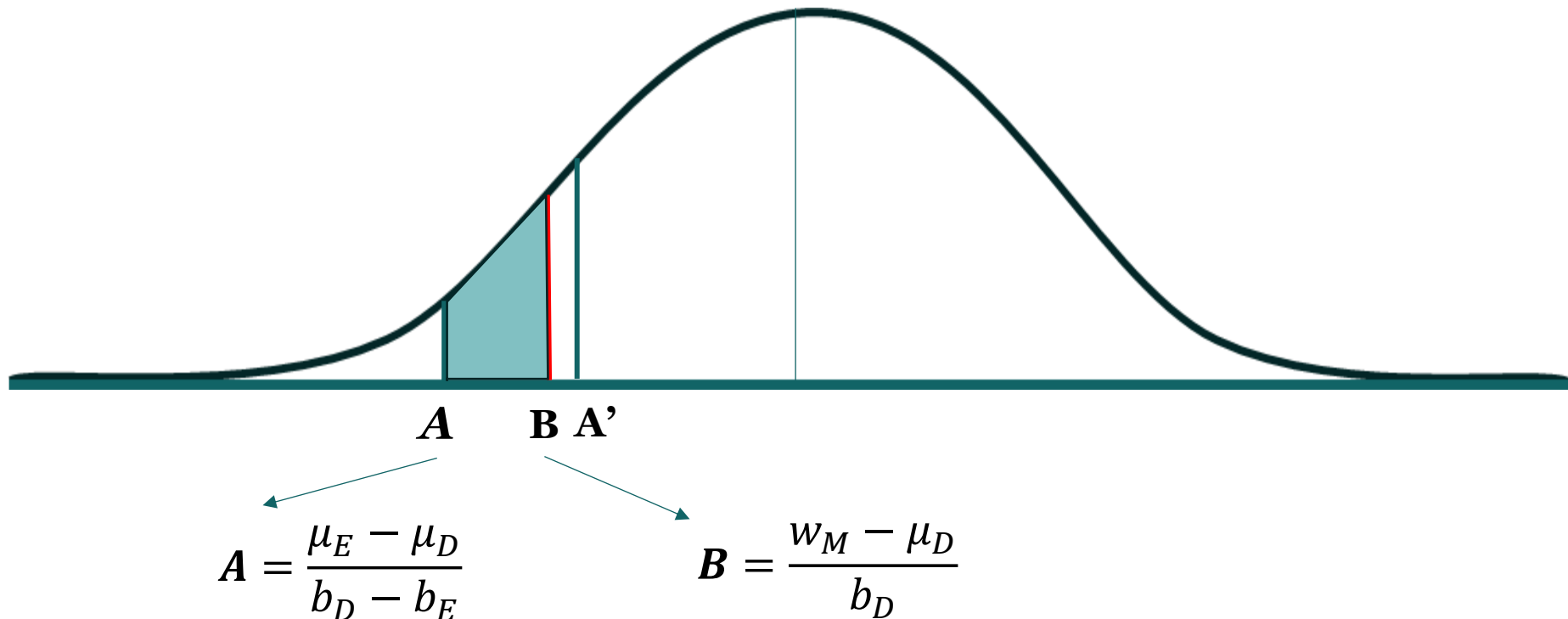
$$\Pr(M = 1) = \Pr(\Delta Y > 0, Y_D > w_M) = \Pr\left(S > \frac{\mu_E - \mu_D}{b_D - b_E}, S > \frac{w_M - \mu_D}{b_D}\right) =$$
$$\Pr\left(S > \max\left[\underbrace{\frac{\mu_E - \mu_D}{b_D - b_E}}_A, \underbrace{\frac{w_M - \mu_D}{b_D}}_B\right]\right) = \Pr(S > \max[A, B]) = 1 - \Phi(\max[A, B])$$

- How does that probability change if the MW w_M increases?

$$\frac{dP(M = 1)}{dw_M} = \begin{cases} 0 & \text{if } A > B \\ -\frac{1}{b_D} \phi(B) < 0 & \text{if } A < B \\ \text{undefined} & \text{if } A = B \end{cases}$$

Employment Only If Productivity > MW

- Employment risk decreases migration probability if $A < B$
- Employment risk does not affect migration probability if $A > B$



Case 3: Introduce Transfers

Introduce Transfers T if Unemployed

- Probability of being employed: $P_E = \text{Prob}(\mu_D + b_D S > w_M)$
- Earnings in host country: $Y_D = (\mu_D + b_D S)P_E + T(1 - P_E)$
- Probability of Migration: $P_M = \text{Prob}(Y_D > Y_E)$
- **How does Migration Probability change if: (i) MW w_M increases; (ii) T increases?**
 - Compute the comparative statics:

$$\begin{aligned}
 i. \quad \frac{dP_M}{dw_M} &= \left(\frac{\partial P_M}{\partial Y_D} \right) \times \overbrace{[(\mu_D + b_D S) - T]}^{\frac{dY_D}{dP_E} > 0} \times \overbrace{\left(-\phi\left(\frac{w - \mu_D}{b_D}\right) \times \frac{1}{b_D} \right)}^{\frac{dP_E}{dw_M} < 0} < 0 \\
 ii. \quad \frac{dP_M}{dT} &= \left(\frac{\partial P_M}{\partial Y_D} \right) \times (1 - P_E) > 0 \\
 iii. \quad \frac{dP_M^2}{dw dT} &= \frac{\frac{\partial Y_D}{\partial P_M} \left(\frac{\phi(b_D w - \mu_D)}{b_D} \right)}{b_D} > 0
 \end{aligned}$$

What does the simple model imply?

- **Ignoring employment risk:** MW increases migration, and low-skilled individuals drive this increase
- **If employment requires productivity $>$ MW:**
 - (a) MW has no impact on migration if the threshold for migrating before the MW is higher than after the introduction of the MW (i.e., if $A > B$).
 - (b) MW decreases migration if the threshold for migrating before the MW is lower than after the introduction of the MW (i.e., if $A < B$).
[Note: Threshold is origin country specific!]
- **If there are Transfer payments:** An increase in MW decreases migration; an increase in T increases migration; an increase in T decreases the negative effect of the MW on migration.

Empirical Evidence, U.S. Internal Migration

- **Boffy-Ramirez (2013)**: Examines how changes in state minimum wages influence internal migration of low-skilled immigrants in the U.S.:
 - Immigrants in the U.S. for 2/4 years are more likely to move in response to minimum wage increases: MW +0.5\$ → +13% rise in the number of those immigrants.
 - Accumulating more human capital → less sensitivity to MW.
- **Monras (2019)**: Explores migration response to MW in a multi-region economy with free labor mobility, based on spatial equilibrium model and estimated with CPS data:
 - A region that increases MW becomes more attractive if wage gains surpass potential job losses (wage effect > disemployment effect).
 - If employment effects are large, migration is deterred unless unemployment benefits are compensating.

Empirical Evidence, U.S. Internal Migration

- **Cadena (2014)**: Examines impact of increases in MW on location decisions of recently arrived low-skilled immigrants:
 - State's MW +10% → the number of recently arrived immigrants who live in respective state -8%.
 - Intuition: When MW decreases job finding probability by more than expected wage rise.
- **Giulietti (2014)**: Examines effect of MW increases on immigration of low-skilled workers, analyzing U.S. federal MW hikes in 1996-1997 and 2007-2009. Higher MW:
 - Attracts low-skilled immigrants by boosting earnings without hurting job prospects.
 - Increases legal immigration from Mexico and Central/South America, with no effect on high-skilled or undocumented flows.

Empirical Evidence, Non-US studies

- **Delgado-Prieto (2024) – Colombia:** Examines impact of Venezuelan immigration on Colombia's labor market:
 - High MW can magnify the adverse employment effects of immigration by pushing workers towards the informal sector.
- **Lundborg and Skedinger (2014) - Sweden:** Investigates how industry-specific minimum wages in Sweden affect the unemployment rates of refugee immigrants:
 - High minimum wages hinder employment for both low-skilled and high-skilled refugees.
 - Greater effect among refugees from Iran, Iraq, and the Horn of Africa, especially for those who have been in Sweden for less than 10 years.

**How Does the
Minimum Wage
Affect Immigrants'
Labor Market
Integration?**

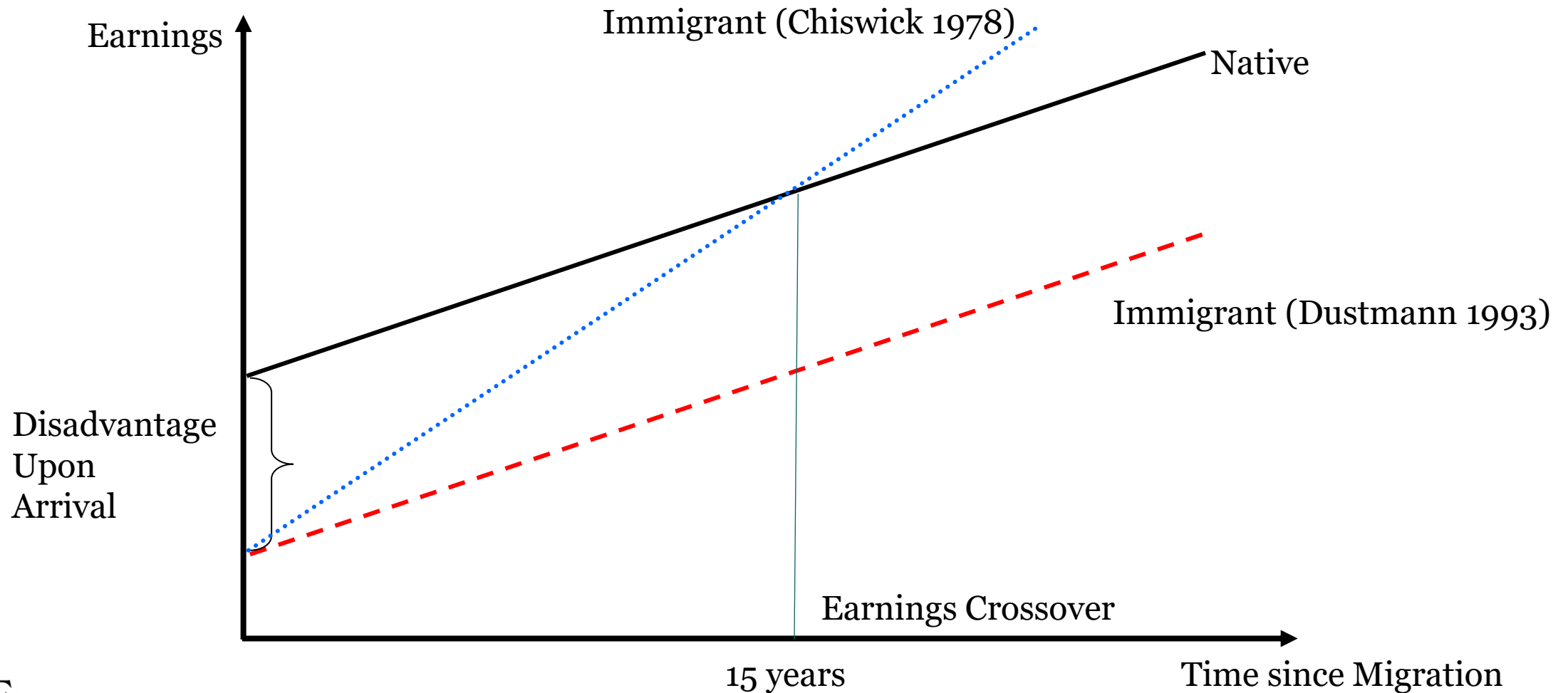
How Does the Minimum Wage Affect Immigrants' LM Integration?

- **Higher MW:**

- i. May disallow low-skilled immigrants to enter LM
- ii. May disincentivize further investments in human capital.
- iii. For immigrants whose productivity $>$ MW: may leads to lowering the initial earnings gap that is induced trough frictions.

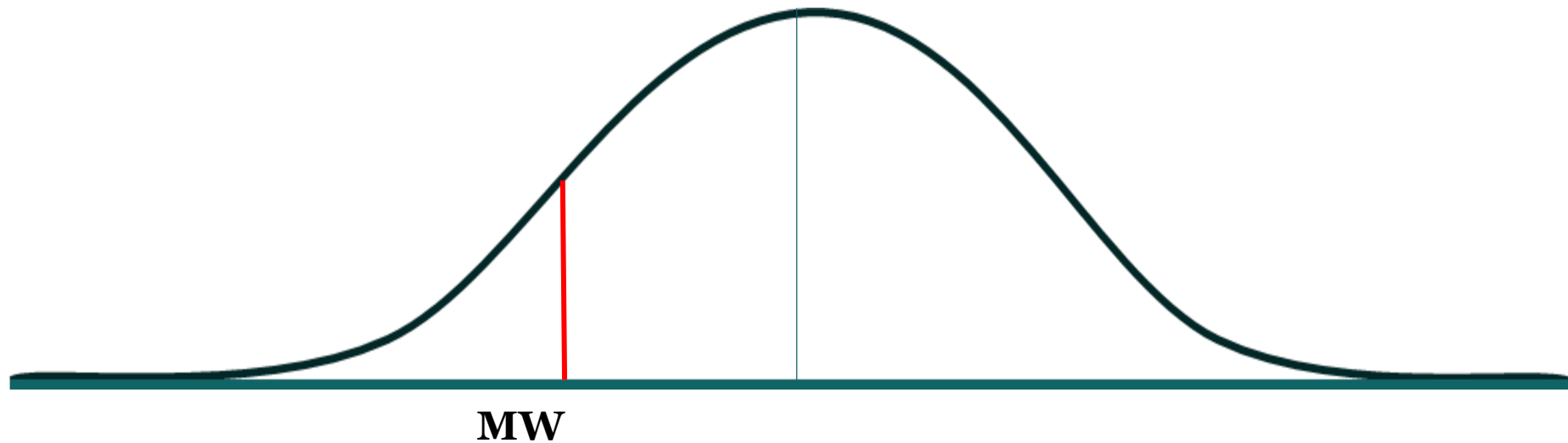
- **Frictions:** may come about through discrimination or differences in immigrants' reservation wages (see below).

Earnings Assimilation of Immigrants



Employment Only If Productivity > MW

- MW will decrease employment probabilities of very low-skilled immigrants whose productivity is below the MW (often the case for refugees)



Empirical Evidence, Non-US studies

- **Lundborg and Skedinger (2016) – Sweden (refugees)** : Evaluate the integration of refugees based on a large scale firm-level survey:
 - Firms employing more refugees declare that reducing minimum wages could significantly boost refugee employment, particularly in low-skilled positions (where minimum wages are binding).

How Does the Minimum Wage Impact Immigrants and Natives?

How Does the Minimum Wage Impact Immigrants and Natives?

- MW may hinder immigrants from **underbidding native workers**:
 - It may protect natives from competition from immigrants for low-skilled jobs (Argument by UK Chancellor George Osborne for MW hike).
- However, if immigrants' reservation wages are lower than those of natives, then immigrants below the MW before its introduction will be more productive than natives at the same wage (Argument of Polish cab driver from Central London to Paddington).
- Implications: any employment effects of the MW will predominantly affect natives.

How Does the Minimum Wage Impact Immigrants and Natives?

• Why may immigrants' reservation wages be lower than those of natives?

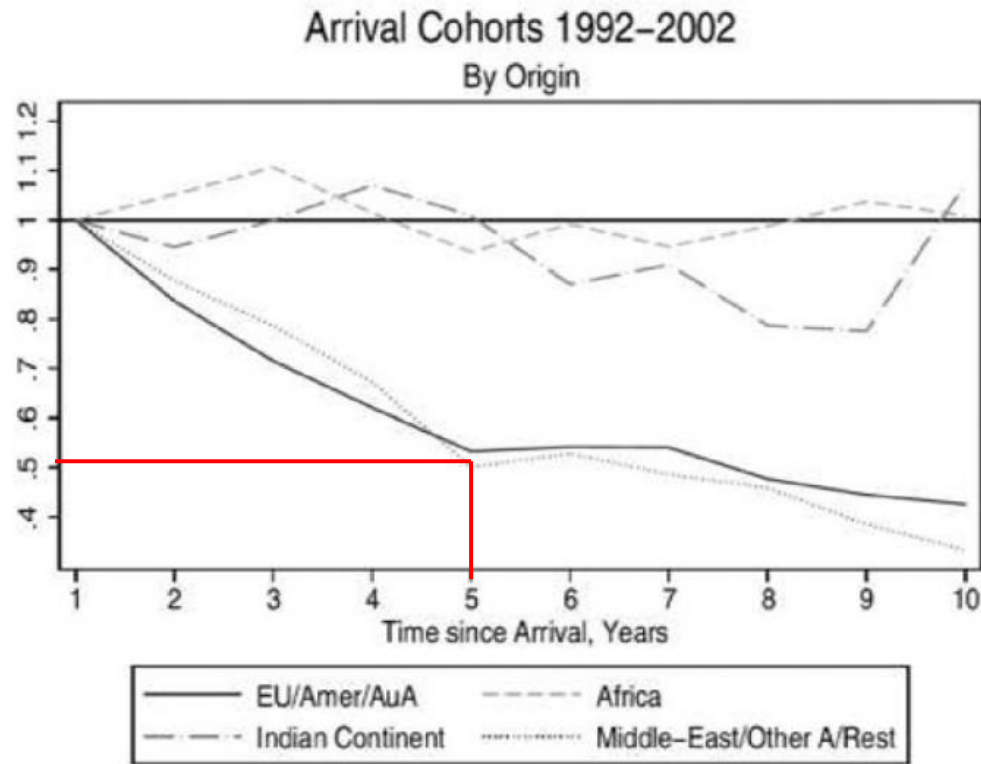
- Immigrants measure real wages in terms of consumption bundles that partly reflect home consumption, as they may **plan to return** home or **send remittances** to family members:

$$\frac{\bar{w}}{CPI_D} < \frac{\bar{w}}{CPI_D\gamma + CPI_E(1 - \gamma)},$$

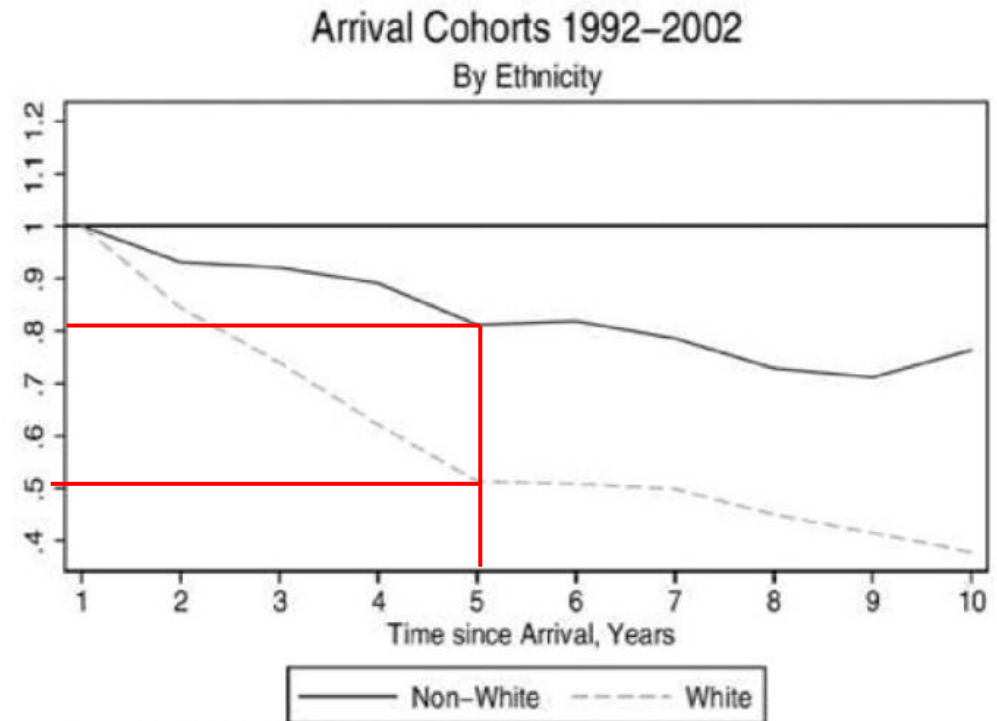
where:

- γ is the share of consumption spent in the Destination country
- CPI is the consumer price index in the Destination or Emigration country
- Thus, their real wages are higher than those of natives.
- Other explanations: LM frictions (information, discrimination, etc.)

Temporariness of Migration: Example UK



Source: British LFS, 1992–2004.



Source: British LFS, 1992–2004

Individuals older than 25 upon arrival

Fig. 2. Survival rates.

Source: [Dustmann and Weiss \(2007\)](#), based on British Labour Force Survey data, 1992–2004.

The “Effective” Wage

- Immigrants obtain higher effective wages (in terms of consumption units) than natives for the same real wage.

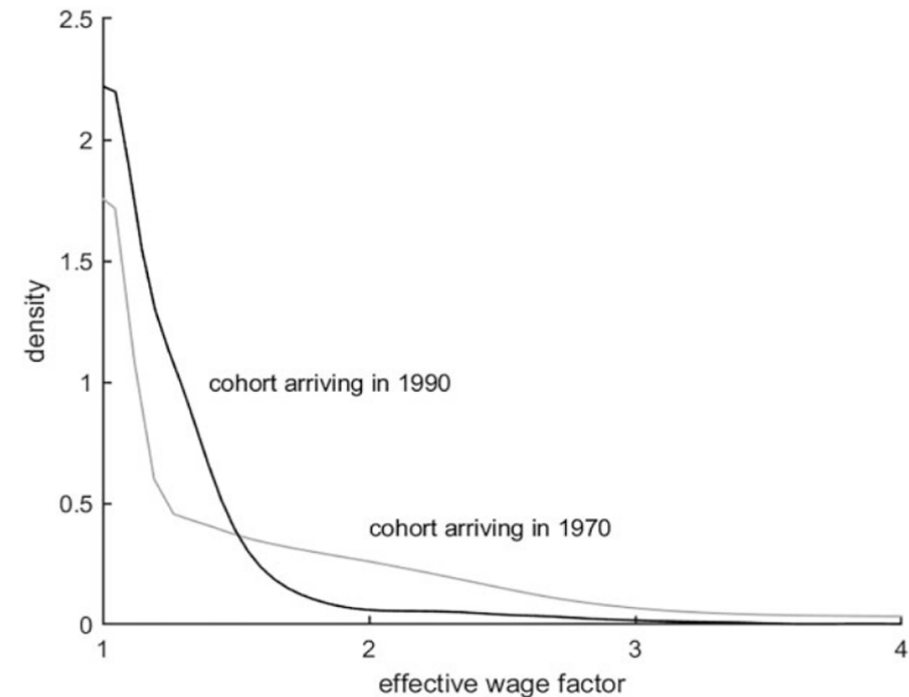


FIGURE 8

Effective wages of temporary migrants.

Source: Adda, J., C. Dustmann, S. Gorlach, “The Dynamics of Return Migration, Human Capital Accumulation, and Wage Assimilation”, *Review of Economic Studies*, 89(6), 2841-2871, 2022

Empirical Evidence, U.S. Internal Migration

- **Edo and Rapoport (2019):** Examine whether MW levels protect native workers from adverse labor market impacts caused by low-skilled immigration:
 - Immigration slightly lowers wages and employment for similarly skilled native workers.
 - Federal raises of MW mitigated wage and employment losses from immigration by 9.2% and 13.8%, respectively, in low minimum wage states.

Conclusions

Conclusions

- There is little work on migration and the MW.
- We summarized papers that investigate the impact of the MW on immigration.
- We interpreted results through the lens of a Roy model:
 - The model has implications for investigating these effects for different origin countries.
- There is no work on the effect of the MW on immigrants' labor market assimilation:
 - One reason may be that there is little to say about this.
- **BUT:** MW may severely reduce employment probabilities of low-skilled immigrant populations (e.g. refugee immigrants – see Dustmann et al. 2024)
- If immigrants earn wages below their productivity, the MW's employment effects will primarily impact natives.

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