Demographic Change and Human Capital in Mexico and Texas

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Jno. E. Owens Memorial Foundation Conference
The Political Economy of Texas-Mexico:
Common Bonds, Shared Challenges

April 7-8, 2016
Federal Reserve Bank of Dallas
Questions?

• How has population growth changed in Mexico in recent decades?
  – How does it compare to population growth in US
  – What drove population growth?
  – Why has it changed?
  – What can we expect in the future?

• How are demographic changes related to changes in human capital?

• How does education of Mexico youth compare to education of Texas youth?

• Implications for labor market competition
Population of Mexico

Current population 127 million

61 million in 1975
More than doubled in 40 years;
Quadrupled in 65 years

Peak projected at 166 million in 2060

UN estimates and medium variant projections, 2015 revision
Mexico had annual population growth of over 3% per year, implying doubling time of 23 years.
United Nations Projections to 2040, Medium Variant

Annual population growth rate (%)

Mexico

Latin America

USA

0.6
Demographic Transition
Mexico, 1950-2015

Crude Birth Rate
Rate of Natural Increase
Crude Death Rate

per 1000 population
Replacement fertility

Echeverria’s family planning program introduced in 1974: “La familia pequeña vive mejor”

66% decline from 1970-75 to 2010-15; 96% decline relative to replacement fertility
Mexico’s fertility decline is similar to other Latin American countries, though it started a bit later.
Mexico’s current fertility rate is only slightly above US rate, and is projected to continue declining.
Percentage Age Distribution, Mexico 1980

Female

Male

Pct. 0-14
45.3

Pct. 15-64
50.9

Pct. 65+
3.8

1980
Percentage Age Distribution, Mexico 2015

Largest birth cohort born around 2000
Percentage Age Distribution, Mexico 1980 and 2015

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<tr>
<td>0-14</td>
<td>45.3</td>
<td>27.6</td>
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<tr>
<td>15-64</td>
<td>50.9</td>
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<tr>
<td>65+</td>
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Percentage Age Distribution, Mexico and USA 2015

<table>
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<tr>
<th>Age Group</th>
<th>Mexico</th>
<th>USA</th>
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<tr>
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<td>18.9</td>
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<tr>
<td>15-64</td>
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<td>14.8</td>
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Mexico population, 1950-2100

- **Children (0-14)**
  - 15 million in 1950, more than tripled
  - 1960-2000, currently 84 million, peaking at 105 million in 2050
  - 28 million in 1950, currently 127 million, peaking at 166 million in 2060

- **65+**
  - 1 million in 1950, now 8 million, rising to 50 million in 2100

- **Working age (15-64)**
  - 1.1 million in 1950, peaked at 36 million in 2010

UN Medium variant projections
Mexico population, age distribution

**Children (0-14)**
- 42% in 1950, peaked at 47% in 1975, now 27% and falling

**Working age (15-64)**
- 54% in 1950, now 66%, near peak

**65+**
- 3% in 1950, now 6%, rising to 34% in 2100

UN Medium variant projections
Mexico working-age population, (15-64) 1950-2100

UN Medium variant projections

Old (45-64)
- 3 million in 1950, currently 22 million, peaking at 42 million in 2065

Middle (25-44)
- 6 million in 1950, tripled 1960-2000, currently 38 million, peaking at 45 million in 2040

Young (15-24)
- 5 million in 1950, tripled 1960-2000, now peaking at 23 million

15 million in 1950, currently 84 million, peaking at 105 million in 2050
UN Medium variant projections

Mexico working-age population

Old (45-64) 22% in 1950, now 26%, rising to 43% in 2100

Middle (25-44) 43% in 1950, peaked at 47% in 2005, now 46%

Young (15-24) 35% in 1950, peaked at 38% in 1990, now 28% and falling
Trends in schooling

• What has happened to schooling in Mexico and Texas?

• Following slides look at schooling of cohorts
  – Percentage completing primary and secondary schooling
  – Average years of schooling completed

• Cohorts are shown in the year the cohort was age 10, roughly the time they were in school.

• Data are based on reports in 2010 Census for Mexico and US (via IPUMS-International)
Percentage of cohort with primary schooling, Mexico

Schooling increased rapidly in 1950s and 1960s, before fertility began to fall; gender gap has closed.

First cohort affected by Family Planning policy
Number of 10 year-olds grew over 3% per year from 1960-1980, a period of rapid increases in schooling attainment.
Secondary schooling has increased since 1980s, potentially due to declining family size and cohort size.
Mean years of schooling

Texas Female: 11.9
Texas Male: 9.7

Mexico Female: 10.2
Mexico Male: 9.7

Gap has fallen from 8 years to about 2 years for those currently age 25.
The percentage of the cohort with secondary schooling has increased over time in both Texas and Mexico. In Texas, the percentage of females has increased from approximately 70% in 1950 to 91% in 2000, while males have increased from about 80% to 85%. In Mexico, both males and females have shown an increase, with females starting at around 10% in 1950 and reaching 46% in 2000, and males starting at about 15% and reaching 42%.

Secondary schooling gap has narrowed, but is still large.
Falling family size and rising schooling

- How much of the increases in schooling in Mexico can be linked to declines in fertility?
- We have seen that schooling increased before fertility began to fall, so fertility decline cannot be responsible for those increases.
- The following graphs look at the relationship between family size and children’s schooling from 1970-2010.
- Focus is on 16-17 year-olds, since most will still live with their mother, allowing me to see the number of children ever born to their mother.
Schooling of 16-17 year-olds almost doubled, family size of 16-17 year-olds fell by almost half between 1970 and 2010.

Census data via IPUMS-International
Mexico has higher schooling at all family sizes than Brazil, with a flatter gradient.
Years of schooling of 16-17 year-olds, Mexico

Most of increase in schooling was due to upward shift of curve rather than movement along curve.
Increase in schooling of 16-17 year-olds from 1970, actual and predicted

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<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
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<tr>
<td>Actual change</td>
<td>3.0</td>
<td>3.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Family size</td>
<td>0.4</td>
<td>0.7</td>
<td>1.1</td>
</tr>
<tr>
<td>Mother's ed</td>
<td>0.4</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Both</td>
<td>0.7</td>
<td>1.2</td>
<td>1.7</td>
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% of 1970-2010 increase explained:
- Actual change: 24%
- Mother's ed: 36%
- Both: 54%
Are smaller families better educated families?

• Declining family size is one factor explaining the increase in education in Mexico.

• BUT

• Large increases in education took place before fertility declined.

• Rising education is itself important in explaining fertility decline.
  – Over 60% of declining family size can be attributed to increase in women’s education, most of which occurred before the introduction of family planning programs.

• The shift toward small families with high investments in children is an important part of economic development.

• But declines in family size alone probably explain only about 20% of the increase in education in Mexico between 1970 and 2010.
Implications for labor markets

• We have been through 60 years of rapid population growth in Mexico.
  – Population aged 15-44 more than tripled between 1960 and 2000, adding 35 million people

• Mexico’s youth population has reached its peak and is now declining
  – This is true in most of Latin America and Asia.

• The gap in education between Mexican youth and Texas youth has narrowed.

• Dynamics of labor markets and migration will be very different in the coming decades.