DEMOGRAPHIC DIVIDEND: IMPACT ON GROWTH IN SENEGAL

Motivation and objectives

- Get evidence of a long-term relationship between demographic dividends and the economic growth rate in Senegal

- What is its amplitude ?

Senegal context

- Population almost doubled in 25 years (RPGH-ANSD 2013)

– From 6,896,808 in 1988 to 13,508,15 in 2013

- UNPD Report (2014) ranks Senegal at 163rd place out of 187

- Poverty incidence estimate: 46.7% (ESPS-II-2011)

- 53.3% of householders estimate their economic situation worsened (ESPS-II-2011)

Senegal context

- Infant mortality rate is 54 per 1000 (RGPH-ANSD 2013)

- Crude death rate is 8 per 1000 (RCPH – ANSD 2013)

- High fertility rate is 5 children per woman (EDS)

Senegal context
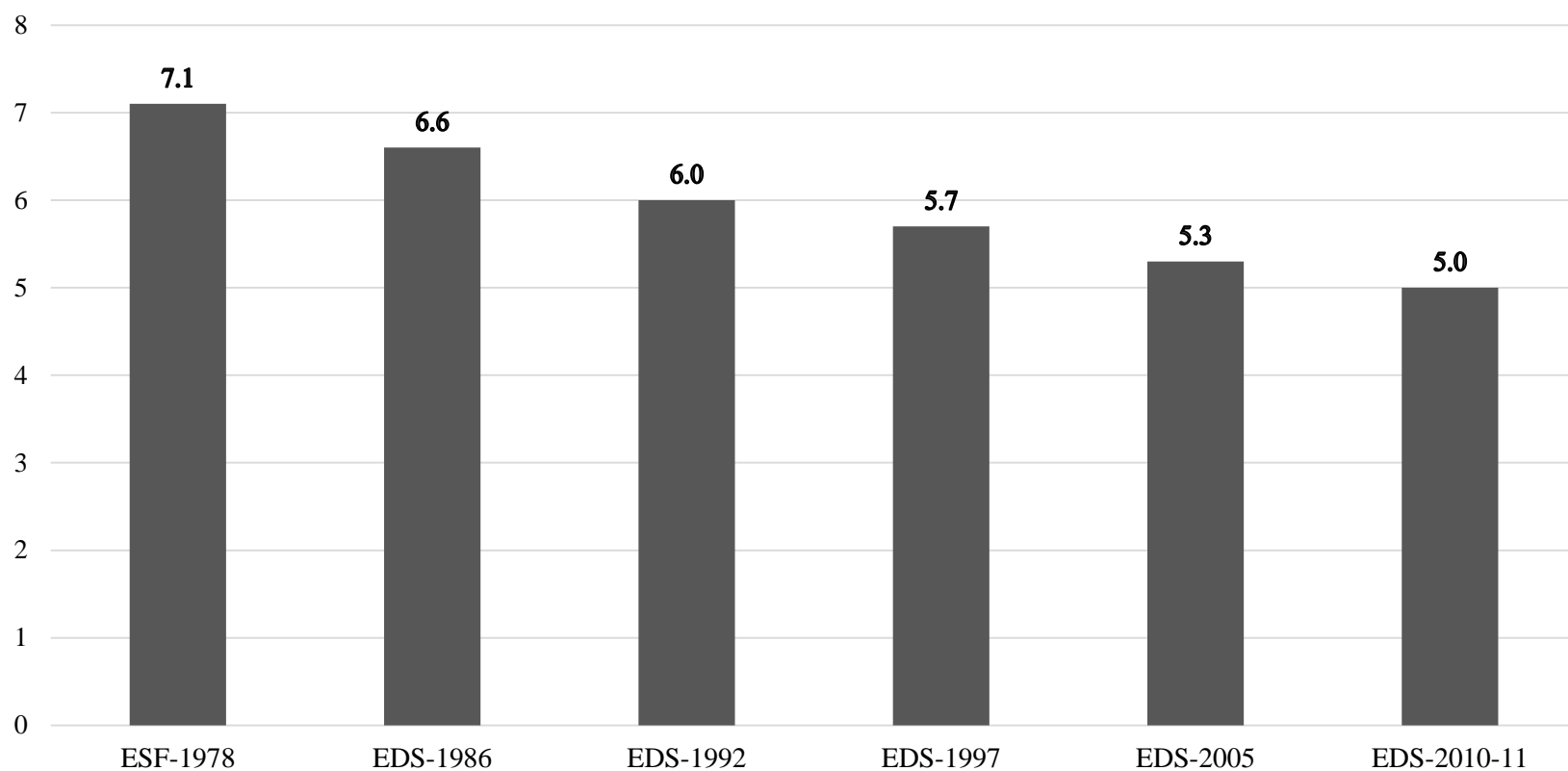
Fertility rate evolution. Source : ESF 1978 ; EDS I, II, III, IV ; EDS-MICS 2010-11.

Senegal context

- Population age structure (ANSD 2013)

  - Mean age close to 23 years old
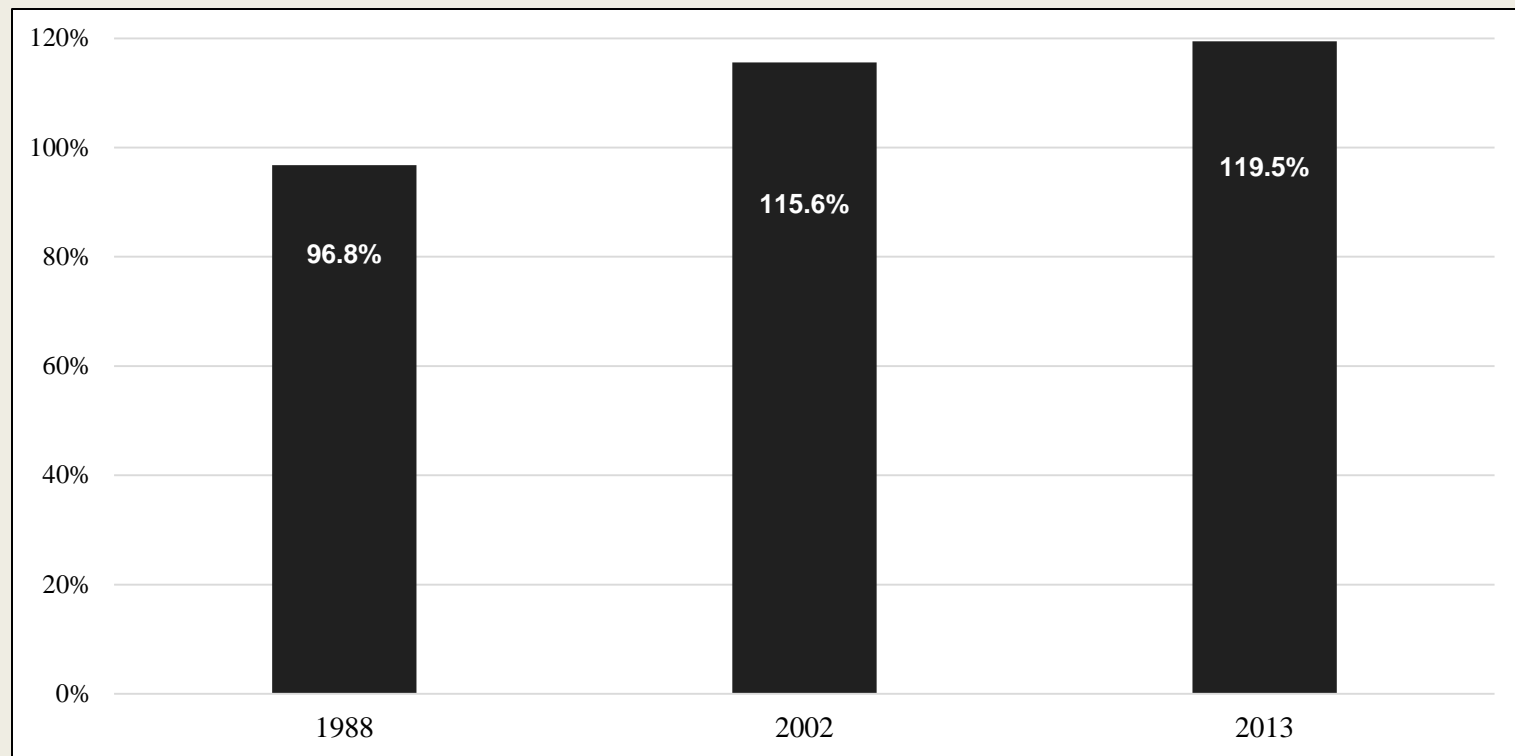
  - Median age close to 18 years old

Consequences: Increasing social demand and new challenges for health and education

Age dependency ratio

$$Ratio\ de\ dépendance = \frac{P_{0-15} + P_{65^+}}{P_{15-64}} * 100\%$$

Evolution of age dependency ratio in Senegal

Sources : RGPHAE 2013 and RGPH 2002, calculated by authors

Economic support ratio

Ratio between number of effective producers and effective consumers (Mason and Lee 2006)

Economic support ratio

- Mathematical approach (Cutler et al.)

$$RSE = \frac{L'}{N'} = \frac{\sum \gamma(a) P(a,t)}{\sum \phi(a) P(a,t)}$$

Economic support ratio

Influenced by six variables

Proportion 0-15 years old in the population

Proportion 65 years and abovee in the population

Consumption needs by age

Variation in retirement age
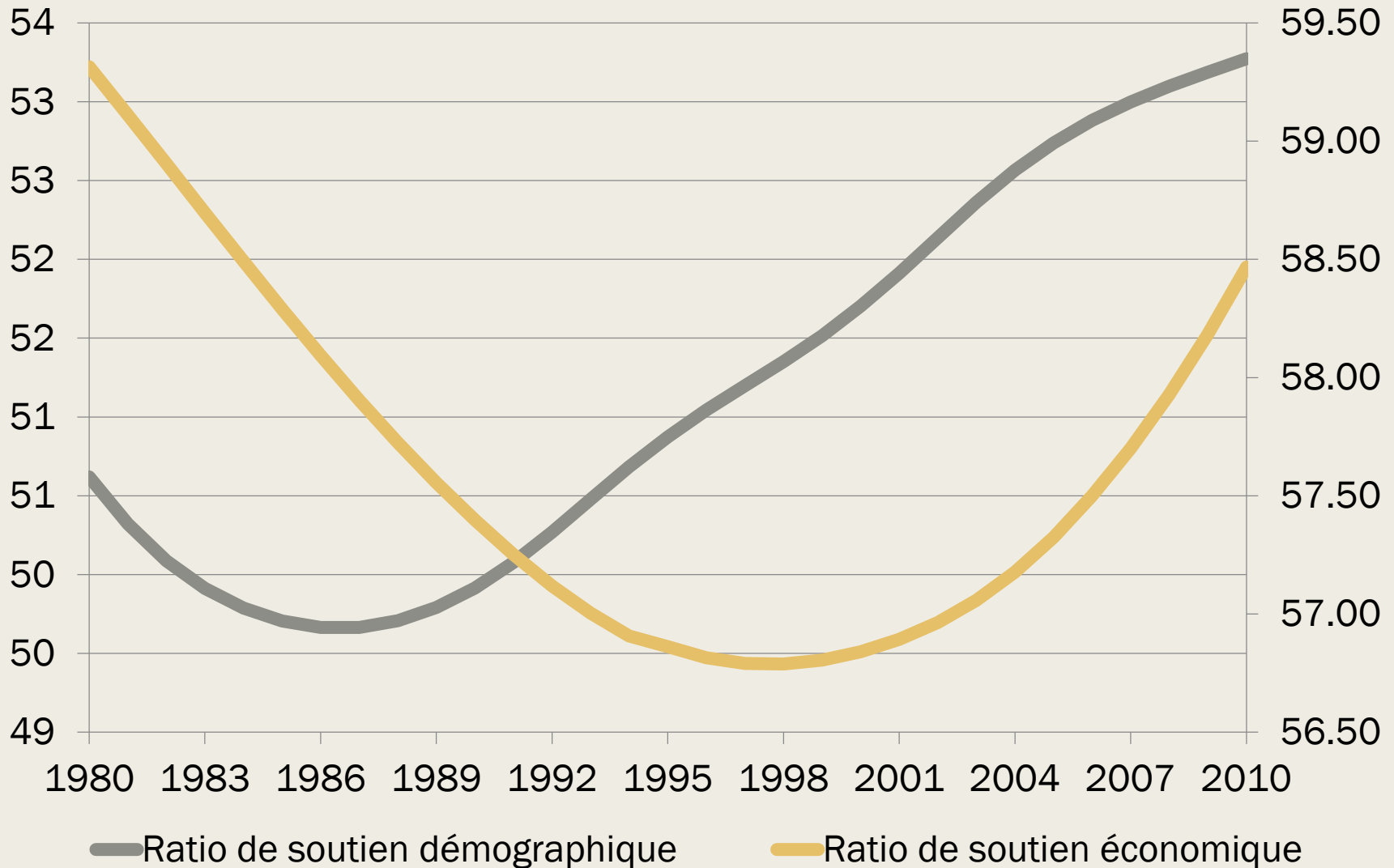
Labor force productivity

Population purchasing power

Economic support ratio

Reflects the effect of:

- Age structure on consumption and income generation

- Age profile on consumption and income generation

Comparative evolution

Ratio de soutien démographique ——— Ratio de soutien économique

Demographic Dividend mecanism

- **First Dividend**
  – Due to positive growth of the economic support ratio

- **Second Dividend**
  – Return on investment in human capital and other structural investments in public and private savings

Demographic dividend mecanism

$$\log(\frac{Y}{N})=\log(\frac{Y}{L})+\log(\frac{L}{N})$$

Mason and Lee (2006)

Demographic Dividend

Economic growth depends on productivity growth

Economic growth depends on support ratio growth

The support ratio growth gives entitlement to first Demographic Dividend

Problem

What is the impact of Demographic Dividends on economic growth in Senegal?

Methodology

- **A regression model on data series from 1980 to 2010 of per capita GDP growth based on:**

  – *Growth of support ratio variable*

  – *Growth of GDP per producers variable*

  – *A constant*

  – *A correction term*

- ***Other control variables such as:***

  – *Investment growth rate*

  – *Electricity consumption growth*

  – *Inflation rate*

  – *Education growth rate*

Results

Long-term relation	
GDP per capita	Impact
GDP per producer	**
Support ratio	***
Investment rate	
Energy consumption per capita	
Inflation rate	
enrollment rate	***
Cste	***
Observations	31
R^2 ajusted	0.91
$F_{(6,24)}$	57.16
Prob > F	0.00

Short -term relation	
GDP per capita	Impact
GDP per producer	**
Support ratio	***
Investment rate	
Energy consumption per capita	
Inflation rate	
enrollment rate	***
ECM(-1)	***
Observations	30
R^2 ajusted	0.5072
$F_{(5,25)}$	7.16
Prob > F	0.00

Results

- **Long-term relationship between the growth of the support ratio and the economic growth rate**

- **Meaning and amplitude:**

  – The Demographic Dividend positively influences economic growth

  – A 1% increase in the support ratio gives rise to a 3.7% increase in per capita income in the long term

Results

- **Long-term relationship between the productivity rate and the economic growth rate**

- **Meaning and amplitude:**

  – Productivity growth has a positive influence on economic growth

  – A 1% increase in the productivity rate gives rise to a 0.4% increase in per capita GDP in the long term

Results

- **Positive impact of the education rate on per capita GDP in the long term**

– A 1% increase in the education rate gives rise to a 0.3% increase in per capita GDP in the long term

Policy implications

- ***Education***

    - *Prolonge schooling;*

    - *Provide training in skills specific to high-growth sectors*

- ***Employment and economy***

    - *Create decent jobs in a flexible labor market*

    - *Provide good political governance in a stable environment*

THE END