Mexico-U.S. Migration: Assessing the Benefits and Costs for Mexico

Iván Mejía

Consultant NIA Project, ECLAC

gauss75@gmail.com

Alma Vega

Senior consultant, Kaiser Permanente

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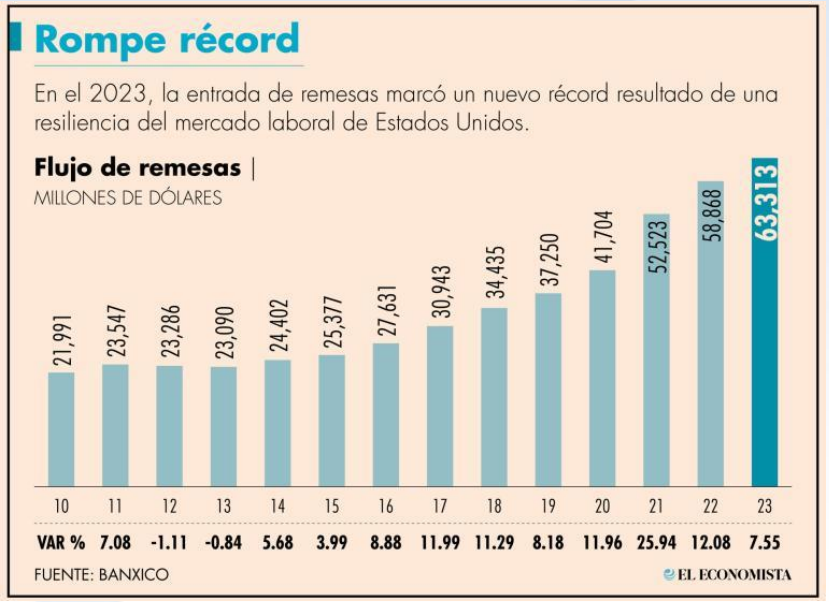
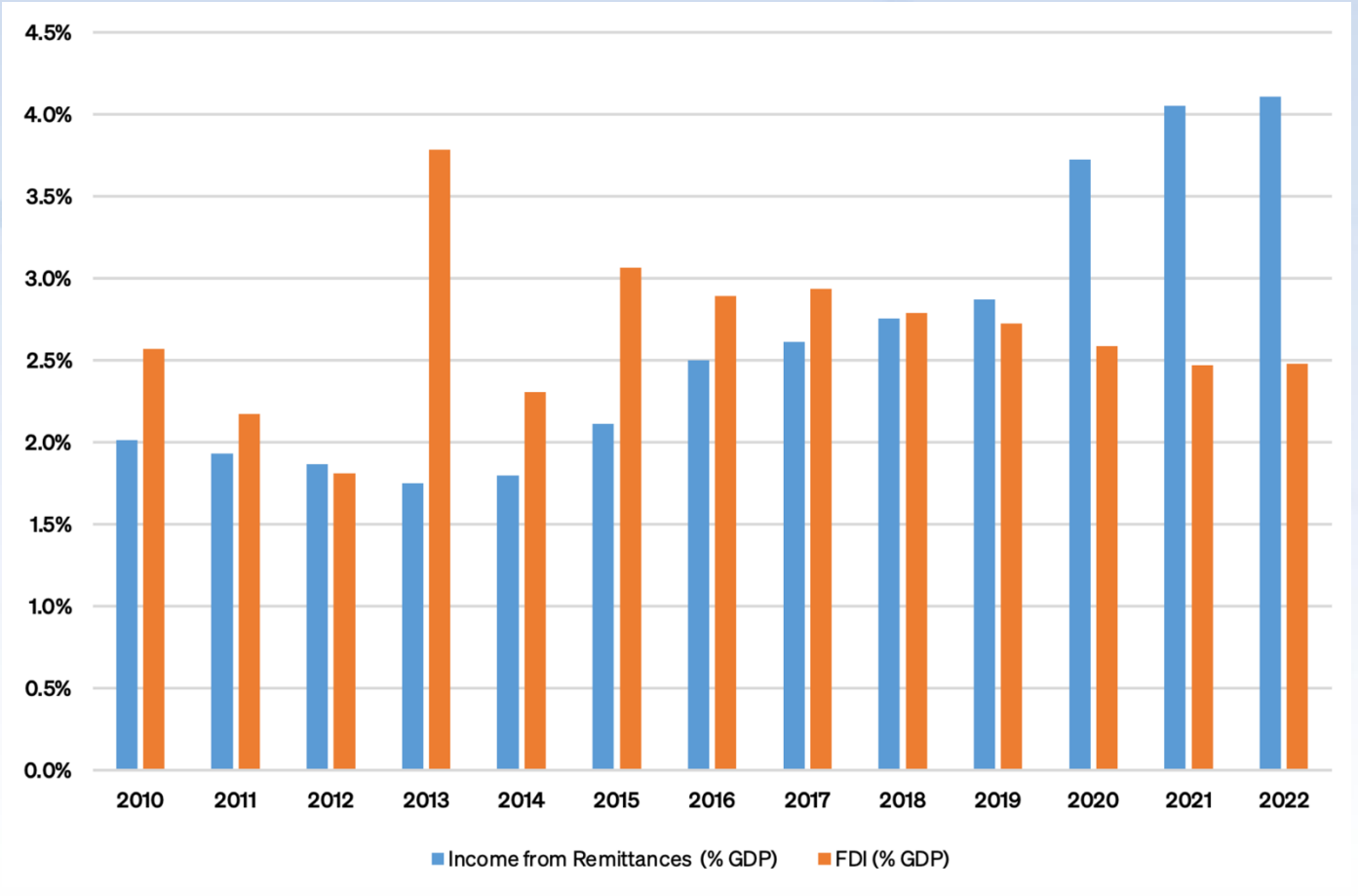
Remittances set a new record!





Rodríguez-Sánchez (2023)

- **Critical Income Source**: Remittances are a vital source of income for many Mexican families in need.
- **Macroeconomic Impact**:
  - Have fluctuated between **2% to 4% of GDP** over the last 15 years.
  - Increased significantly in the **past ~8 years**, even surpassing **Foreign Direct Investment (FDI)**.

Background

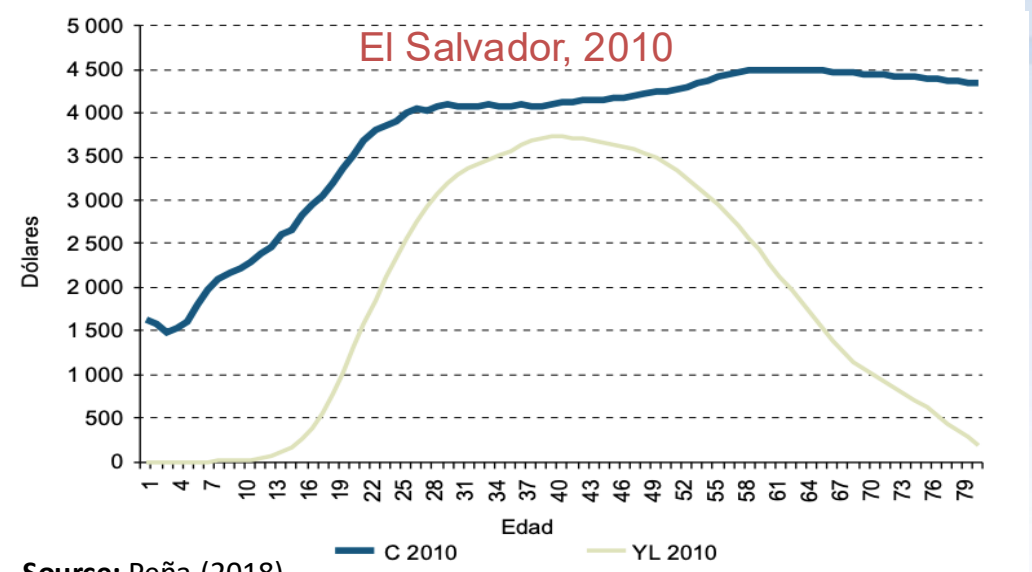
- Most of the work in the economic literature has focused on the economic effects of immigration on the host country.

- Studies analyzing the effects on the sending country have primarily focused on remittances and how migration impacts wages, labor force, inequality...

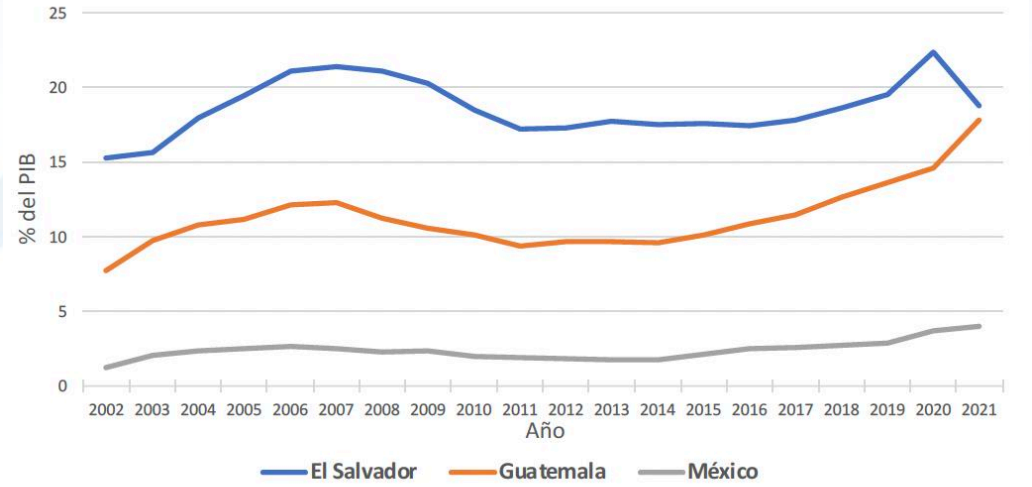
- How can we analyze these economic implications from a generational perspective

- Mishra (200). Emigration and wages in source countries: … Mexico
- Hanson (2007). Emigration, Remittances and Labor Force Participation in Mexico
- Mckenzie (2007). Network effects, migration and inequality…
- Villarreal (2014). Explaining the Decline in Mexico-U.S. Migration…
- Borjas (2014). Immigration Economics.
- Suárez et al. (2020). Return Migration and the Federal Government Response in Mexico.
- Anwar et al. (2024). Remittances and inequality…
- Berg et al. (2005). Understanding the Impact of Remittances on Mexico's Economy…

Migration and NTA



Source: Peña (2018)

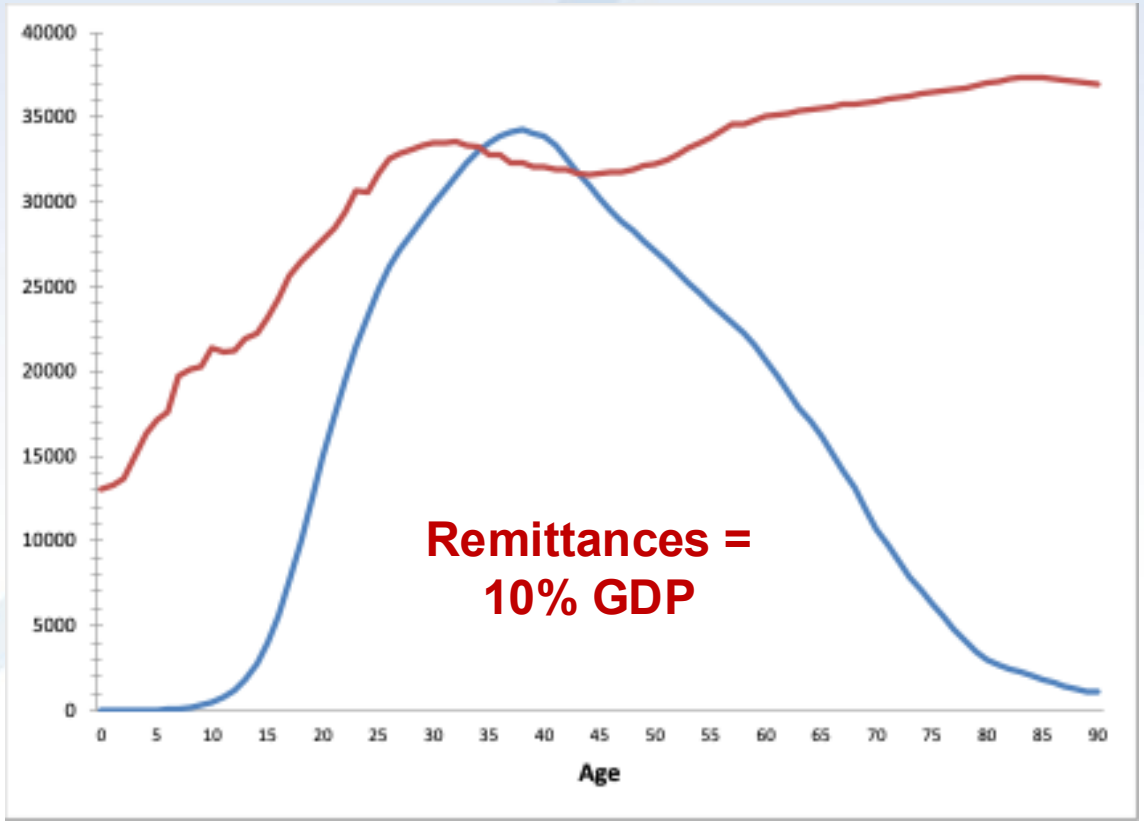


Source: Cabrera et al. (2021)

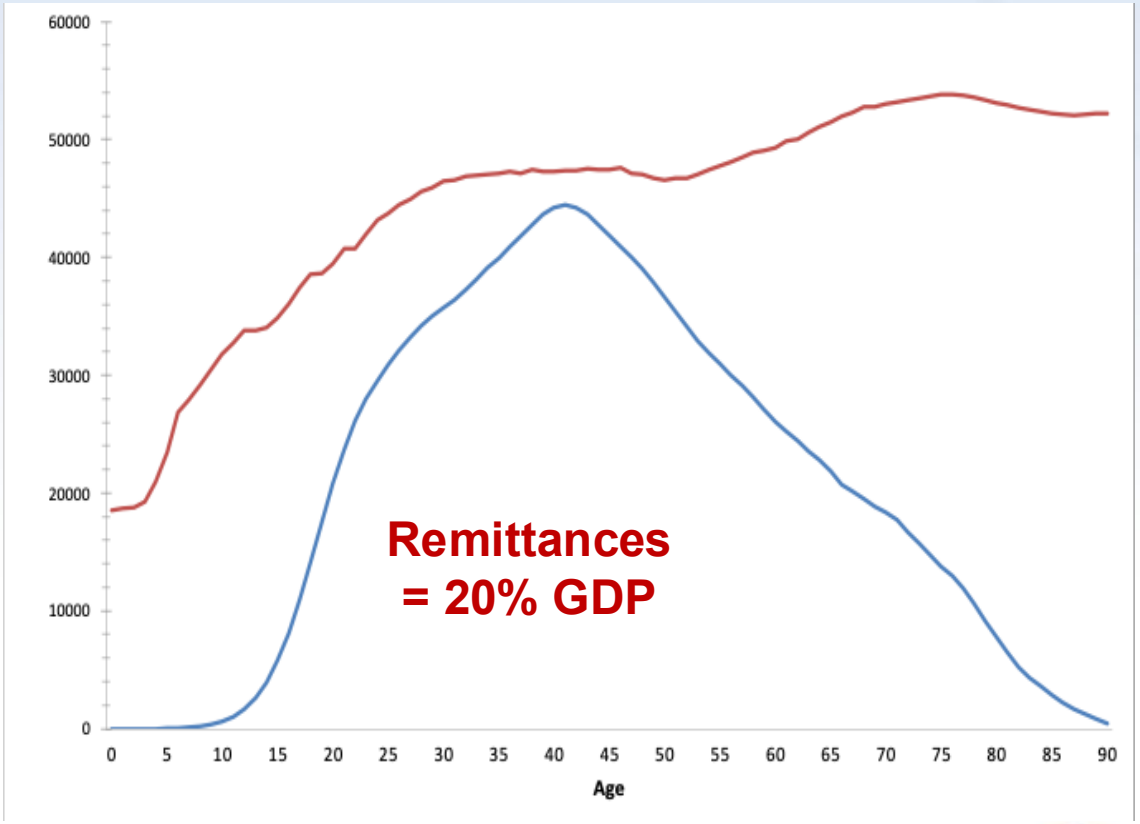
- Montcho et al. *Comparing Public Transfers to Immigrants and Natives in Canada, NTA Global Meting 2022*
- Ramam. Immigrants in NTA: case of Slovakia, *NTA Global Meting 2022*
- Qi et al. Immigrants' Economic Life-Cycle and the Generational Economy in Sweden, NTA Global Meeting 2022.
- Welner et al. (2018). *Dividendo demográfico y migración en El Salvador: ¿cuánto se ha perdido?*, Notas de Población.

Further Evidence of the impact of remittances?

Guatemala 2014



Guatemala 2023



Source: Core group NTA Guatemala (2014, 2024), with support from UNFPA Guatemala and CELADE/ECLAC.

Beyond remittances...

This study aims to explore how National Transfer Accounts (NTA) tools can be used to analyze broader economic effects of emigration **on the sending country.**

While we focus on the **Mexico-U.S. case**, the framework and findings could be applied to other countries with high emigration flows**:**

97% of Mexicans leaving Mexico go to the US	*93-96% of those returning come from the US*	*Mexico is by far the leading country of origin for U.S. Immigrants.*	*Mexican origin living in the US (*37.2 million*):*

Our Approach

1. Net benefits/costs of emigration for Mexico
   - Loss of prime-age labor due to emigration
   - Loss in labor and asset income
   - Forgone consumption and remittances
2. Human capital investment
   - Education
   - Health
3. Other key considerations

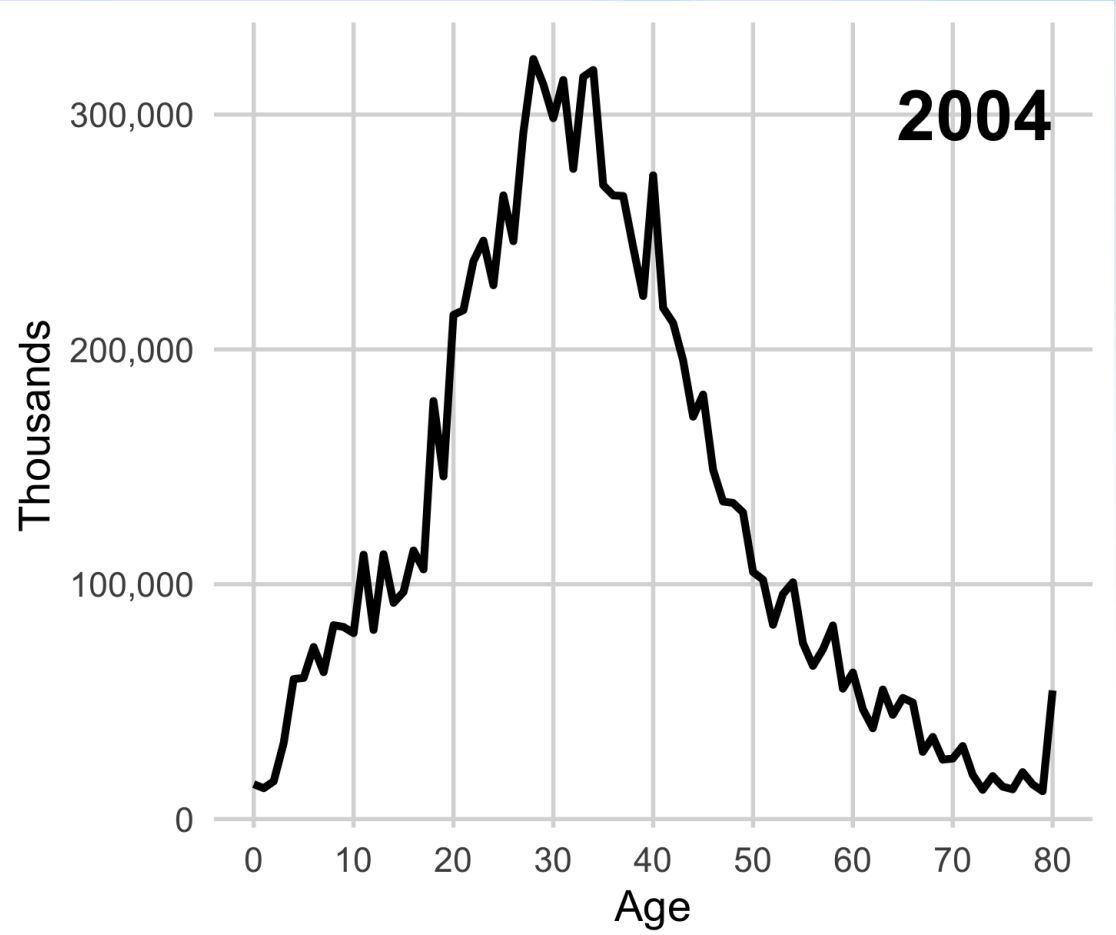
1. Age-specific costs or benefits

$$Net\ Cost_t(x) = P_{t,usmx}(x) \cdot [y_t^l(x) + yf_t^a(x) - c_t(x) - r_t(x)]$$

- $\boldsymbol{P_{t,usmx}(x)}$**:** Number of Mexicans age *x* who are living in the U.S. at time *t*.
- **Lost production**—the missing economic contribution from workers who left Mexico $[\boldsymbol{P_{t,usmx} * y_t^l(x)}]$.
- **Foregone asset accumulation**—the wealth and assets these individuals could have built if they had stayed in Mexico $[\boldsymbol{P_{t,usmx} * yf_t^a(x)}]$.
- **Forgone consumption—**the reduction in consumption costs for Mexico, as it no longer needs to fund those who left $[\boldsymbol{P_{t,usmx} * c_t(x)}]$.
- **Forgone remittances**—the funds that would not have been sent back to Mexico if migrants had remained in the country $[\boldsymbol{P_{t,usmx} * r_t(x)}]$.

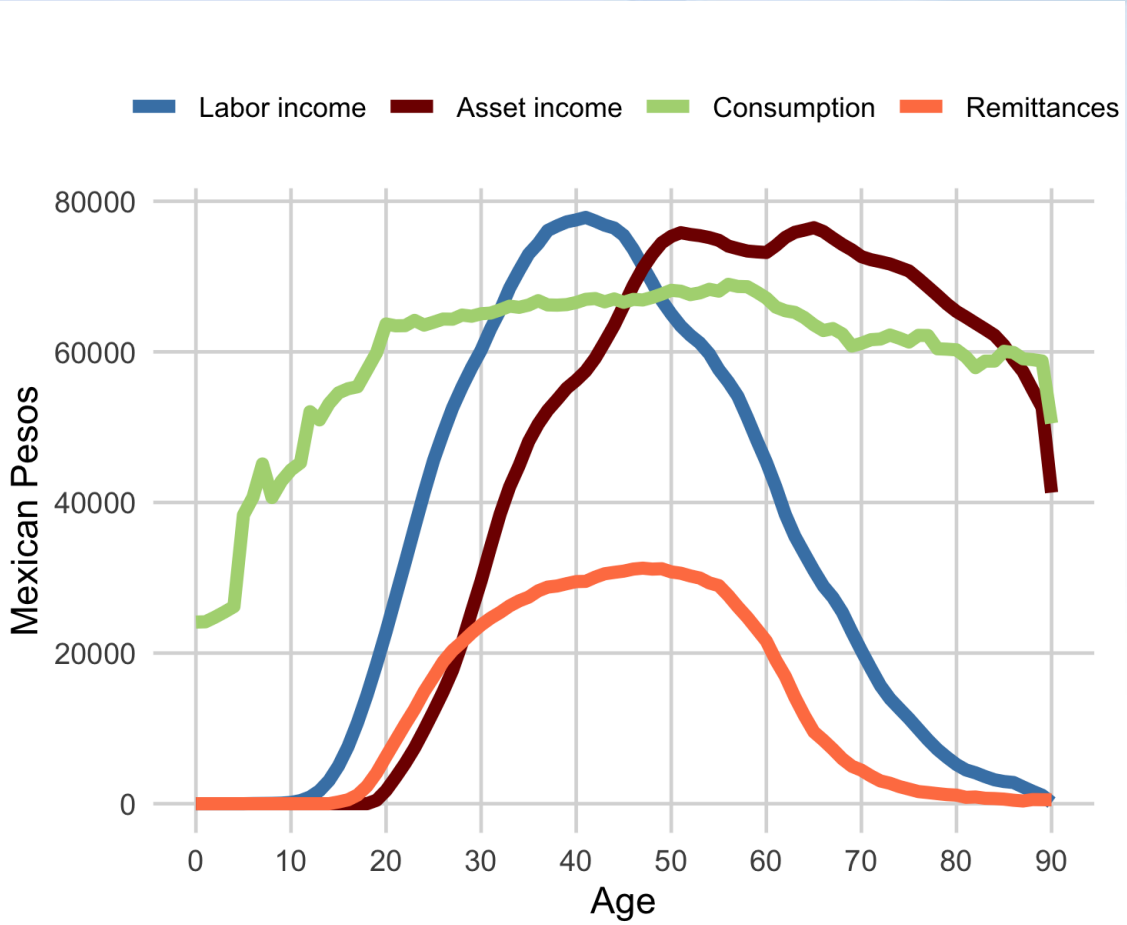
Distribution by age of Mexican emigrants

Born in Mexico



- In 2004, 10.4 million people lived in the U.S. who were born in Mexico.
- This number represented 3.6% of the total U.S. population, and 9.9% of the Mexican population in that year.
- Most people were in working ages (aged 20-49: 69.6% of the total).

Components of the Net Cost Function



- Age profiles **of labor income, consumption, and private asset** income were derived from the **Mexico NTA 2004** model.

- The age distribution of **remittances** was estimated based on the **labor income earnings (U.S. NTA 2003)**, adjusted proportionally to match the total remittances recorded in Mexico that year.

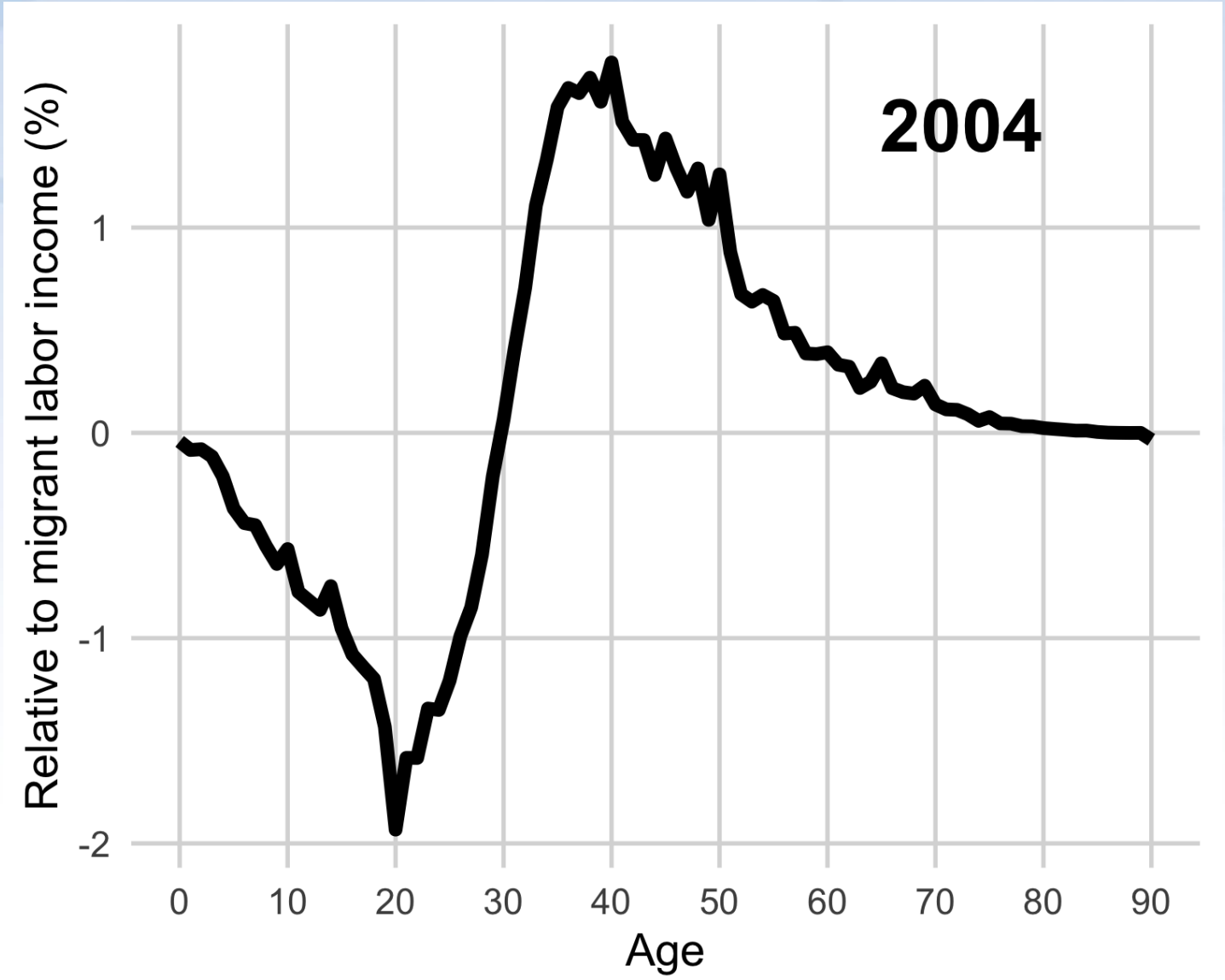
Net benefits or costs of emigration by age

- **What would happen if emigrants never left Mexico?**

- Under 30: Negative net impact due to high consumption (no income/assets).

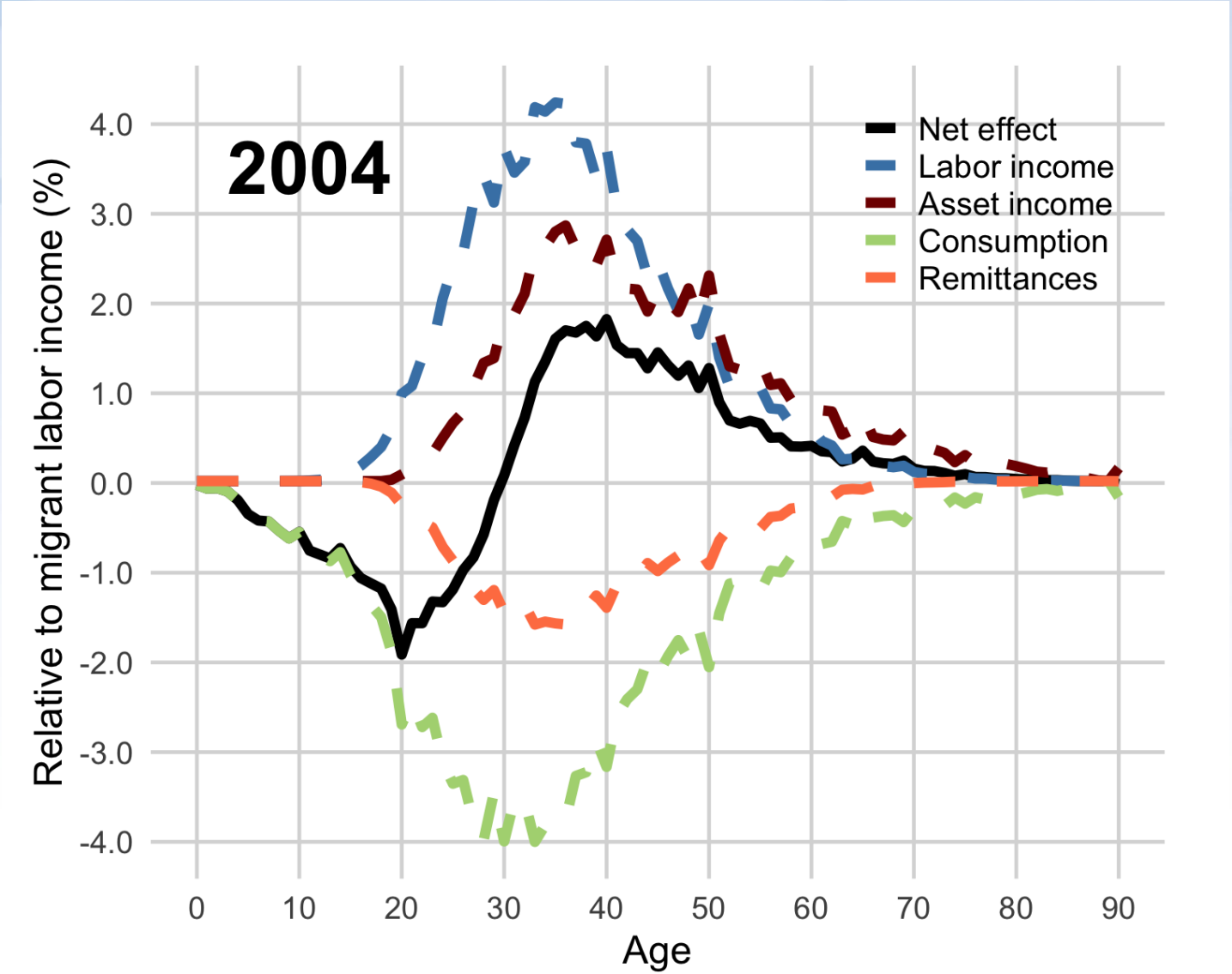
- Negative peak at age 20: ~10% of migrant income.

- After 30: Positive net benefit—income exceeds consumption and lost remittances.

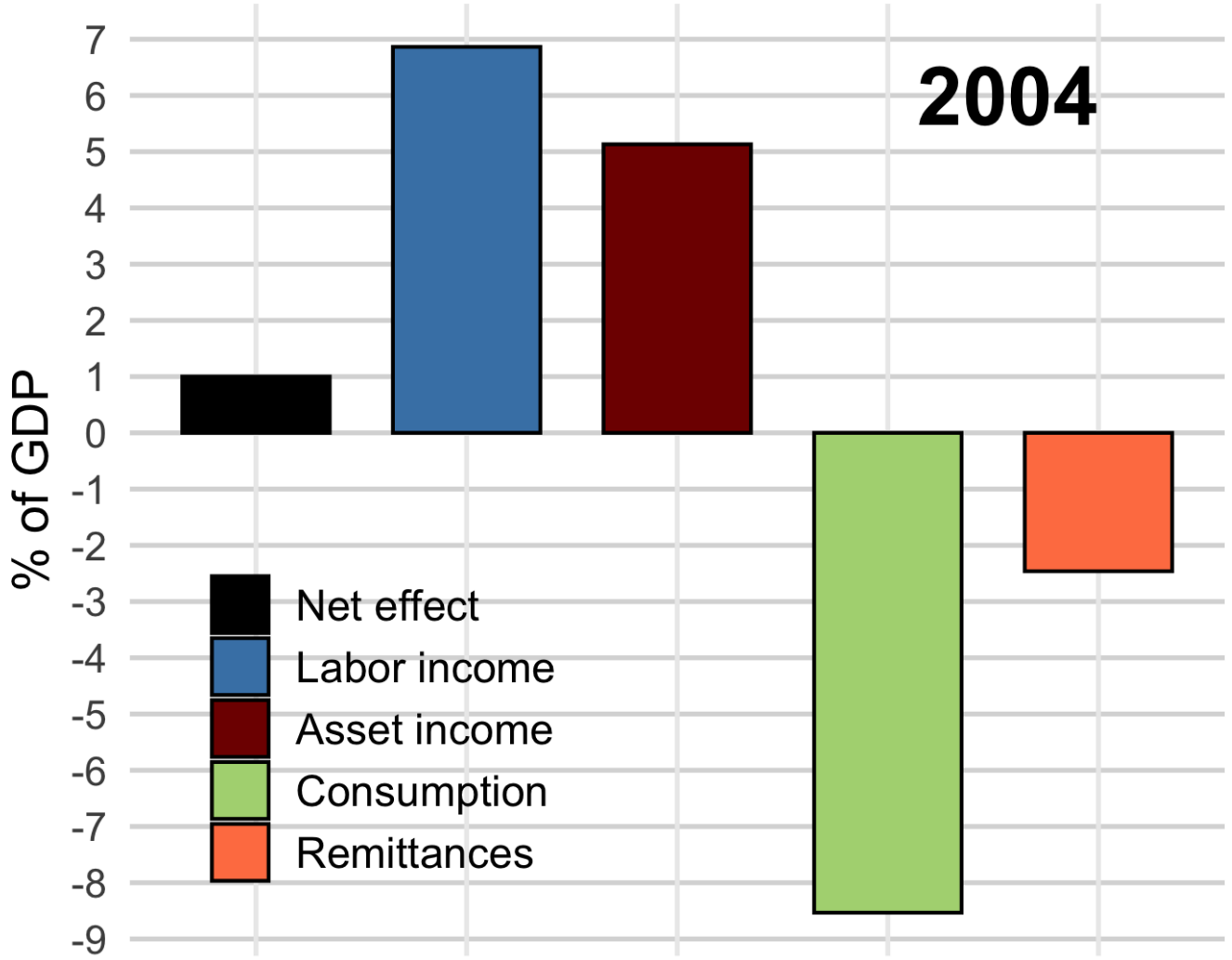


Net benefits or costs by age and component

- **Before Age 20:** Negative values driven entirely by consumption.
- **After Age 20:** Net effect starts growing and turns positive at age 30, as emigrants start generating labor and asset income.
- **After Age 30:** Net benefit turns positive as labor and asset income dominate consumption and lack of remittances.
- **Net effect peaks** in middle age, declines afterwards but remain positive until age 70, where effects cancel out due to fewer elderly migrants.



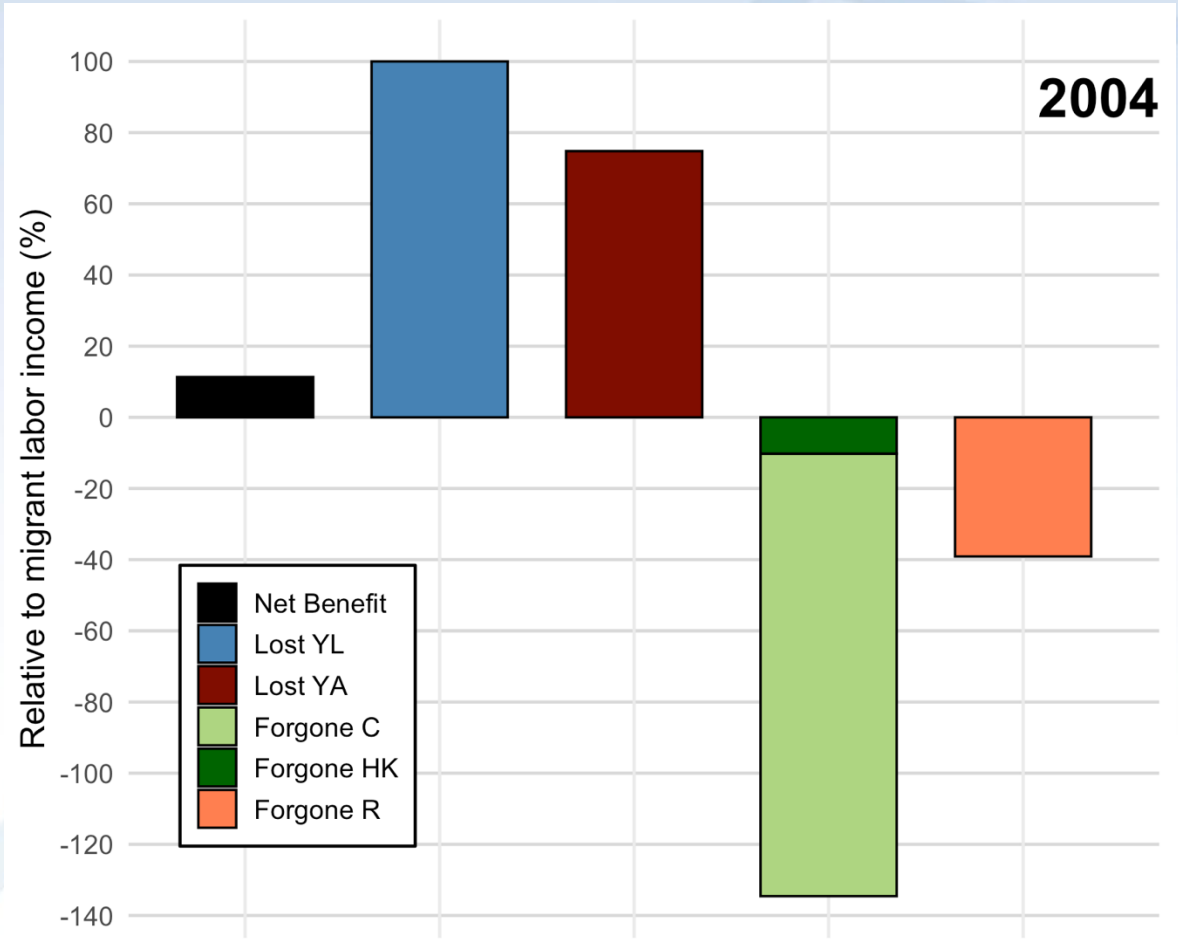
Aggregate net effect by component

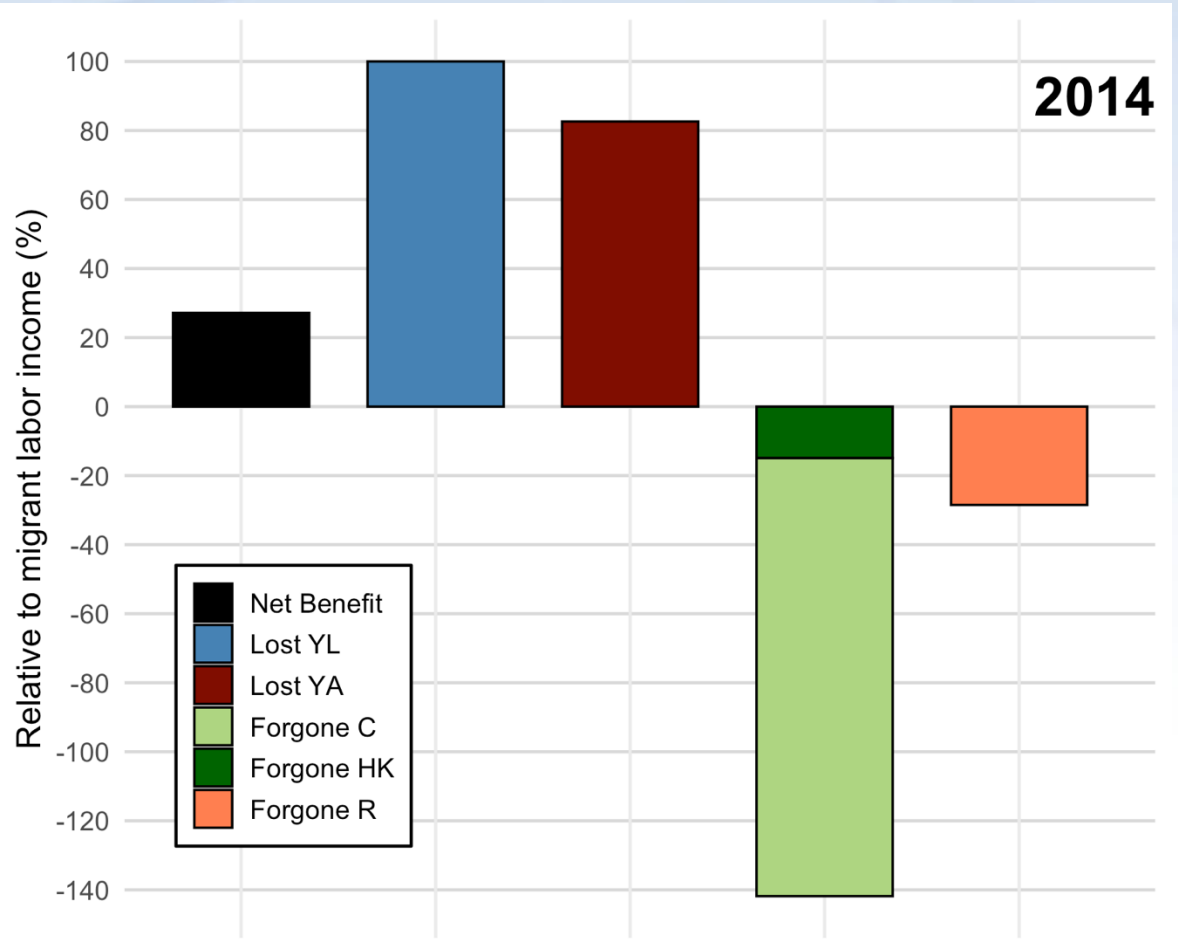


- **Total Effect**: ~1% of Mexico's GDP (2004).
- If Migrants Stayed:

- Labor income + assets = 12% of GDP.
- Could finance consumption (8.5% GDP) + offset forgone remittances (2.5% GDP).

Net Benefits/Loss by component





2. Human capital investment

The effect of emigration is a cumulative process (Massey et al., 1993) that requires a longer period of observation.

Private and public expenditure in ***education*** *and* ***health*** *are an* ***investment****.*

We aim to capture the ***human capital investment*** *made in Mexico on emigrant people who ended up leaving the country.*

2. Human capital investment: EDUCATION

- ***Estimating educational human capital requires quantifying the cost of education acquired in Mexico in the past for individuals living in the U.S. during the reference year.***

Investment in Human Capital: Education

- Age of emigrant at the reference year (t)
- Total number of years of education.
- We assume uninterrupted education.
- Three steps:

1. Estimate **age-specific consumption** of private and public education (t = 2004)

2. Estimate **equivalent values** of the age profile **in the past** for the total years of education reported, using:

$$E_s(x) = E_t(x)e^{-\lambda(t-s)}$$

λ: rate of productivity growth

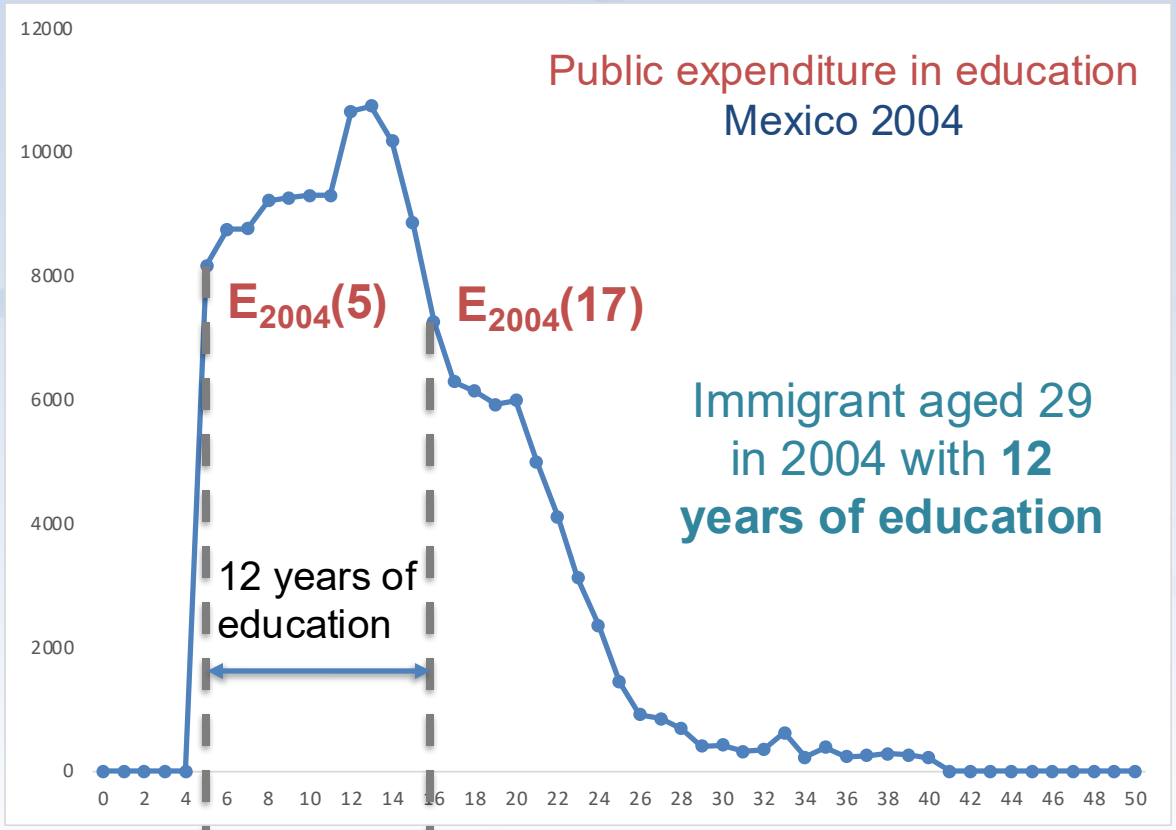
3. Estimate the cost of **education in year t** as the **present value** of the education t-s years ago and sum the values for all years of education reported.:

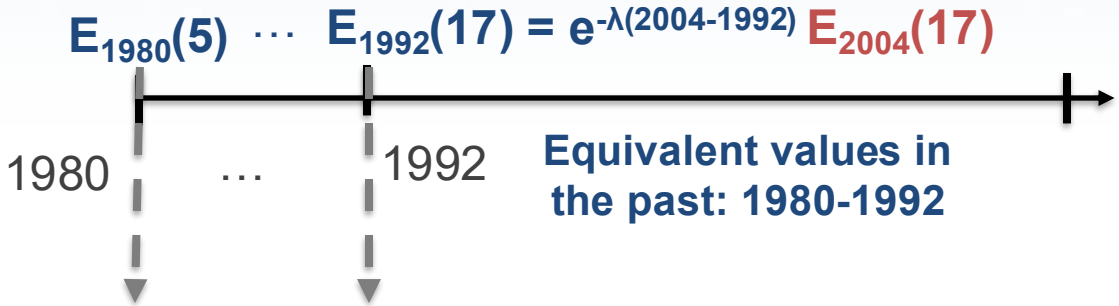
$$E_{t,s}(x) = E_s(x) \cdot e^{r(t-s)} =\cdot e^{(r-\lambda)(t-s)}$$

r: discount rate

$$HCe_t^i(x') = \sum_{s=t_{ye}^i}^{t_{ye}^i+hd^i} E_{t,s}(x)$$

Total investment for emigrant i





$E_{2004,1980}(5) \cdots E_{2004,1992}(17) = e^{r(2004-1992)} E_{1992}(17)$

Present Value (in 2004) of All years of education

NTA

2. Human capital investment: HEALTH

- ***Estimating health human capital requires quantifying the cost of health acquired in Mexico in the past—before they emigrated to the U.S.—during the reference year.***

Investment in Human Capital: Health

- Similar procedure applied to education
- Age of emigrant at the reference year (t)
- Year of emigration.
- Three steps:

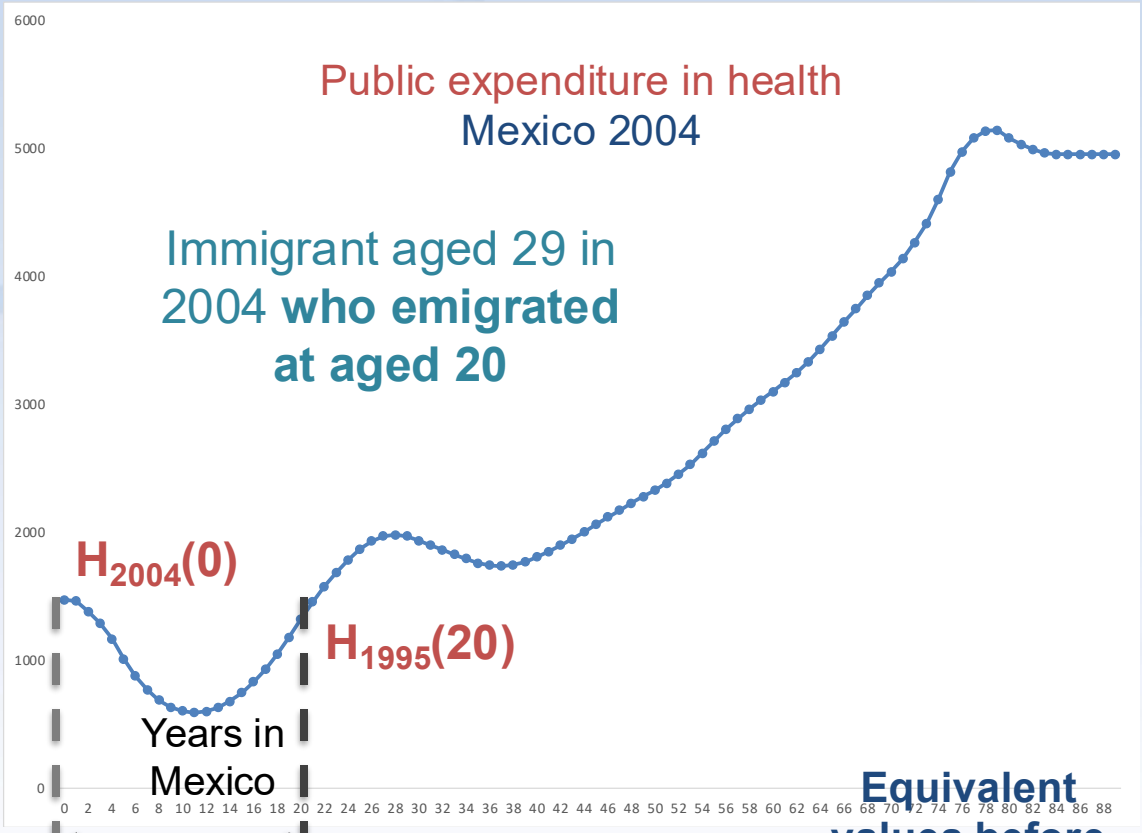
1. Estimate Age-specific consumption of private and public health (t)

2. Estimate equivalent values of the age profile in the past for the total years living in Mexico:

$$H_s(x) = H_t(x) \cdot e^{-\lambda(t-s)}$$

3. Estimate the cost of health in year t as the **present value** of the health t-s years ago and sum the values for all years before emigrating:

$$H_{t,s}(x) = H_s(x) \cdot e^{r(t-s)} =\cdot e^{(r-\lambda)(t-s)}$$

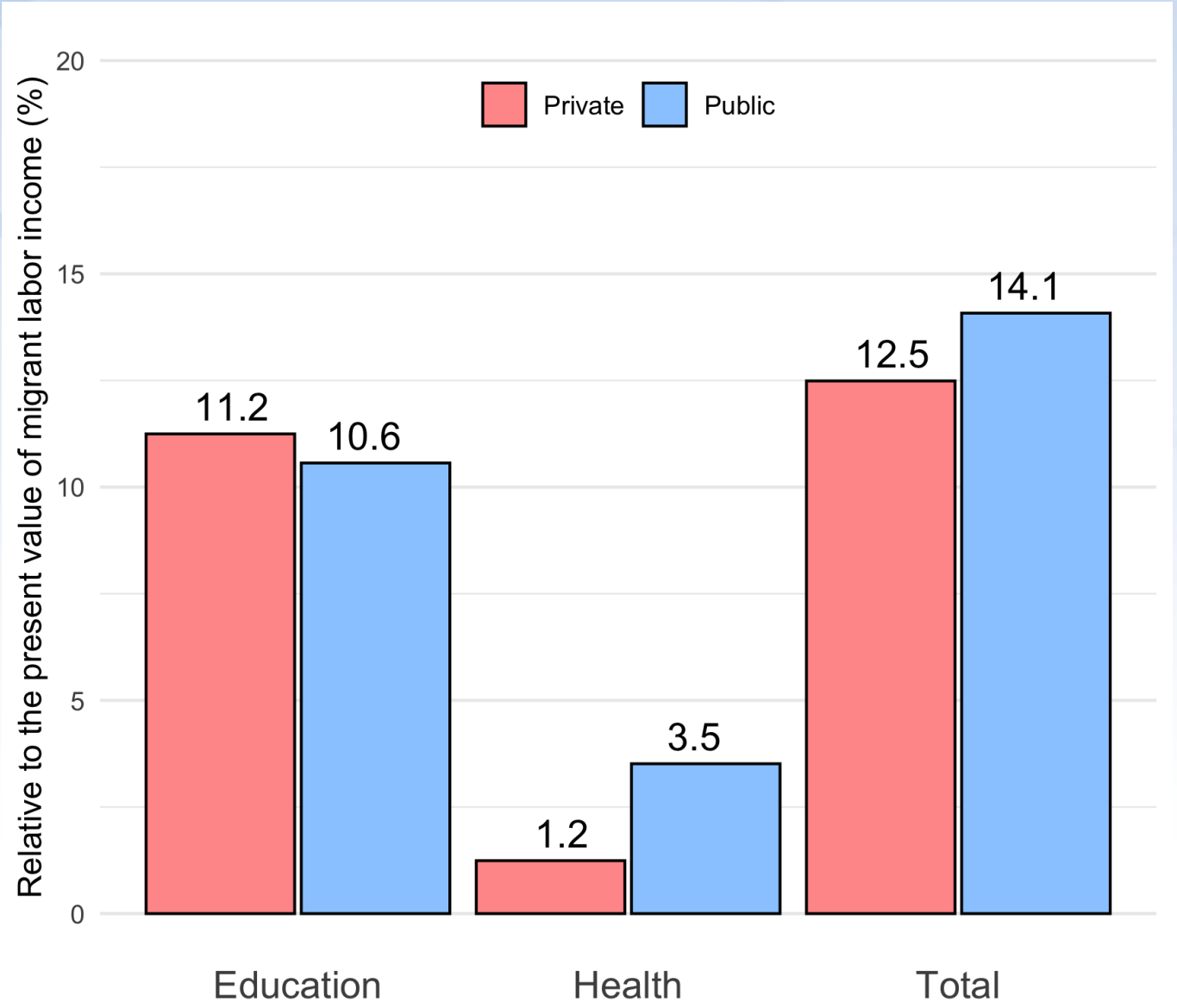


$$H_{2004,1975}(0) \cdot\cdot H_{2004,1995}(20) = e^{r(t-s)} H_{1995}(20)$$

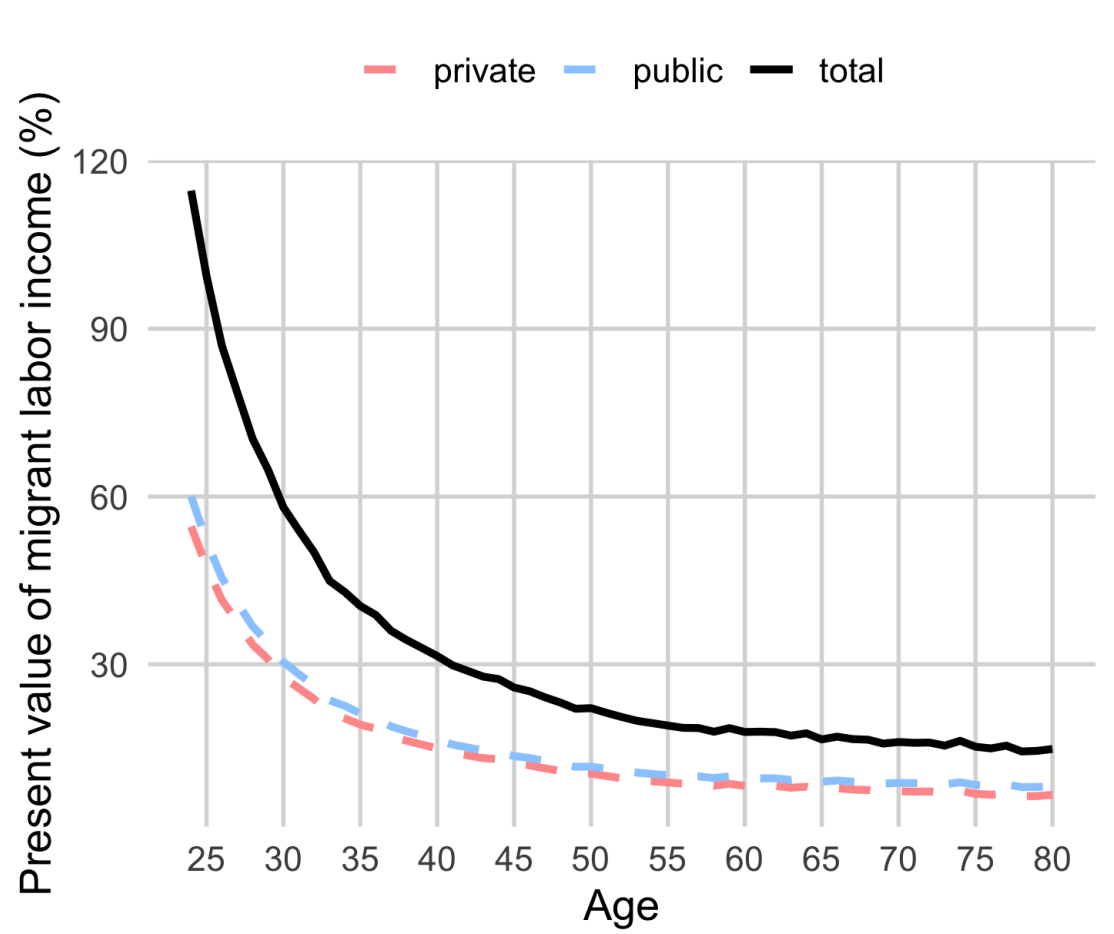
Present Value (in 2004) of All years of health

Investment in Human Capital

- **Present value of Human Capital** In vestment, relative to the **present value of migrant labor income** in 2004:
  - Total investment in educational capital was ~22%
  - Total investment in health capital ~ 5%
  - Total investment by the public sector was 12.5, and 14.1% for the private sector
  - **Total combined = 26.6%**



Investment in Human Capital by Age



- **Younger Immigrants**: High cost due to education/health investments in Mexico but limited labor income contribution.
- **Example**: For 25-year-olds, total investment = **100%** of potential labor income (~50% public, ~50% private).

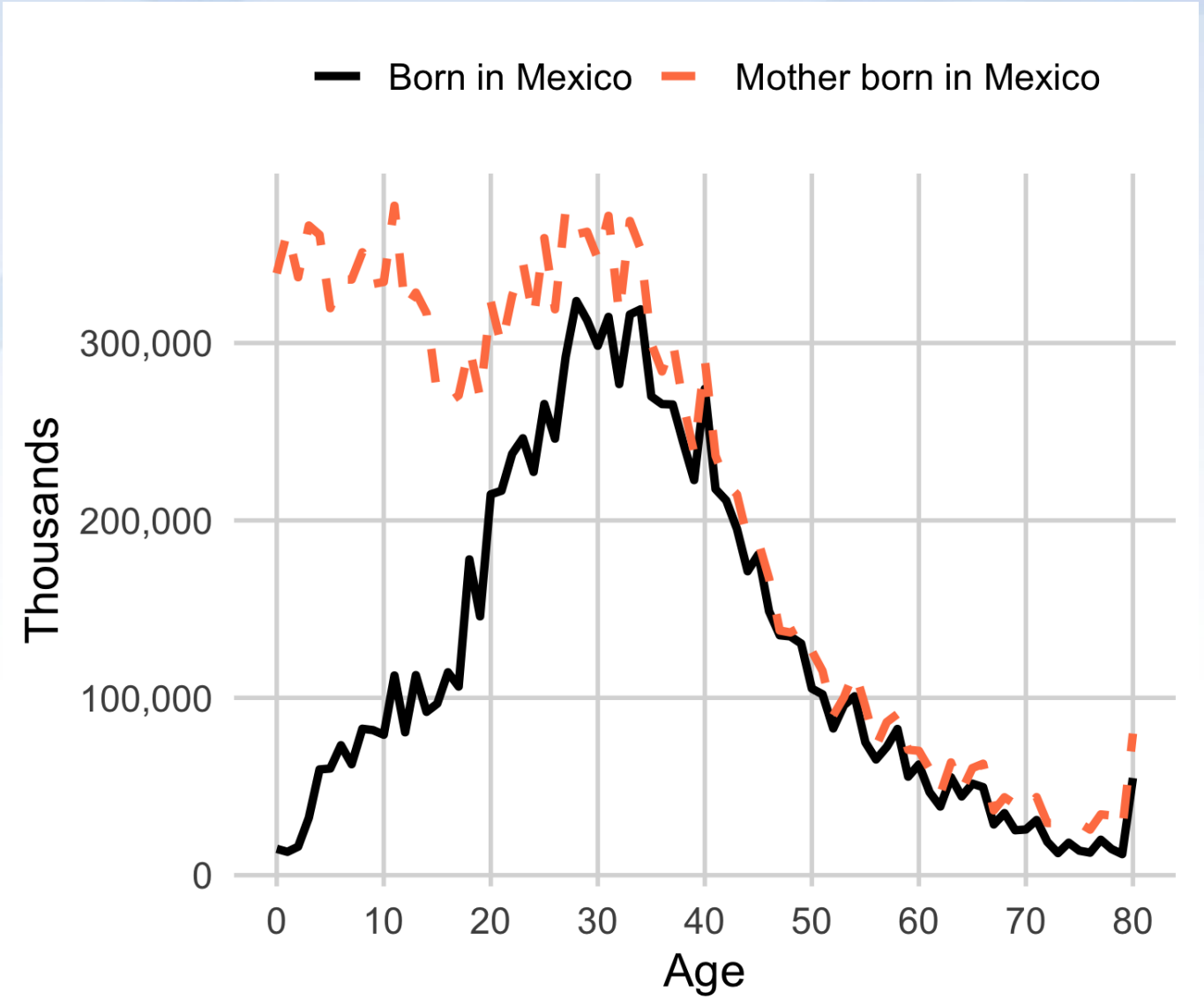
3. Other key considerations

- **Fertility**: First-generation migrants vs. mothers born in Mexico.
- **Socioeconomic Status**: Do emigrants behave like the average Mexican?
- **Multiplier Effects of Consumption**: How should multiplier effects in consumption (and remittances) be addressed?
- **Public Transfers**: What role do public transfers play?
- **Regional Effects**: Only a few states in Mexico are major migrant-sending regions.
- **Return Migration**: Emigrants who return to Mexico with skills acquired in the U.S.
- **Demographic Dividend**: Explored previously but merits a separate study.

Closing Remarks

1. **Are These Scenarios Realistic?**
   - While the scenarios rely on **strong assumptions**, they serve as valuable tools to:
     - Illustrate the **mechanisms** behind migration impacts.
     - Highlight the **resources** required for governments to retain their migrant populations.
2. **Policy Implications for Mexico**:
   - **Retention Strategies**: Invest in education, health, and job creation to reduce emigration incentives.
   - **Leverage Return Migration**: Support programs to reintegrate returning migrants with skills acquired abroad.
   - **Regional Focus**: Target policies in high-emigration states to address local economic and social challenges.

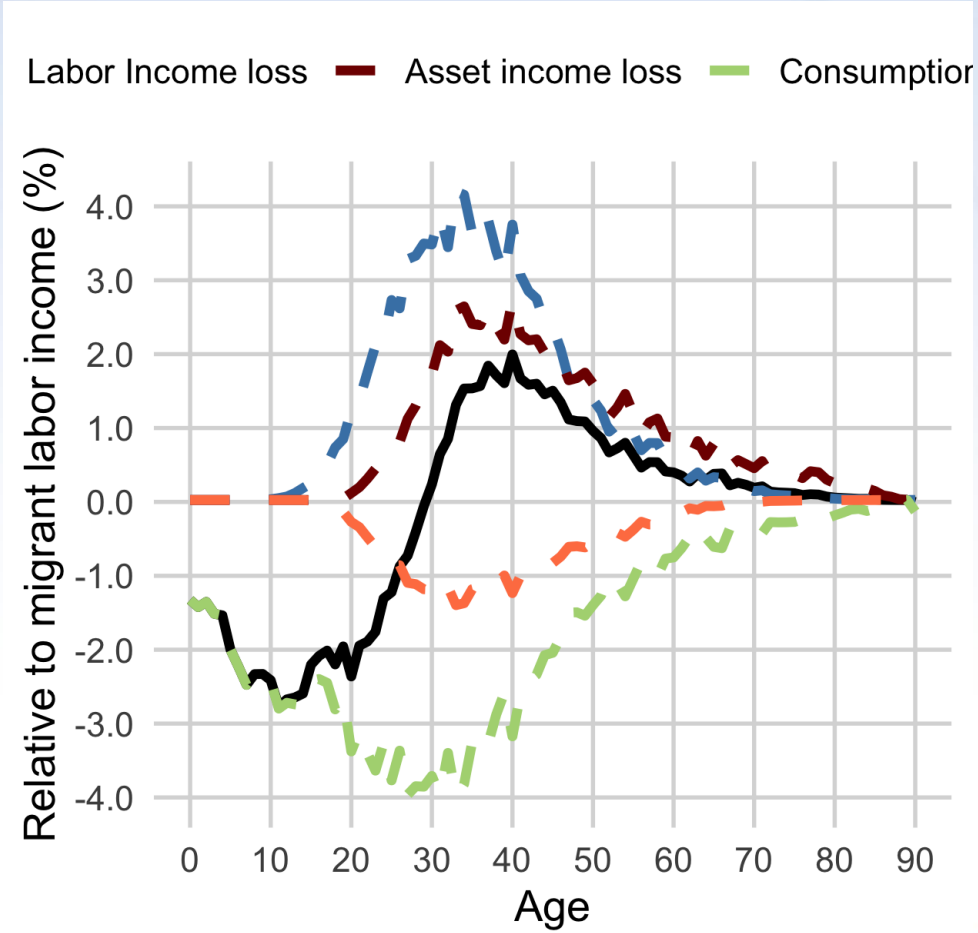
Fertility: First Generation Children



Fertility & Net effects by age and component

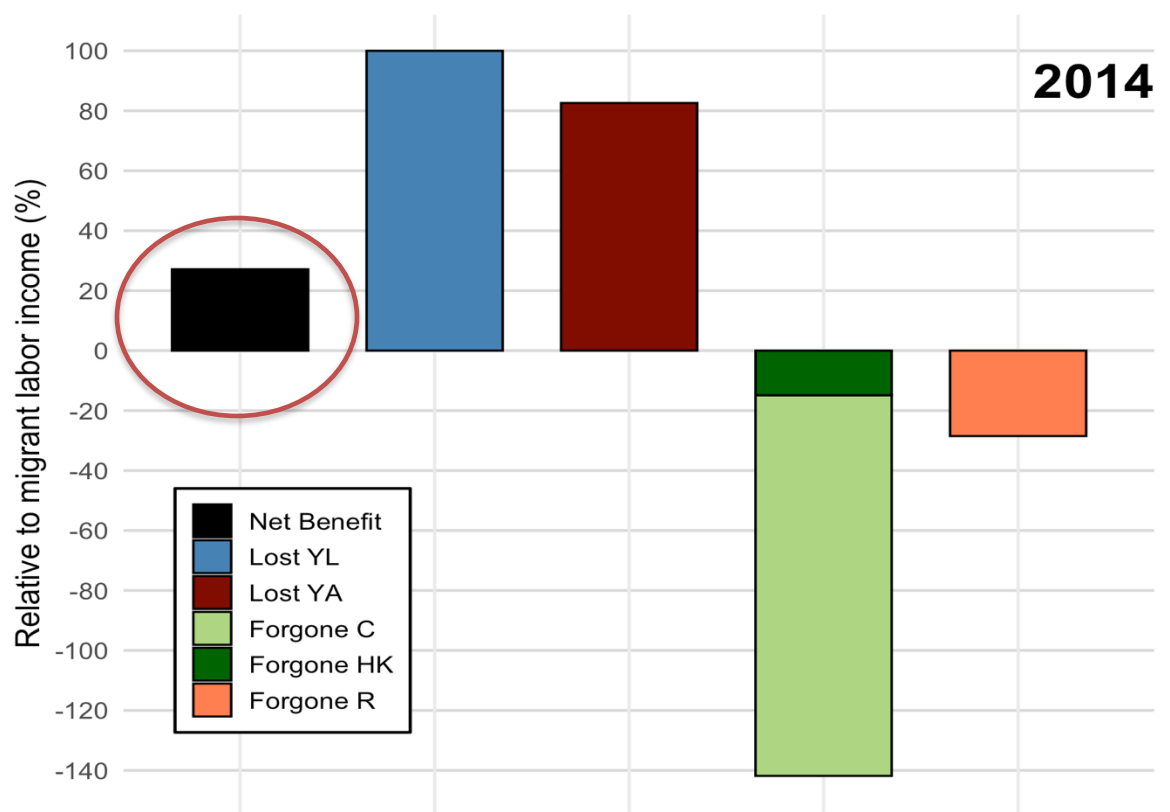
Born in Mexico

Mother born in Mexico

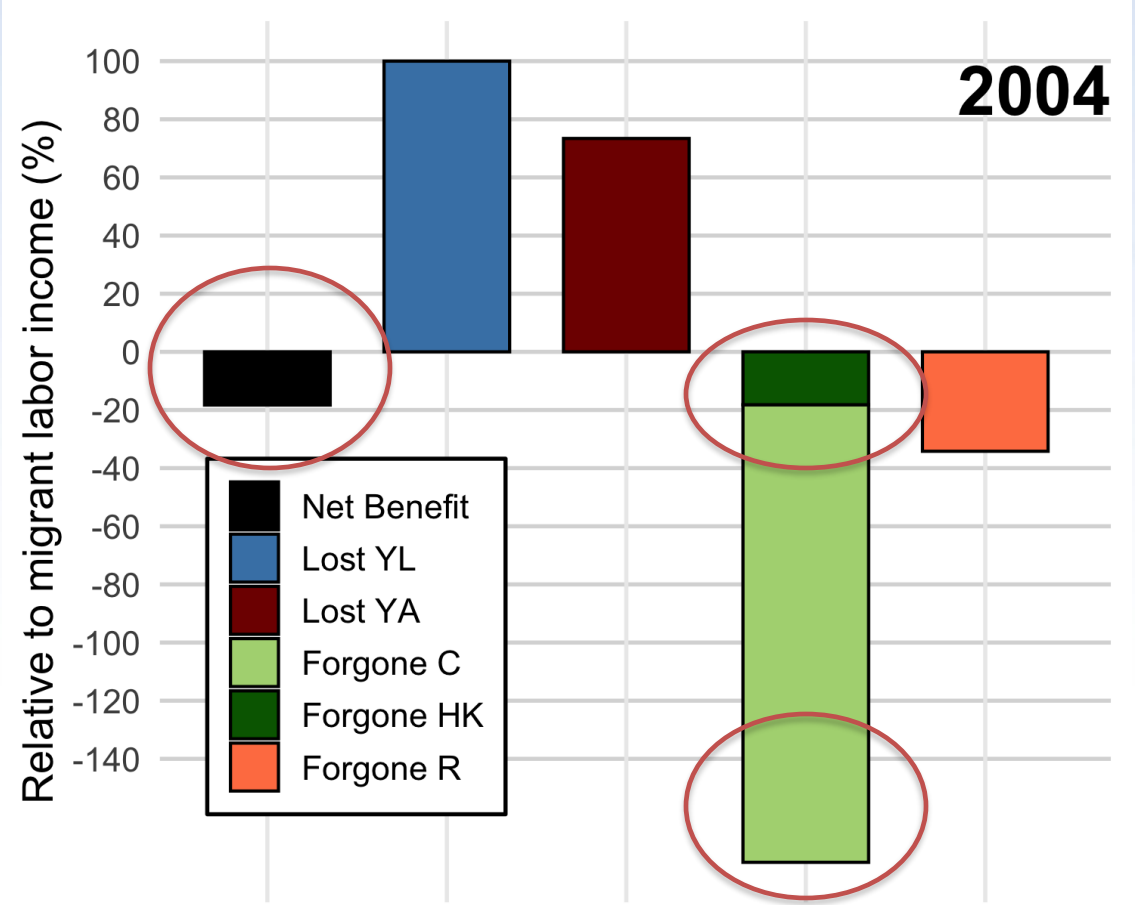


Fertility & aggregate effect by component

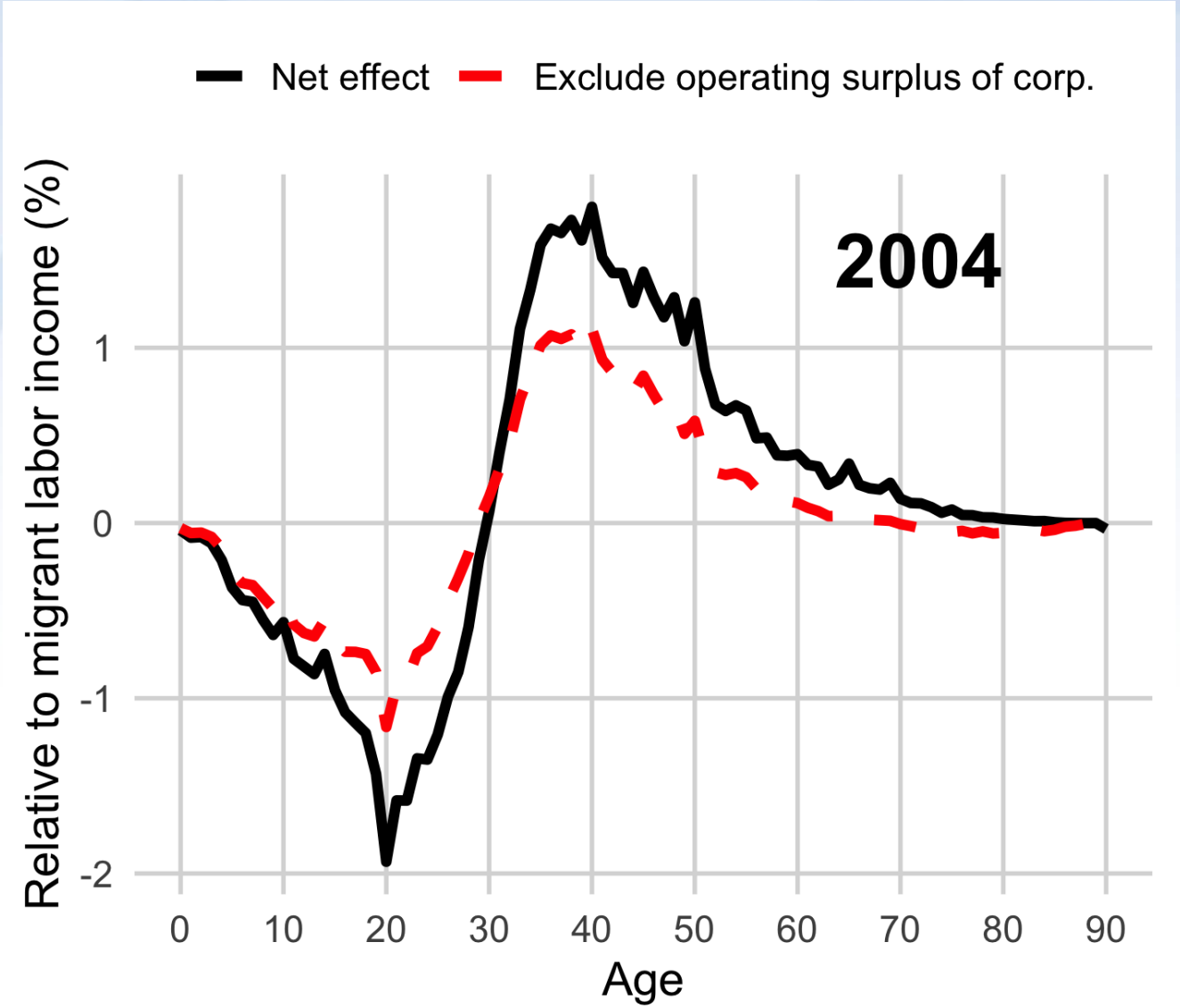
Born in Mexico



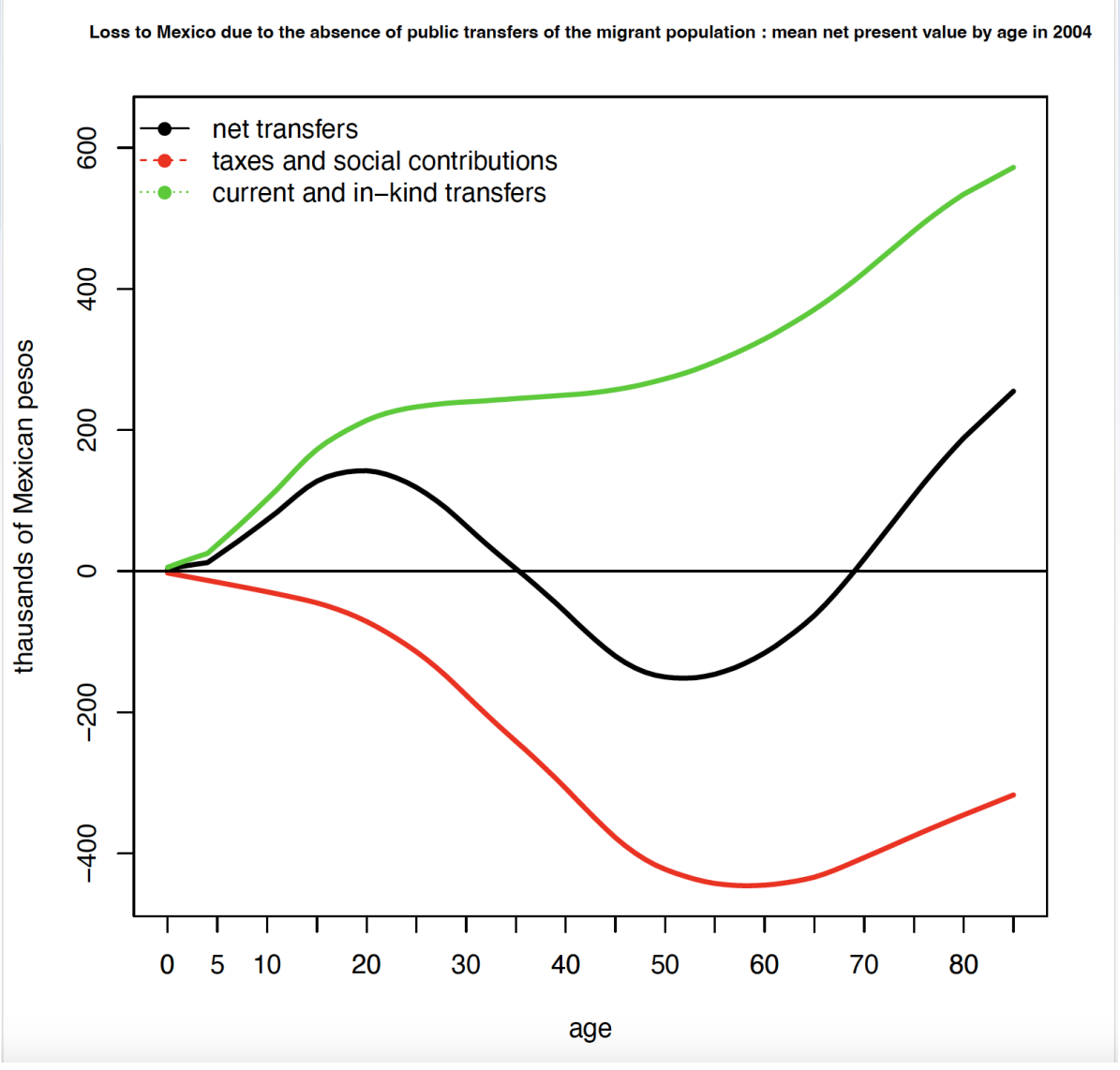
Mother born in Mexico



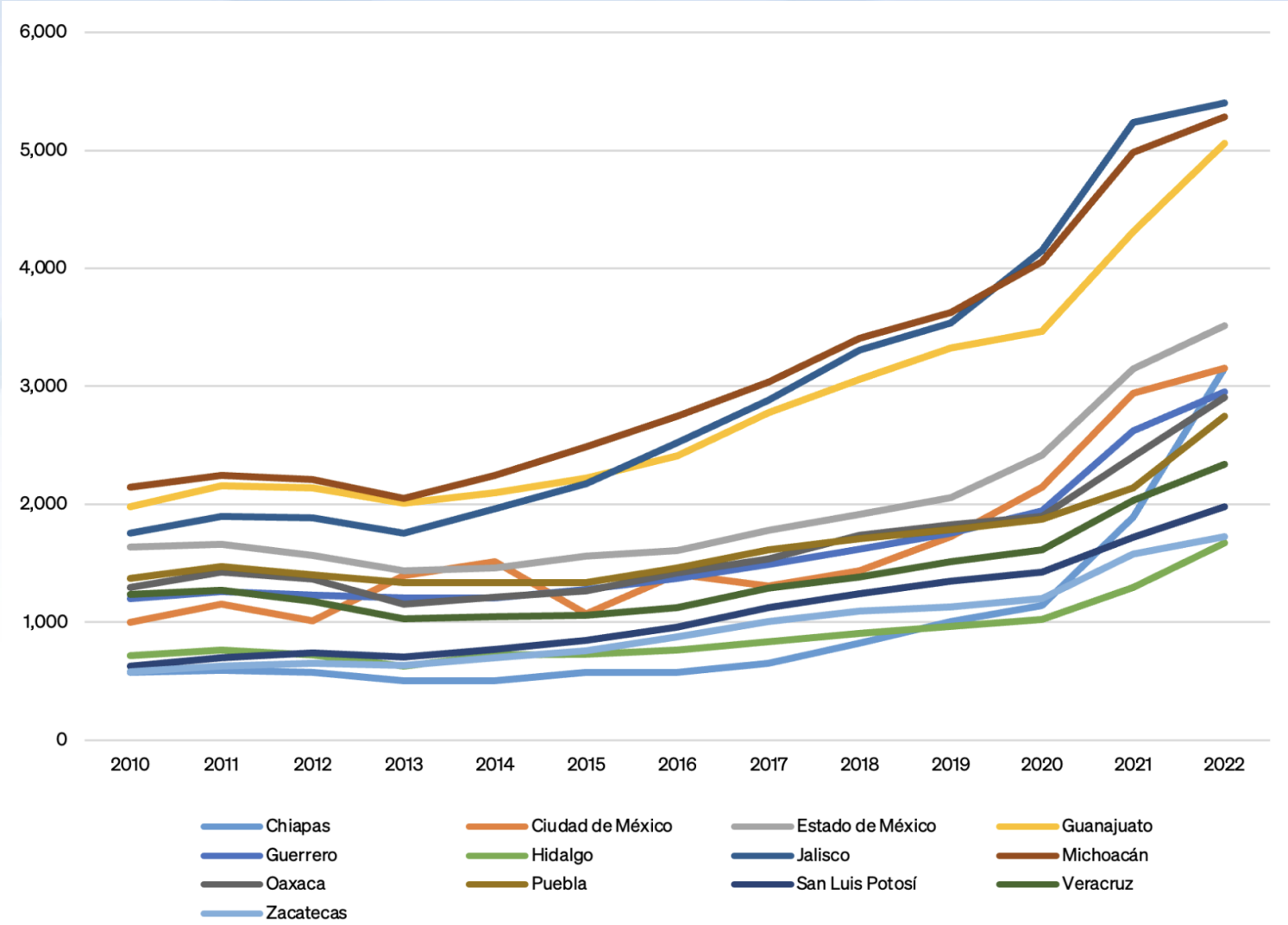
SES: With and without operating surplus of corporations



Public transfers



Regional effects



Source Data from the BANXICO, prepared by author.