



# Economic Development and Human Capital in Uganda:

## *A case for investing more in Education*

# Main Messages

1. Chances for kids to attend school will decline by 2025
2. Learning outcomes are below expectations
3. A series of policies are proposed to reverse these trends
4. Significant increase in public funding is required

# Human Capital Index:

*a key determinant of economic development, productivity and wealth*



Health



Education

A child born in Uganda today will be **only 38 % as productive** when she grows up as she could be if she enjoyed complete education and full health

## Schooling

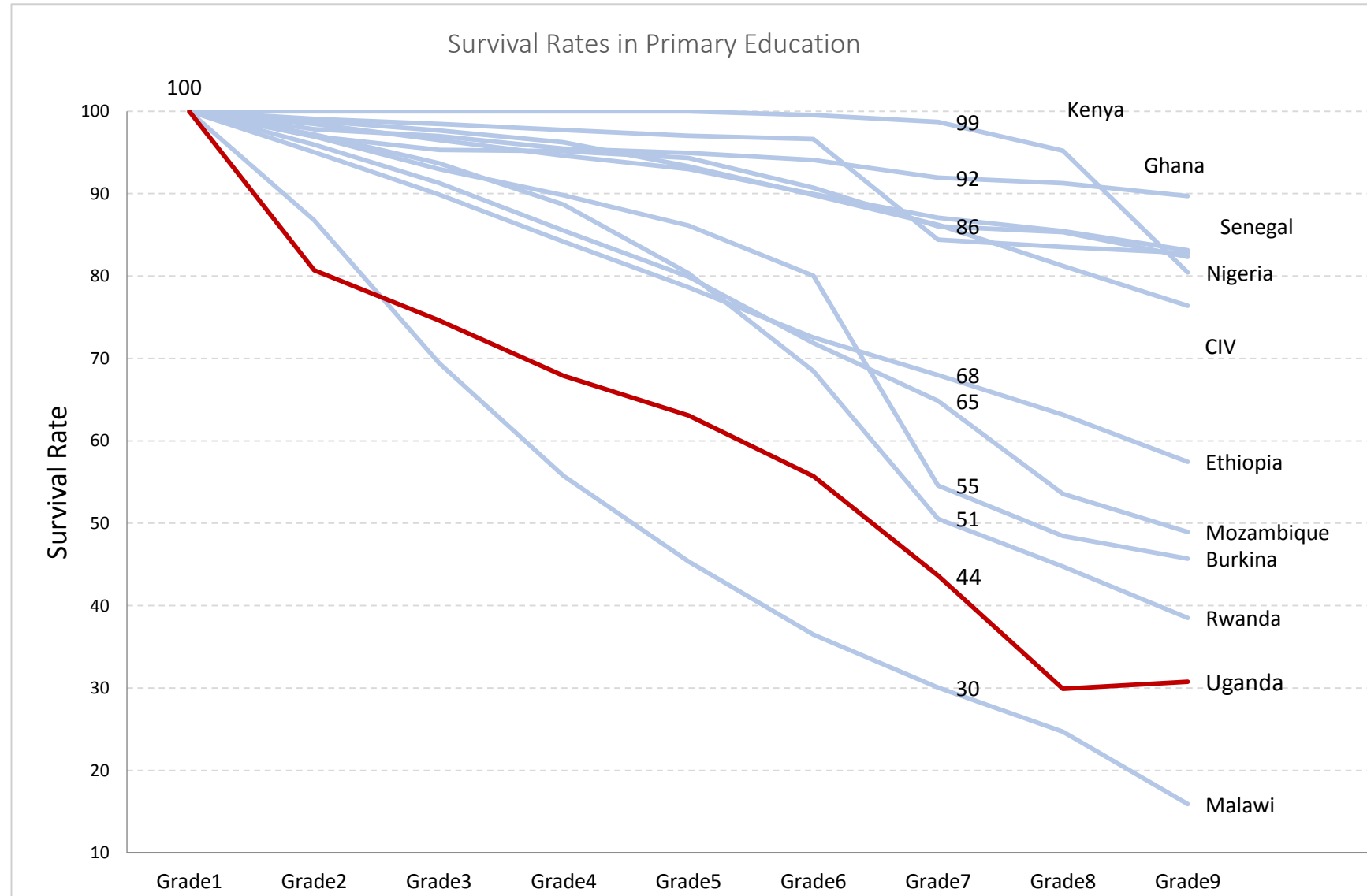
A child born today is expected to complete only 7 years of education by age 18, compared to a regional average of 8

## Learning

This is equivalent to only 4.5 years of learning, with 2.5 years 'lost' due to poor quality

# High drop outs throughout primary education

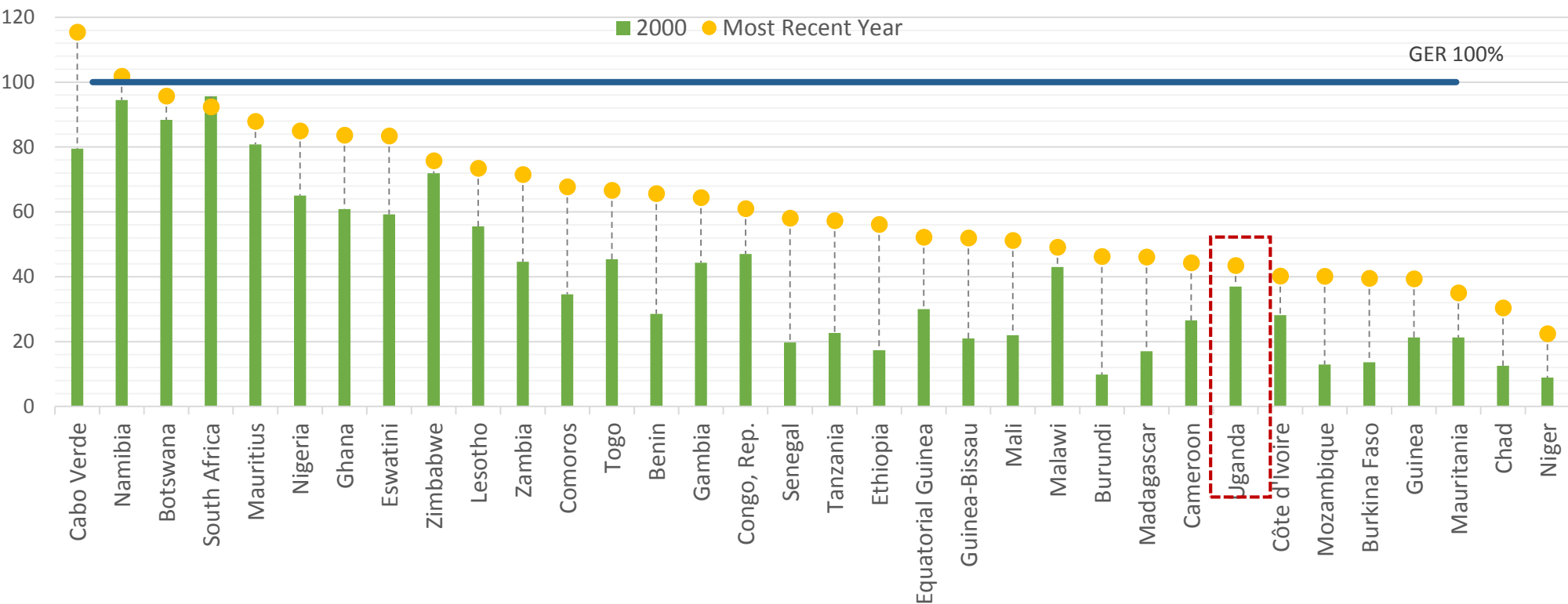
1.4 million students  
drop out  
from primary schools  
every year



Facing Forward, 2017

# Low enrolment in lower secondary education

Lower-Secondary Gross Enrollment Ratios of 34 Sub-Saharan African Countries



Lower secondary access is extremely low and has stagnated for two decades



# Low quality of learning and teaching

## Grade 3

Numerate – 55%

Literate – 50%

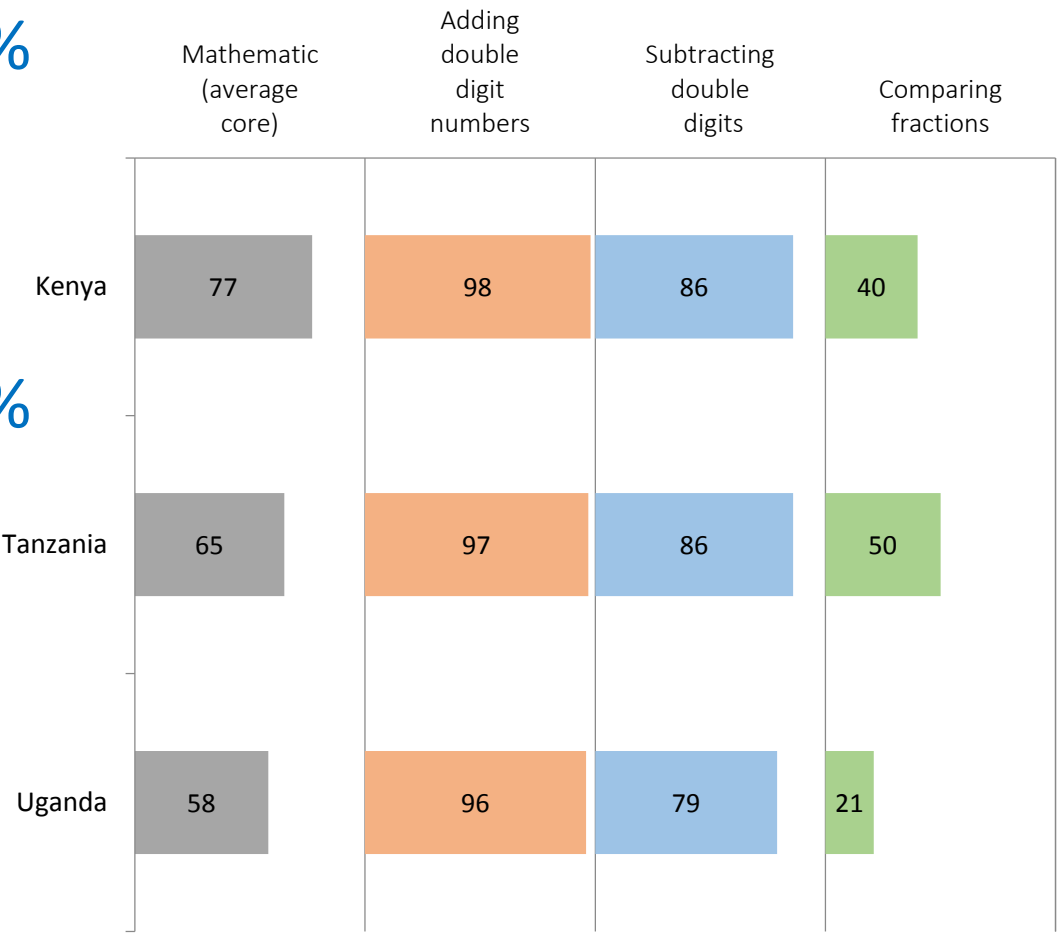
## Grade 6

Numerate – 51%

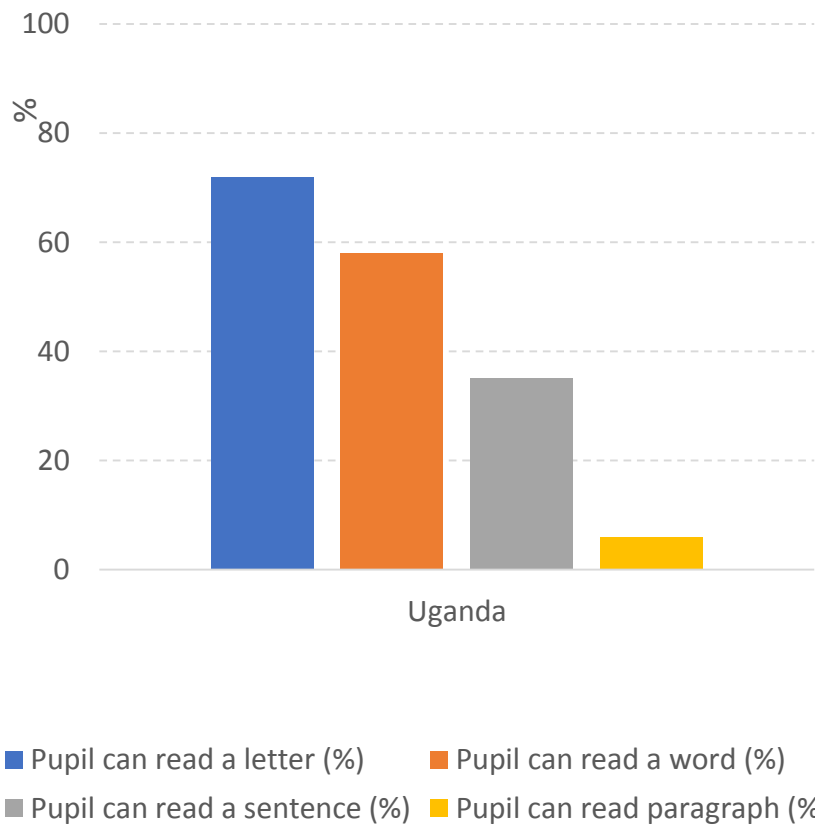
Literate – 53%

Disadvantaged groups: Rural areas & public schools

Teachers SDI scores in Math (% correct response)



Literacy skills in Uganda, 4th grade, 2014



SDI surveys 2012–2016, grade 4

# Uganda needs to increase education budget

- Uganda's public education expenditure, as a share of total public expenditures, **dropped from 15 to 10%** during 2012-18
- Uganda's spending is one of the **lowest in the region** – average is 16% and growing

# Per capita spending is extremely low

## Median Government Expenditure Per Pupil on Primary and Secondary Education, 2014

*Constant 2013 US\$, purchasing power parity*

Regions / Countries	Primary	Secondary	Multiple of Secondary to Primary
Sub-Saharan Africa (all countries)	208	412	1.98
Sub-Saharan Africa (countries with 6-year primary and 3-year lower secondary)	366	817	2.23
Uganda	104	318	3.06
South Africa	2240	2532	1.13

*Constructed from UNESCO 2016*



# Policies and reforms required at PRIMARY LEVEL



Objective: full completion rates of primary education, while improving quality, by 2025.



**1. Expand pre-primary education and early childhood education programs (enrollment of 50%)**



**2. Consistently implement existing automatic promotion policy with accompanying quality-enhancement measures**



**3. Improve transition to lower secondary**

# Policies and reforms required at LOWER SECONDARY LEVEL



Objective: Increasing the lower secondary education enrollment rate by 2025, while reducing geographical and gender equity



**4. Building schools in a cost-efficient manner:  
high-end model is neither required nor sustainable**



**5. Rolling out a new curriculum for lower secondary education**



**6. Implement robust school safety measures, including preventing early marriage and pregnancies**



**7. Adopt transparent policies toward financing from households and for the non-state sector**

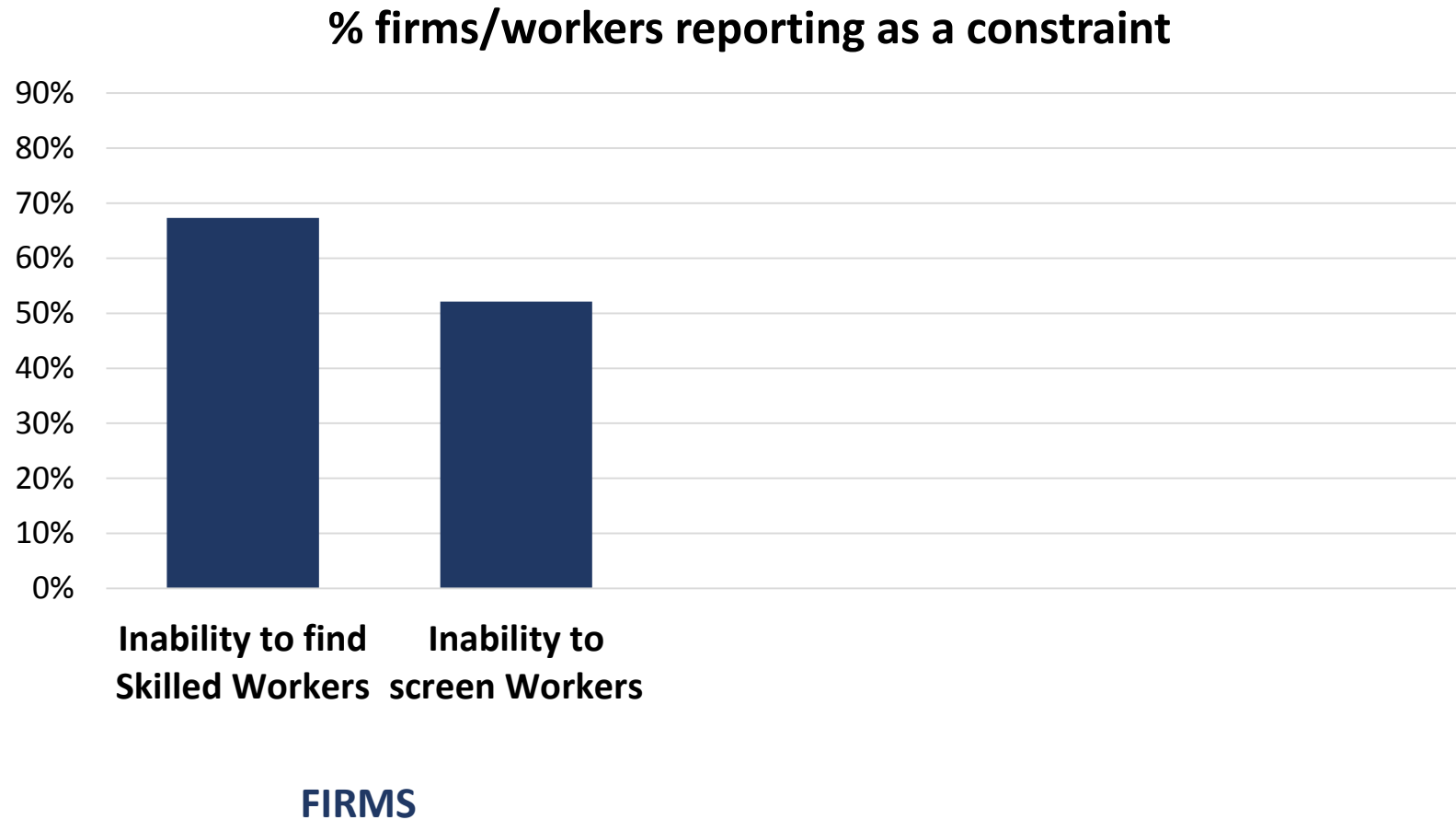
Thank you!

# “Skills Mismatch in the Labour Market: How can Educational Institutions help to equip the Labour Force with Skills and raise Labour Productivity?”

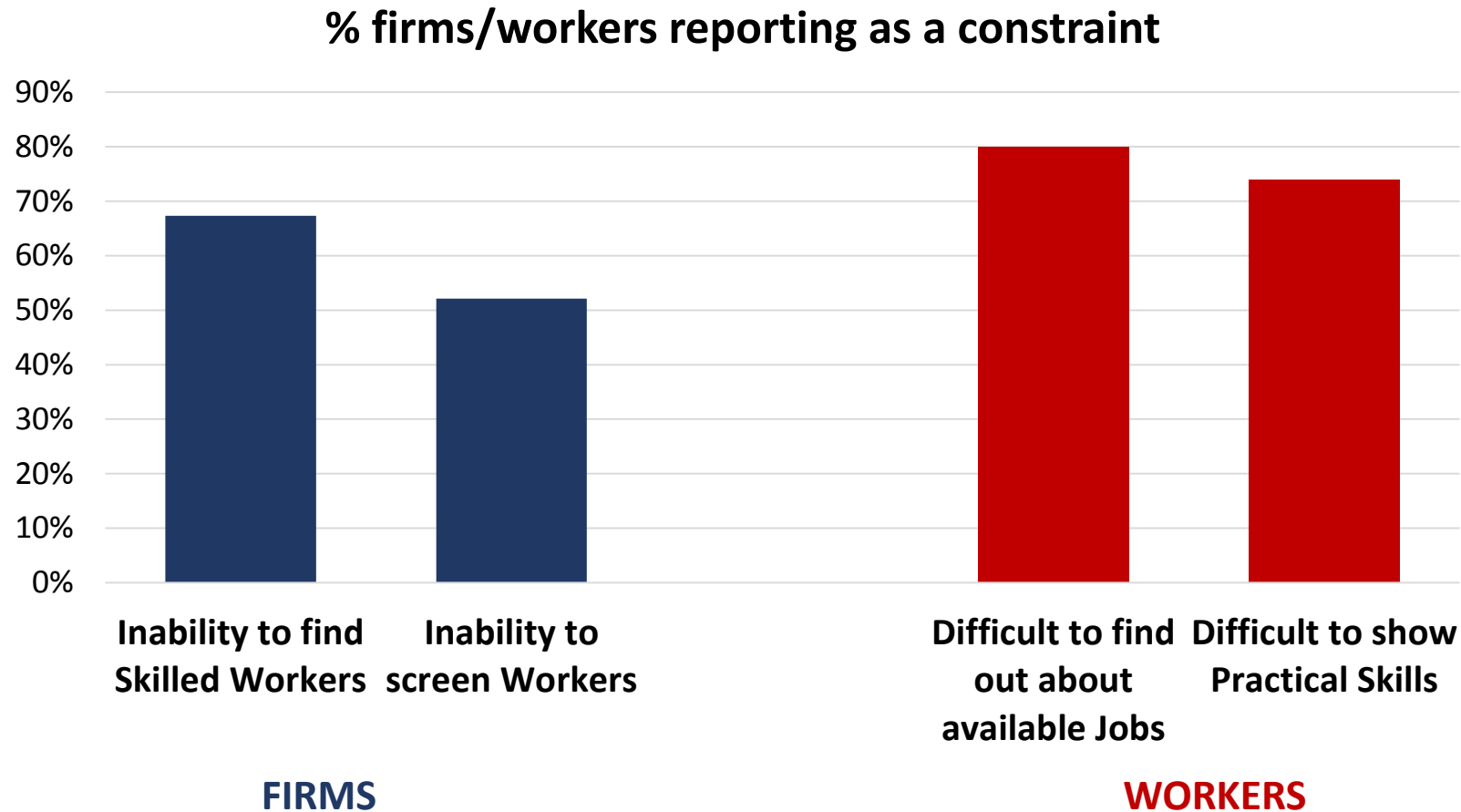
Anna Vitali (UCL)

*Economic Growth Forum*

# Lack of supply and limited information on skills are key constraints



# Even when skilled, workers find it difficult to match with firms



# Three ways to teach workers skills

**1. Formal Education**

**2. Vocational Training (VT)**

**3. Firm Training (FT)**



- Target individuals transitioning into the labor market
- Provide sector-specific skills



# And three ways to improve worker-firm matching

## 1. Vocational Training

- Provides skills that are *certifiable* to new potential employers

## 2. Firm Training

- Allows learning about worker / firm quality during subsidized training period

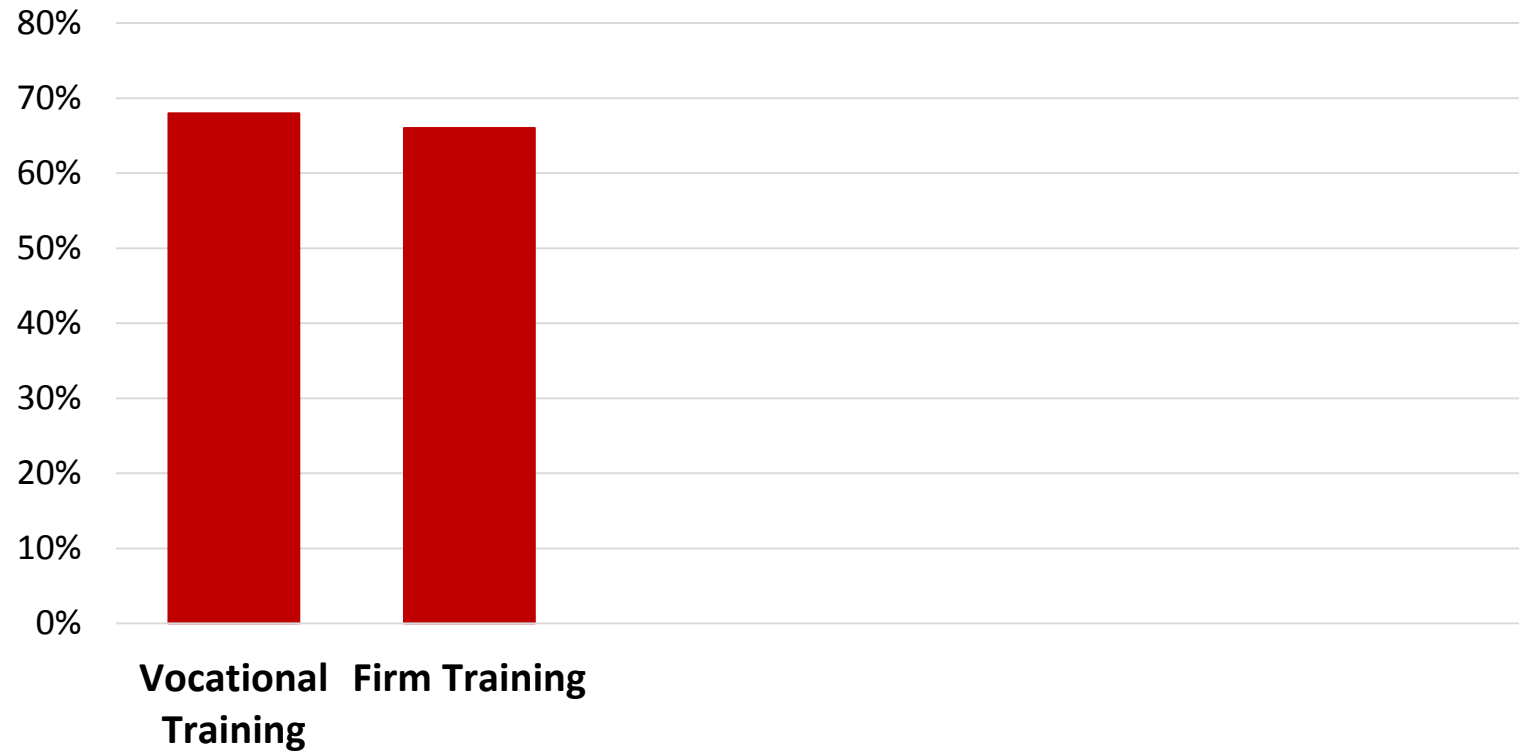
## 3. Job Search Assistance (JSA)

- Reduces cost of searching for potential workers / job vacancies

# Our Experiment

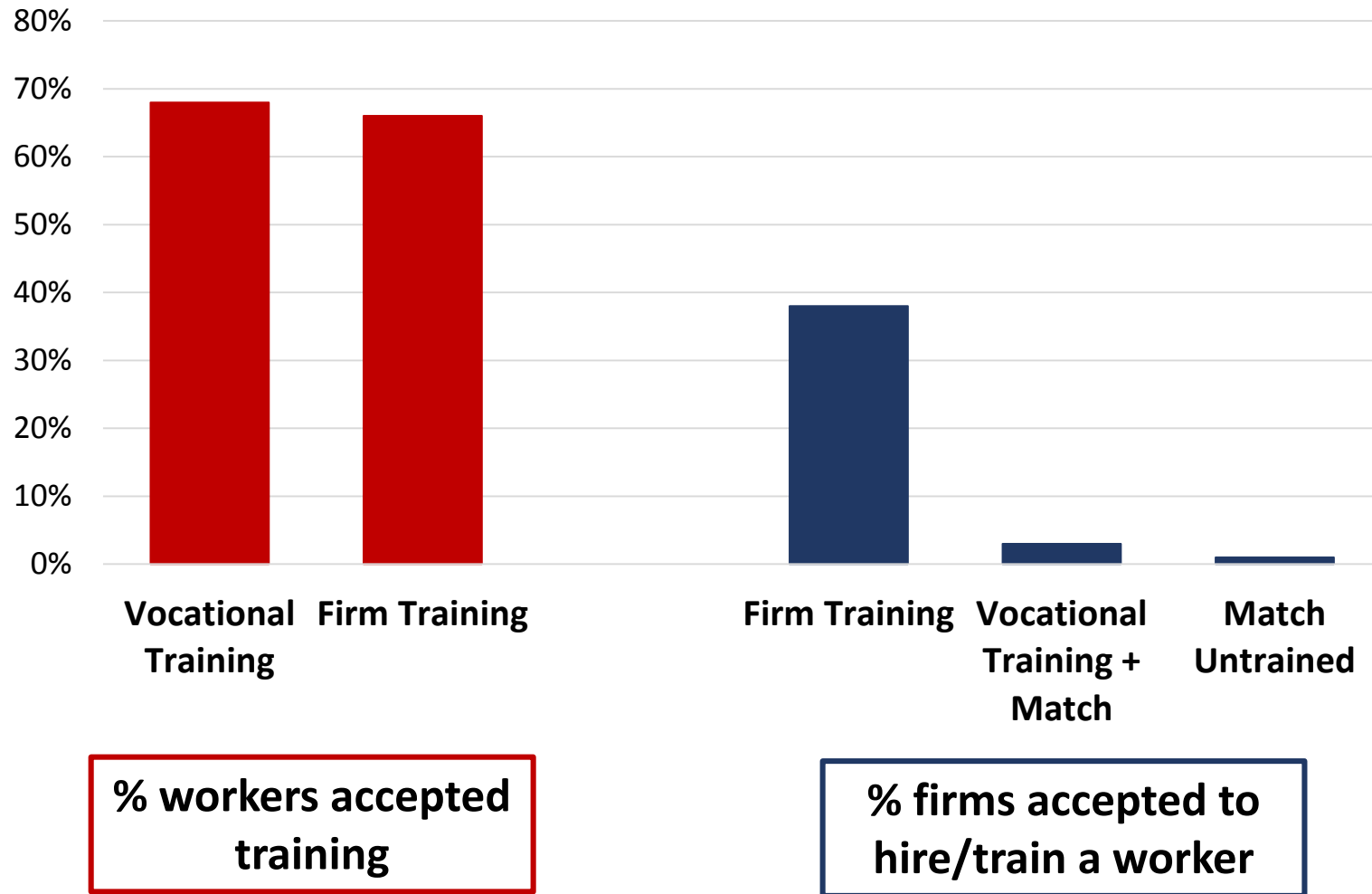
- **Vocational Training:** 6 months sector-specific training in accredited vocational training institutes
- **Firm Training:** offer of 6 months wage subsidy to SMEs to hire and train one worker on-the-job
- **Matching:** Firms presented with a list of workers
  - Willing to work and vocationally trained (Vocational training + Match)
  - Willing to work but untrained (Match Untrained)

# Workers are very interested in learning skills

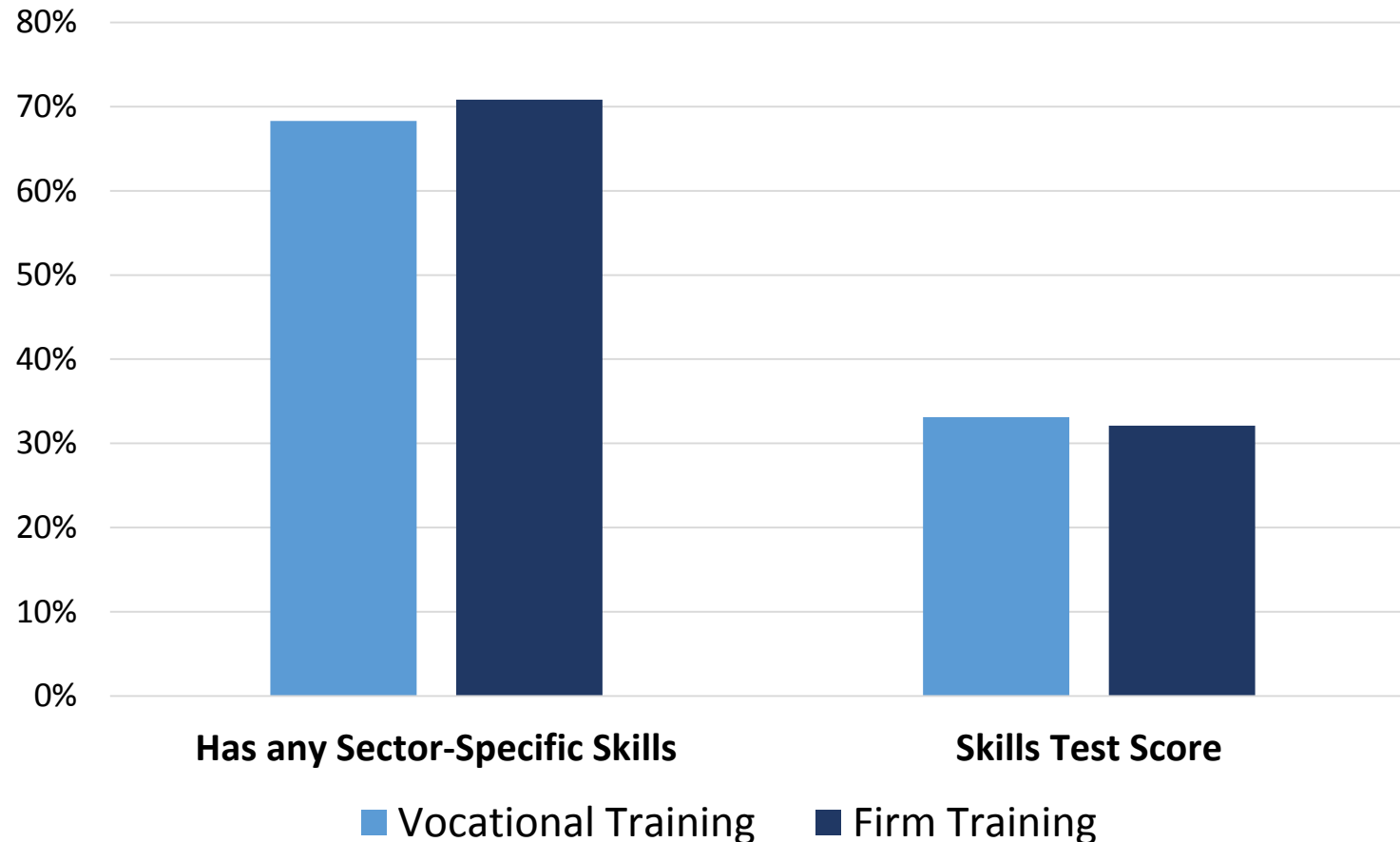


**% workers accepted  
training**

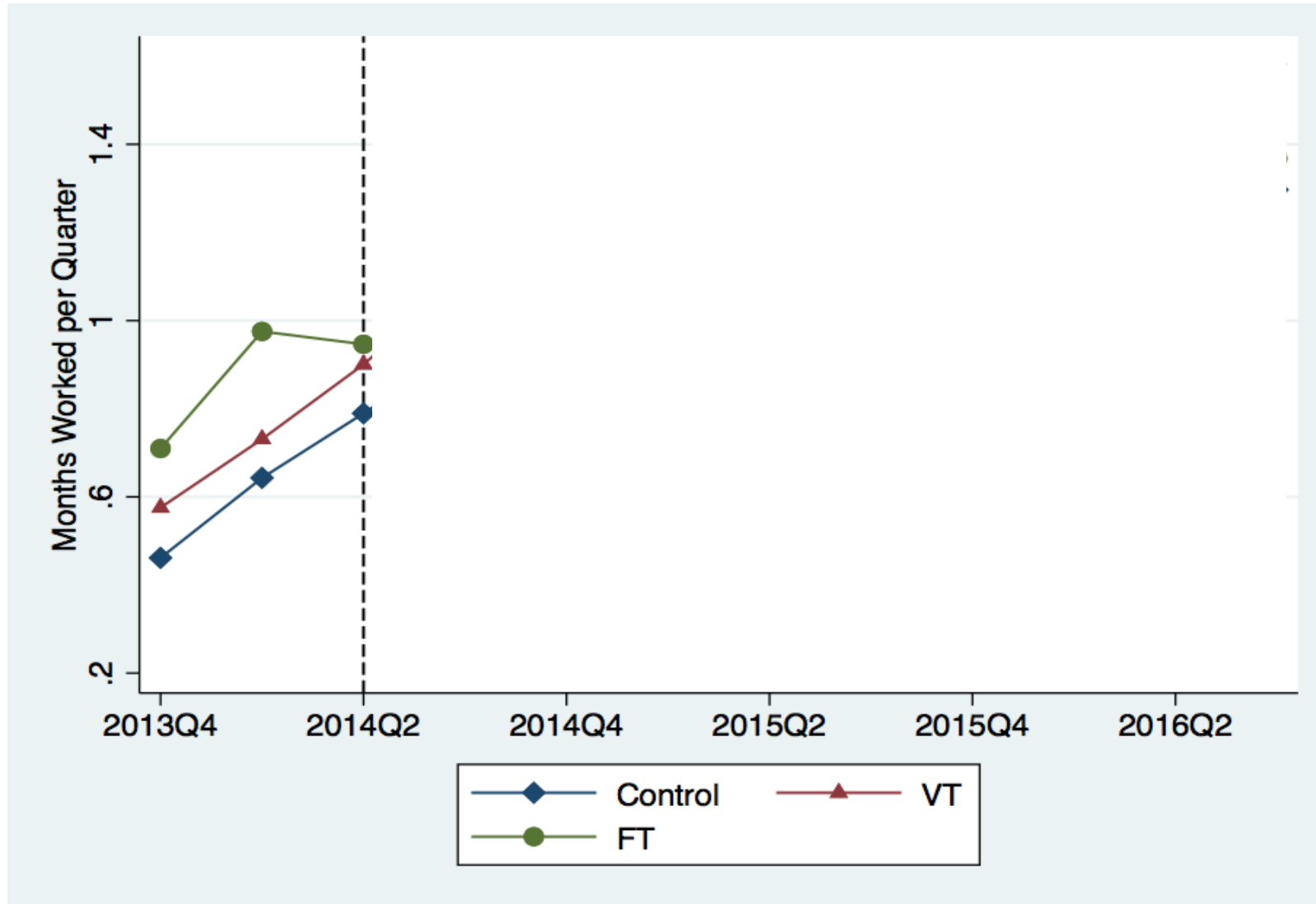
# But firms are only willing to train workers if subsidized



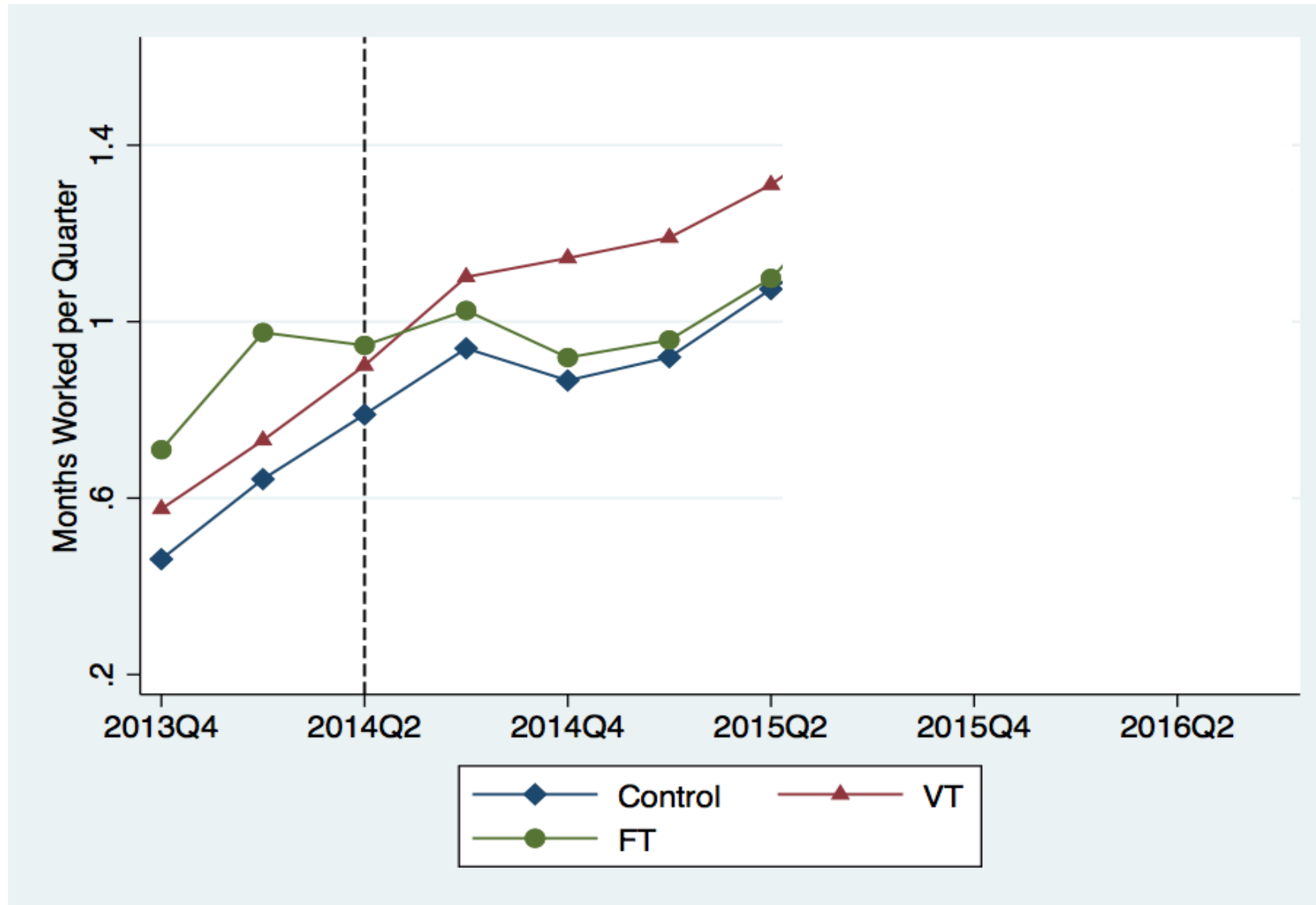
# VT and FT are both effective at increasing workers' skills



# FT workers find employment more quickly than VT workers

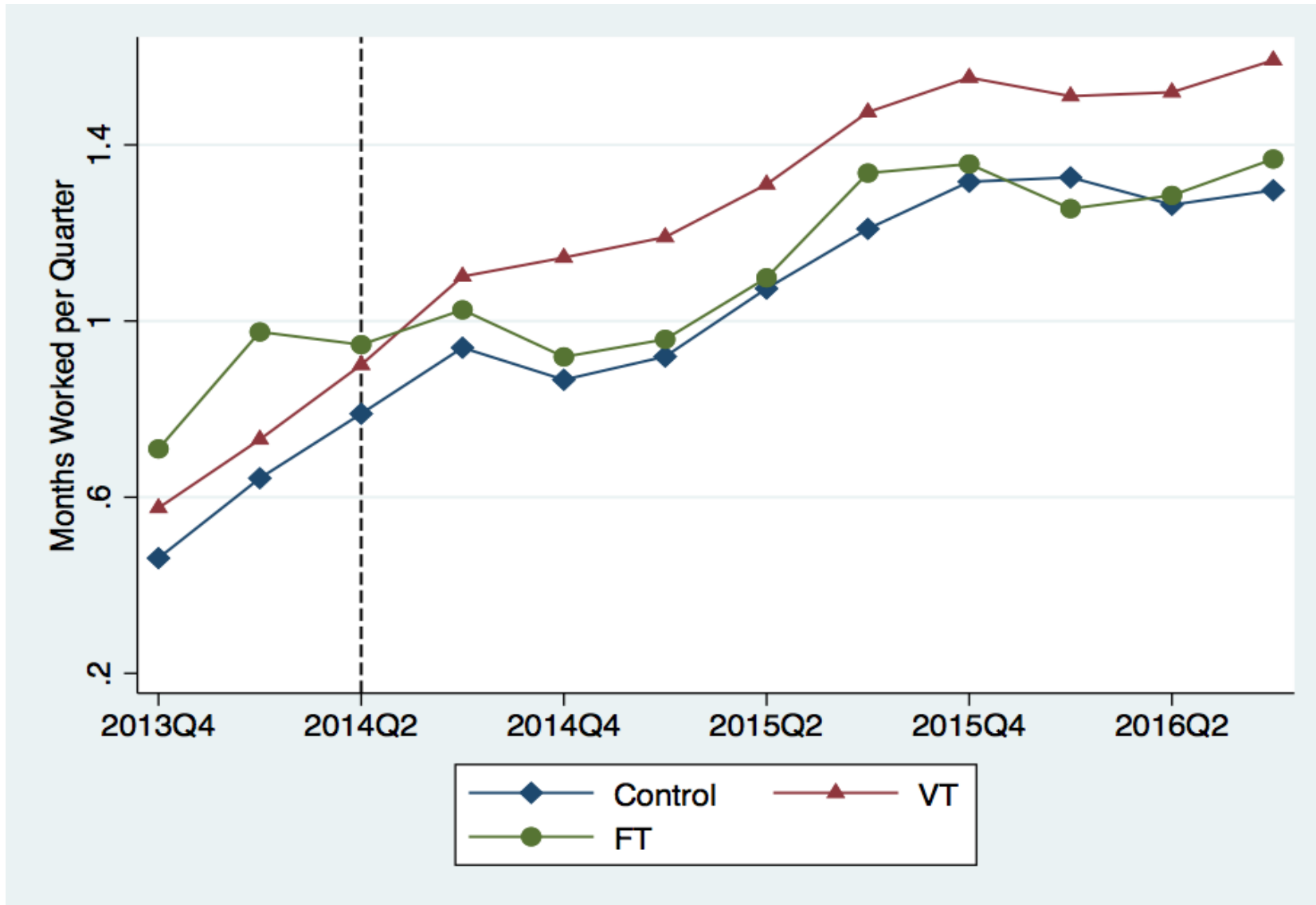


# Over time FT converges to the control group, while employment rates for VT increase





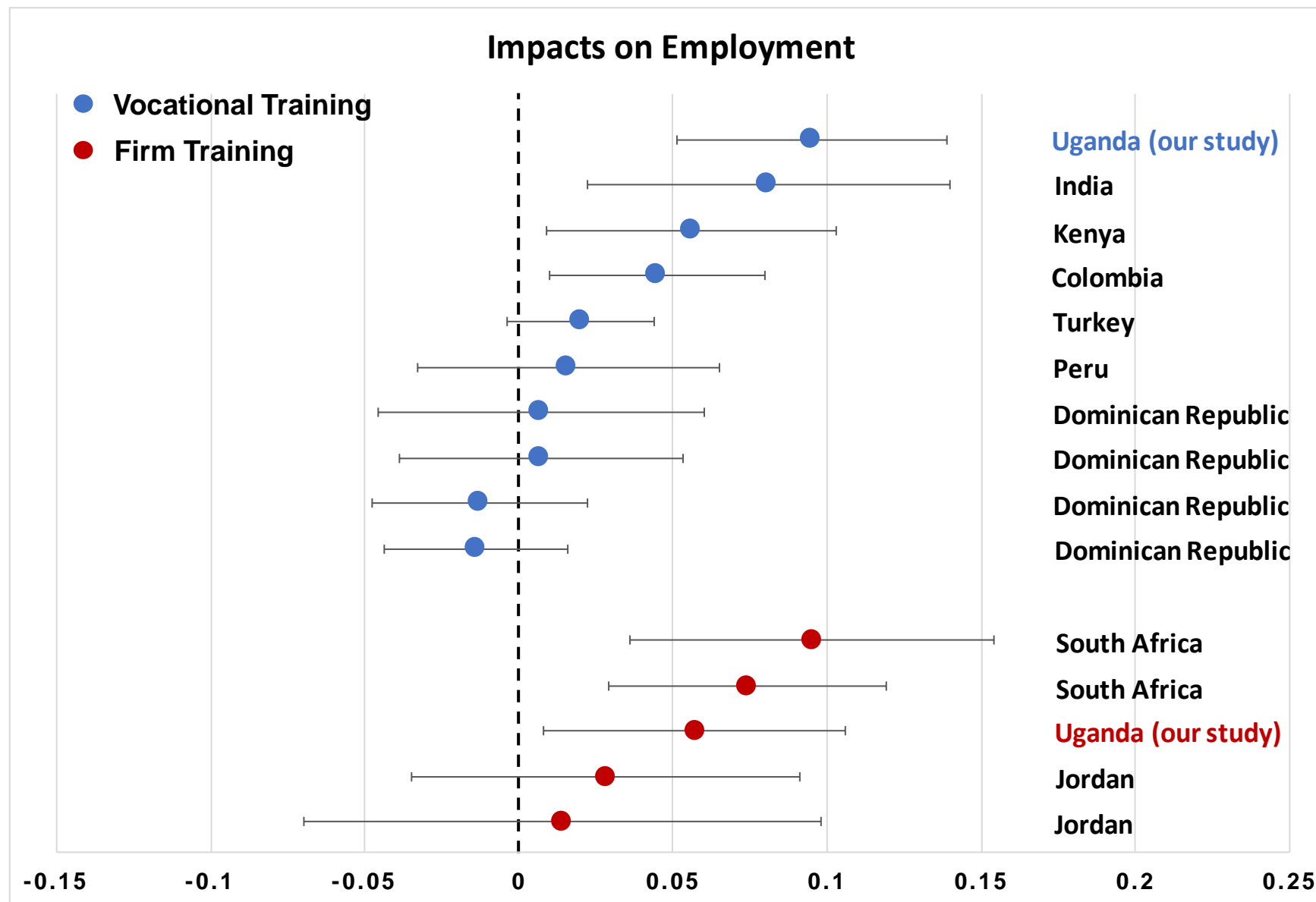
# And diverge away from the control group



# Overall, VT is more effective than FT at tackling youth unemployment

- VT and FT workers acquire a similar level of skills
  - Once employed, both types of workers are **equally productive**
- Key difference between treatments is ***certifiability*** of skills
  - When unemployed, VT workers are more likely than FT workers to find a job
- Extremely important for policy purposes to track outcomes over the **long-run**

# The evidence from the literature is mixed



# VT: What did we learn?

- **Addressing Worker Take-up and Drop-out**

- Our study: staggered payment structure to VTIs to ensure completion
- Our study: lower take-up among women – childcare provision?
- India: monthly deposit only repaid to trainees upon completion

- **Matching Demand for Skills**

- Our study: targeted sectors that jointly employ 23% of Ugandan youth
- Kenya: sectors in which growth was expected according to the national development plan
- Kenya: private employers involved in defining competences and developing training plans
- Kenya, Colombia, Dominican Republic, Peru, Bangladesh: combination of classroom and on-the-job training

- **Ensuring Certifiability of Skills**

- Our study: accredited VTIs, reputation of high-quality
- Turkey: larger impacts for private vs. public providers

# FT: What did we learn?

- **Addressing Firm Take-up**

- Argentina, South Africa: no take-up due to labor regulations associated with new hires
- Our study, Jordan, Sri Lanka: take-up 24-50%, mostly among less productive firms – credit constraints key limiting factor

- **Monitoring Training Provision**

- Our study: close monitoring through attendance registry and random spot-checks
- Our study: explicit contractual agreement establishing payback of entire subsidy if worker not trained

- **Ensuring Certifiability of Skills**

- Our study, Jordan, Sri Lanka: workers leave firms after the end of the subsidy; no long-term effect on employment as skills not certifiable
- Uganda, South Africa: high returns of certifying workers' skills / work experience through formal certificates and reference letters

# Policy Recommendations

1. Incentivize worker and firm take-up
2. Provide skills that are in demand
3. Monitor skills provision
4. Ensure skills certifiability

# Human Capital Requirements in a Digital Economy



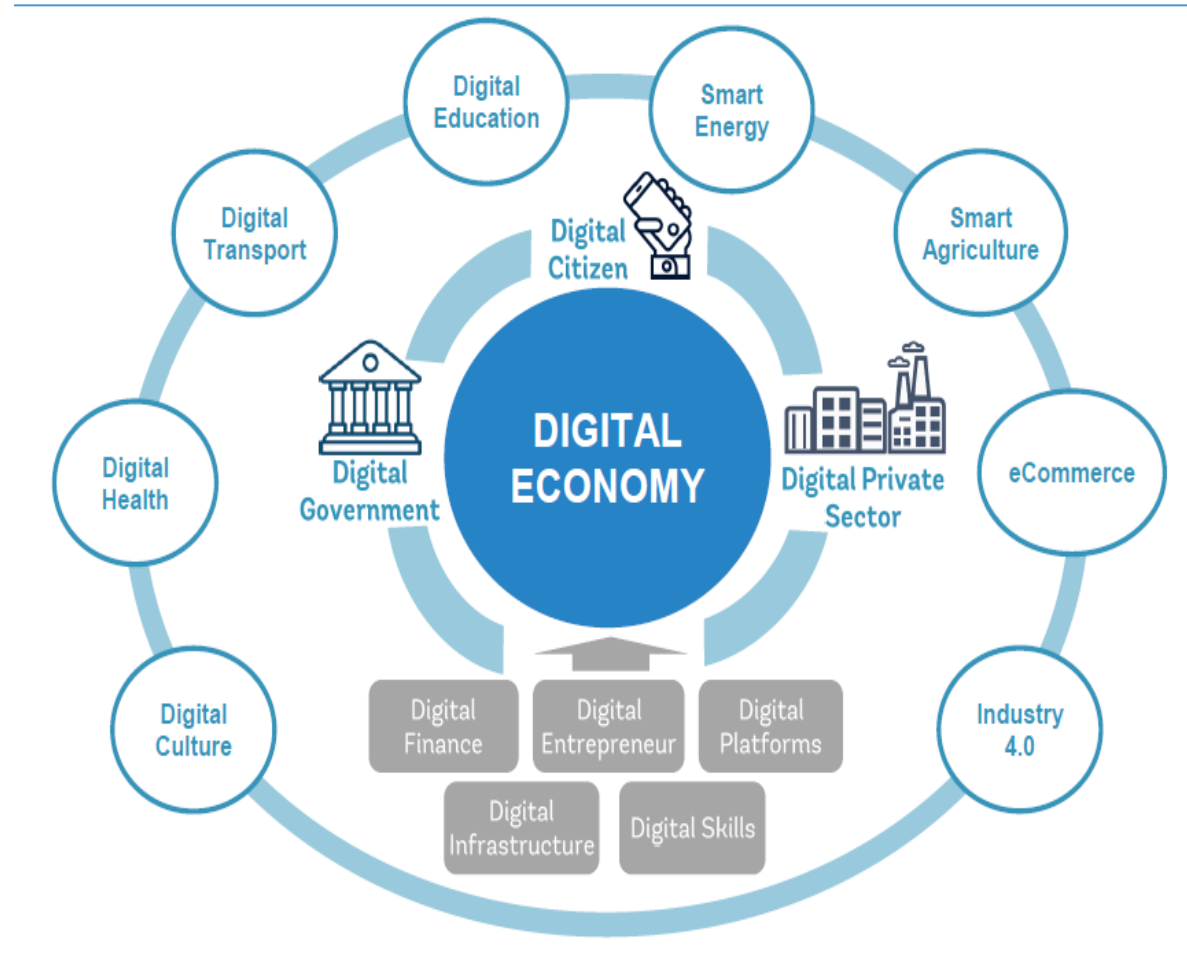
**THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP



# Outline

- Description of the Digital Economy
- Skills needed
- Opportunities to acquire those skills
- Level of preparedness
- What is required

# Digital Economy – the future is digital.



## Examples in Uganda

- Finance
- Agriculture
- E-government or e-services

# Every African individual, business and government is Digitally Enabled\* by 2030



## DIGITAL INFRASTRUCTURE

Universal Internet network coverage

Affordable Internet for All at less than 2% of GNI per capita



## DIGITAL SKILLS

All 15 year old students with basic 'digital skills' competencies

100,000 graduates in advanced digital skills programs annually



## DIGITAL PLATFORMS

Doubling of Online Services Index rating for all Governments

All individuals are able to prove their identity digitally

At least 50% of the population regularly uses the Internet to access Government or Commercial services



## DIGITAL FINANCIAL SERVICES

Universal Access to Digital Financial Services

Africa-wide payments infrastructure/platform in place



## DIGITAL ENTREPRENEURSHIP

Tripling the number of new digitally-enabled businesses created annually

Financing for Venture Capital to reach .25% of GDP

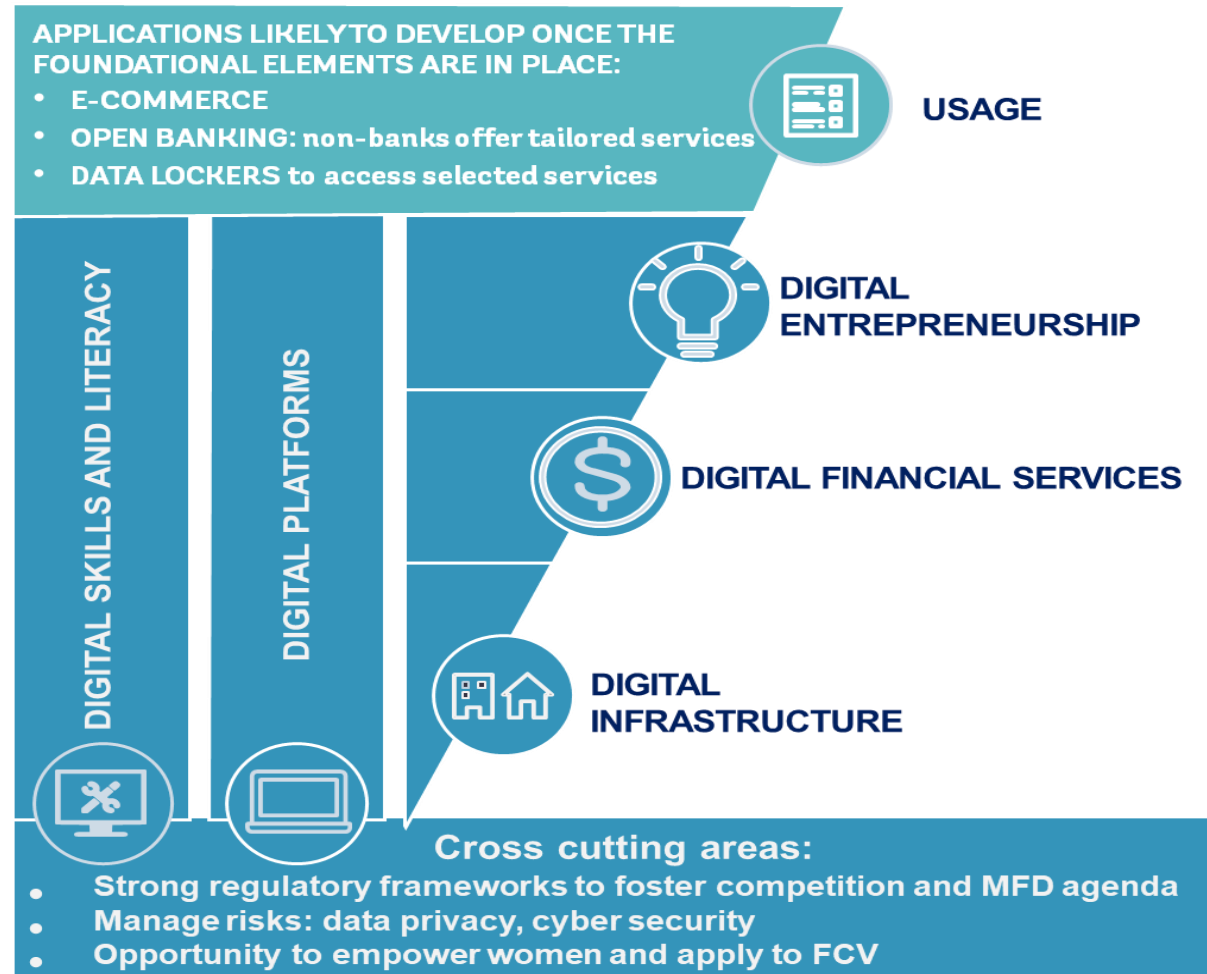
\* Being "Digitally Enabled" implies having digitally-enabled access to services, markets, opportunities.

The WBG's Digital Adoption Index may be a relevant indicator for measuring this, complemented by the headline measures above for the 5 foundations

# An Ecosystem Approach To Building the Digital Economy

For a successful and **inclusive digital economy**, African countries would require building **key foundational elements** of a digital economy.

These foundations are **synergistic** and require the use of public and private sector solutions.



What Skills Are Needed

# Current Status:

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*a key determinant of economic development, productivity and wealth*



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### Schooling

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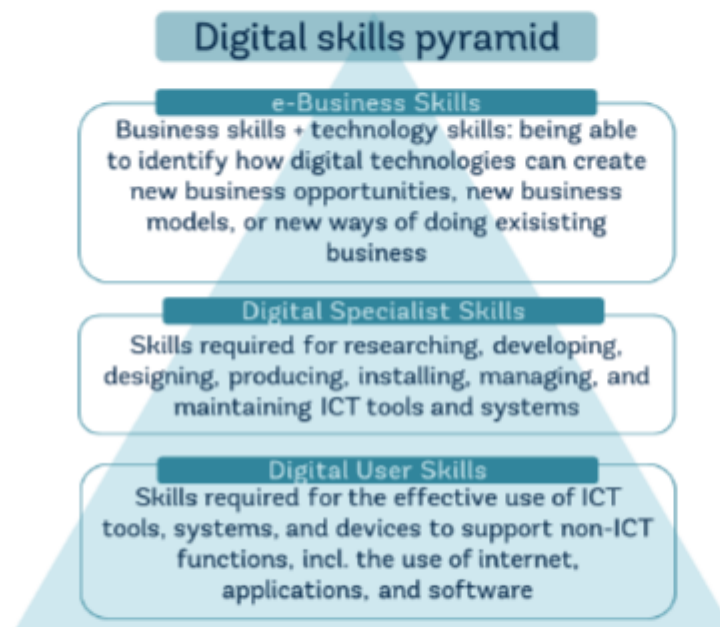
# Human Capital: Building Digital Skills of Tomorrow Can Fuel the Digital Economy

Employers across Africa note **skill gaps** as a major constraint to their ability to compete in the global digital economy. A shortage of technical talent impedes **productivity and innovation** in African businesses.

**Technological adoption and innovation** depend on tech-savvy skills to help drive innovation.

Enrollment in education has increased in Africa, but basic numeracy and literacy indicators remain low.

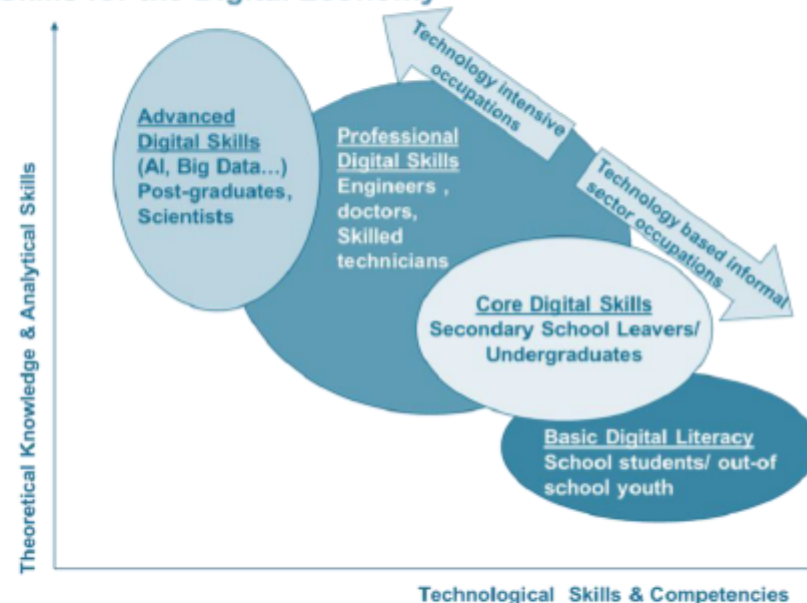
Could HCI could be expanded to cover Digital Literacy/Skills?



Source: Entrepreneurship in the Digital Economy Report (WB, 2017)







## Skills for the Digital Economy





DOMAINS, COMPLEXITY, PROFICIENCY and EDUCATION LEVELS

Cognitive Domain	Remembers	Understands	Evaluates and applies knowledge	Deep theoretical knowledge, high analytical skills. Ability to create
Autonomy / Complexity of tasks	Simple tasks with guidance 	Well defined , routine and non-routine tasks ; needs some guidance 	Uses technology, can provide guidance to others in range of tasks and new situations 	Develops new products, services, applications. Proposes new ideas for complex tasks and resolves complex problems 
Proficiency Levels	FOUNDATION	INTERMEDIATE	ADVANCED	HIGHLY SPECIALIZED
Education Level	BASIC EDUCATION OR EQUIVALENT	UNDERGRADUATE, TVET, UPPER SECONDARY OR EQUIVALENT	UNDERGRADUATE OR EQUIVALENT	POSTGRADUATE LEVEL OR HIGH QUALITY UNDERGRADUATE

Adapted from EU DigComp 2.0 with additions

# NEW COURSES ARE REQUIRED and NEED TO BE TAUGHT DIFFERENTLY






Digital Skills Level	
	</

**The indicators that could be used are below:**

- Percentage of 15-year old who have basic digital skills (target: all 15-year old by 2030)
- Number of graduates produced annually with advanced digital skills (target: 100,000 annually by 2030)

# A RANGE OF EDUCATIONAL TECHNOLOGIES CAN BE USED

## Formal Education: A Taxonomy of Education Technologies By Cluster

Cluster	Description and Applications	Illustrative Cases /2
<b>Digital Content</b>	Digital Courseware including math, science and literacy, K12 STEM and higher education, technical vocational and higher education courses. Large systems of open educational resources (OER) and proprietary coursewares. Most providers provide adaptive tools.	
<b>Online Learning and Mobile Learning</b>	eLearning programs for self-paced, online and blended learning formats, offered through open online systems, hyperscale course providers and mobile learning platforms. Course formats include recorded video lectures, auto-graded and peer-reviewed assignments, and online community discussion forums.	
<b>Learning Management Systems (LMS)</b>	Online learning delivery platform for fully online courses, and hybrid forms including blended-learning and flipped classrooms. Different systems for K12, higher education, and workforce development.	
<b>Teacher Support and Classroom Management</b>	Digital teachers professional development, preservice and in-service. Curriculum and lesson plans for teachers to support curation and sharing of exceptional learning experiences. Empowers teachers to delivering quality content for the best outcomes for learners.	
<b>Student Assessments</b>	Methods for assessing student learning; tools allow teachers to assess student understanding, provide feedback for personalized student learning, help students track their progress and focus on key areas of study; quizzing tools to increase interactivity and improve learner engagement.	

How Prepared Are We?

# INDICATORS USED TO CLUSTER (29 COUNTRIES)



## ACCESS

- Mobile cellular subscriptions (per 100 people)
- Active mobile-broadband subscriptions per 100 inhabitants
- Households w/ personal computer, %
- Fixed broadband subscriptions (per 100 people)
- International Internet bandwidth, kb/s per user



## SKILLS/CAPABILITIES

- Gross enrolment ratio, lower secondary, both sexes (%)
- Gross enrolment ratio, upper secondary, both sexes (%)
- Gross enrolment ratio, tertiary, both sexes (%)
- Adult literacy rate, population 15+ years, both sexes (%)



## AFFORDABILITY

### PRICING AND TAXATION

- Price of Mobile-broadband, prepaid handset-based (500 MB) as % of GNI p.c.
- Tax rate include in Mobile-Broadband (%)



## USE

### BANKING

- Adults with Bank Account (% age 15+)
- Made or received digital payments in the past year (% age 15+)

### ONLINE CONNECTIVITY

- UN Online Service Index-OSI (0-1)

### IDENTIFICATION

- Formal ID coverage (%)

## INDICATORS AND SECTORS

Dimensions		ICT indicators	Source
Access	1	Mobile cellular subscriptions (per 100 people)	World Bank (WB)-World Development Indicators (WDI) from (International Telecommunications Union (ITU,) World Telecommunication/ ICT (WTI) Report and database (2015)
	2	Active mobile-broadband subscriptions per 100 inhabitants	WB TCData 360 (Open Trade and Competitiveness Data), taken from ITU WTI Report and database
	3	Households w/ personal computer, %	World Economic Forum (WEF) Global Information Technology Report 2016, taken from ITU, WTI Report and Indicators Database (2015)
	4	Fixed broadband subscriptions (per 100 people)	WB TCData 360, taken from ITU, WTI Report and database
	5	International Internet bandwidth, kb/s per user	WEF Global Information Technology Report 2016, taken from ITU WTI Report and Indicators Database (2015)
Price and Taxing	6	Price of Mobile-broadband, prepaid handset-based (500 MB) as % of GNI p.c.	ITU ICT Prices 2017 Report (Table 3)
	7	Tax applicable on mobile service (as % of total sale sale)	ITU ICT Prices 2017 Report (Table 3)
Banking	8	Adults with Bank Account (% age 15+)	The WB Global Findex 2017 Database
	9	(*) Made or received digital payments in the past year (% age 15+)	
Digital Adoption	10	(*) UN Online Service Index-OSI (0-1)	UN E-Government Development Database (UNeGovDD), ca 2018
	11	(*) Formal ID coverage (%),	WB Identification for Development (ID4D) Global Database, ca2018
		Education Indicators	Source
Skills	1	Gross enrolment ratio, lower secondary (%)	UIS.Stat Database Release September 2018
	2	Gross enrolment ratio, upper secondary, (%)	UIS.Stat Database Release September 2018
	3	Gross enrolment ratio, tertiary (%)	UIS.Stat Database Release September 2018
	4	Adult literacy rate, population 15+ years (%)	UIS.Stat Database Release September 2018

# COUNTRY CLUSTERING

Using 11 ICT indicators

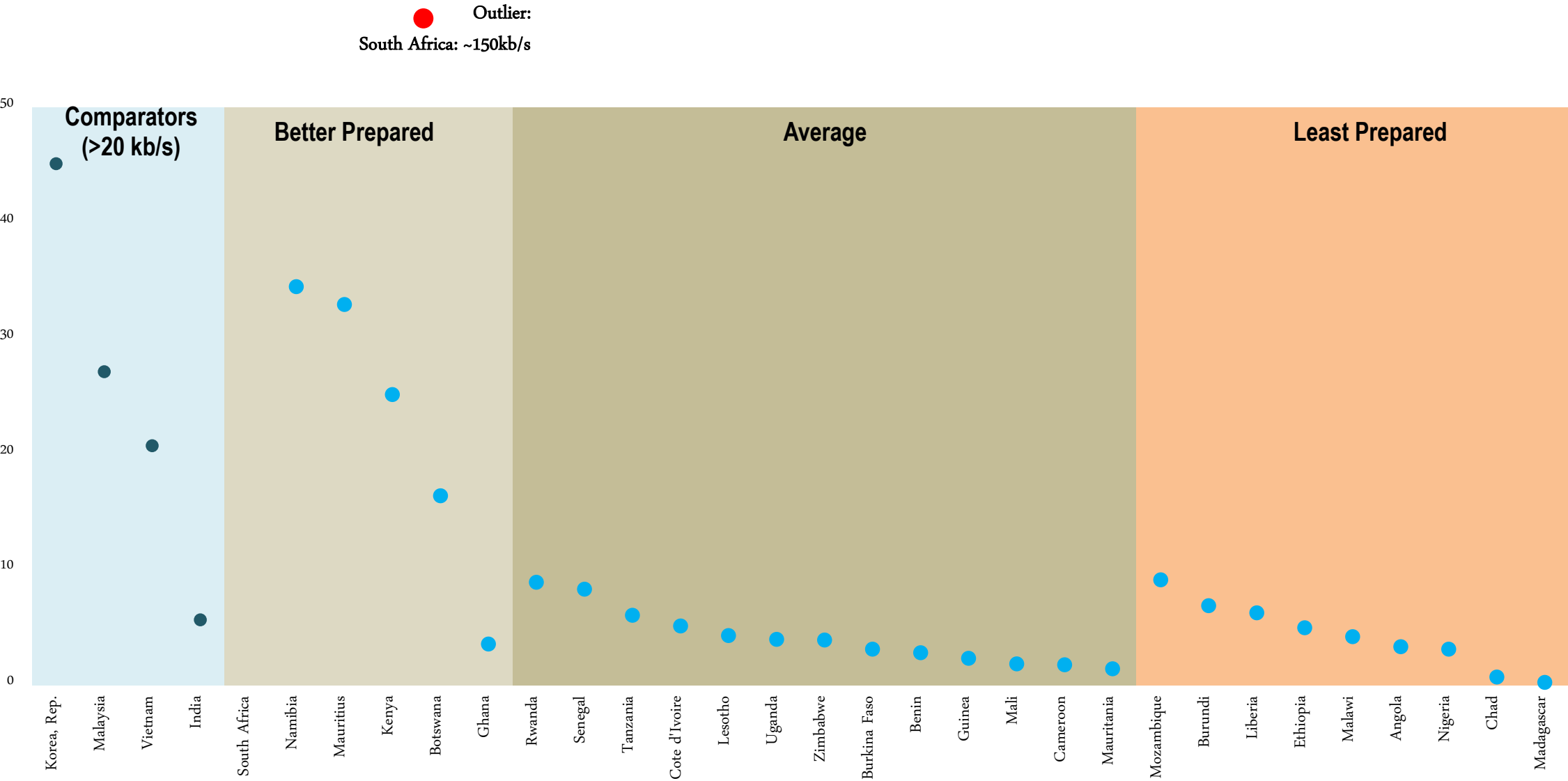
Using 11 ICT indicators and 4 education indicators

3 Clusters using 11 ICT indicators			
Outlier	Better Prepared	Least Prepared	
South Africa	Botswana	Angola	Malawi
	Cote d'Ivoire	Benin	Mali
	Gabon	Burkina Faso	Mauritania
	Ghana	Burundi	Mozambique
	Kenya	Cameroon	Nigeria
	Mauritius	Chad	Rwanda
	Namibia	Ethiopia	Senegal
		Guinea	Tanzania
		Lesotho	Uganda
		Liberia	Zambia
		Madagascar	Zimbabwe
1	7	22	

3 Clusters using 11 ICT indicators and 4 education indicators		
Most Prepared	Average	Least Prepared
Botswana	Benin	Angola
Ghana	Burkina Faso	Burundi
Kenya	Cameroon	Chad
Mauritius	Cote d'Ivoire	Ethiopia
Namibia	Guinea	Madagascar
South Africa	Lesotho	Malawi
	Rwanda	Mozambique
	Tanzania	Nigeria
	Uganda	Liberia
	Mauritania	
	Mali	
	Senegal	
	Zimbabwe	
6	13	9

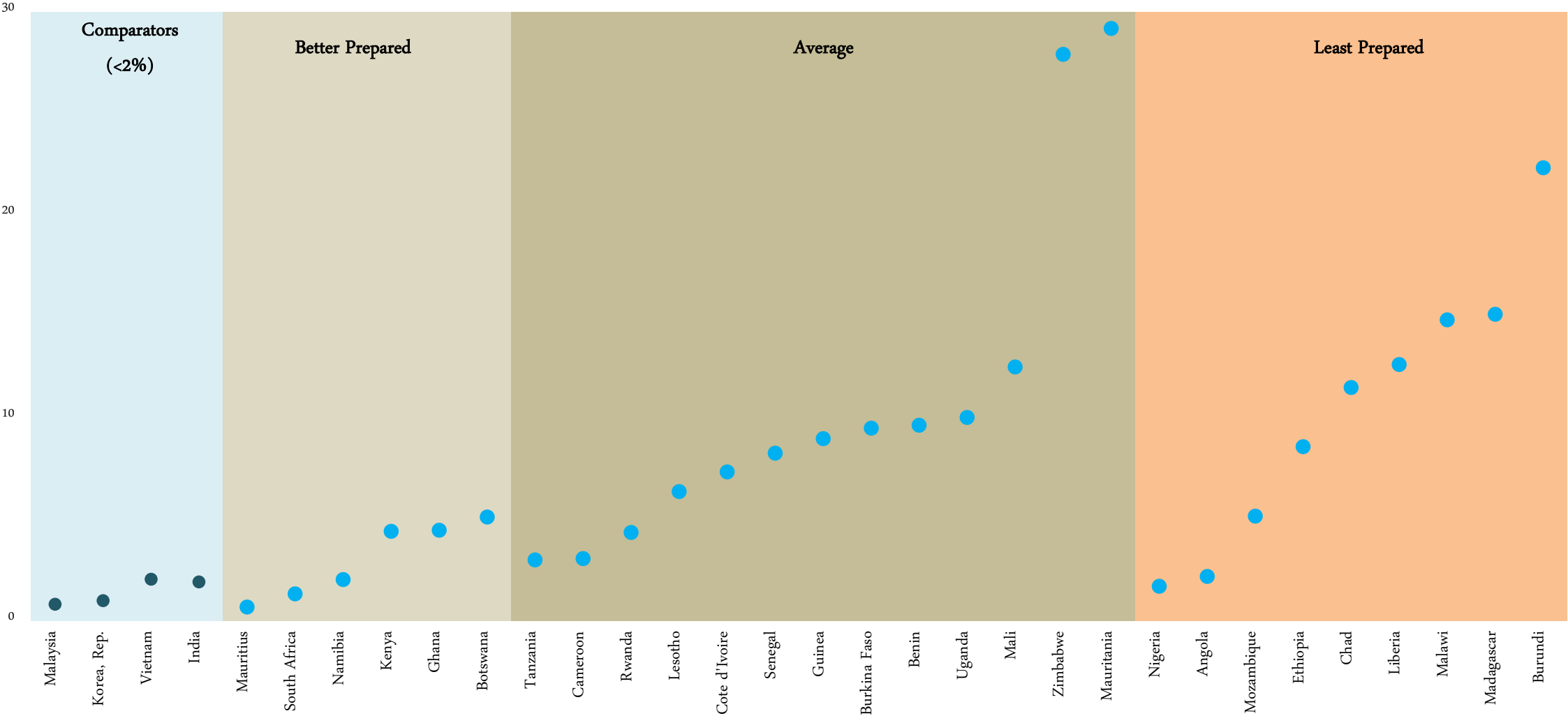


# INTERNATIONAL INTERNET BANDWIDTH, KB/S PER USER - COUNTRIES CLUSTERED BY ICT AND EDUCATION INDICATORS

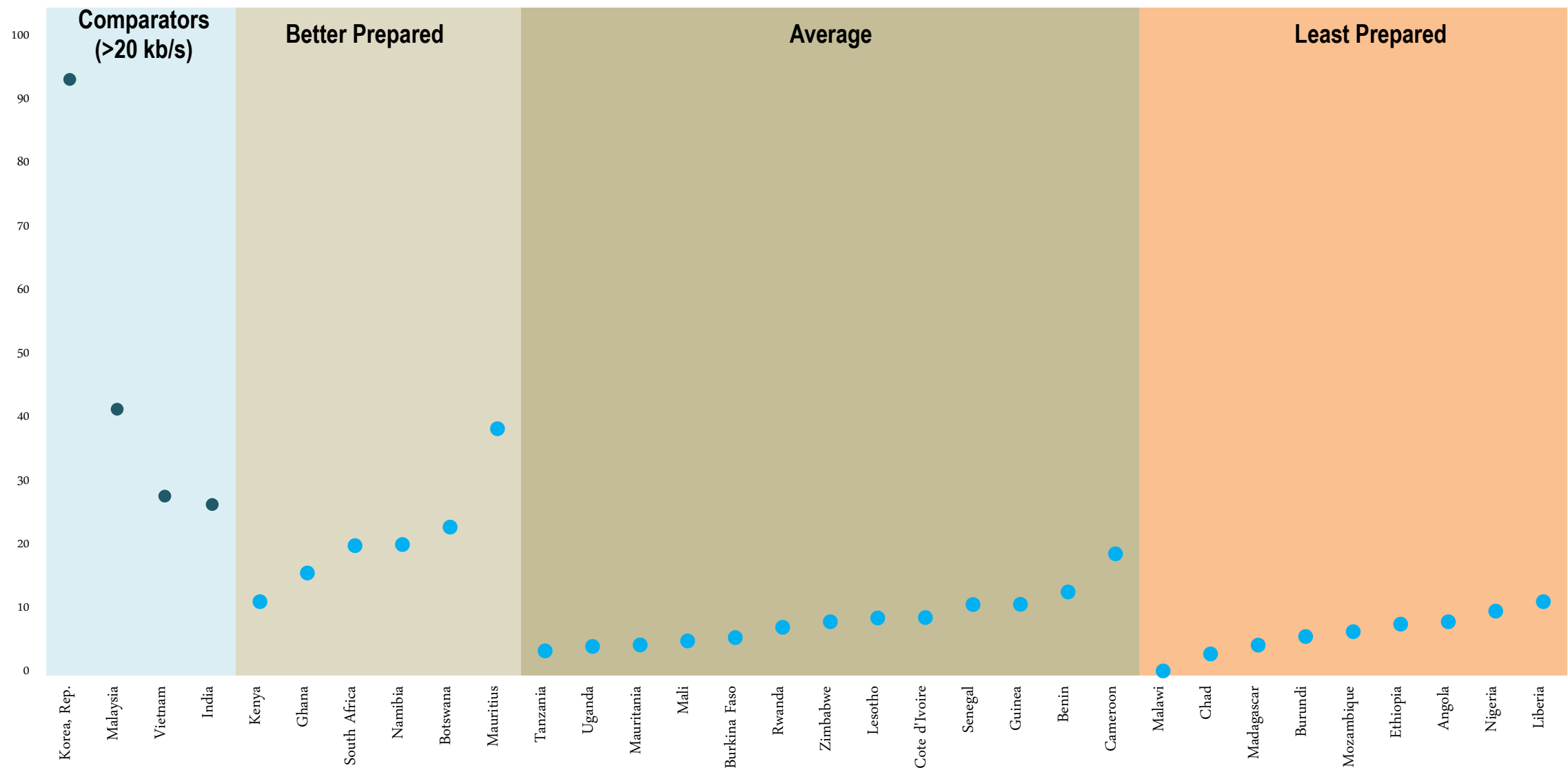


PRICE AS % OF GROSS NATIONAL INCOME PER CAPITA –  
AFFORDABILITY TARGET IS 2 %

Not in graph:  
Congo, Dem. Rep. (44)  
Guinea-Bissau (103)  
Somalia (130)



TERTIARY GROSS ENROLMENT RATIO, ca 2017 – Median is 9 percent in SSA



# THREE SCENARIOS

Adaptation based on 3 scenarios in IMF, Oct 2018

## 1: AFRICA ARISEN



Young entrepreneurs access markets

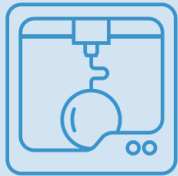


Farmers use  
technology



Education quality  
improves

## 2: AFRICA FOR AFRICA (2040)



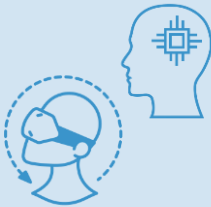
Small manufacturers emerge



Agriculture  
improves



AR improves tourism and  
entertainment



AI and VR enhance knowledge sharing

## 3: AFRICA ADRIFT



Global market changes



Climate change hits Africa hard



Education remains a challenge



Majority of people work low-paying informal  
jobs



Poverty is difficult to escape



Crime runs high

# What is required?

- Training at basic literacy
- Training in basic digital literacy
- Human centered design
- Address gender barriers to participation
- Advanced high level skills
- Collaboration between both public and private sectors on market demands and supply of skilled people.
- Collaboration between various Ministries as per mandate.
- Ensuring institutions are teaching a relevant curriculum
- Focus on innovation and entrepreneurship.
- Beyond the education sector government will have to ensure increased connectivity and affordability.