

# THE ROLE OF TRANSITIONS IN SUPPORTING THE GROWTH OF FORMAL SECTOR JOBS

DEVANTO PRATOMO AND CHRIS MANNING

Indonesia Project Research Grant 2018/19

# Outline

---

- Background
- Research Objectives
  - The Data
- Some Regression Analysis:
  - ▣ Methodology
    - ▣ Results
- Conclusions

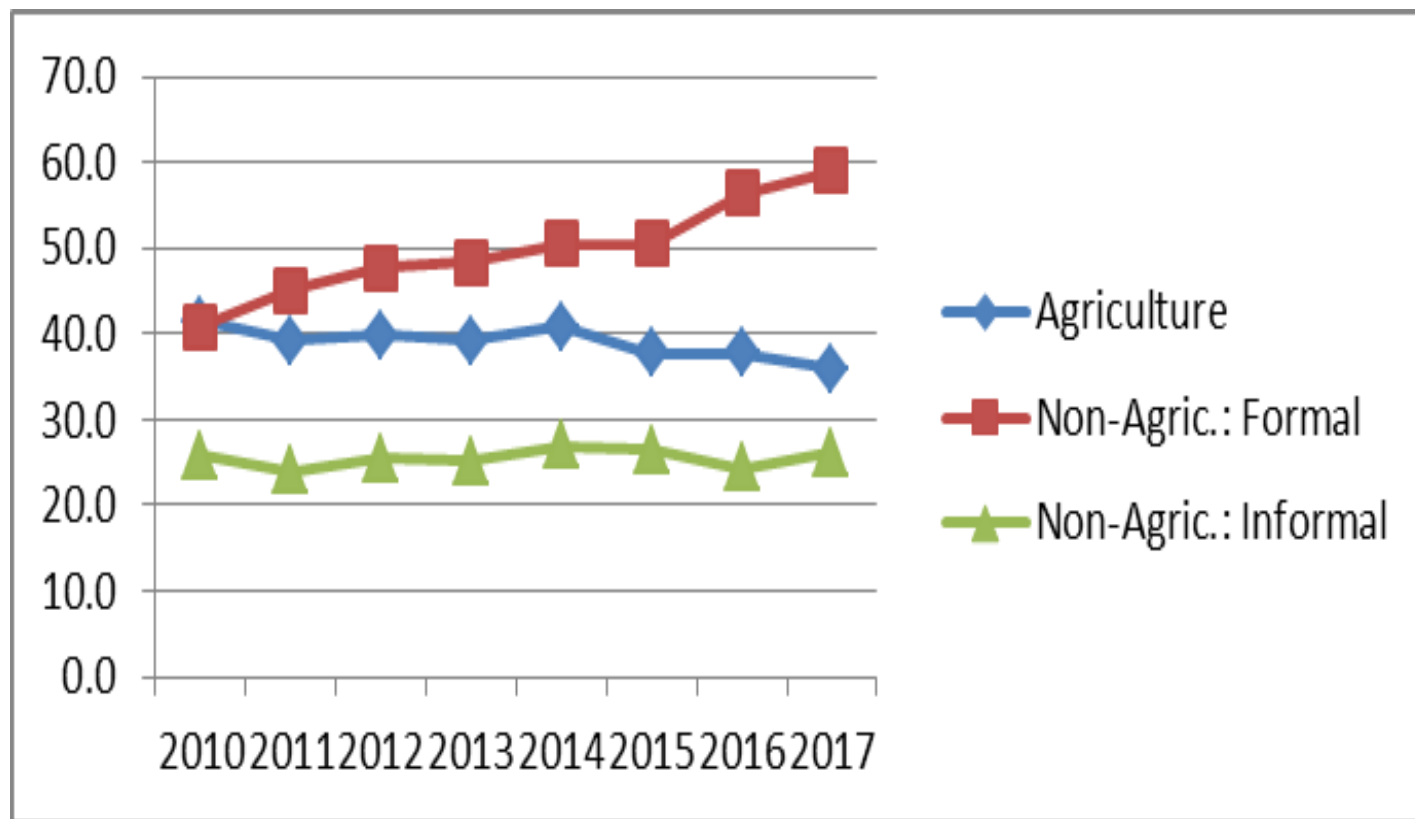


# BACKGROUND

# Background

- The Indonesian labour market is heavily segmented between formal and informal sector
- The Indonesian labour market has undergone a fundamental transformation in the past decade
  - ▣ shifting the large numbers of mostly informal workers out of agriculture
  - ▣ through the growth of into the formal sector.
- These structural changes have been key drivers of the economic development in East Asia, see for example China and Vietnam.

The transformation was fastest in the past decade, when formal sector is estimated to have grown at more than 4% per annum.



Source: BPS (Proxy 2)

# Workforce Status of Persons Who Left their Job in Previous 12 Months (%)

Previous Work Status	Current Work Status								
	Not working	Self employed	Casual	Family Workers	Total Informal	Employee	Wage employment	Total Formal	Total
New Entrants	0	30	4	5	38	2	60	62	100
Self employed	37	29	10	4	43	2	18	20	100
Casual	43	17	18	6	42	1	14	15	100
Family Workers	54	11	6	17	34	0	12	12	100
Total Informal	42	22	13	7	41	1	16	17	100
Employee	35	28	5	4	36	11	17	28	100
Wage Employment	42	14	5	5	24	1	32	34	100
Total Formal	42	15	5	5	25	2	32	34	100

- **New Entrants** dominate the movement to the FS
- A small but still quite large percentage of IFS who found jobs moved to the FS

# Employment and Earnings were highest in the Informal and Formal Sectors outside agriculture in 2017

Main Industries	Informal and Formal Sectors	Employment (million)	Earnings			
			Rp. 000		Index	
			Monthly	Hourly	Monthly	Hourly
AGRICULTURE	<b>Informal</b>	11.6	1177	10.6	52	72
	<b>Formal</b>	3.3	1769	11.6	79	79
NON-AGRICULTURE	<b>Informal</b>	24.5	1801	13.0	80	88
	<b>Formal</b>	<b>44.8</b>	<b>2811</b>	<b>16.9</b>	<b>125</b>	<b>115</b>
<b>TOTAL</b>	<b>Formal+Informal</b>	84.2	2252	14.7	100	100



# RESEARCH OBJECTIVES



# Research Objectives (1)

- Understanding the flexibility of the labour market across sectors in supporting the growth of formal sector jobs
- Is the shift among new entrants or do we see more employed people moving from the informal to the formal sector?

# Research Objectives (2)

---

- What are the implications of these developments for welfare, particularly for wages and earnings?
- Who enjoy more in terms of wages and earnings among the movers?




# THE DATA

# Data

- Pooled data, using National Labour Force Survey (SAKERNAS) 2010-2017
  
- Some important questions for job mobility (last year experience):
  - Did (NAME) stop working or move out into another job for the last year (Yes/No)
  - Previous job (last year) main industry before stop working/move out into another job?
  - Employment status of the previous job (last year) before stopping or move into a new one?

# Concept of Formal/Informal used by BPS

- Mainly based on the question on work status: seven categories, distinguishing self-employed, casual workers, family workers (IFS) from employers and wage workers (FS) (**Proxy 1**)
- Whether a person is in the FS or IFS also based on occupation (e.g. self-employed professionals, managers and clerical workers all considered formal) (**Proxy 2**)
- Since 2016, BPS also expand the definition using type of enterprise, type of bookkeeping, and social security (**Proxy 3**)

- 
- In this analysis, we mainly use **Proxy 1** because of data limitation in regard to the workers previous jobs. However, we conduct robustness checks using **Proxy 2** for the current occupation.



# REGRESSION ANALYSIS

# (1) Flexibility Labour Market

## **Individual-level data regression (Pooled 2010-17):**

The dependent variable is the formal-informal outcomes (logit model),

The main independent variable is whether individuals moved the job during the last year to the **formal sector**;

(1) from **informal sector**,

(2) Without job before (**new entrants**), or

(3) moved from **the other formal sector** (omitted category in regression equation).

Some control variables: ages, gender, urban/rural, education, head of households, islands, year, marital status dummies



# Probability of Switching to Formal Sector among Movers (Formal sector is the current job) (Pooled 2010-17)

## All Movers

Into Formal Sector	Total		Urban		Rural		Males		Females	
	Coef	P value	Coef	P value	Coef	P value	Coef	P value	Coef	P value
<b>New Entrants from Informal</b>	0.192	0.00	0.032	0.11	0.364	0.00	0.307	0.00	0.125	0.00
	-0.653	0.00	-0.768	0.00	-0.507	0.00	-0.591	0.00	-0.793	0.00
R squared	0.24		0.22		0.23		0.21		0.34	
No.obs	176645		88761		87884		112312		64333	

## Movers in Non-Agriculture in the Current Jobs

Into Formal Sector	Total		Urban		Rural		Males		Females	
	Coef	P value	Coef	P value	Coef	P value	Coef	P value	Coef	P value
<b>New Entrants from Informal</b>	0.073	0.00	-0.011	0.62	0.199	0.00	0.226	0.00	-0.003	0.93
	-0.716	0.00	-0.784	0.00	-0.603	0.00	-0.677	0.00	-0.714	0.00
R squared	0.2		0.2		0.2		0.16		0.32	
No.obs	133474		81029		52445		80433		53044	

1. The **driving force** for the growth of the formal sector is **new entrants** (*positive and significant coefficients*).
2. **Informal sector employment** find more **difficulties** to enter the **formal sector**. The difficulties is more severe in non-agricultural jobs.
3. It is more likely for **previously employed formal sector** workers to enter the **formal sector** than it is previously employed informal sector workers.

# Control Variables

	All Movers		No Agriculture as Current Jobs	
	Coef	P value	Coef	P value
<b>from Informal Sector</b>	<b>-0.653</b>	<b>0.00</b>	<b>-0.716</b>	<b>0.00</b>
<b>New Entrants</b>	<b>0.192</b>	<b>0.00</b>	<b>0.073</b>	<b>0.00</b>
Urban	0.431	0.00	0.396	0.00
Males	0.113	0.00	1.672	0.00
age15_24	1.515	0.00	1.229	0.00
age25_34	1.119	0.00	0.961	0.00
age35_44	0.862	0.00	0.741	0.00
age45_54	0.634	0.00	0.371	0.00
age55_64	0.251	0.00	0.115	0.00
headhh	0.344	0.00	0.364	0.00
primary	0.057	0.00	0.064	0.00
juniorhigh	0.215	0.00	0.310	0.00
senioracademic	0.468	0.00	0.625	0.00
diploma	0.996	0.00	1.187	0.00
seniorvocational	0.665	0.00	0.802	0.00
univ	1.178	0.00	1.381	0.00
married	-0.611	0.00	-0.730	0.00
evermarried	-0.451	0.00	-0.516	0.00
mining	1.535	0.00	0.966	0.00
industry	1.693	0.00	1.036	0.00
utilities	2.833	0.00	2.179	0.00
construction	1.299	0.00	0.674	0.00
trade	0.599	0.00	-0.058	0.02
transportation	0.654	0.00		
finance	2.595	0.00	1.896	0.00
services	2.276	0.00	1.636	0.00
<u>cons</u>	<u>-2.491</u>	<u>0.00</u>	<u>-1.894</u>	<u>0.00</u>
R squared	0.240		0.200	
No.obs	176645		133474	

- Movers to the formal sector are dominated by young workers and people with higher education.
- The movers to the formal sector tend to work in the modern sector, including finance, services, and utilities.

Note: including year and region dummies

## (2) Flexibility to FS

- Who are individuals within category that successfully switch to the FS employment?
- **Multinomial logit** estimates
- The dependent variable is whether individuals moved:
  1. from **informal sector** to the **formal sector**
  2. from the **other formal sector** to the **formal sector**
  3. **Without jobs** (new entrants) to the **formal jobs**
- Independent variables: ages, gender, urban/rural, education, head of households, islands, year, marital status, and industry dummies

Marginal effect shows relative probabilities of entering the FS across 3 categories (new entrants, informal, and other formal sector to the formal sector)

	Informal to Formal		Formal to Formal		No Jobs to Formal (New Entrants)	
	Mfx	P value	Mfx	P value	Mfx	P value
Females	-0.066	0.00	-0.066	0.00	<b>0.133</b>	<b>0.00</b>
Urban	-0.03	0.00	<b>0.108</b>	<b>0.00</b>	-0.078	0.00
age15_24	-0.076	0.00	0.003	0.88	<b>0.072</b>	<b>0.01</b>
age25_34	-0.017	0.05	0.144	0.00	-0.126	0.00
age35_44	0.004	0.62	0.138	0.00	-0.142	0.00
age45_54	0.009	0.36	0.115	0.00	-0.125	0.00
age55_64	-0.011	0.21	0.126	0.00	-0.114	0.00
primary	-0.009	0.00	-0.007	0.01	0.016	0.00
juniorhigh	-0.026	0.00	0.036	0.00	-0.01	0.12
senioracademic	-0.059	0.00	0.053	0.00	0.006	0.35
diploma	-0.08	0.00	0.079	0.00	0.001	0.90
seniorvocational	-0.062	0.00	0.104	0.00	-0.042	0.00
Univ	-0.09	0.00	<b>0.052</b>	<b>0.00</b>	<b>0.037</b>	<b>0.00</b>
mining	0.018	0.00	0.054	0.00	-0.073	0.00
industry	-0.006	0.05	<b>0.08</b>	<b>0.00</b>	-0.074	0.00
electricity	0.013	0.29	-0.007	0.73	-0.006	0.79
construction	-0.002	0.48	-0.007	0.32	0.01	0.22
Trade	0.005	0.15	0.06	0.00	-0.065	0.00
transportation	-0.005	0.24	0.065	0.00	-0.06	0.00
finance	-0.013	0.01	0.088	0.00	-0.075	0.00
services	-0.011	0.00	-0.037	0.00	<b>0.048</b>	<b>0.00</b>

- **New entrants among females, people aged 15-24, and university graduates** have greater probability to enter the FS (positive marginal effects).
- **Previous formal sector workers** more likely to move to formal sector in **urban areas** than new entrants or previous informal sector workers.
- **New entrants rather than previously formal and informal sector workers** have greater probability to enter FS in **services**.

# (3) Flexibility from IFS

- Who are individuals within category that switch from the IFS employment?
- **Multinomial logit** estimates
- The dependent variable is whether individuals moved:
  1. from **informal sector** to the **formal sector**
  2. from **informal sector** to the **other informal sector**
  3. from **informal sector** to not working (inactivity and unemployed)
- Independent variables: ages, gender, urban/rural, education, head of households, islands, year, marital status, and industry (past) dummies

	Informal to Formal		Informal to Informal		Informal Not Working	
	Mfx	P value	Mfx	P value	Mfx	P value
Males	0.099	0.00	0.186	0.00	-0.285	0.00
age15_24	<b>0.371</b>	<b>0.00</b>	-0.041	0.03	-0.330	0.00
age25_34	<b>0.323</b>	<b>0.00</b>	0.063	0.00	-0.387	0.00
age35_44	<b>0.272</b>	<b>0.00</b>	0.121	0.00	-0.393	0.00
age45_54	<b>0.210</b>	<b>0.00</b>	0.128	0.00	-0.339	0.00
age55_64	<b>0.102</b>	<b>0.00</b>	0.122	0.00	-0.224	0.00
Urban	0.045	0.00	-0.125	0.00	0.079	0.00
primary	<b>0.024</b>	<b>0.00</b>	0.006	0.03	-0.031	0.00
juniorhigh	<b>0.058</b>	<b>0.00</b>	-0.039	0.00	-0.019	0.00
senioracademic	<b>0.100</b>	<b>0.00</b>	-0.089	0.00	-0.011	0.12
diploma	<b>0.191</b>	<b>0.00</b>	-0.218	0.00	0.027	0.27
seniorvocational	<b>0.155</b>	<b>0.00</b>	-0.089	0.00	-0.065	0.00
univ	<b>0.257</b>	<b>0.00</b>	-0.274	0.00	0.016	0.40
mining (past)	-0.043	0.00	0.055	0.00	-0.011	0.49
industry (past)	0.020	0.00	-0.018	0.15	-0.002	0.86
electricity (past)	-0.053	0.04	-0.013	0.82	0.066	0.28
construction (past)	-0.090	0.00	-0.062	0.00	0.153	0.00
trade (past)	-0.032	0.00	0.028	0.01	0.004	0.69
finance (past)	-0.022	0.33	0.068	0.18	-0.046	0.35
services (past)	-0.014	0.14	-0.056	0.00	0.067	0.00
agriculture (past)	<b>-0.038</b>	<b>0.00</b>	0.036	0.00	0.001	0.86

1. **Younger and educated** workers are more likely to switch to the **formal sector** than other workers initially in the IFS.

2. Individuals who are working in the **agriculture and construction** in the past are least likely to enter the FS.

# (4) Wages/Earnings

- Earnings of Workers in the Formal Sector (Formal Sector is defined based on Proxy 1)
- OLS, dependent variable is the log of hourly wage in the Formal Sector
- Main independent variables:
  - (1) Movers from the **informal sector to formal sector**
  - (2) Movers from the **other formal sector to FS**
  - (3) **New entrants** (as omitted category).

# Wages of Movers in the FS and IFS compared with New Entrants

Hourly Wages in the Formal Sector	Total		Urban		Rural		Males		Females	
	Coef	P value	Coef	P value	Coef	P value	Coef	P value	Coef	P value
Movers from FS	0.122	0.000	0.121	0.000	0.111	0.000	0.128	0.000	0.114	0.000
Movers from IFS	0.007	0.436	-0.034	0.005	0.046	0.000	0.015	0.123	-0.033	0.062
R squared	0.18		0.21		0.15		0.16		0.17	
No.obs	87780		54528		33252		53695		34085	

- In general, movers who have previously working in the other **formal sectors** have the **highest income**. The result is robust across location and gender.
- Overall, there is **no significant difference in wages of former IFS workers and new entrants**, although IFS workers do worse in urban areas, and among females. Evidence of **scarring** is not strong.



## Control Variables in Wage Equation

Hourly Wages in the Formal Sector	Total	
	Coef	P value
Movers from Formal	0.122	0.000
Movers from Informal	0.007	0.436
Males	0.158	0.000
Urban	0.031	0.000
age15_24	-0.009	0.835
age25_34	0.049	0.230
age35_44	0.109	0.007
age45_54	0.166	0.000
age55_64	0.148	0.001
primary	0.120	0.000
juniorhigh	0.264	0.000
senioracademic	0.462	0.000
diploma	0.797	0.000
seniorvocational	0.526	0.000
univ	1.019	0.000
mining	0.208	0.000
industry	0.007	0.531
electricity	-0.024	0.459
construction	0.052	0.000
trade	-0.242	0.000
transportation	-0.098	0.000
finance	0.041	0.004
services	-0.284	0.000
_cons	7.931	0.000

- Older aged movers to the formal sector enjoyed higher income than younger aged movers, perhaps due to their experiences.

- Movers who have higher education also enjoyed more income.

- Movers to the formal sector who are working in mining, construction and finance enjoyed more income than other movers to other sectors.

# Some limitations

- The definition of the informal sector is not strong (Proxy 1). Sensitivity analysis using Proxy 2 for current job suggests the results are robust using more targeted definitions.
- ▣ The SAKERNAS now offers opportunities for deeper analysis of dynamics of formal and informal sector work (see changes in 2016 and 2017, more in line with international labour statistics)

# Conclusions

- Growth of the formal sector as the result of the young better educated new entrants.
- There is some mobility (from informal to formal sector), particularly workers who have the similar characteristics with the formal sector workers.
- There is evidence of scarring effects, particularly on wages. Individuals who are initially in formal sector
  - ▣ earn more than individuals who are initially in the informal sector
  - ▣ they also earn more than new entrants.



**TERIMA KASIH**  
**THANK YOU**

# Concept of Formal/Informal by BPS

Status	Type of Occupation				
	Professional , Director, Manager	Sales, Labour	Agricultural Workers	Production, Transport, Unskilled	Other
Self-employed	Formal	Informal	Informal	Informal	Informal
Self-employed assisted with family workers	Formal	Formal	Informal	Formal	Informal
Employers	Formal	Formal	Formal	Formal	Formal
Employee	Formal	Formal	Formal	Formal	Formal
Casual in agriculture	Formal	Informal	Informal	Informal	Informal
Casual in non agriculture	Formal	Informal	Informal	Informal	Informal
Family Workers	Informal	Informal	Informal	Informal	Informal

# Comparing between years

## 2010/11 vs 2016/17

Into Formal Sector	2010/11		2016/17	
	Coef	P value	Coef	P value
New entrants from Informal	0.271	0.00	-0.356	0.00
	-0.601	0.00	-0.365	0.00
No obs.	62128		37165	
R square	0.2457		0.2175	

1. The result is consistent that informal sector less likely to enter the formal sector employment.
2. However, similar to workers previously working in the IFS, new entrants are also less likely to enter the formal sector in the recent period relative to the individuals who are previously employed in the formal sector. In other words, in the recent period, experience working in the FS does matter to move to the FS.