

# *Uhuru*: An Economic Model for Understanding Human Capital Development Needs in Tanzania

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# Objectives

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Project scenarios for Tanzania, with different levels of FDI.

Understand the implications for employment, by sector and occupation.

Assess skilled labor needs in different industries, and the implications for education.

# Economic and Policy Issues in Tanzania

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Stimulating  
Growth

Trade  
Issues

Financial

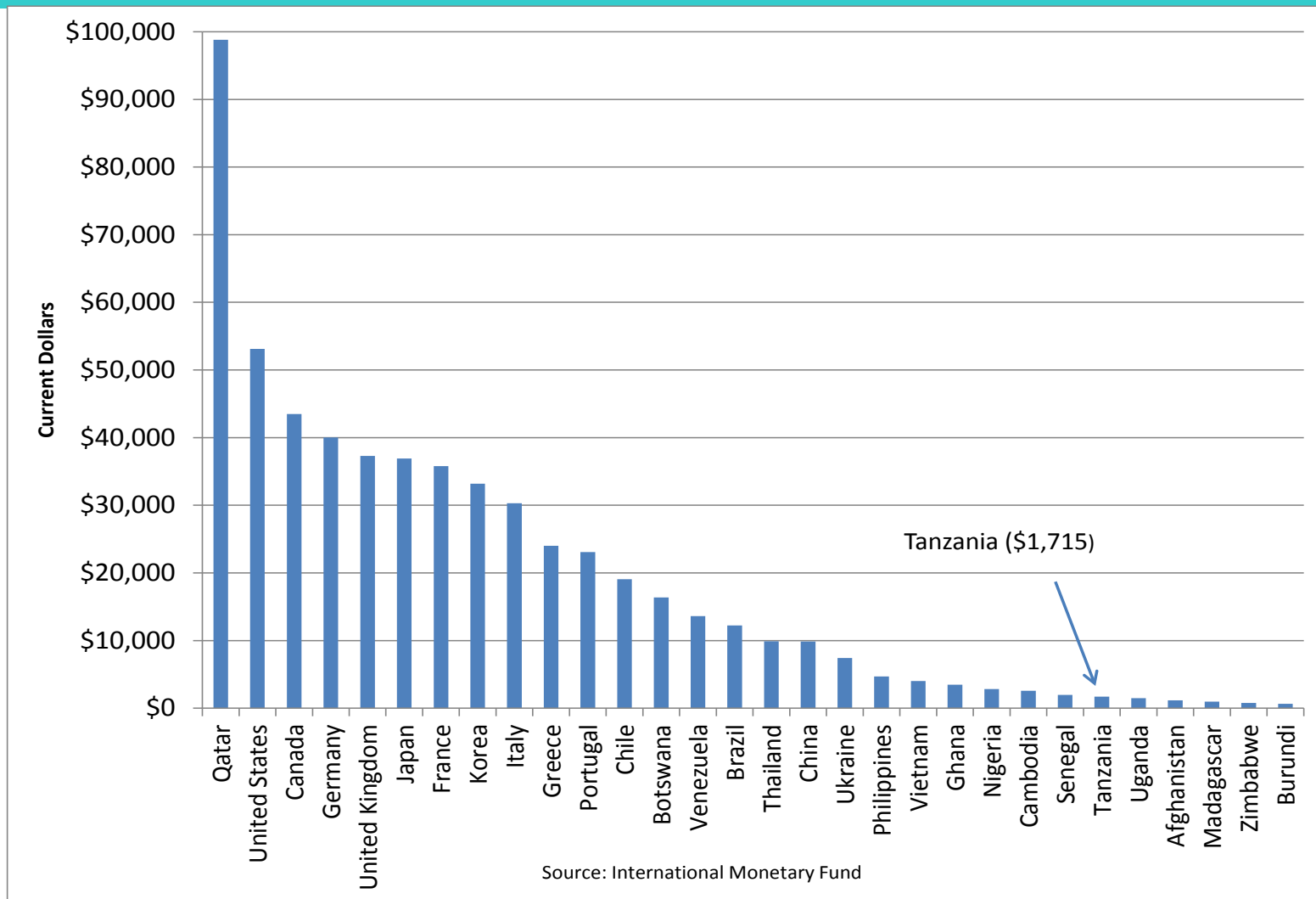
Industry

Labor  
Force

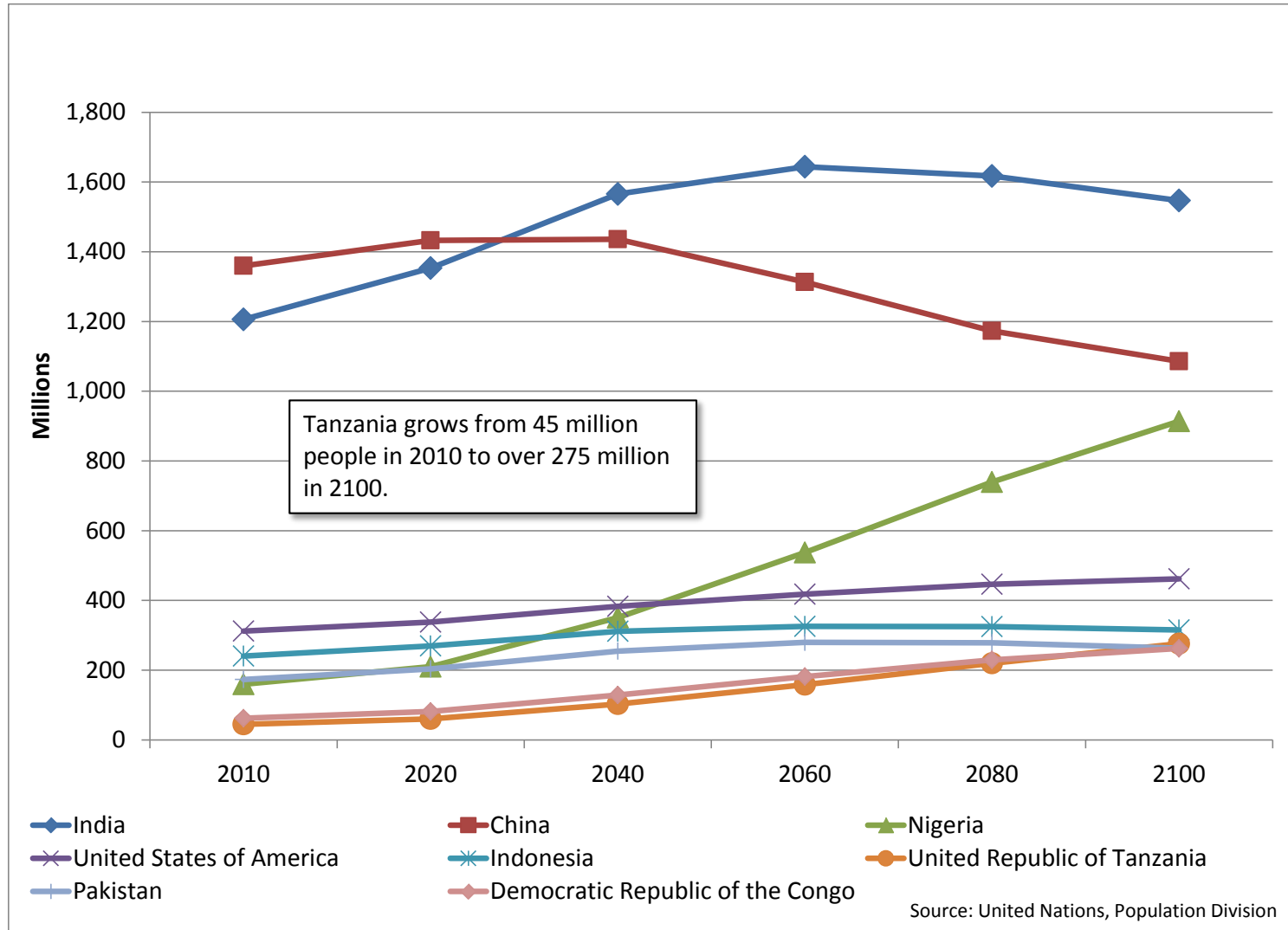
# Tanzania in the World Economy



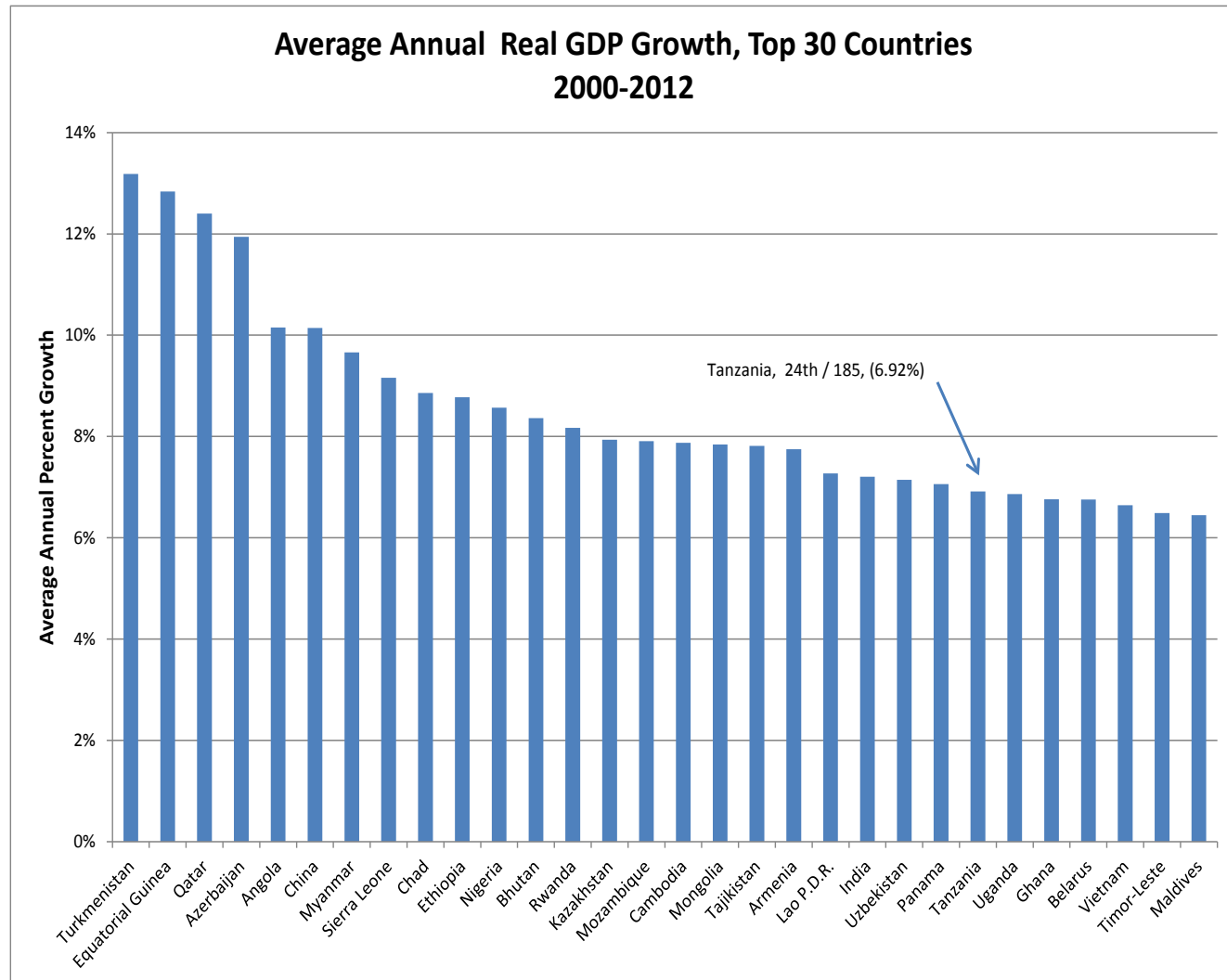
# Low Income Country



# Booming Population Growth is Expected!



# GDP Growth Has Been Rapid



# Projections for Tanzania

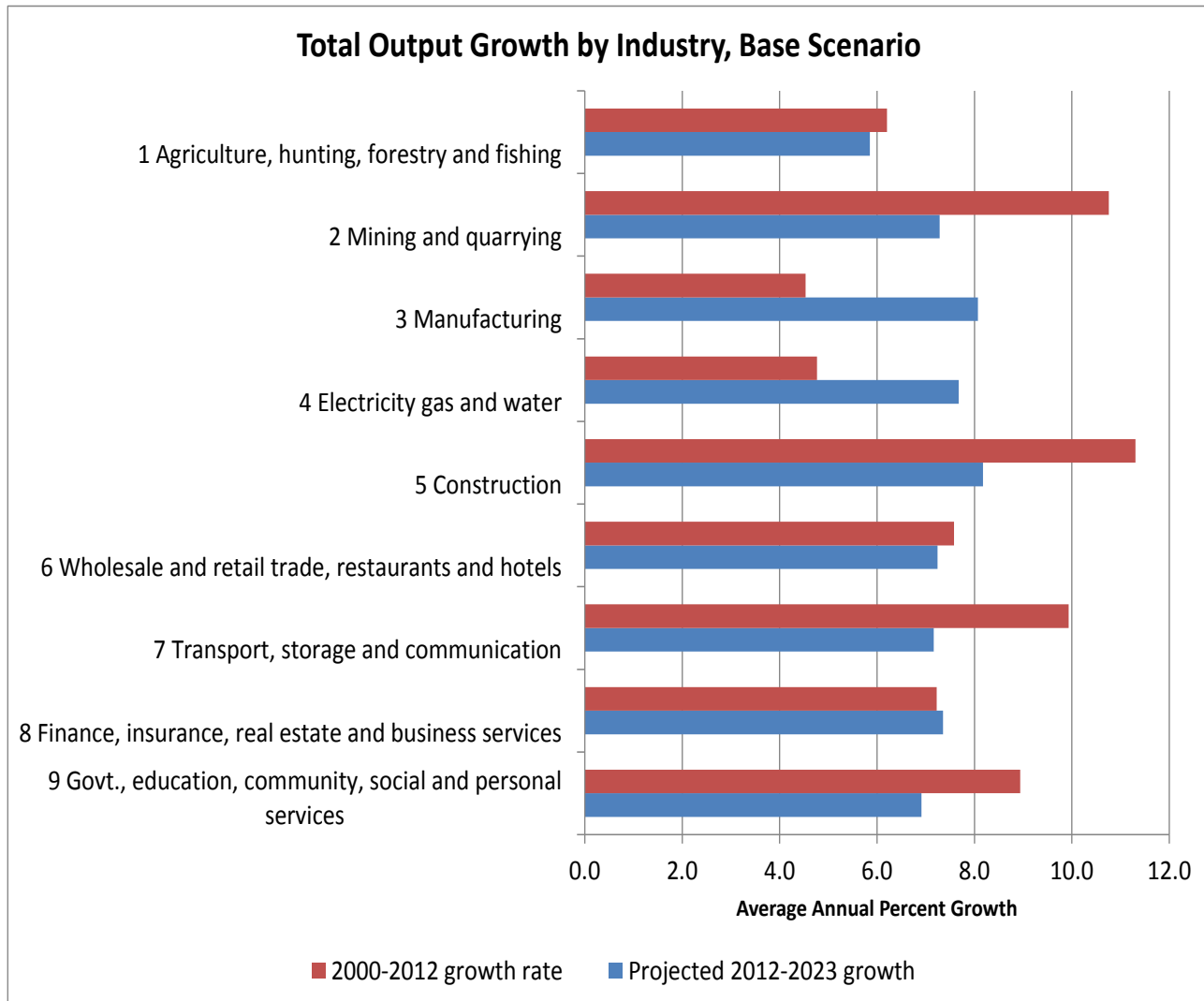




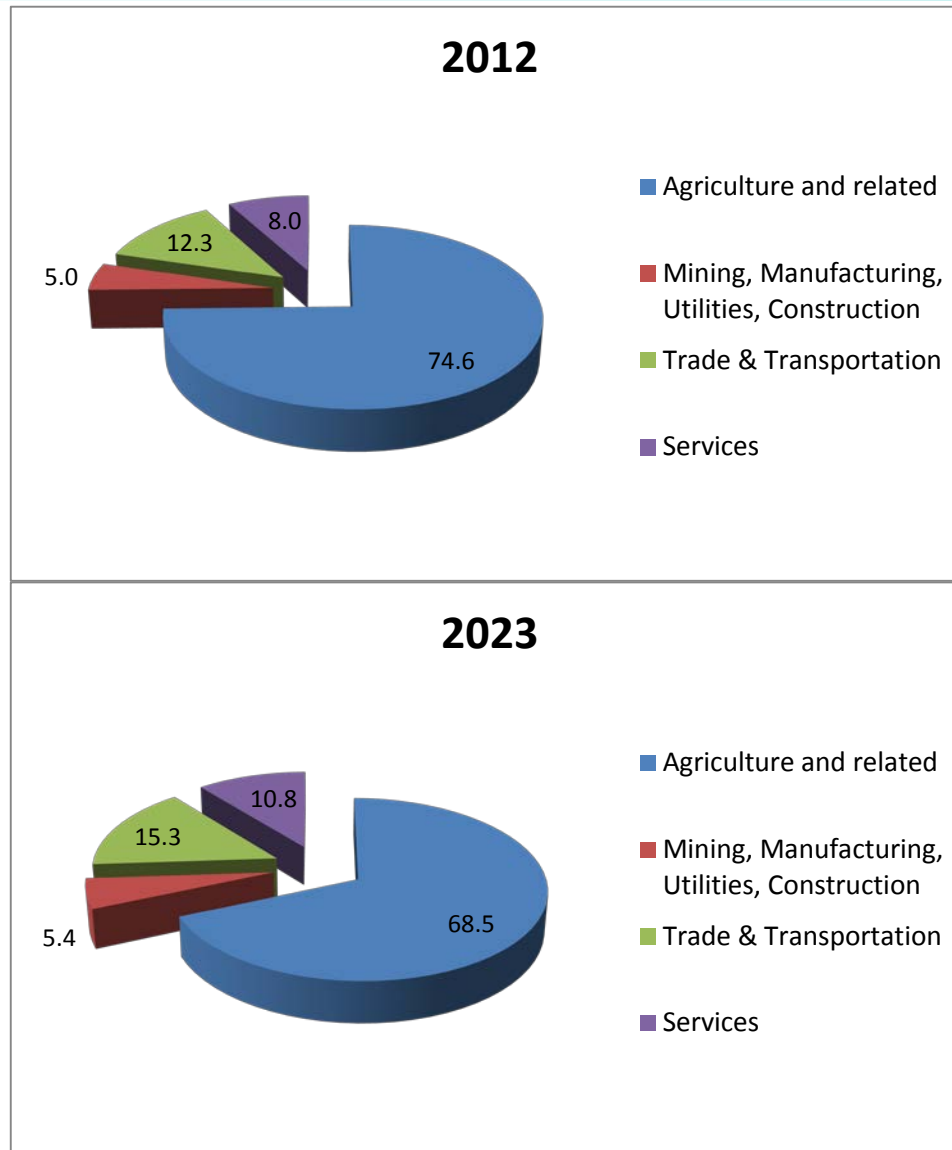
# Rapid Growth of GDP is Expected to Continue

	2000	2012	2015	2020	2023	2000-12	2012-2023
Real GDP Accounts (bil 2005 TZS)							
GDP	11,639	25,949	32,649	45,996	56,716	6.7	7.1
Gross capital formation	1,957	8,967	11,348	17,168	22,303	12.7	8.3
Exports	1,556	7,610	9,616	13,435	16,485	13.2	7.0
Imports	2,342	11,818	15,093	22,291	28,316	13.5	7.9
Population, labor force and employment							
(Thousands of persons)							
Population	34,021	47,783	52,291	60,385	65,634	2.8	2.9
Labor force	16,691	23,501	25,771	30,210	33,369	2.9	3.2
Employment	15,841	22,683	25,057	28,901	31,739	3.0	3.1
Aggregate productivity index (2005=100)	84.3	131.2	149.4	182.5	204.9	3.7	4.1
Total Real FDI							
	315	1,521	1,957	3,318	4,734	13.1	10.3

# Manufacturing Growth Expected to Accelerate



# Shares of Employment by Major Sector, 2012 - 2023

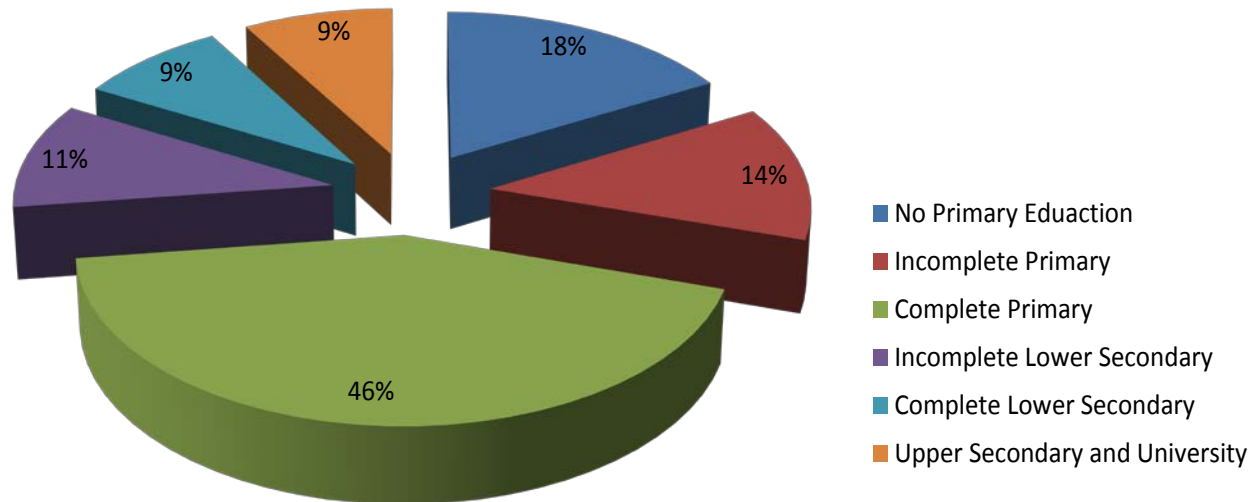


# Employment is Concentrated in Low-skill Occupations

	Associated Skills	2006	2012	Percent in 2012
<b>Total</b>		<b>17,945</b>	<b>22,683</b>	
1 Legislators, senior officials and managers	High skilled	46	39	0.2
2 Professionals	High skilled	112	141	0.6
3 Technicians and associate professionals	High skilled	318	402	1.8
4 Clerks	Medium skilled	72	92	0.4
5 Service workers and shop and market sales workers	Medium skilled	1,775	2,245	9.9
6 Skilled agricultural and fishery workers	Low to Medium sk	13,110	16,585	73.1
7 Craft and related trades workers	Medium skilled	875	1,106	4.9
8 Plant and machine operators and assemblers	Low skilled	236	299	1.3
9 Elementary occupations	Low skilled	1,401	1,772	7.8

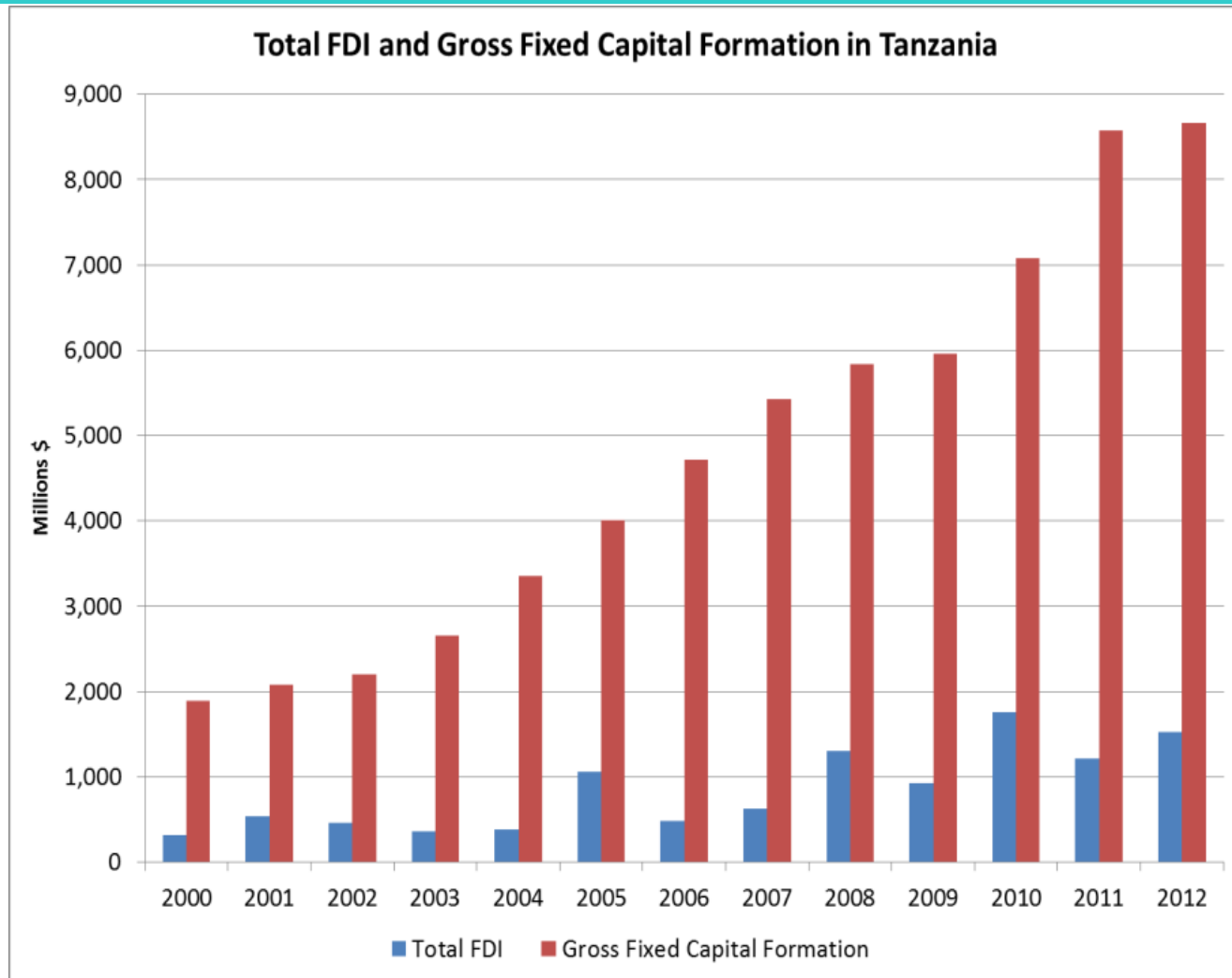
Source: ILFS 2006, Author's calculations

# The Share of Population Completing Secondary or Higher Education is Very Low



Source: National Panel Survey (2010/11)

# FDI and Fixed Capital Formation in Perspective

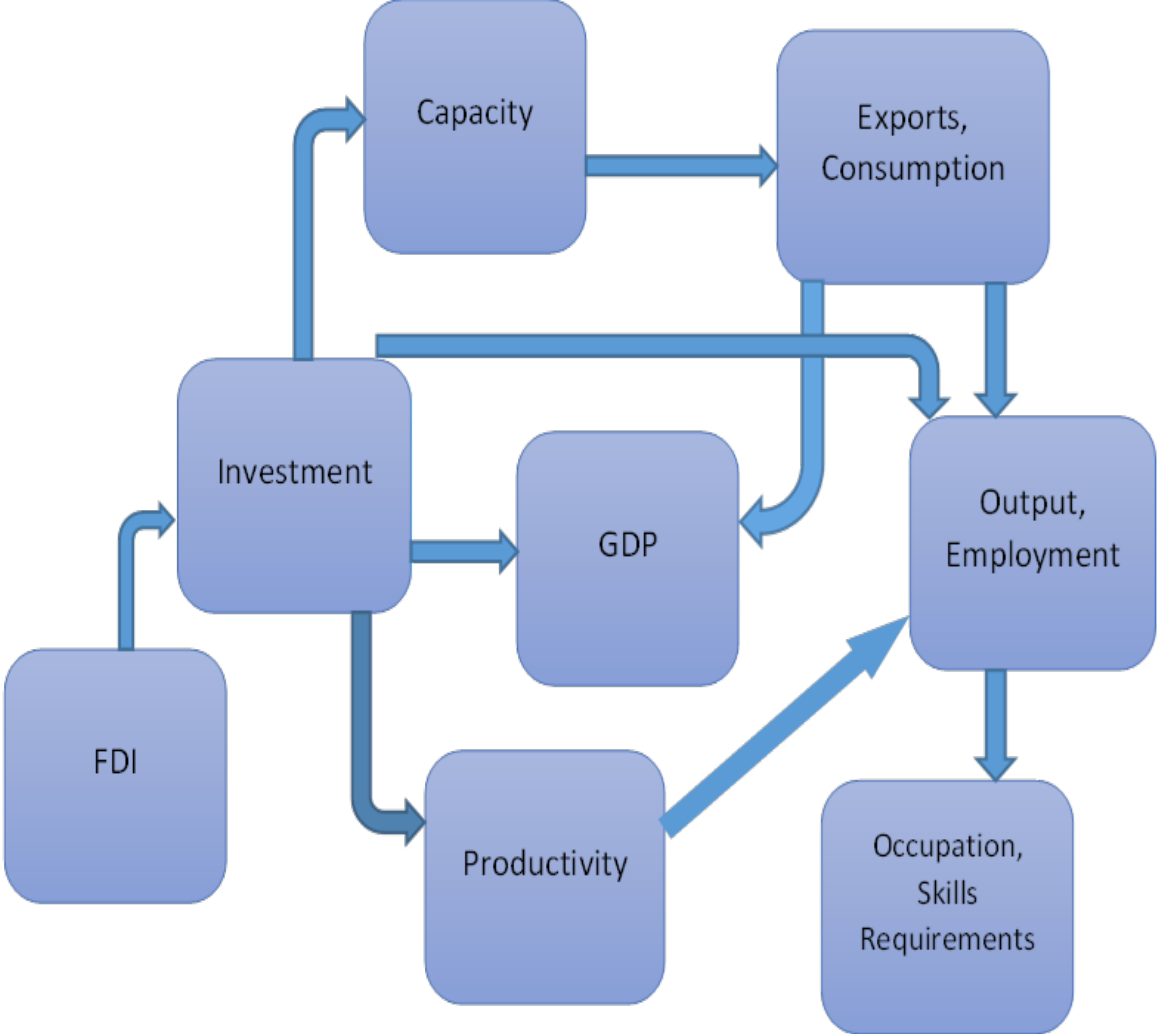


# Nearly Half of FDI has been in Extractive Sectors

Activity	2008		2009		2010		2011	
	Inflow	Stock	Inflow	Stock	Inflow	Stock	Inflow	Stock
Mining and quarrying	669.8	3,714.1	385.1	2,770.1	909.9	3,738.3	406.5	4,123.0
Manufacturing	277.6	870.7	214.5	1,235.8	157.1	1,332.9	217.3	1,520.5
Accommodation	129.7	388.7	35.9	671.7	21.1	747.0	165.6	872.8
Financial and insurance	81.7	416.3	95.9	687.9	95.5	700.7	121.1	756.6
Information and communication	127.6	532.4	185.1	1,545.2	83.5	909.9	-98.3	627.8
Electricity and gas	1.0	24.7	2.1	111.3	290.5	328.6	209.4	539.8
Wholesale and retail trade	21.1	372.0	-16.9	296.8	36.9	328.3	114.5	400.5
Agriculture	21.2	202.3	29.0	308.8	22.9	304.5	31.4	355.4
Construction	-3.7	119.5	14.9	150.6	-23.5	123.6	30.7	142.5
Real estate activities	26.5	79.7	1.5	89.7	1.5	89.1	12.0	99.2
Professional activities	-0.7	1.1	0.5	26.9	213.0	27.6	6.1	30.1
Other service activities	1.4	3.8	1.4	15.1	-0.7	16.6	0.7	15.0
Education	0.4	2.0	0.3	18.2	1.6	20.6	1.8	10.8
Public administration and defense	0.0	0.0	0.0	0.5	0.0	0.4	0.4	0.8
Transportation and storage	2.7	28.8	3.9	137.8	4.0	94.2	10.4	-216.7
<b>Grand Total</b>	<b>1,356.4</b>	<b>6,945.6</b>	<b>953.1</b>	<b>8,066.3</b>	<b>1,813.3</b>	<b>8,762.2</b>	<b>1,229.4</b>	<b>9,278.1</b>

Source: *Tanzania Investment Report 2012*

# Chain of Effects of FDI





## Constraints to Growth

- Capital scarcity
- Electric power reliability
- Port inefficiencies
- Lack of well-developed financial sector
- Regulatory and licensing burdens
- Weak connectivity to Markets
- Availability of highly educated or vocationally trained workers
- Business skills, entrepreneurship

# Scenarios



# FDI, Investment, Productivity

## Baseline

- This “business as usual” scenario is intended to be a projection of the Tanzanian economy it continues down its current path.
- FDI and productivity projections are made using trends.
- Shares of FDI by industry remain constant.
- Macroeconomic totals are calibrated to the *Economist Viewswire* forecast to 2018, and then using trends thereafter.

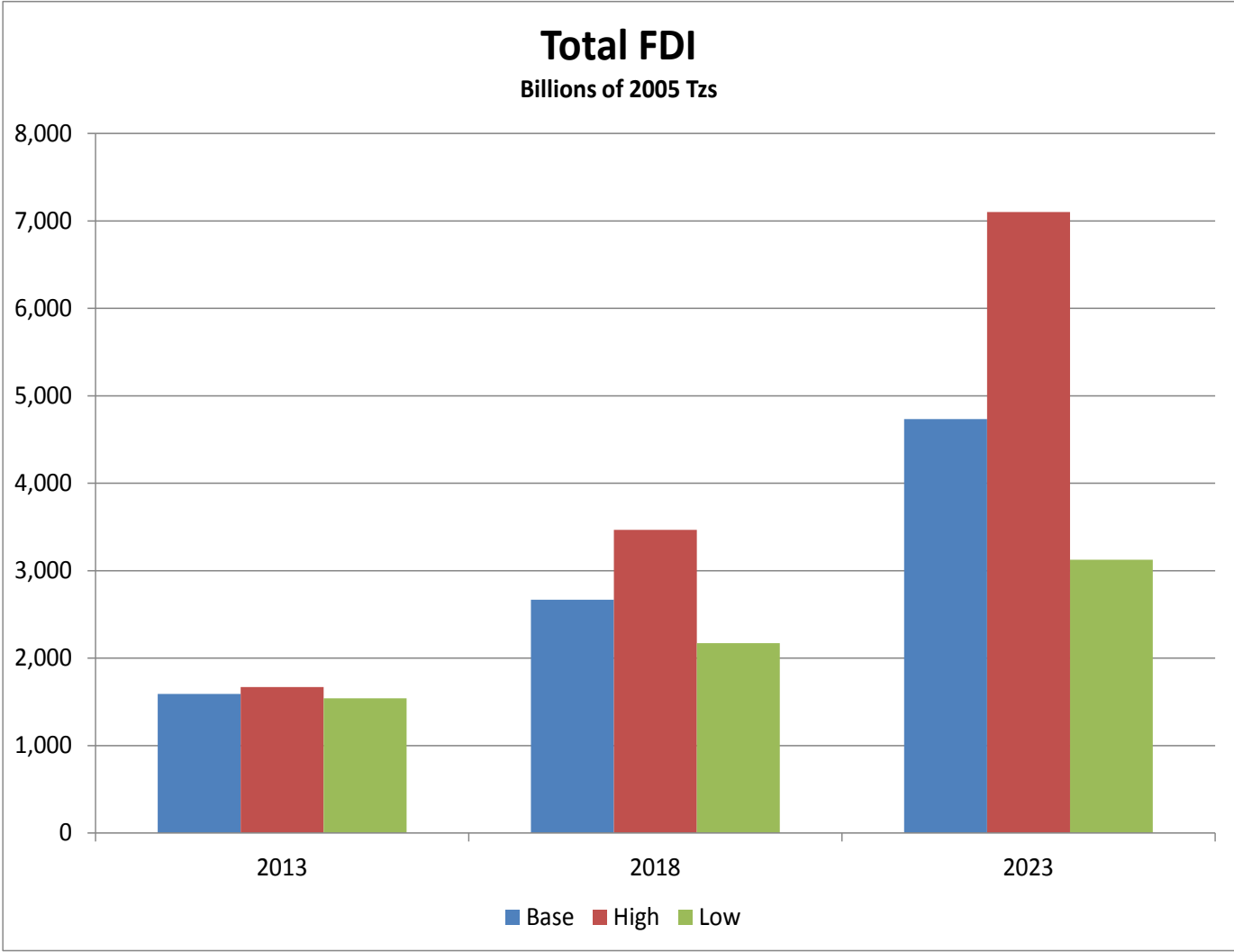
## High FDI

- FDI is assumed to accelerate from the baseline annual growth of 10.3 percent to 14 percent, in real terms.
- Assumes that a larger share of FDI is directed to manufacturing and to transportation and communication investment.
- Domestic capital formation is stimulated by FDI.
- Increased capacity is fulfilled by increased exports and final consumption.
- Labor productivity growth is also stimulated by the additional investment.

## Low FDI

- FDI grows more slowly than the baseline, at an average of only 6.5 percent in real terms.
- Domestic investment, exports and final consumption are all smaller than the baseline scenario, with slower productivity growth.

# FDI



# Structural Shift from Agriculture Largest in High FDI Case

		2012	2023
Employment Shares by Major Sector (Percent)			
Agriculture and related	Base	74.6	68.5
	High		65.9
	Low		70.4
Mining, Manufacturing, Utilities, Construction	Base	5.0	5.4
	High		6.2
	Low		5.0
Trade and Transportation	Base	12.3	15.3
	High		16.7
	Low		14.3
Services	Base	8.0	10.8
	High		11.2
	Low		10.3

# Changes in Employment by Sector

	2012	2023			Additional Jobs from 2012-2023		
		Base	High FDI	Low FDI	Base	High FDI	Low FDI
<b>Total</b>	<b>22,683</b>	<b>31,739</b>	<b>32,271</b>	<b>30,899</b>	<b>9,057</b>	<b>9,588</b>	<b>8,216</b>
1 Agriculture, forestry and fishing	16,931	21,741	21,278	21,745	4,810	4,346	4,814
2 Mining and quarrying	133	139	152	85	7	19	(47)
3 Manufacturing	714	1,255	1,452	1,169	540	738	455
4 Utilities	22	49	53	46	28	32	24
5 Construction	267	282	342	237	14	75	(30)
6 Trade & Repair	2,465	4,429	4,942	4,033	1,963	2,477	1,568
7 Transportation and storage	326	418	442	390	92	116	64
8 Private services	126	249	358	170	123	232	44
9 Public Administration, Defense, Education, Health	1,698	3,177	3,252	3,023	1,479	1,554	1,324

Source: Projections using the *Uhuru* Model

# Demand for Skills Increases with More FDI

		2012		2023		Additional Jobs from 2012-2023		
		Base	High FDI	Levels		Base	High FDI	Low FDI
				Base	Low FDI			
<b>Total Employment</b>		<b>22,683</b>	<b>31,739</b>	<b>32,271</b>	<b>30,899</b>	<b>9,057</b>	<b>9,588</b>	<b>8,216</b>
Managers, professionals, technicians	High skilled	583	2,438	2,584	2,270	1,855	2,001	1,687
Clerks, service workers, craft and trade workers	Medium skilled	3,443	5,869	6,518	5,370	2,426	3,075	1,927
Agriculture workers, elementary occupations, operators	Low to medium skilled	18,656	23,432	23,169	23,259	4,775	4,512	4,602
<b>Percentage Shares</b>								
Managers, professionals, technicians	High skilled	2.6	7.7	8.0	7.3			
Clerks, service workers, craft and trade workers	Medium skilled	15.2	18.5	20.2	17.4			
Agriculture workers, elementary occupations, operators	Low to medium skilled	82.2	73.8	71.8	75.3			

Source: Calculations using the Uhuru Model

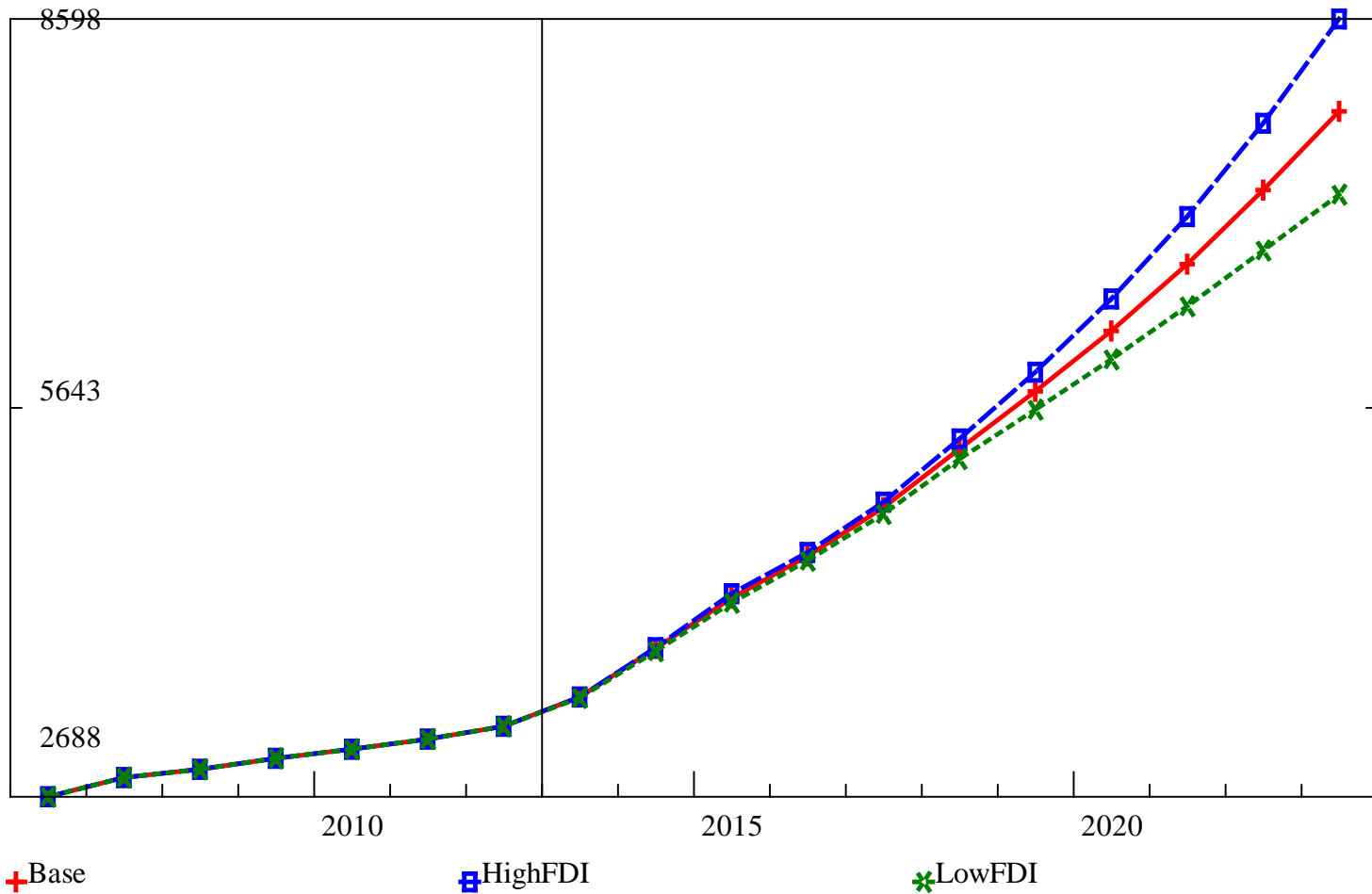
# Estimates and Projections of Working Age Population and Educational Attainment

	2006	2010	2012	2018	2023
<b>Total working age population</b>	22,099	24,808	26,387	31,856	37,463
No education	5,158	3,887	3,459	3,907	4,282
In primary	1,619	1,785	1,876	2,225	2,635
Finished primary	13,281	15,948	17,432	21,036	24,692
Finished secondary	2,040	3,188	3,621	4,688	5,854
<b>Percent Shares, total working age population</b>					
No education	23.3	15.7	13.1	12.3	11.4
In primary	7.3	7.2	7.1	7.0	7.0
Finished primary	60.1	64.3	66.1	66.0	65.9
Finished secondary	9.2	12.8	13.7	14.7	15.6



# Demand for Skilled Occupations Higher with High FDI

Demand for Skilled Occupations  
Thousands of Persons



# Summary

## FDI

**Direct and Indirect Impacts on Stimulating Productivity and Employment**

**Contributes to faster growing capital stock**

**Stimulates domestic construction and production**

**Increase in capacity leads to increased exports and consumption**

## Industries

**Mining has received large share of FDI up to now.**

**Export-oriented manufacturing logical targets for FDI.**

**Manufacturing and Services Investment will Create More Productive Jobs**

**Increasing productivity in Agriculture is highly desirable**

## Employment

**Industry mix is important to determining occupational structure**

**Manufacturing will stimulate export-generated growth, and provide productive jobs.**

**More job creation from FDI is in agriculture and services sectors.**

**Higher End Skills Need to Grow More Rapidly!**

# Discussion

