policy

The DemDiv Model: A New Tool for FP Advocacy

Liz Leahy Madsen

AFP Partners Meeting

May 22, 2014

USAID FROM THE AMERICAN PEOPLE

HEALTH POLICY PROJECT

Presentation outline

- Why make a model to project the demographic dividend?
- Overview of DemDiv model
- Kenya results
- Uganda results
- Small group work

The demographic dividend is a great opportunity, but…

- Need to address two common misconceptions:

  1) A youthful population is not conducive to a dividend.

  2) Even with population change, the benefits aren't automatic.

- How does a country achieve a dividend—specifically?

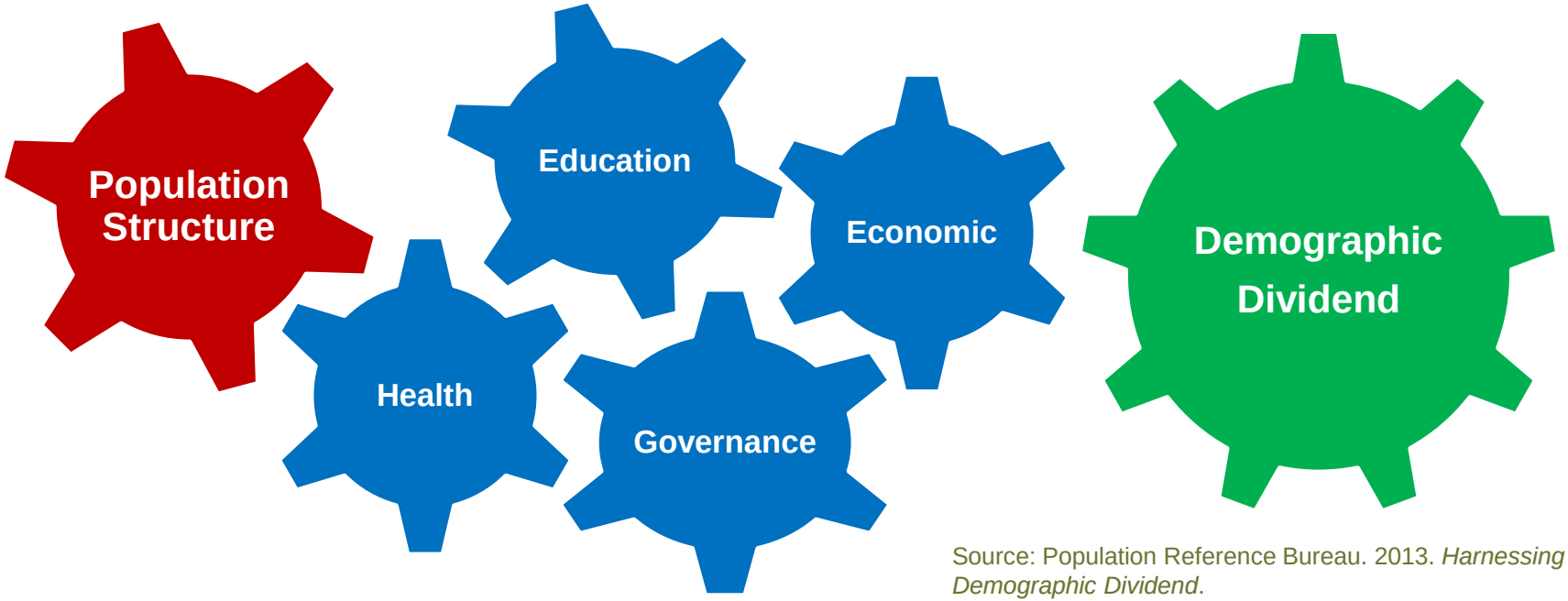
  - Going beyond "young people need jobs," etc.

  - AFP Partner: *"I lack info on concrete examples of specific policies that national governments have taken to respond to the opportunity it presents."*

- Moving beyond our FP comfort zone

Demographic dividend refresher

- As countries transition from high-mortality, high-fertility to low-mortality, low-fertility, the population's age structure changes.
- As the resulting "youth bulge" moves into working-age groups, the ***dependency ratio*** falls, creating a temporary "window of opportunity."
- Investment, productivity and per capita income can increase.
- Requires: increased CPR; employment opportunities; sound political, economic, and financial institutions; quality of education and healthcare, etc.



Source: Population Reference Bureau. 2013. *Harnessing the Demographic Dividend*.

Overview of the DemDiv model

Purpose of DemDiv

- Build on the longstanding interest in the relationship between population growth and economic growth
- Quantify specific policies that may help a country achieve a demographic dividend
- Demonstrate that multisectoral, interacting policies are more effective than emphasizing any single sector
  - Realizing a dividend requires economic and human capital policies in addition to demographic ones
- Target audience: Influential policymakers outside the health sector
  - Appropriate for any high-fertility country

DemDiv basics

- Core model relating FP, population age structure, socioeconomic policies, employment, and the economy
- Statistically rigorous and evidence-based
- Makes projections for multiple scenarios
- Customizable to each country's context
- User-friendly and open access
  - No special or proprietary software
  - Data available from public sources

Model design

- Two linked sub-models: demographic and economic
- User designs up to three policy scenarios for the future, plus a base scenario
- Uses cross-national regression to estimate changes in social and economic indicators
- Standard projection period is 2010 to 2050—can be adjusted
- Uses Microsoft Excel, automatically linked to the DemProj model in Spectrum (open access)

DemDiv policy inputs and outputs

Inputs	Outputs
Financial market efficiency	Population by age and sex
Labor market flexibility	Dependency ratio
Public institutions	Infant, child, and maternal mortality
Imports as % of GDP	Fertility rate
Info & comms technology use	Life expectancy
Male and female education	Labor force by age and sex
Family planning	Employment
Girls' education	Investment
	GDP and **GDP per capita**
	GDP growth rate

Demographic submodel structure

Calculates:

Total fertility rate

- Uses Bongaarts proximate determinants model
- CPR, postpartum infecundability, sterility (set by user)
- Percentage married as a function of education
- Feedback loop between education and fertility

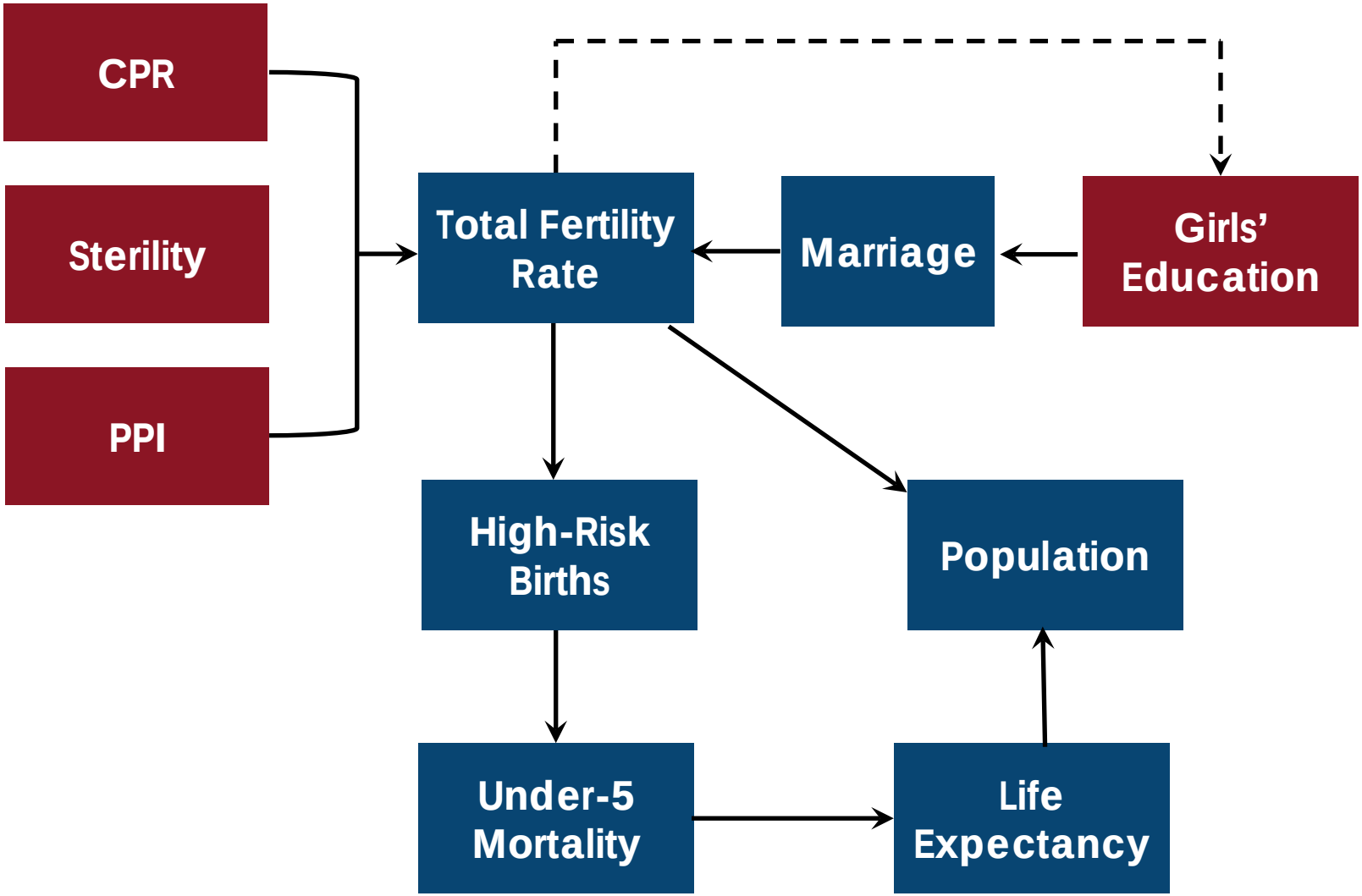
Life expectancy

- Function of fertility→high-risk births→child mortality

Population

- Based on fertility and life expectancy

Demographic sub-model



Economic submodel structure

Calculates GDP per capita as a function of:

Capital (investment)
- GDP/working-age population
- Age structure
- Financial market efficiency

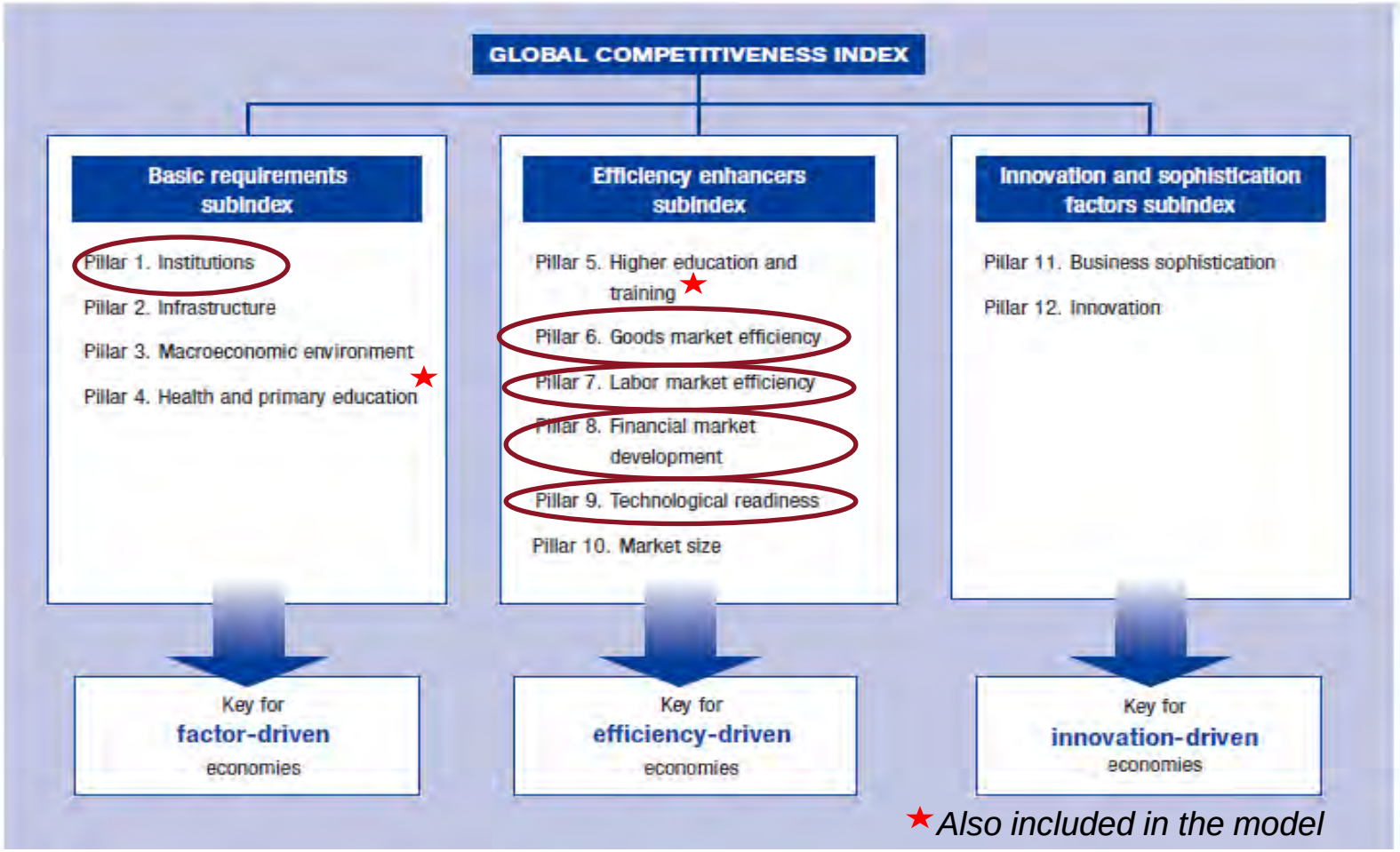
Employment
- GDP change
- Age structure change
- Labor market flexibility

Productivity
- Institutions
- Technology
- Imports

Education

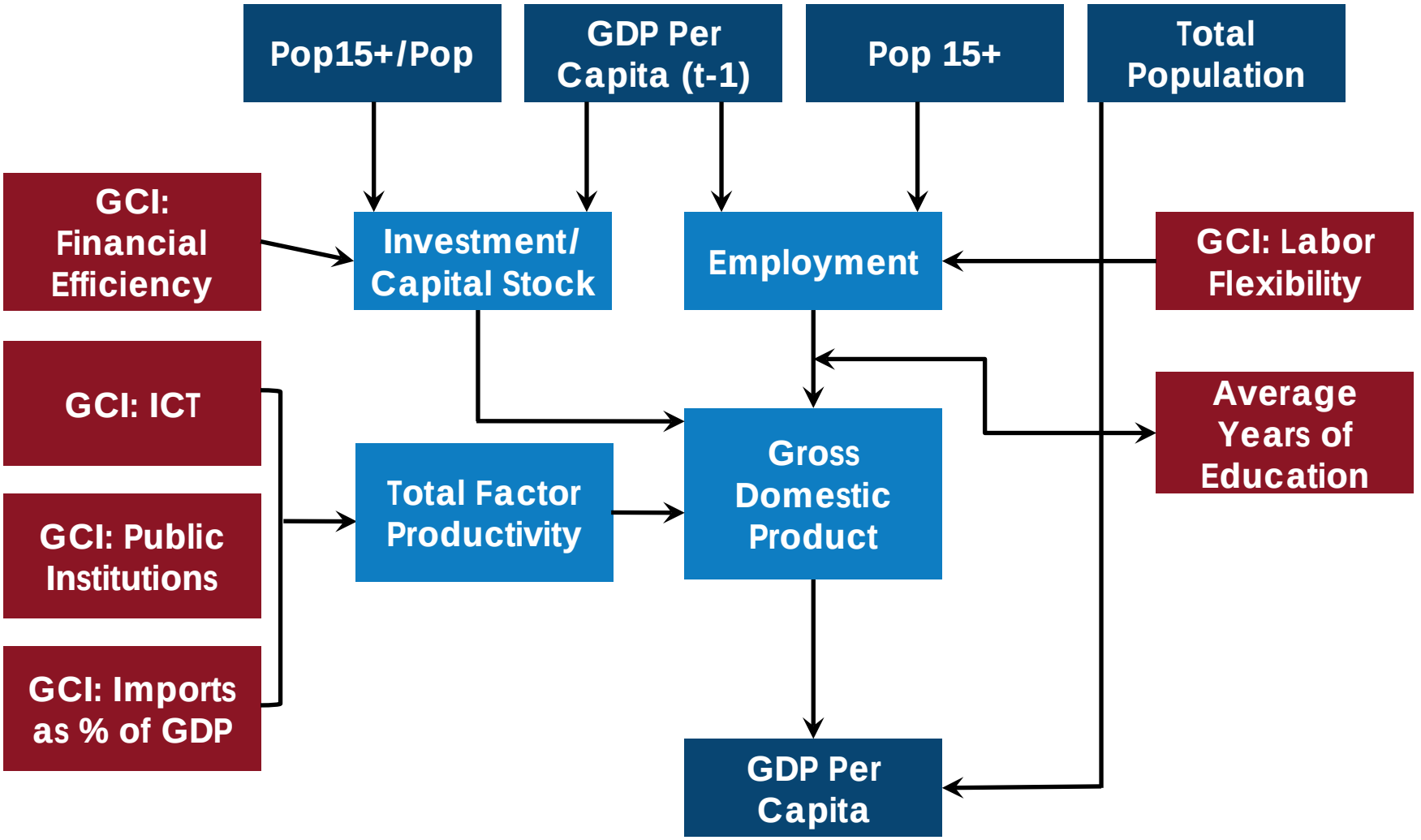
The Global Competitiveness Index

Figure 1: The Global Competitiveness Index framework



Source: Schwab, K. 2013. *The Global Competitiveness Report 2013–2014: Full Data Edition.* Geneva: World Economic Forum.

Economic sub-model



DemDiv Kenya results

“A globally competitive and prosperous nation with a high quality of life.”

Kenya Vision 2030

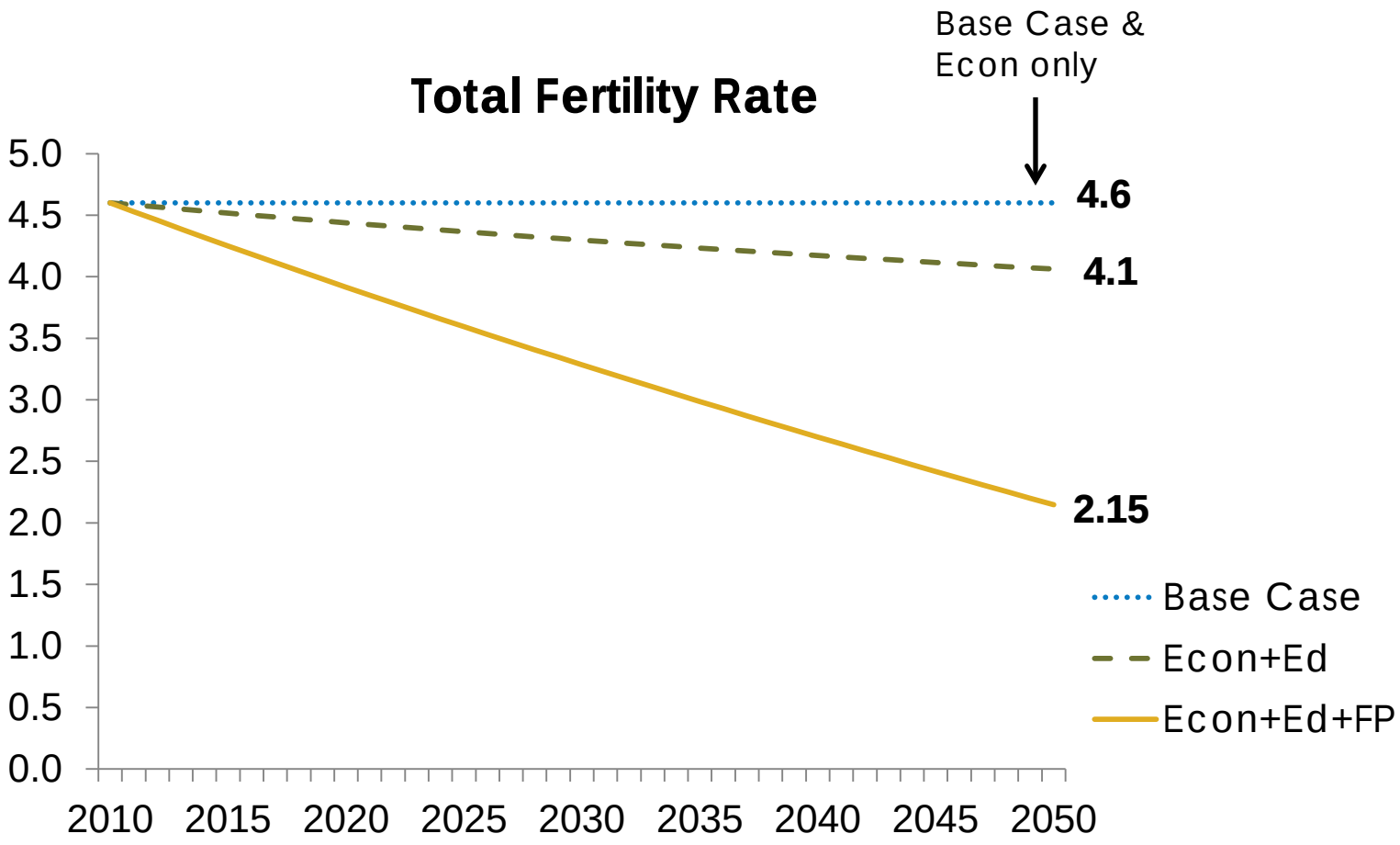
Scenario data and projections: Family planning and education

KENYA		Education				Family Planning		
Scenario Name	**Value in:**	**Expect Years Female**	**Mean Years Female**	**Mean Years Male**	**Mean Years Both**	**CPR**	**PPI**	**Sterility**
	2010	11	5.44	7.10	6.27	51.1	10.3	0.7
Base Case	2050	11	5.44	7.10	6.27	51.1	10.3	0.7
Econ only	2050	11	5.44	7.10	6.27	51.1	10.3	0.7
Econ+Ed	2050	16	11	11.50	11.25	51.1	10.3	0.7
Econ+Ed+FP	2050	16	11	11.50	11.25	70.0	10.3	0.7

Scenario data and projections: Economic policies

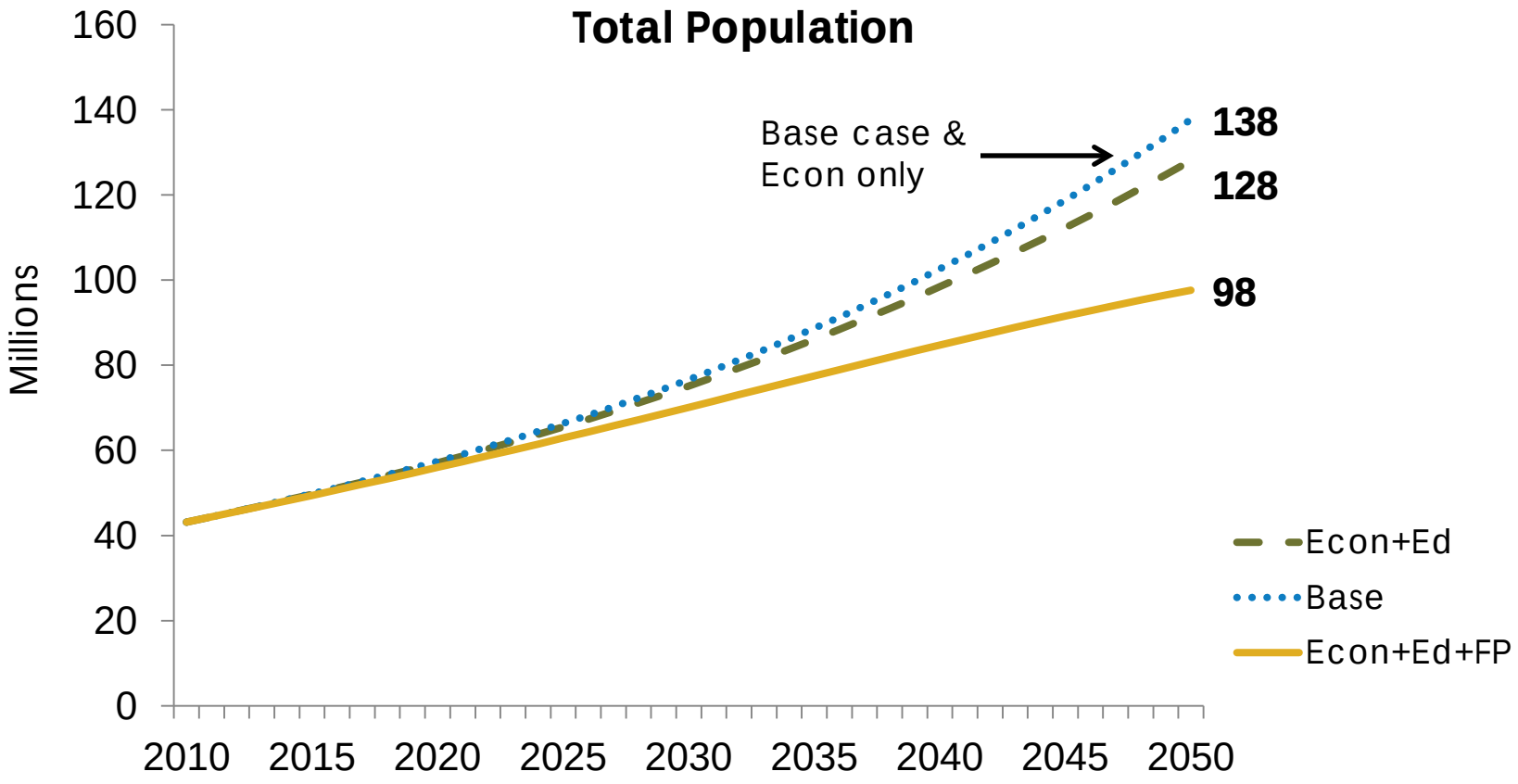
KENYA		Economic				
Scenario Name	**Value in:**	**GCI 7A: Labor Market Flexibility**	**GCI 9B: ICT Use**	**GCI 8A: Financial Market Efficiency**	**GCI 1A: Public Institutions**	**GCI 6.14: Imports %GDP**
	2010	4.65	1.94	3.87	3.49	42.62
Base Case	2050	4.65	1.94	3.87	3.49	42.62
Econ only	2050	4.89	5.00	4.90	4.71	29.83
Econ+Ed	2050	4.89	5.00	4.90	4.71	29.83
Econ+Ed+FP	2050	4.89	5.00	4.90	4.71	29.83

Fertility



Family planning has the largest effect on fertility, lowering it to around two children per woman.

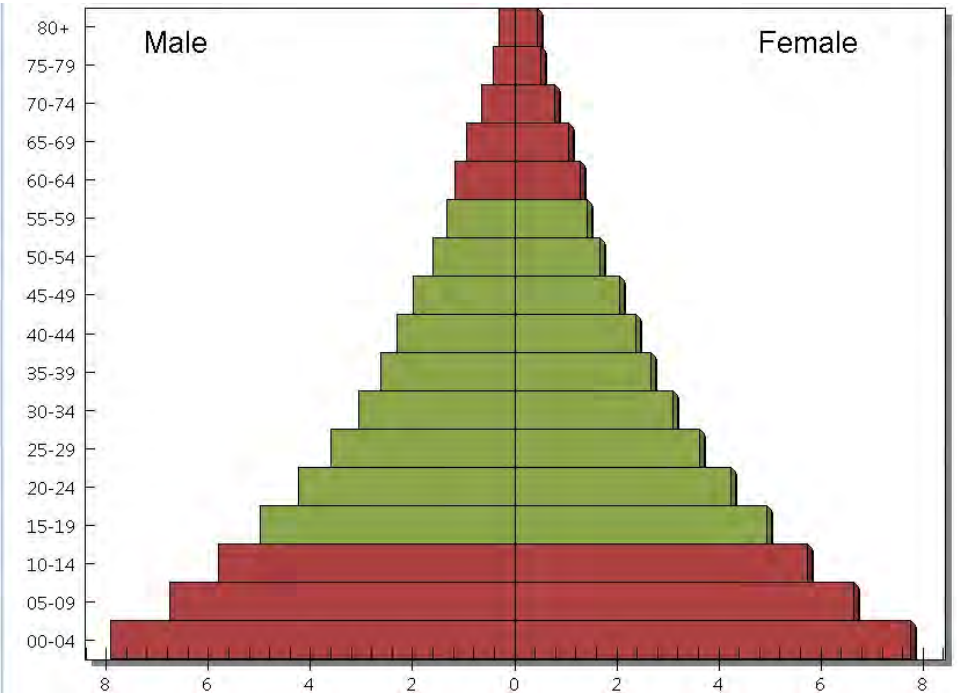
Population



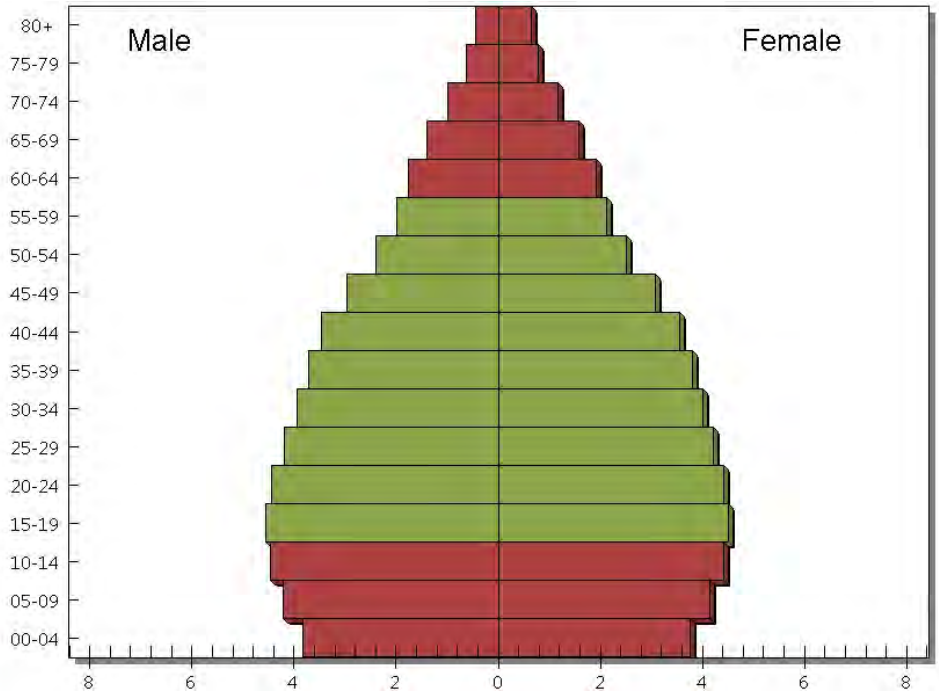
The lower fertility rate in the combined scenario results in a smaller total population.

Age structure

2050 base scenario



2050 combined scenario

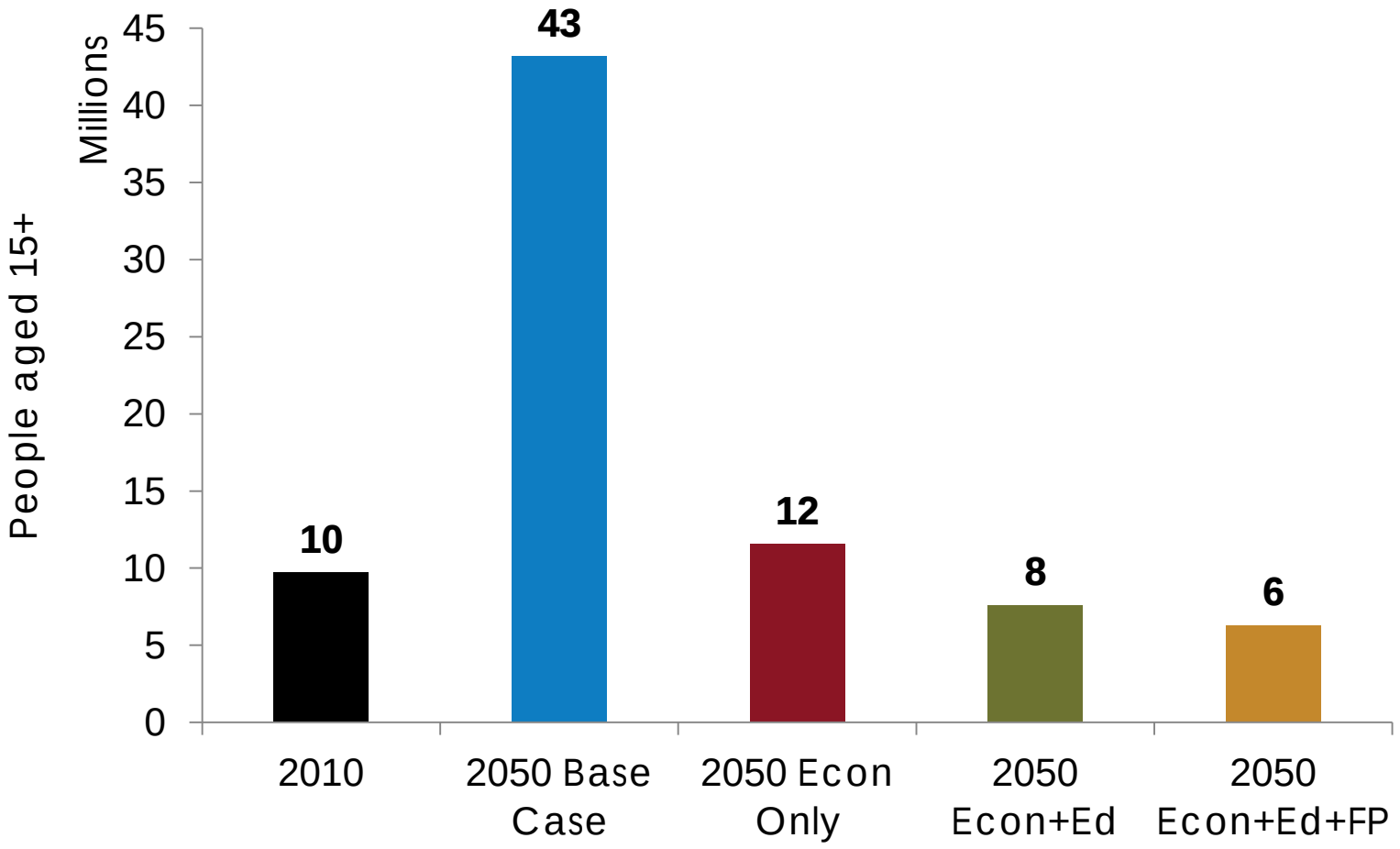


Percent Of Total Population

With constant TFR, Kenya's age structure remains very young and dominated by dependents.

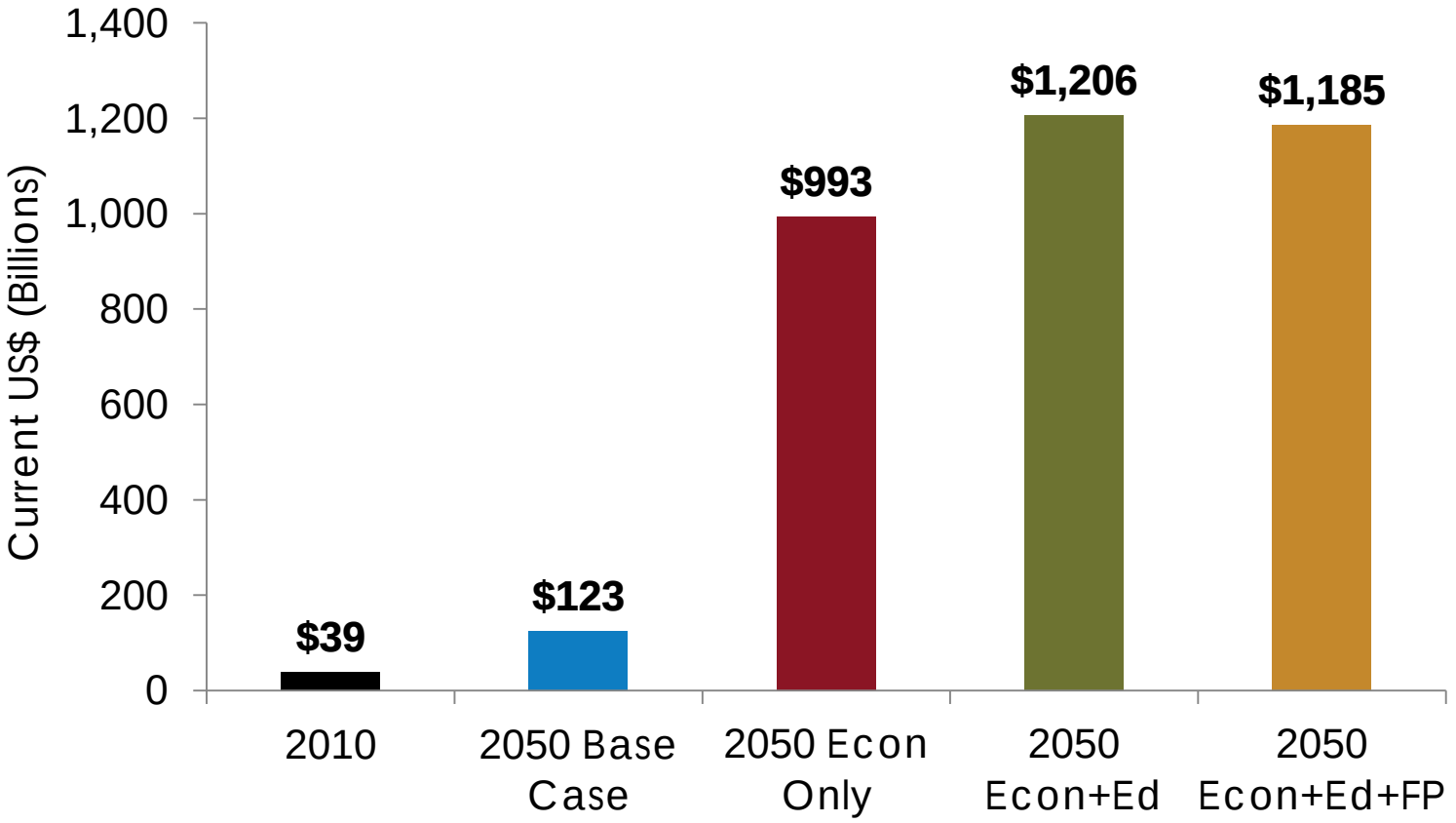
The Econ+Ed+FP scenario produces the youth bulge, which is beginning to move into working-age years.

Employment gap (pop ages 15+)



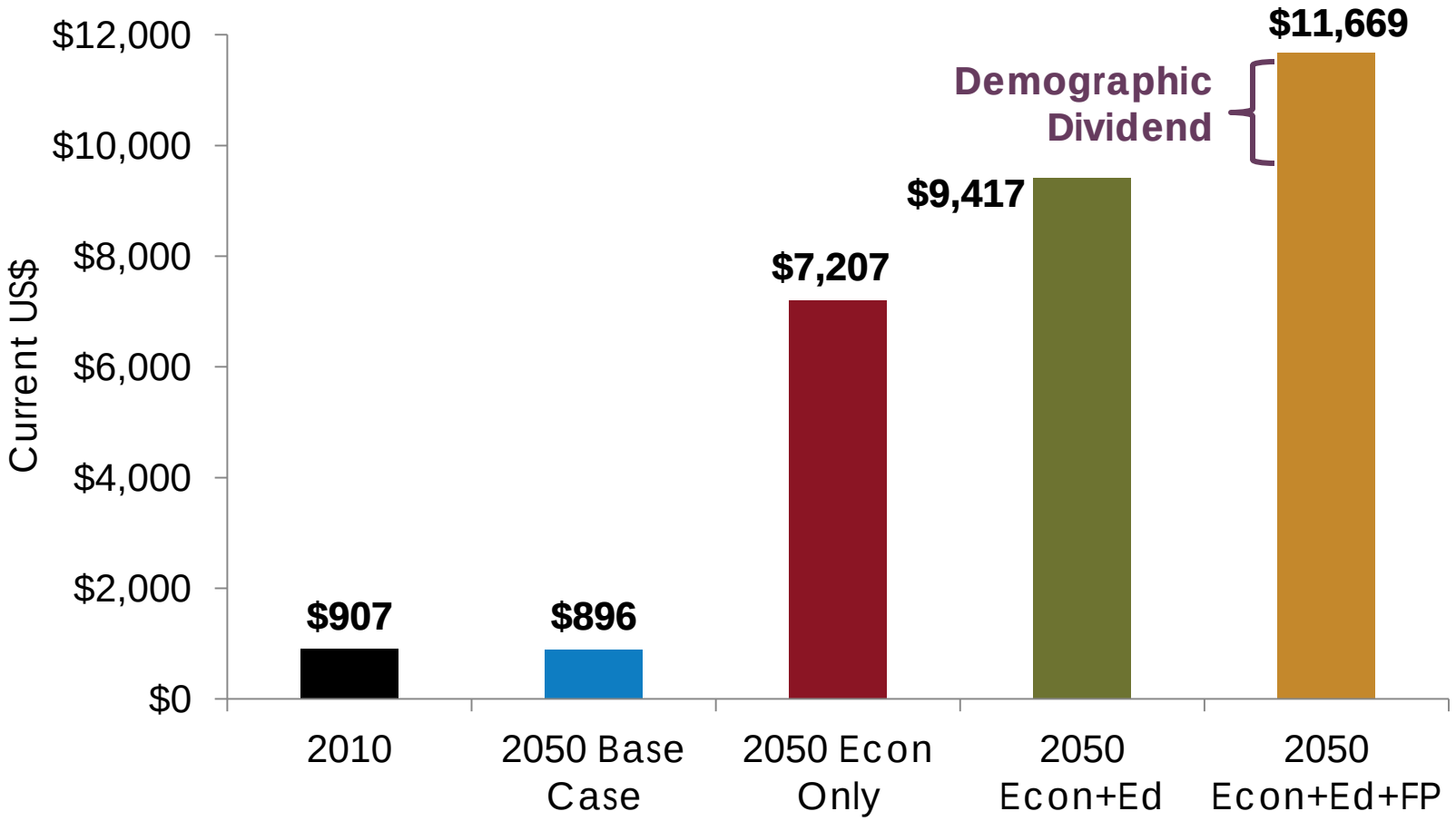
Combined FP, economic, and education policies produce the smallest employment gap.

GDP



Combining economic and social sector policies substantially increases GDP.

GDP per capita



By 2050, GDP per capita is nearly 13 times higher in the combined scenario than in the Base Case, and FP and education both generate large increases.

DemDiv Uganda results

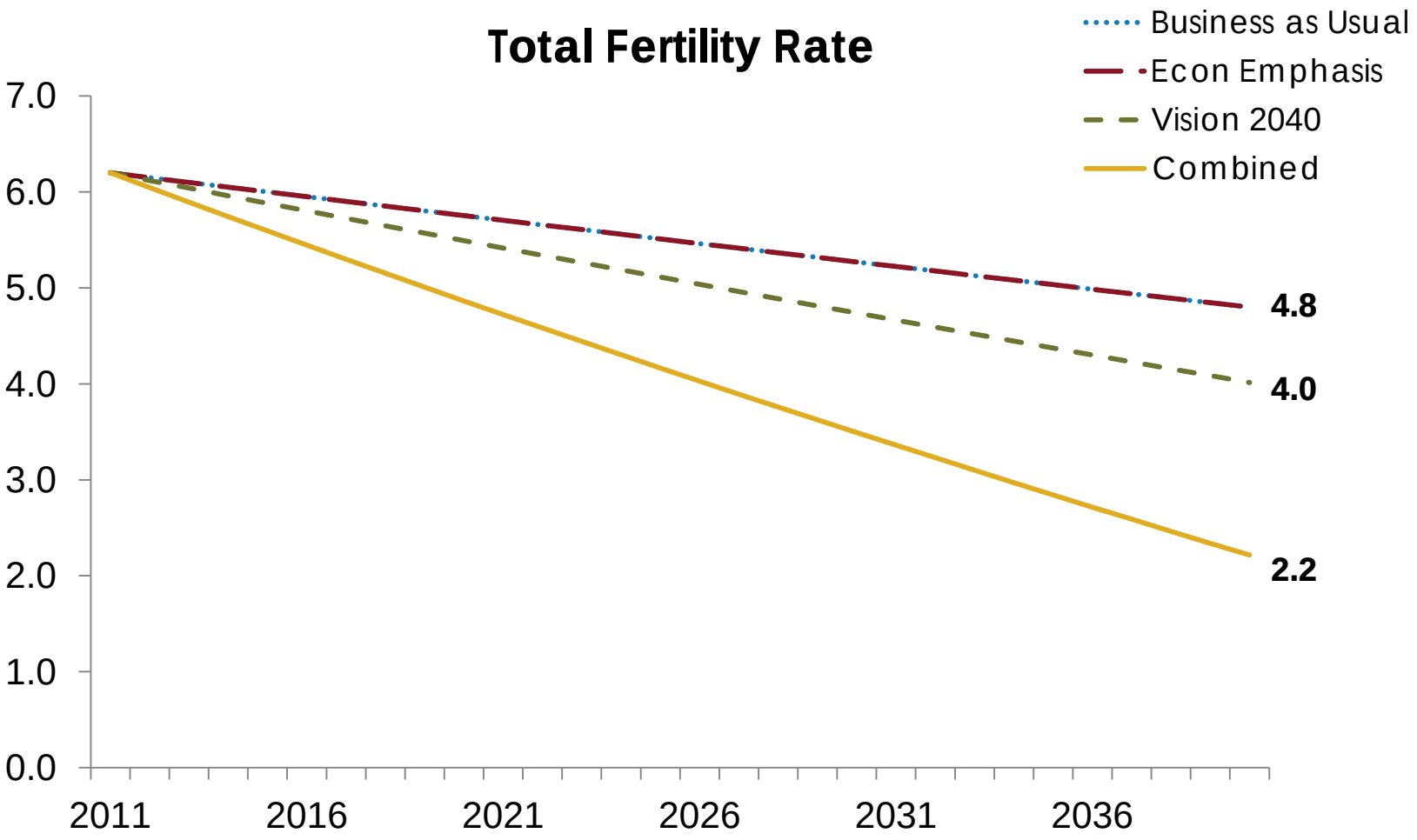
Scenario data and projections: Family planning and education

UGANDA		Education				Family Planning		
Scenario Name	Value in:	Expect Years Female	Mean Years Female	Mean Years Male	Mean Years Both	CPR	PPI	Sterility
	2011	11.3	3.7	6.2	5.0	20.7	11	2.8
Business as Usual	2040	12.5	5.4	7.3	6.3	36.01	11	2.8
Econ Emphasis	2040	12.5	5.4	7.3	6.3	36.01	11	2.8
Vision 2040	2040	13.3	6.5	8.0	7.3	45.00	11	2
Combined	2040	15.3	9.4	9.9	9.6	67.14	11	2

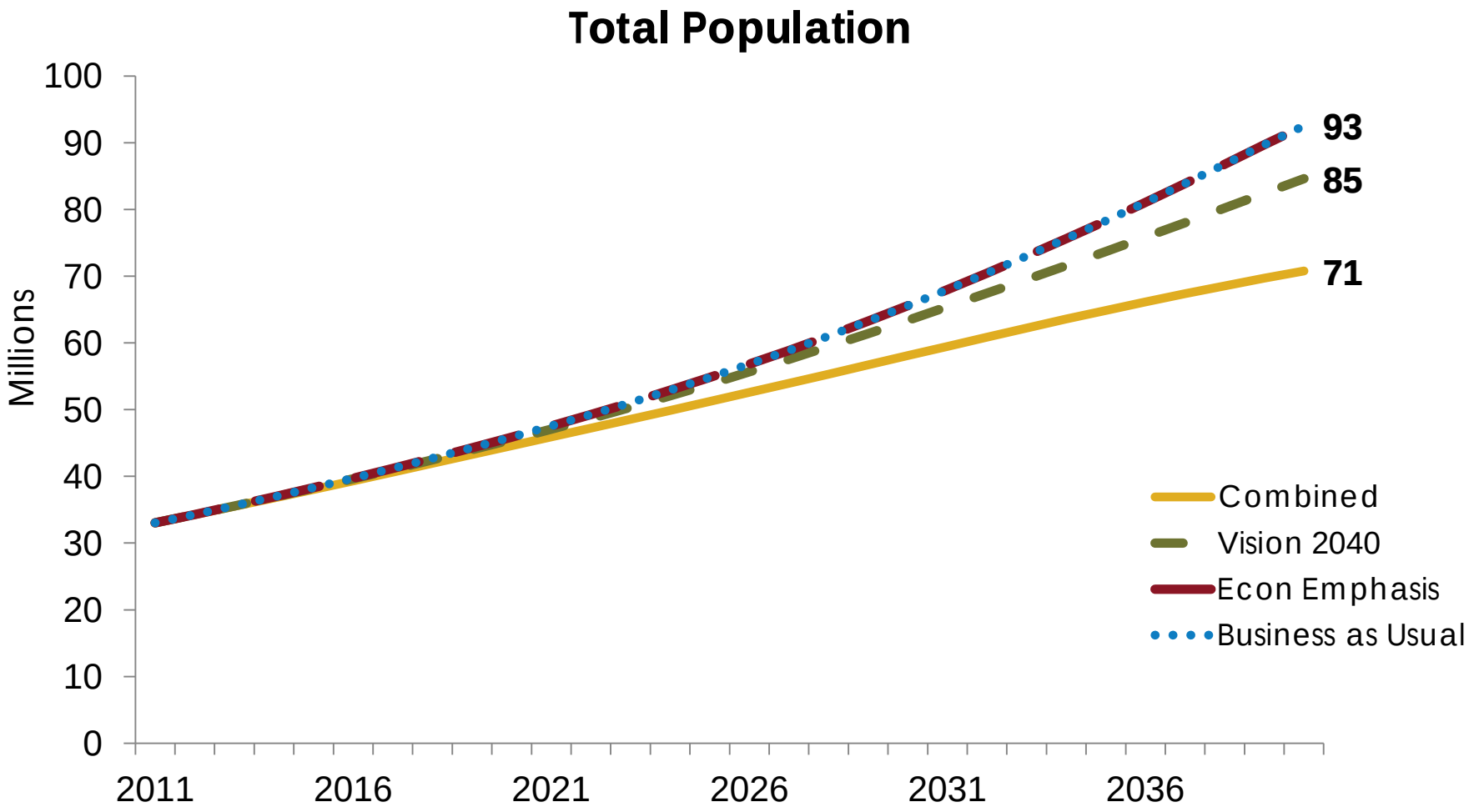
Scenario data and projections: Economic policies

UGANDA		Economic				
Scenario Name	**Value in:**	**GCI 7A: Labor Market Flexibility**	**GCI 9B: ICT Use**	**GCI 8A: Financial Market Efficiency**	**GCI 1A: Public Institutions**	**GCI 6.14: Imports %GDP**
	2011	5.34	1.35	3.48	3.38	40.60
Business as Usual	2040	5.34	2.45	3.70	3.67	50.00
Econ Emphasis	2040	5.87	5.00	4.20	4.36	30
Vision 2040	2040	5.87	5.00	4.20	4.36	30
Combined	2040	5.87	5.00	4.20	4.36	30

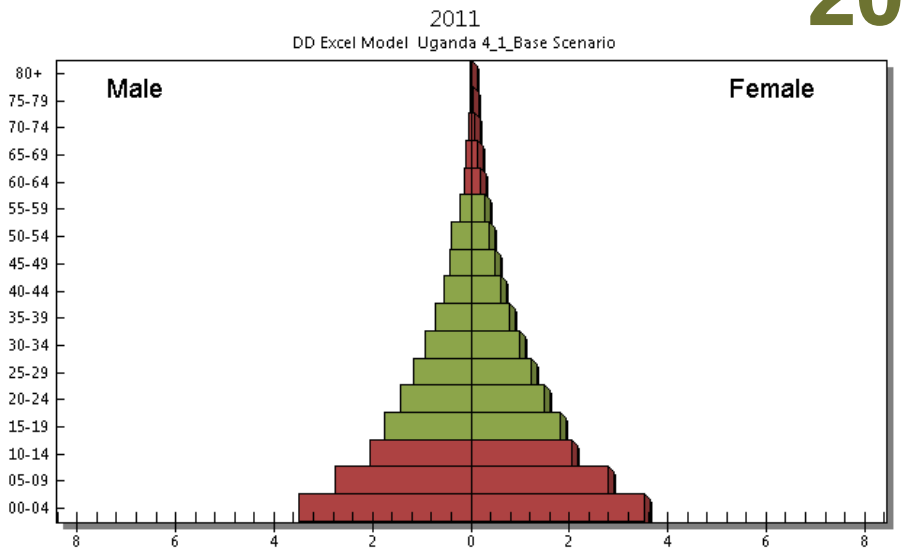
Fertility

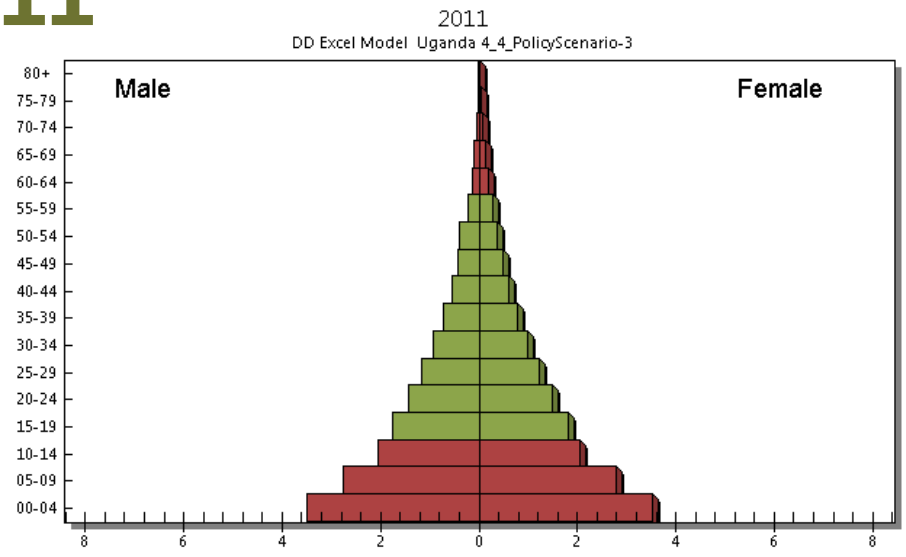

Total Fertility Rate
Business as Usual
Econ Emphasis
Vision 2040
Combined
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2011
2016
2021
2026
2031
2036
4.8
4.0
2.2

Population


Total Population
Millions
100
90
80
70
60
50
40
30
20
10
0
2011
2016
2021
2026
2031
2036
93
85
71
Combined
Vision 2040
Econ Emphasis
Business as Usual

2011

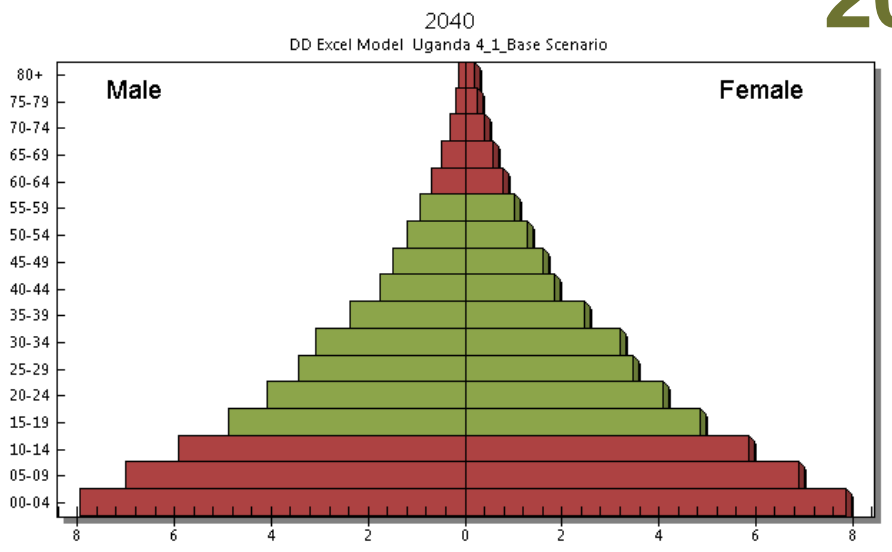


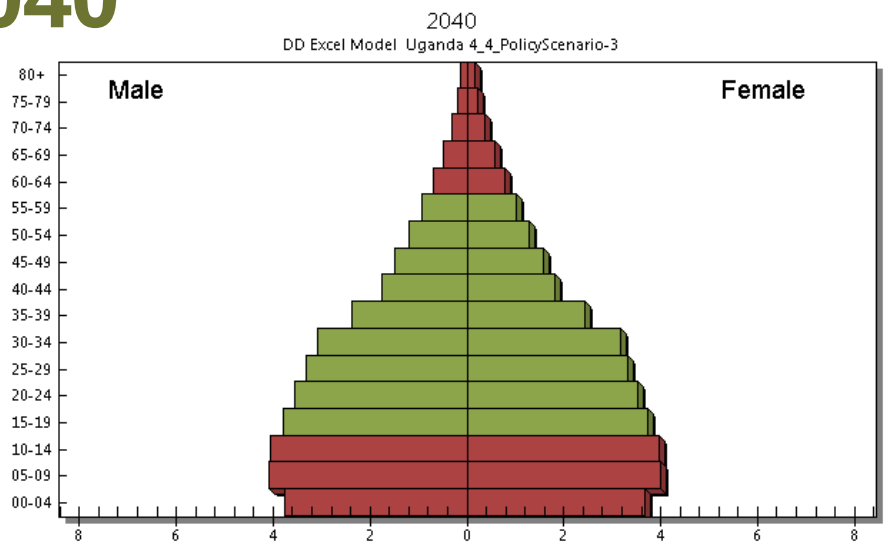


Business as Usual

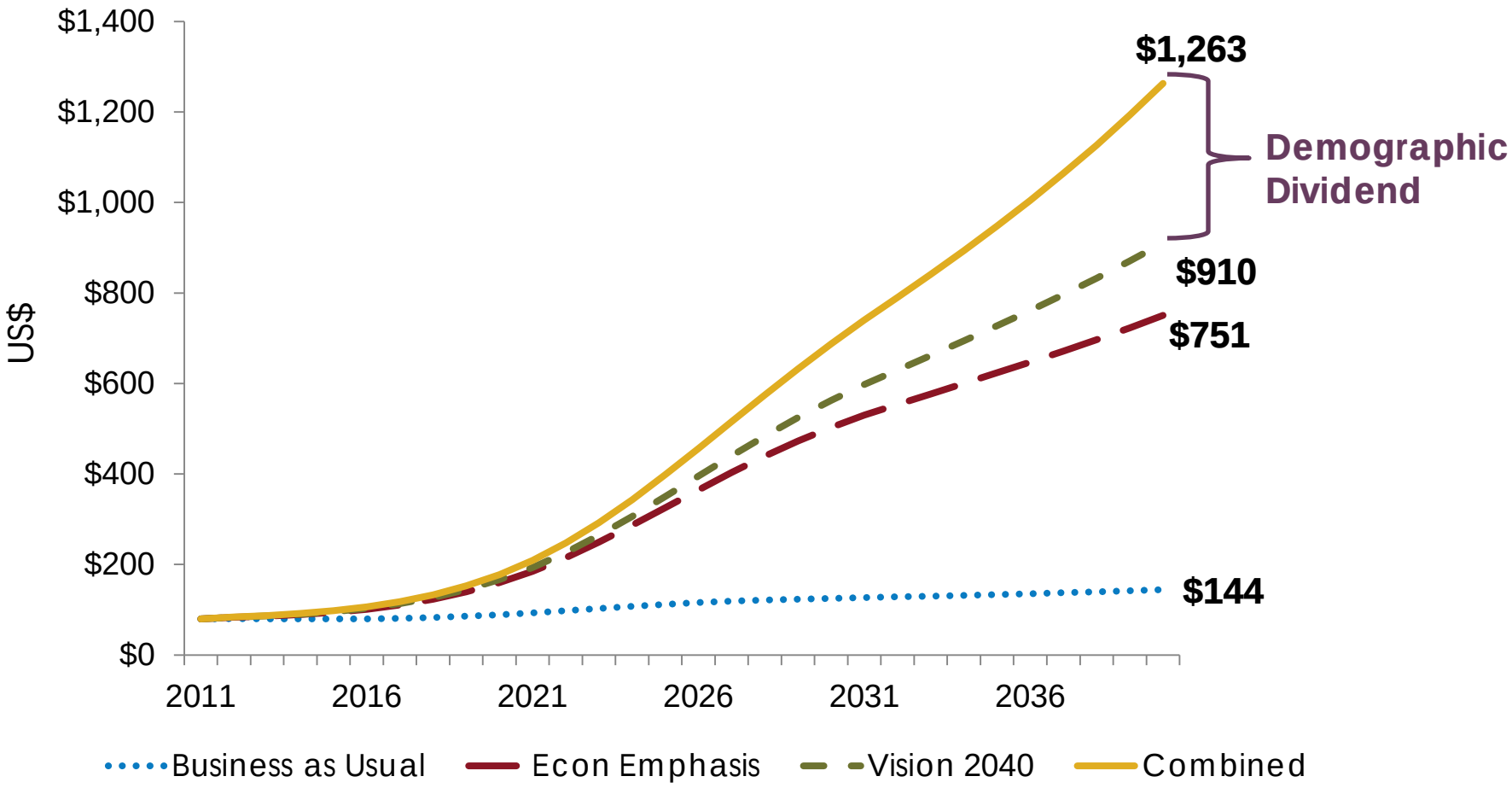
Combined

2040

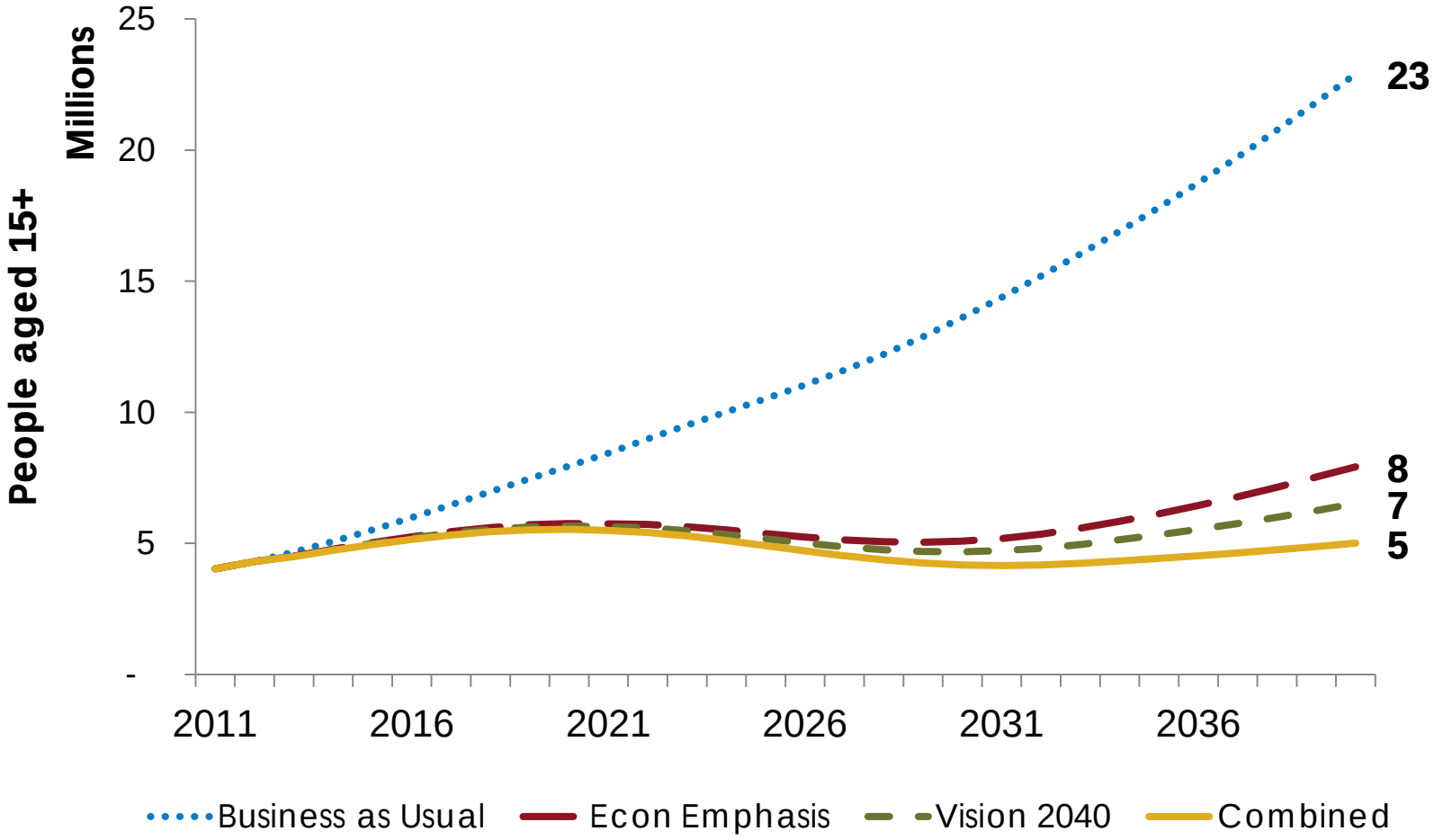




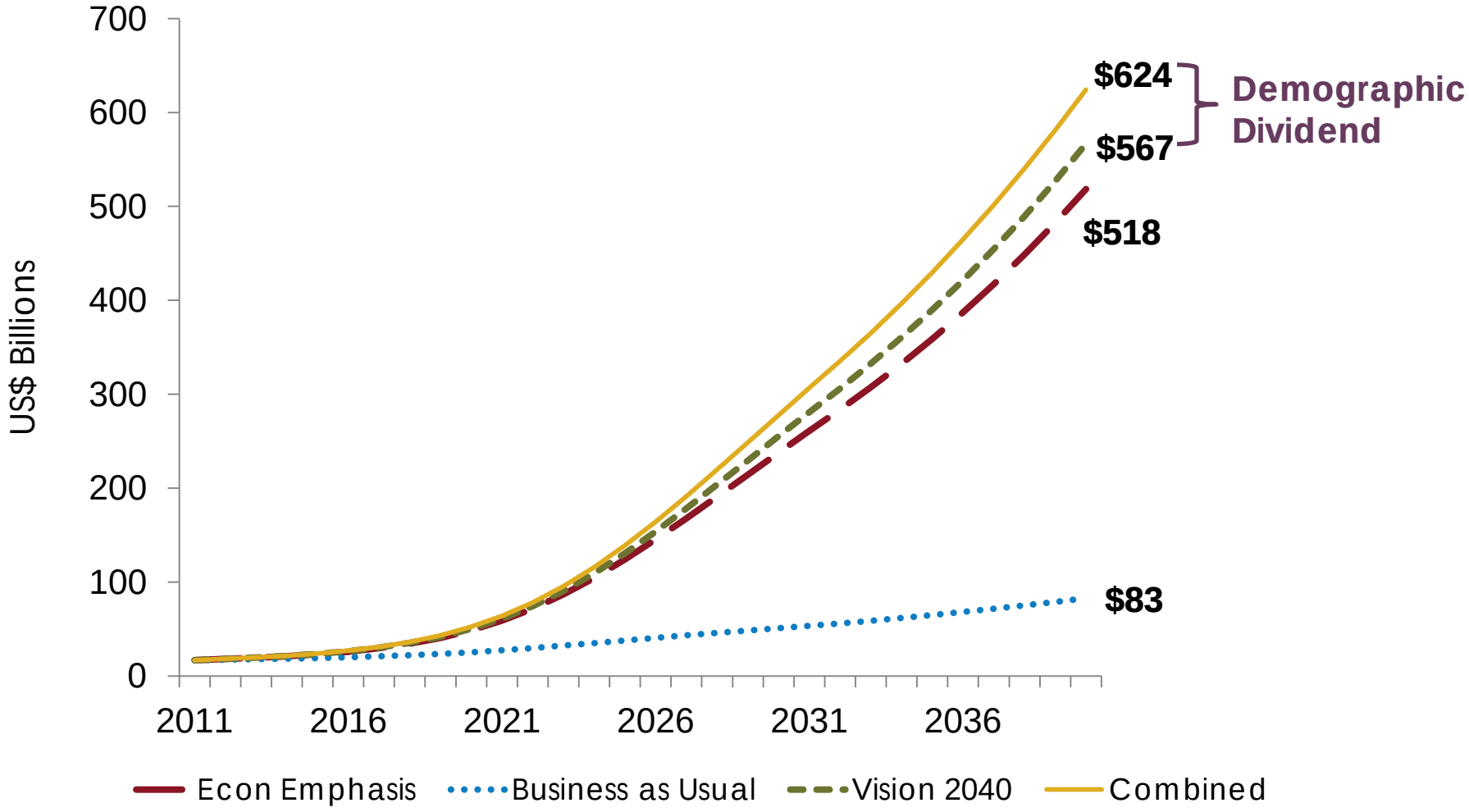
Investment per capita



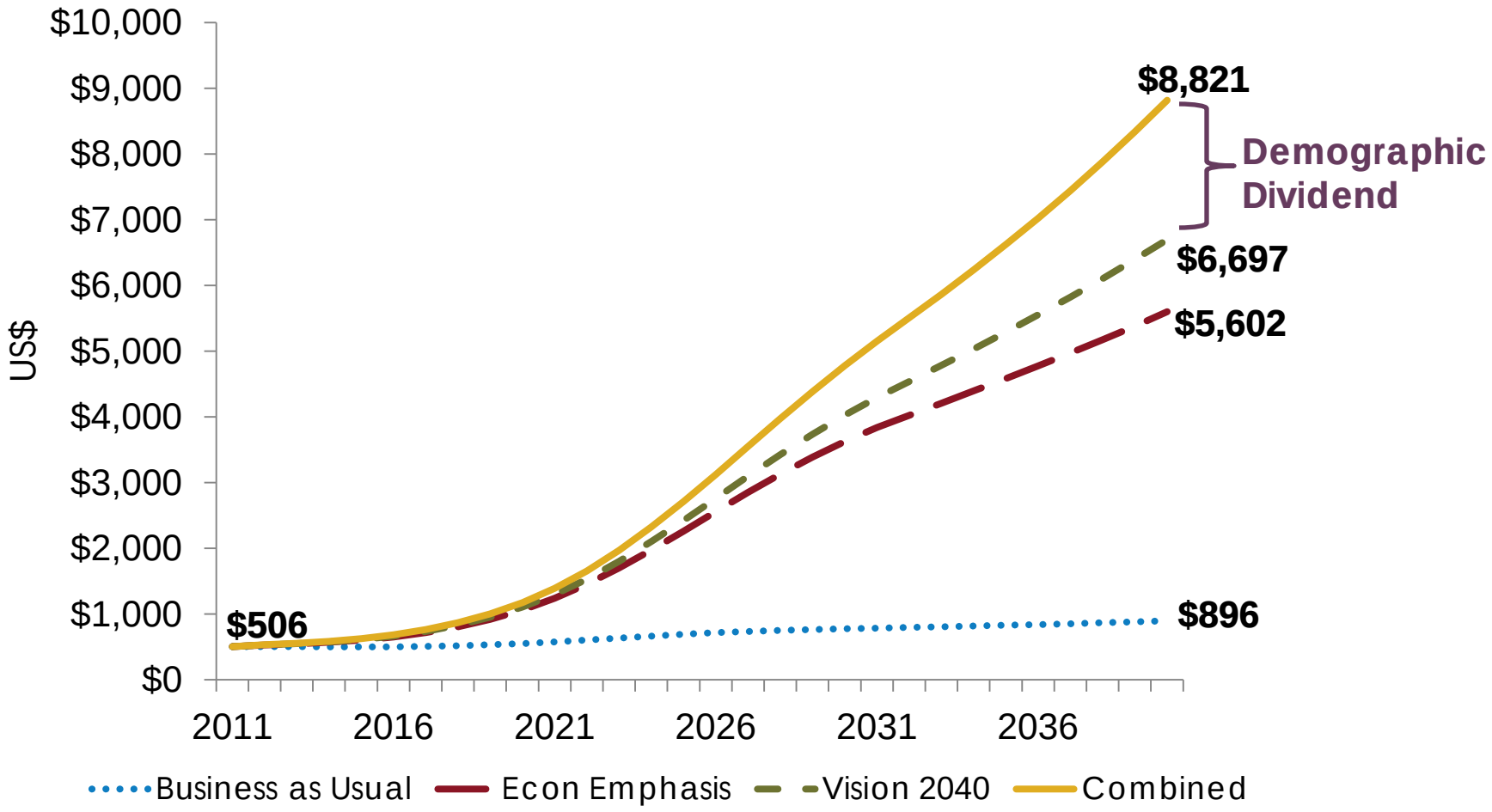
Employment gap



GDP


700
600
500
400
300
200
100
0
US$ Billions
2011
2016
2021
2026
2031
2036
$624
$567
$518
$83
Demographic Dividend
Econ Emphasis
Business as Usual
Vision 2040
Combined

GDP per capita



Group work: Developing sample advocacy messages

- Family planning…
- Education…
- Economy…

GCI subpillars

Financial market	Info & comms use	Labor market	Public institutions
Availability of services	Use of Internet	Labor-employer relations	Property rights
	Broadband connectivity		Intellectual property
Affordability of services		Wage flexibility	Diversion of funds
	Bandwidth capacity	Hiring & firing	Public trust
Equity financing	Mobile broadband use	Redundancy costs	Bribes
Access to loans		Tax incentives	Judicial independence
Venture capital			Favoritism
			Wasteful spending
			Regulatory burden
			Legal efficiency
			Transparency
			Terrorism & crime
			Police reliability

Messages for policymakers

- Policies focused on single sectors contribute to development, but are most powerful when combined with other socioeconomic strategies.
- Economic, FP, governance, and education policies promote a demographic dividend by increasing GDP, capital formation, and GDP per capita, and significantly reducing the employment gap.
- Investment in these areas must begin now to see the benefits of a demographic dividend in coming decades.

Thank You!

www.healthpolicyproject.com

The Health Policy Project is a five-year cooperative agreement funded by the U.S. Agency for International Development under Agreement No. AID-OAA-A-10-00067, beginning September 30, 2010. It is implemented by Futures Group, in collaboration with CEDPA (part of Plan International USA), Futures Institute, Partners in Population and Development, Africa Regional Office (PPD ARO), Population Reference Bureau (PRB), RTI International, and the White Ribbon Alliance for Safe Motherhood (WRA).

USAID FROM THE AMERICAN PEOPLE

HEALTH POLICY PROJECT