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1. Background
Background

- Bloom and Williamson (1998)
- Mason and Lee (2006)
- Rentería et al. (2016)
- Mason, Lee and Jiang (2016)
- Sánchez-Romero (2018)
Educational expansion in Mexico (1970-2100)

Proportion relative to number of people aged 20-64
- Medium-Constant Enrollment Rate (CER)

Source: Authors’ with information from Wittgenstein Centre for Demography and Global Human Capital (Date last accessed, July 26)
Education dividend

Source: Rentería et al. (2016)
GDP per capita growth (%)

Most favorable period of the First DD ESR grew faster than the GDP per capita.

2. Motivation
Education and growth

• Effect of educational expansion on per capita growth

• Is educational achievement a mechanism for upward mobility for those raised in poverty?

• Education is correlated with income inequality
  – Closing the gap between SES groups can boost GDP?
Gender inequality in the labor force

• Closing the gaps between male and female employment may have important economic implications

• Reducing gender inequality could play a key role in addressing the twin problems of population ageing and pension sustainability

• **Caring work drains people of time, money and opportunities**
  – Gender division of labor is very traditional
  – Gender inequalities in time use and economic activity impact in different ways
Educational expansion in Mexico by sex (1970-2100)

Medium-Constant Enrollment Rate (CER)

Source: Authors’ with information from Wittgenstein Centre for Demography and Global Human Capital (Date last accessed, July 26)
Employment rates at age 15-64 by sex (OECD VS. LA)

Tasa de empleo de personas entre 15 y 64 años: promedio de la OCDE versus países latinoamericanos (por género, cifras de 2015)

- Total:
  - Promedio OCDE: 67.0%
  - Brasil: 64.4%
  - Chile: 62.4%
  - Colombia: 61.0%
  - México: 61.0%

- Hombres:
  - Promedio OCDE: 74.8%
  - Brasil: 75.7%
  - Chile: 73.0%
  - Colombia: 79.9%
  - México: 78.6%

- Mujeres:
  - Promedio OCDE: 59.4%
  - Brasil: 53.8%
  - Chile: 51.9%
  - Colombia: 56.0%
  - México: 45.1%

Sustainable Development Goals

- **SDG 5**: Achieve gender equality and empower all women and girls

- **SDG 10**: Reduce inequality among and within countries
Objective

• We keep these specific goals in mind to assess the economic effects of ageing in Mexico, where important gender and economic inequalities persist in the labor market.

• We build on the recent literature to analyze the combined effects of changes in the female labor supply and the expansion of education on the demographic dividend of Mexico.
3. Methods
Data

• National Income and Expenditure Surveys (ENIGH-INEGI)

• System of National Accounts (SCNM – INEGI)

• Administrative records (Cuenta Pública – SHCP)

• Wittgenstein Centre Data Explorer (1970-2100) – 1) Medium (SSP2), 2) Medium-Constant Enrolment Rate (SSP2-CER), 3) Medium Fast-Track Education (SSP2-FT)

• National Time Use Survey (ENUT 2014)

• National Survey on Occupation and Employment (ENOE 2014)
Table 1. Levels of education and equivalent years in the Mexican system.

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Level of education</th>
<th>Years of education (completed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>None, kindergarten, or incomplete primary</td>
<td>[0-6)</td>
</tr>
<tr>
<td>II</td>
<td>Primary or incomplete lower secondary</td>
<td>[6-9)</td>
</tr>
<tr>
<td>III</td>
<td>Lower secondary or incomplete upper secondary</td>
<td>[9-16)</td>
</tr>
<tr>
<td>IV</td>
<td>Undergraduate, Master or PhD</td>
<td>16 or more</td>
</tr>
</tbody>
</table>

Source: Own with information from ENIGH 1994 and 2004.

- Education levels of the household head account for income inequality more than some other factors?
We build on Mason (2005) and Mason & Lee (2006) to define the demographic dividend using the following expression:

\[ g(SR) = \frac{g(L) - g(C)}{L(T) - L(t)} - \frac{C(T) - C(t)}{C(t)}. \] (1)

After applying Das Gupta (1993) decomposition to the change of YL and C over time (T=t+x):

\[ L(T) - L(t) = (R_L(T) - R_L(t)) + (A_L(T) - A_L(t)) + (E_L(T) - E_L(t)) + (S_L(T) - S_L(t)) \]

\[ = R_L + A_L + E_L + S_L, \]

we can decompose (1) as:

\[ g(SR) = \frac{R(L) + A(L) + E_L + S_L}{L(t)} - \frac{R(C) + A(C) + E_C + S_C}{C(t)}. \] (2)
Demographic Dividend: Age, Education, and Sex Effects

• We use NTTA data disaggregated by SES to simulate the potential effect of increasing the labor force participation of women.

• We explore alternative scenarios that reflect productive activities with higher added-value, under different scenarios of educational expansion.
4. Results
Average labor income and consumption

Mexico 2014
Average labor income and consumption by sex

Mexico 2014

Men

Women

All
Average Labor Income and Consumption by Education of Household Head

Mexico 2014

Mexican pesos

Age

Average Labor Income and Consumption by Education of Household Head

Mexico 2014

Mexican pesos

Age

All levels
Life-cycle Deficit by Education of Household Head

Mexico 2014
Life-cycle Deficit by Education of Household Head

Mexico 2014

- Post-secondary
- All levels
- Less than primary

Mexican pesos

Age

Life-cycle Deficit by Sex and Education

Mexico, 2014

YL: Male
YL: Female
C: All

Age

Mexican pesos


0 100,000 200,000 300,000 400,000 500,000 600,000 700,000 800,000

Mexican pesos

NTA
Life-cycle Deficit by Sex and Education

Mexico, 2014

C: Less than primary
YL: Less than primary, Female
YL: Less than primary, Male
Life-cycle Deficit by Sex and Education

Mexico, 2014

C: Less than primary, Female
YL: Less than primary, Male

Mexican pesos

Age
Life-cycle Deficit by Sex and Education

Mexico, 2014

Age

Mexican pesos


YL: Post-secondary, Male
YL: Post-secondary, Female
C: Post-secondary
YL: Less than primary, Male
YL: Less than primary, Female
C: Less than primary

C: Less than primary, Female
Production and Consumption in the Home, by Age and Gender, Mexico 2014

[Graph showing production and consumption for males and females over age]

Female

Male

Relative to the maximum YL

Edad

Producción (hombres)  Consumo (hombres)  Producción (mujeres)  Consumo (mujeres)
NTTA by Education

Less than primary

- Women Production
- Women Consumption
- Man Production
- Man Consumption

Post-secondary

- Women Production
- Women Consumption
- Man Production
- Man Consumption
Economic Support Ratio by Sex under Different Scenarios of Education Expansion

**Male**

- **Stalled**
- **Medium**
- **Rapid**

**Female**

- **Stalled**
- **Medium**
- **Rapid**
5. Policy Considerations
Policy Considerations

- Promote access and quality of education (mostly tertiary)
- Continue addressing the gender gap in employment rates as well as in earnings and the prospective lack or lower pensions for women
- Anticipate a reform in the labor market to improve older workers’ incentives to work
- Remove barriers to the entry of younger workers into the job market, particularly women
- Low female employment is typically due to a combination of cultural and policy-related factors
  - Changes in social attitudes toward housework and carework