



**As much to be gained by merchandise as
manufacture?**

**The role of services as an engine of
growth**

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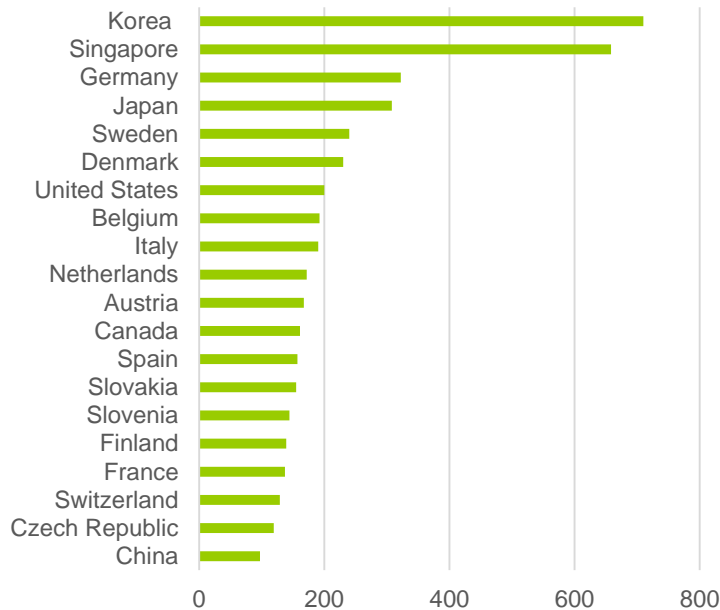
Introduction

- Co-authored with **Sukti Dasgupta** and **Luis Piñedo-Caro** (ILO)
- Published in *The Japanese Political Economy* (2019)
- W. Petty (1691): “There is much more to be gained by manufacture than by husbandry, and by merchandise than by manufacture.”

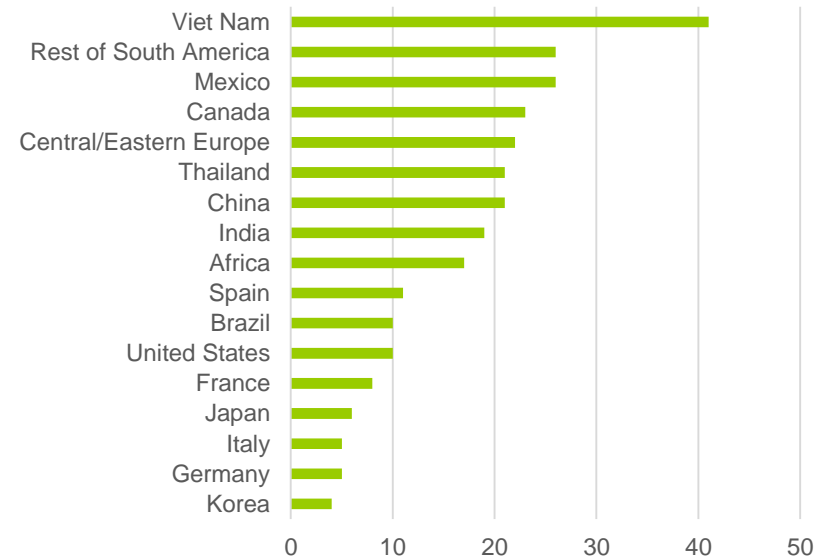
Motivation

- Today's rapid technological advances (e.g. robotics, 3D printing) provides opportunities to developing countries for leapfrogging but could also foreclose the classical development path (including through reshoring)

Number of installed industrial robots per 10,000 employees in the manufacturing industry, 2017



Projected compound annual growth rate in annual shipments of robots, 2019-21



Source: International Federation of Robotics (IFR), World Robotics 2018.

Research questions

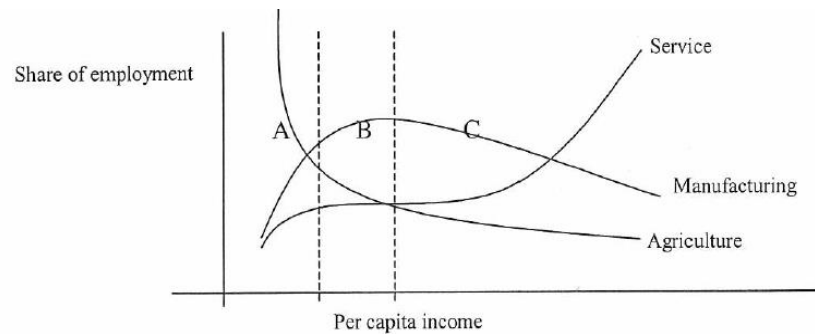
- What is the economic structure that promotes job-rich, sustainable and equitable economic growth?
- Is manufacturing still the engine of growth (as was the case for developed (industrialized) countries and “NIEs” of 1980s/90s?)
- Or do we need to look elsewhere – notably to services to play a dominant role in fuelling economic growth and jobs in today’s developing countries?
- And if so, what are the policy implications for developing countries?

Empirical background

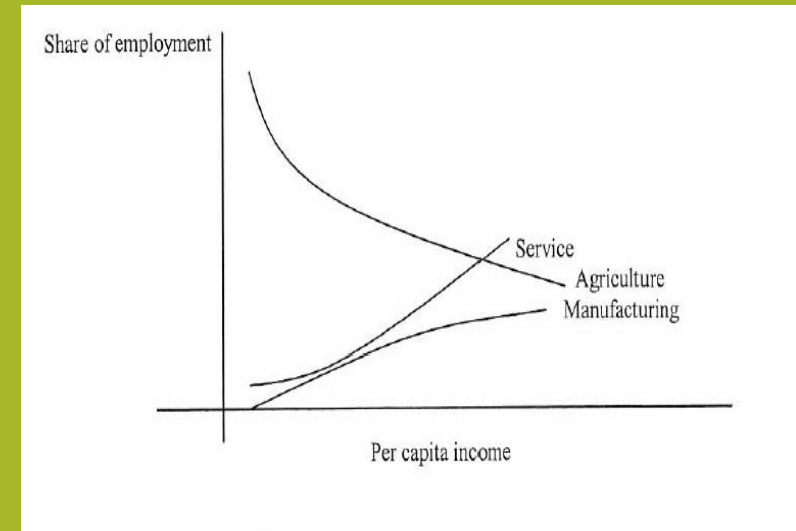
- **Data:** Database construction, including with microdata files of Labour Force Surveys in 64 countries (covers 84% of global labour force)
- Builds on **Dasgupta and Singh (2005, 2006)** in using Kaldorian framework (Kaldor, 1966, 1967, 1968), complemented by 3-fold shift-share decomposition (e.g. Timmer and de Vries (2015))
 - Expands number of countries and time coverage

Premature deindustrialization

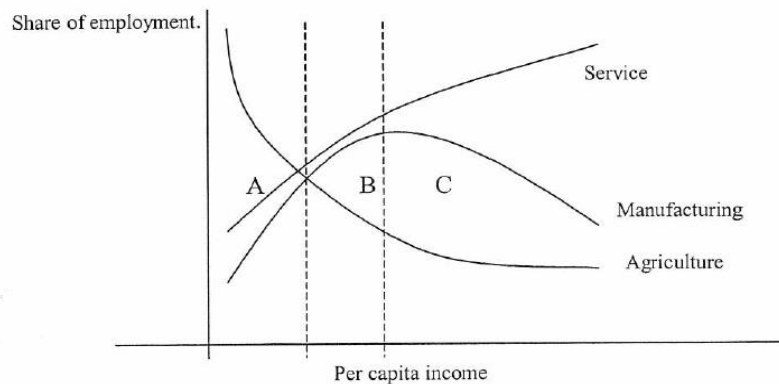
**“Classical” changing structure of employment
(adapted from Gemmell, 1986)**



**Today’s developing countries
(authors’ illustration)**

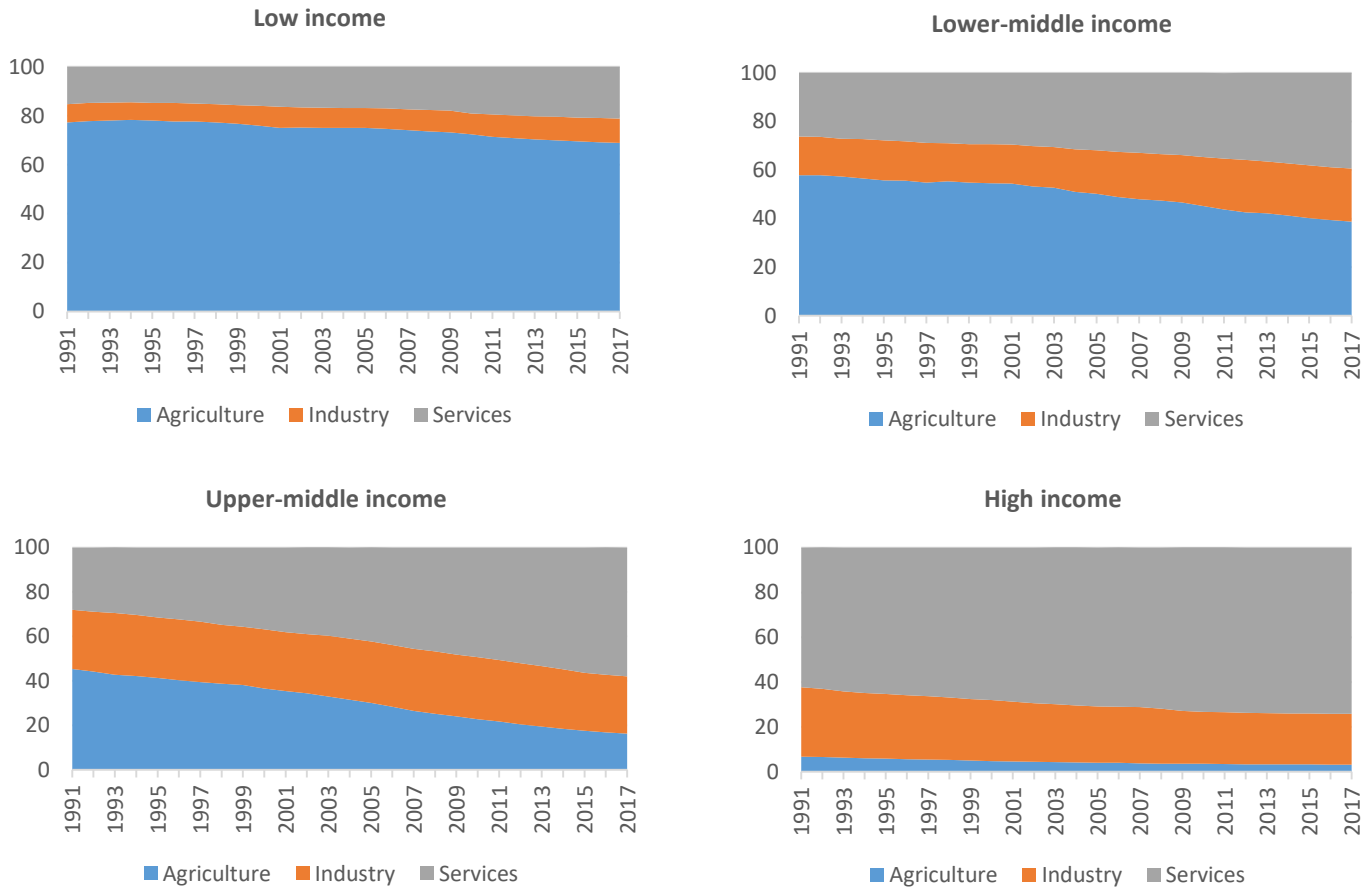


**“Classical” changing structure of employment
(adapted from Rowthorn and Wells, 1987)**



Variations in pace and pattern of structural transformation...

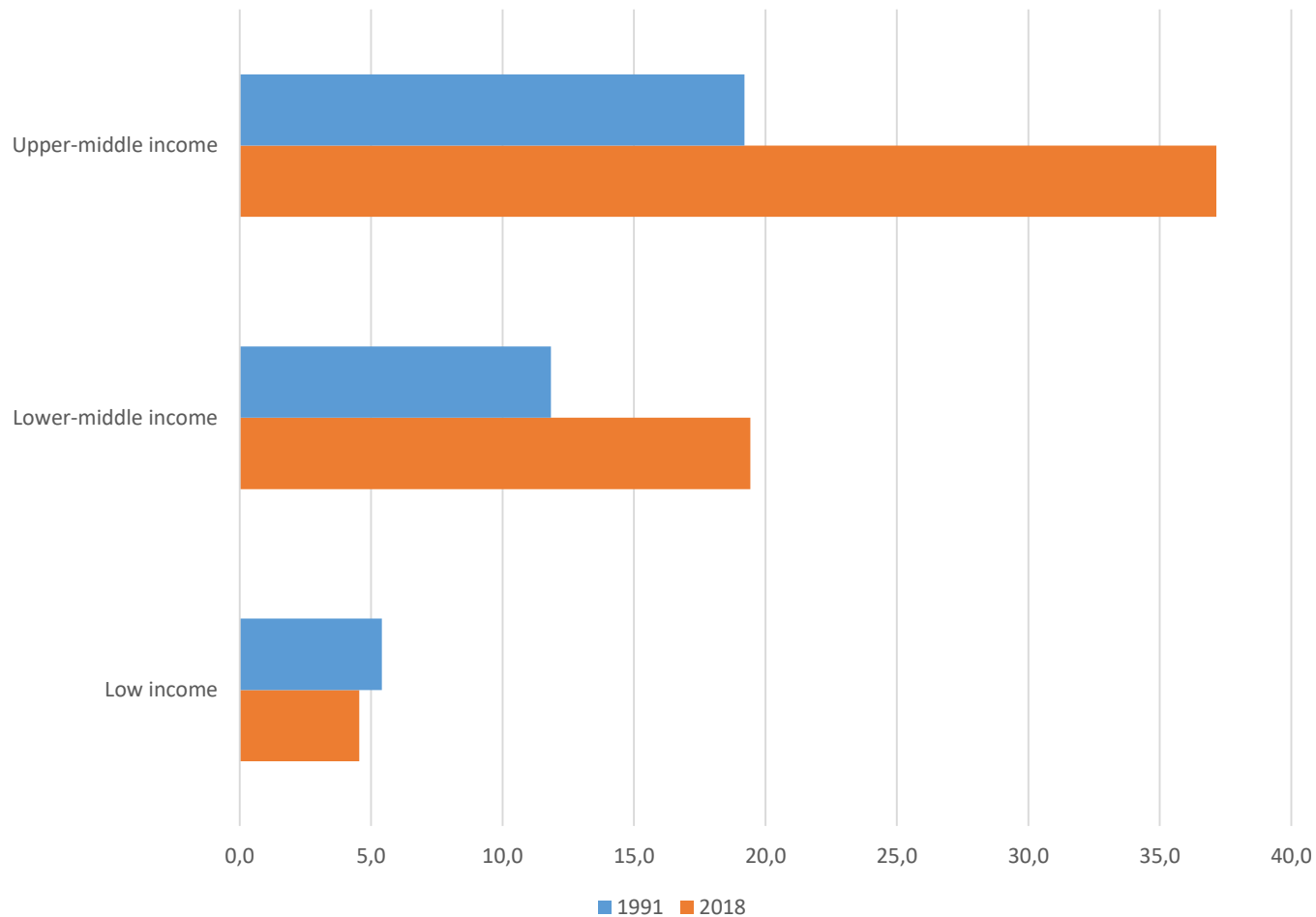
Distribution of employment by sector and income group, 1991-2017 (%)



Source: Dasgupta, Kim, Pinedo Caro (2019), figure 1; based on ILO modelled estimates, available from ILOSTAT.

...has led to variations in labour productivity growth and “catching up”

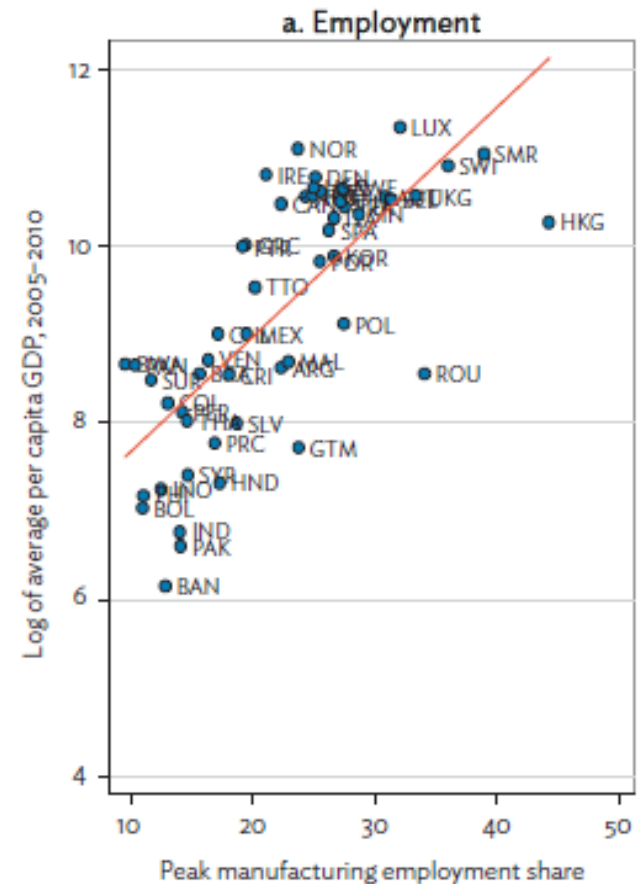
Level of labour productivity as % of that in high-income countries, 1991 and 2018 (%)



Source: Authors' calculations based on ILO modelled estimates, available from ILOSTAT.

Is premature deindustrialization negatively impacting the development trajectories of developing countries?

- **Ghani and O'Connell (2014):** labour productivity convergence in services
- **Rodrik (2013):** no systematic tendency at the aggregate level for countries with lower levels of labor productivity to grow more rapidly - such tendency and convergence only in manufacturing
- **Felipe, Mehta and Rhee (2014):** significant relationship in 53 economies between the historical peak of manufacturing employment and ensuing level of per capita income: a 1 percentage point difference in peak manufacturing employment share is associated with a subsequent GDP per capita that is 13 percent higher



Source: Felipe et al.(2014), figure 1

Testing Kaldor's first law

Regression estimates, $GDP_g = \beta_0 + \beta_1 VA_{i,g} + \epsilon$

Income	Period	Reduced sample			Full sample		
		Agriculture	Industry	Services	Agriculture	Industry	Services
High	85-95	0.106	0.815***	0.926***	0.138	0.812***	0.930***
	95-05	-0.075	0.545***	1.003***	-0.065	0.545***	1.009***
	05-15	0.281	0.506***	0.973***	0.290	0.509***	0.971***
Upper-middle	85-95	0.304*	0.534***	0.557***	0.297*	0.483***	0.538***
	95-05	0.257*	0.625***	0.746***	0.276*	0.646***	0.757***
	05-15	0.197	0.778***	0.807***	0.215	0.700***	0.815***
Lower-middle	85-95	0.454**	0.698***	0.753***	0.331*	0.665***	0.637***
	95-05	0.357**	0.491***	0.747***	0.332**	0.510***	0.634***
	05-15	0.184	0.516***	0.785***	0.121	0.584***	0.726***
Low	85-95				1.008***	0.527***	0.683***
	95-05	No data			0.402**	0.242	0.585*
	05-15				0.450	0.221*	0.642***

Note: : *** 99%, ** 95%, * 90%.

Source: Dasgupta, Kim, Pinedo Caro (2019), table 1.

- For high-income and upper middle income countries, in line with the classical structural change hypothesis
- For lower-middle and low income countries, relationship between industry value added and GDP growth has weakened while that of services value added and GDP growth have strengthened

Testing Kaldor's third law

Adjusted employment (Employment growth – working age population growth) and labour productivity growth rates, by income group (%)

Income group	Period	Industry		Services	
		Adj. employment	Productivity	Adj. employment	Productivity
High	85-95	-0.8	2.0	1.6	1.7
	95-05	-0.4	2.5	1.5	1.3
	05-15	-1.9	1.7	0.4	1.0
Upper-middle	85-95	0.2	0.6	1.7	1.9
	95-05	-0.1	1.5	1.5	0.5
	05-15	-0.4	1.0	0.6	1.7
Lower-middle	85-95	0.9	0.9	1.4	0.8
	95-05	1.1	1.0	0.5	2.0
	05-15	1.0	1.1	2.0	1.2

Regression estimates,

$$PR_g = \beta_1 + \beta_2 VA_{g,ind} + \beta_3 (S_{t+1,agri} - S_{t,agri}) + \epsilon \text{ (industry as engine);}$$

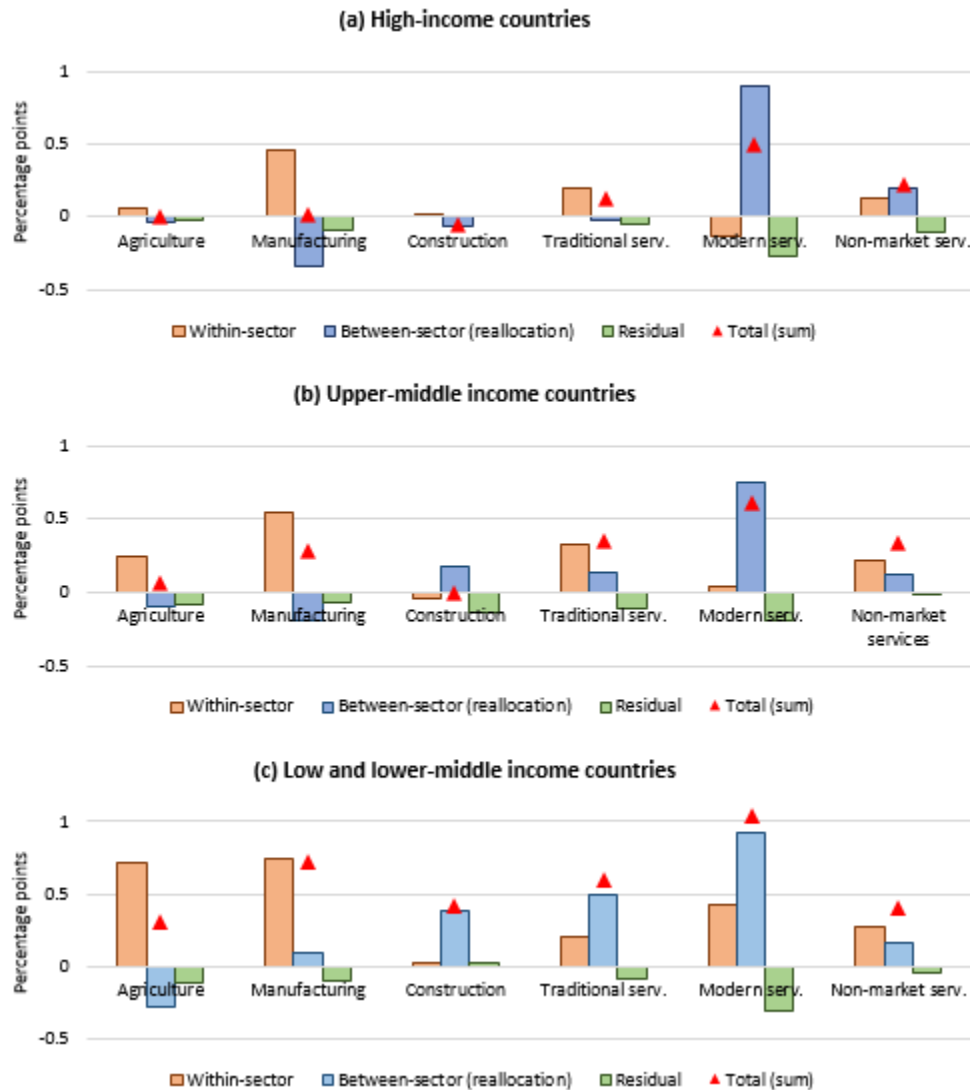
$$PR_g = \beta_1 + \beta_2 VA_{g,ser} + \beta_3 (S_{t+1,agri} - S_{t,agri}) + \epsilon \text{ (services as engine)}$$

Income	Period	Industry as engine		Services as engine	
		Industry VA	Agriculture Emp.	Services VA	Agriculture Emp.
High	85-95	0.497***	-0.004	0.603***	0.021
	95-05	0.308**	0.029	0.283	-0.075
	05-15	0.250***	0.041	0.487***	0.027
Upper-middle	85-95	0.339**	-0.025	0.385**	-0.114
	95-05	0.555**	-0.332***	0.586**	-0.297***
	05-15	0.277	-0.199***	0.586***	-0.139***
Lower-middle	85-95	0.761*	0.101	0.806**	-0.007
	95-05	0.567*	-0.069	0.841	-0.026
	05-15	0.392***	-0.214***	0.984***	0.095

Note: *** 99%, ** 95%, * 90%.

- In lower-middle income countries, industry absorbing workers, but services between 2005-15 generated employment at twice the rate while having similar productivity growth rates
- In lower-middle income countries, no increases in aggregate productivity associated with workers leaving agriculture, suggesting labour reallocation to less dynamic services
- Services acting as additional engine of growth

Decomposition



- Within-sector gains account for large part of aggregate productivity growth (and relatively high in manufacturing at all income groups)
- Heterogeneous within and between effects in services
- Modern services (business support activities, transport and communications, financial intermediation) make strongest contribution to aggregate labour productivity growth in all income groups
- Positive between sector effects in modern services suggests sector absorbing workers

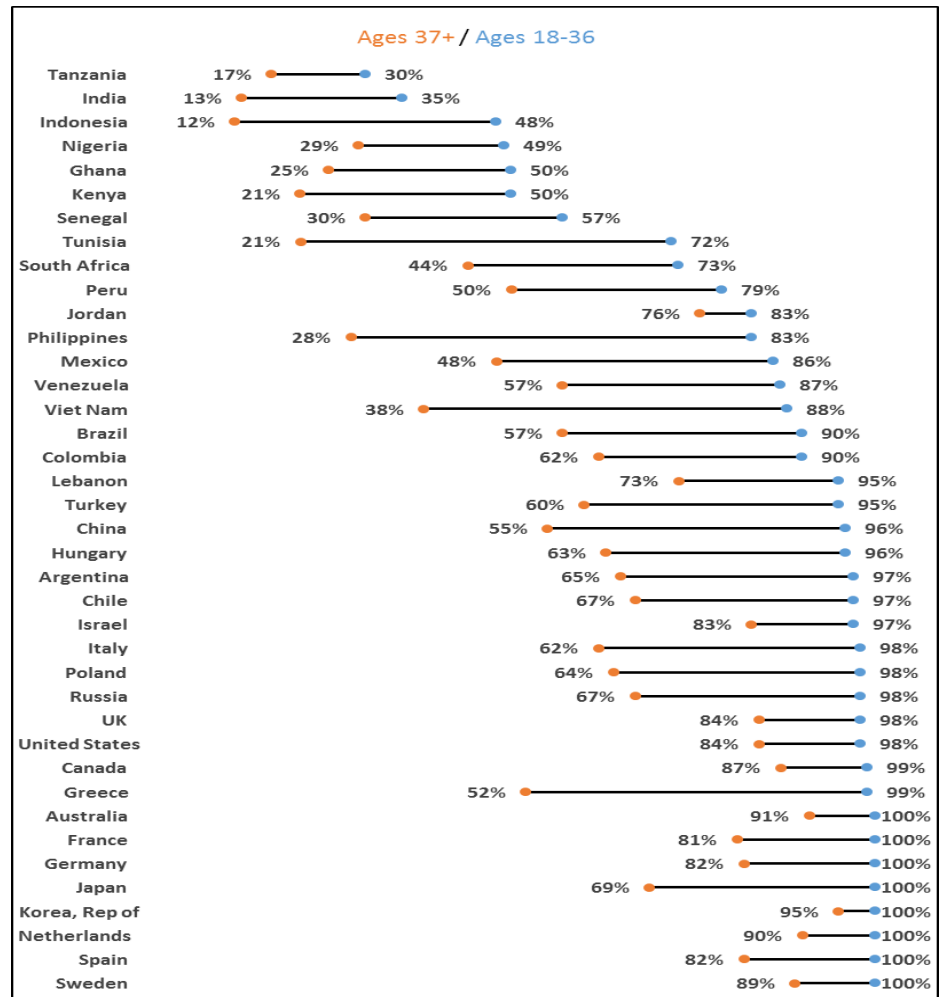
Main takeaways

- Greater importance of within sector productivity gains
- Manufacturing continues to remain important, but its contribution has weakened over time while that of services has become stronger
- Modern services contributing most to overall productivity growth (supported by increased tradability) and absorbing workers, acting as an additional engine of growth
- But modern services have been separated from manufacturing or demand for them derived from production of manufactured goods
- Sectoral boundaries likely to become even more blurred.
- Traditional services adding workers at a faster pace than modern services, but characterized by low productivity levels and poor job quality

Policy implications: Industrial / sectoral policies

- Industrial / sectoral policies (SDG8 and 9) to support manufacturing and modern services
- Enhancing job quality in agriculture and traditional and low-productivity services
- Coherence between industrial/sectoral policies and employment policies
- Investments in digital infrastructure and digital skills (including young women and men in lower income countries)

Percentage of respondents that use the internet at least occasionally or report owning a smartphone

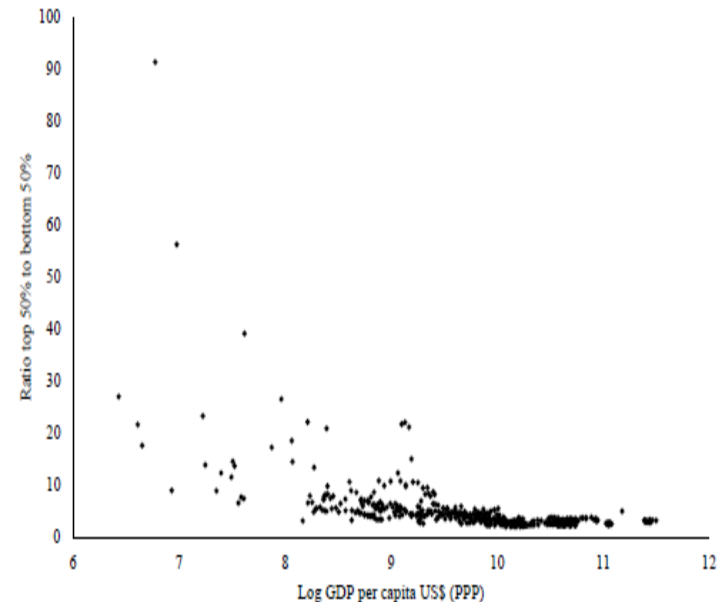


Source: Pew Research Center (2018)

Policy implications: Addressing inequalities

- Dualism in services could be exacerbated, further widening inequalities in developing countries
- Baymul and Sen (2019): Inequality increases with movement of workers from agriculture to services but not if to manufacturing
- Double whammy of Increased within and between country inequality in low income countries?

Ratio of the labour income of the top 50% to the bottom 50% vs (log) GDP per capita US\$ (PPP)



Source: ILO (2019).

Strengthen MSMEs to address dualism in services

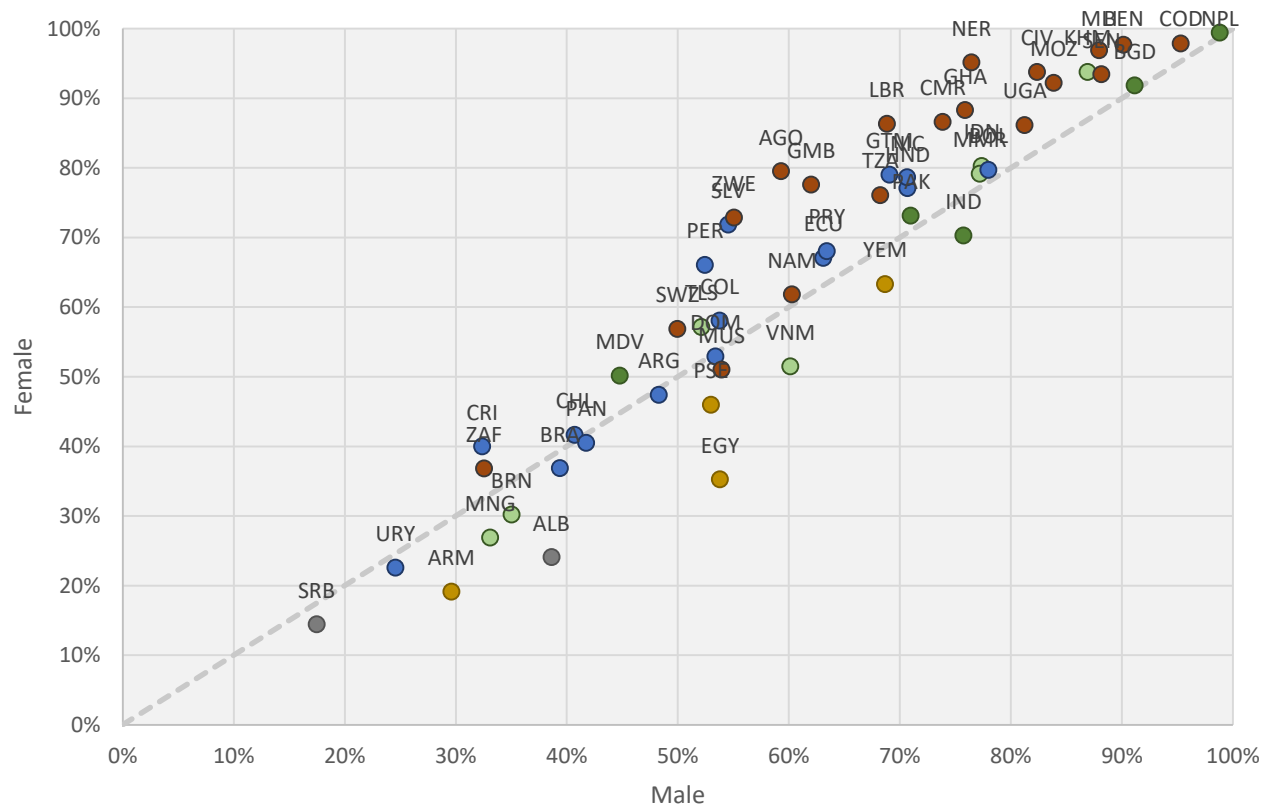
Share of employment in informal units of production in selected SADC countries

	AGO	COD	MDG	MUS	MOZ	NAM	TZA	SYC	ZAF	SWZ	ZMB	ZWE
Agriculture	99	99	98	-	87	82	99	65	73	37	75	45
Mining and quarrying	15	94	72	-	69	37	87		9	62	5	28
Manufacturing	58	91	75	44	88	63	61	13	36	23	46	42
Food, beverages and tobacco		92	80	51	87	67	40	5		25	36	9
Textiles and wearing apparel		92	51	35	90	71	70	9		25	86	58
Wood and paper		90	93	19	91	66	64	30		35	67	45
Coke, refined petroleum products, nuclear fuel		65				43					0	12
Chemicals, chemical products and pharmaceutical products		66	0	10	42	63	37	0			35	2
Rubber and plastic products		17	0	19	49	68	16			0	0	0
Non-metallic mineral products		97	100	32	95	58	74	0		0	72	85
Metal products		79	75	57	76	62	45	25		28	25	23
Electrical and other equipment and machinery		97	100	9	62	52	23			0	9	33
Transport equipment		84	49	0	57	45	74				26	19
Other manufacturing and recycling		95	73	66	88	69	75	43		10	64	51
Electricity, gas and water	15	18	7	5	21	39	10	7	5	4	3	0
Construction	61	87	79	69	87	73	78	48	60	51	60	64
Wholesale and retail trade	86	93	73	45	93	66	66	21	59	38	68	65
Hotels and accommodation	22	90	44	31	62	66	75	10	59	30	29	49
Transport	60	64	38	45	74	51	44	16	43	42	45	24
ICT	2	38	54	11	31	23	9	11		0	2	12
Finance and insurance	12	61	7	6	26	26	7	1	14	16	2	1
Real estate	0	87	31	12	55	75	70	12		16	77	9
Professional and business services	18	60	38	20	42	46	19	19	36	15	23	9
Public administration	1	4	0	5	0	10	3	1	1	5	1	0
Education	1	5	2	19	4	10	3	2	6	8	5	4
Health and social services	7	31	22	10	37	18	17	10	23	20	7	8
Private households	76				100	83	100	41	100	42	15	16
Other services	52	80	87	52	89	66	56	20	40	47	68	60

Source: ILO and SADC (forthcoming).

Careful gender considerations required

Proportion of informal employment in non-agriculture employment, by sex (ILO harmonized estimates)



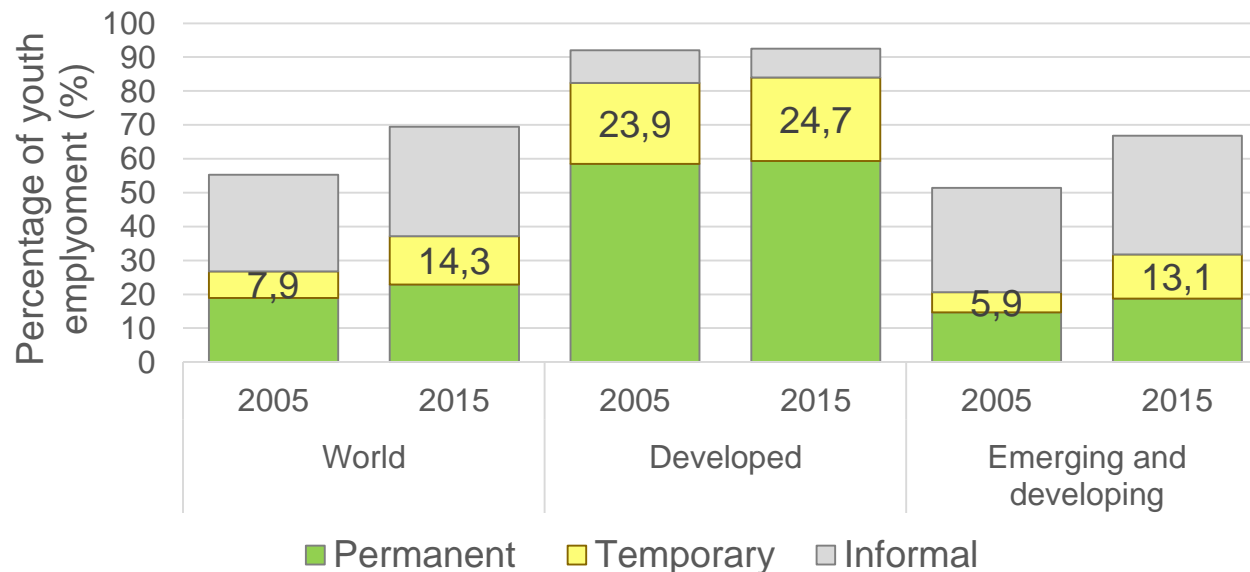
Source: ILOSTAT.

Policy implications: Strengthening labour market institutions (I)

- More workers are likely to be engaged in service sectors in all country groups
- In high-income countries, growth of services has coincided with increases in part-time and temporary work and job instability

% increase:
 Permanent: 21%
 Temporary: **59%**
 Informal: 13%

% increase in temporary contracts:
 Developed countries: **4%**
 Emerging and developing countries: **120%**



Source: ILO

Policy implications: Strengthening labour market institutions (II)

- Technology has enabled new forms of work (on-call work/crowd work) in services economy
 - Provides new sources of income to many workers all over the world
 - Dispersed nature of work across international jurisdictions makes monitoring compliance with applicable labour laws difficult (e.g. work paid below prevailing minimum wages) and no official mechanisms to address unfair treatment
 - **Global Commission on the Future of Work:** Recommends development of an international governance system for digital labour platforms that sets and requires platforms (and their clients) to respect certain minimum rights and protections



감사합니다 Natick
Grazie Danke Ευχαριστίες Dalu
Thank You Köszönöm
Спасибо Dank Gracias
谢谢 Merci Seé
ありがとう

Obrigado