INDONESIA AND THE LEWIS TURNING POINT: EMPLOYMENT AND WAGE TRENDS

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- Lewis Turning Point (TP): Transition from 'unlimited' (elastic) to 'limited' (much less elastic) supplies of unskilled labour?
  - Is it relevant to Indonesia – quote from Geertz

Other reasons to look at this issue:

- Recent In Indonesia Sharp rise in formal sector employment, fall in unemployment and rise in wages 2010-11
  - after a decade of relative stagnation

INTRODUCTION

With the steady growth of population came also the elaboration and extension of mechanisms through which agricultural product was spread, if not altogether evenly, at least relatively so, it [Javanese society] maintained a high degree of social and economic homogeneity…

… by dividing the economic pie into a steadily increasing number of number of minute pieces, a process which I have referred elsewhere to as "shared poverty." (Geertz, 1963: 97)

- Similar processes in China: earlier and larger real wage increase in the formal sector
  - but intense controversy over the TP
- *Policy implication*:
  - Before the TP: support policies that maximize employment growth
  - After the TP: need to encourage a shift towards technological upgrading, and a movement out of labour-intensive industries

- Based on a rather long paper – initially for a book chapter, but would like to develop it more

OUTLINE OF PRESENTATON

2. Ideas and empirics – Lewis, East Asia and China
3. Drivers of labour market change – and institutional developments
4. Labour markets and the turning point I: employment, wages and productivity
   - Agriculture
   - Informal sector
   - Regular and casual workers

5. Labour markets and the turning point II: wage differentials

- Approach and data sources
- Agriculture and construction
- Casual and permanent

II. IDEAS AND EMPIRICS

Key features in Lewis

- *Macro*:
  - period of classical growth with elastic supply of labour: factor accumulation drives economic growth
  - turning point transition followed by neo-classical period where all factors are scarce
    - technological change and skill up-grading increasingly important

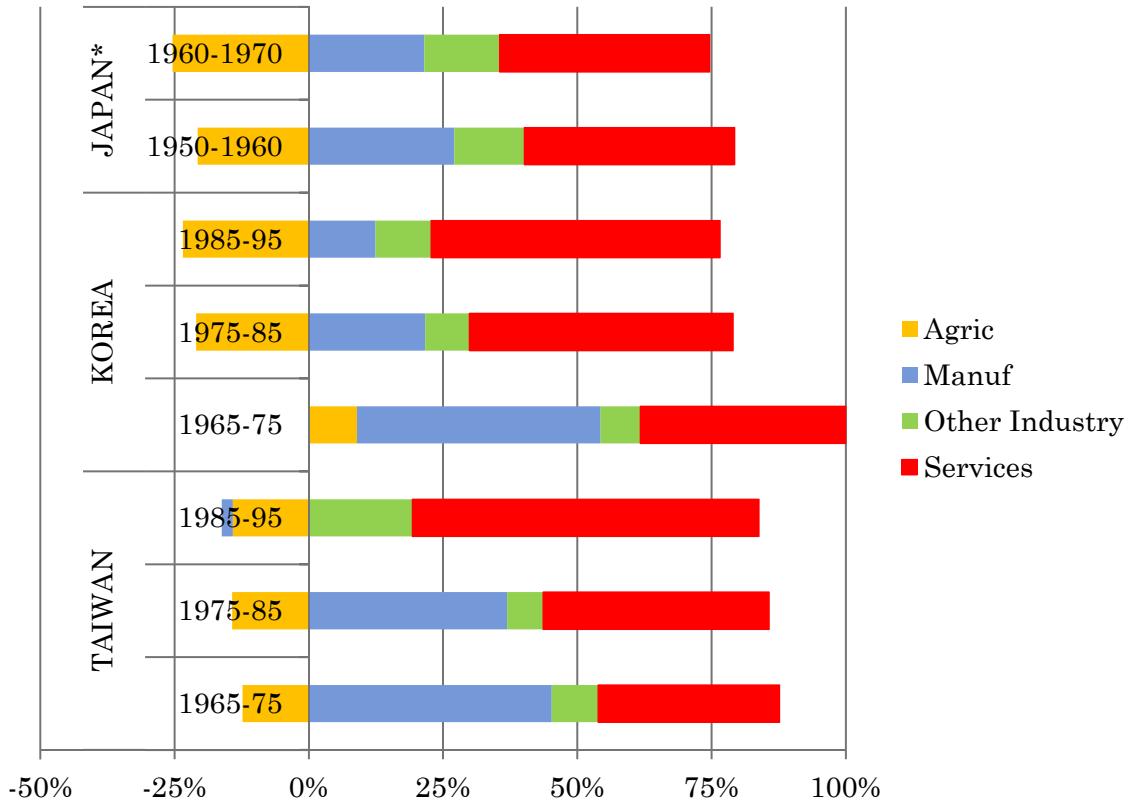
- *Micro*:
  - marginal product of labour less than average product in the traditional sector
  - Customary, formal floor to the price of labour – though varies over time
  - a seeming infinite capacity (Geertz and Lewis) to absorb more labour in the modern sector where w=MP

- Why is Lewis important:
  - Still widely cited as a theory of economic development
  - Supported by experience in East Asia where institutional constraints to wages were small
  - But
    - A set of ideas rather than a model and many additions (ie. initially closed economy, dualistic, etc.)
    - Heavily criticized, though mostly misplaced (ie. focus on agriculture and zero marginal product)

Empirics: Japan, Korea and Taiwan

- Short sharp transitions over a period of accelerated growth over two decades
- Manufacturing employment (and linkages?) play a central role in early stages of transition (*Chart*)
- Services takes over later on
- Steep rise in agricultural productivity, wages and narrowing of inter-industry wage differentials (eg. Fields and Wan, 1998)

Share of the Change in Employment by Main Industry, Korea and Taiwan 1965-95 (%)



Empirics – China: Controversial issue (Prema-chandra's paper; CEJ 2010, CER 2011)

- Sharply rising real wages and shortages of labour from around 2005
- Empirical studies pro- and contra in regard to China passing the turning point
- Institutional explanations: restrictions on mobility cloud the issue (*hukou*)
- Narrowing differentials, but continuing wage gap

- Some lessons
  - Different kind of experience to Japan and co., for large, fragmented labour markets
  - Turning 'period' rather than turning point – how to identify?

Empirical evidences of Turning Point

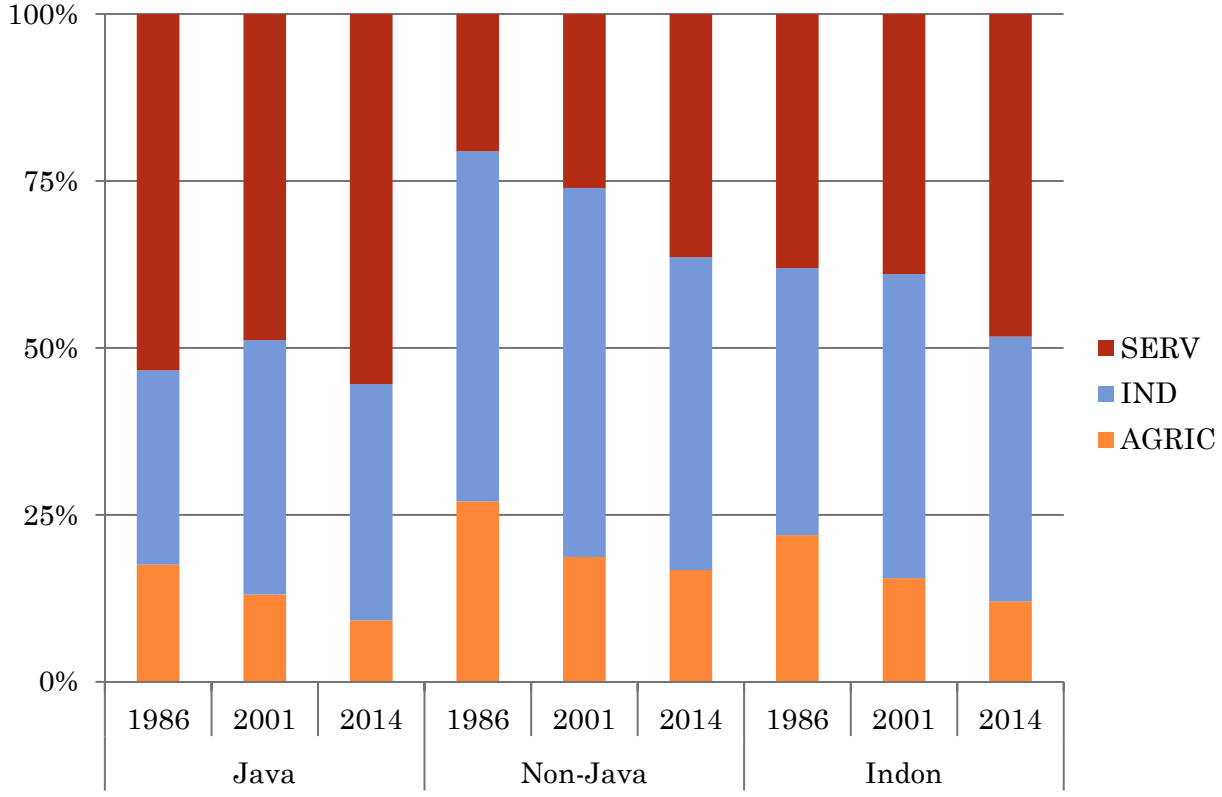
1. Downward shift in size of labor force in traditional sector (agriculture or informal sector)
2. Sharp increase in real wages in the traditional sector
3. Sharp narrowing of wage differential between modern sector and traditional sector

III. Indonesia: Drivers of labour market change

- Demand side: 1990s manufacturing exports the resources boom and services from mid noughties [2000s] (*Chart 4.1*)
  - Complications introduced by the 1998 AFC and much slower growth for nearly a decade
- Supply side: unlike China, labour force growth still quite high (>1.5% p.a.) though come down a lot
  - Higher outside Java (endogenous and exogenous to recent growth). See *Chart 4.2*

- Real wage trends and unemployment consistent with labour demand changes, especially in recent times – more evidence of moving towards a transition
- Institutions: complicate the analysis in recent times because of rising MW in Indonesia in particular (and also the labour law of 2003)

Share of GDP by Main Industry, Java, Non-Java and Indonesia, 1986-2014



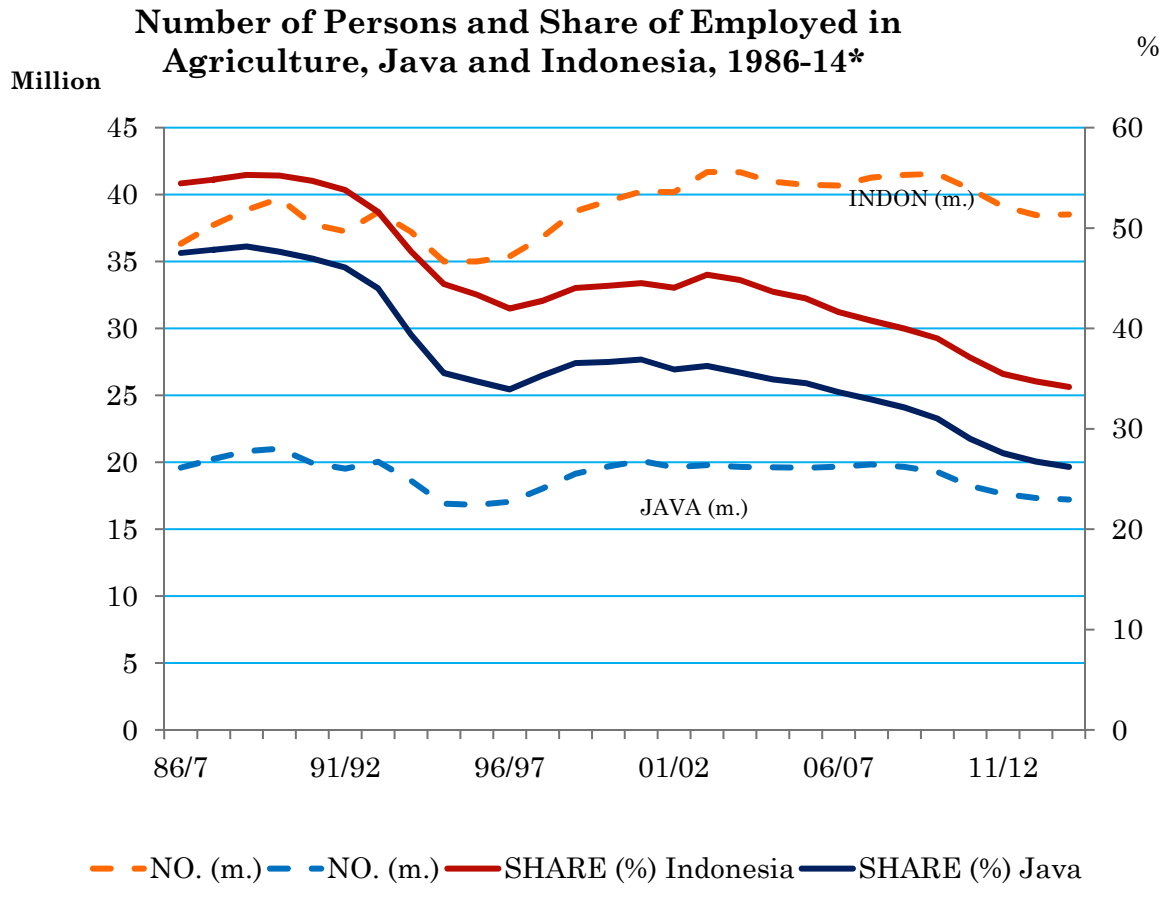
IV. Labour markets and the turning point I: Employment and wage trends

- Time period 1986-2014, with two main periods 1986-1996 and 2001-2014
  - In recent times, have looked for different patterns related to economic policy changes (recovery, 2001-5/6, resources boom 2005/6-2011, post-boom
- National Labour Force Survey (SAKERNAS) the main source of data – lots of noise even in annual data, and not improved over time.
- Focus mainly on national trends, though some disaggregation to Java and Non-Java (the 'Outer' Islands)

1. Decline in Agricultural Employment

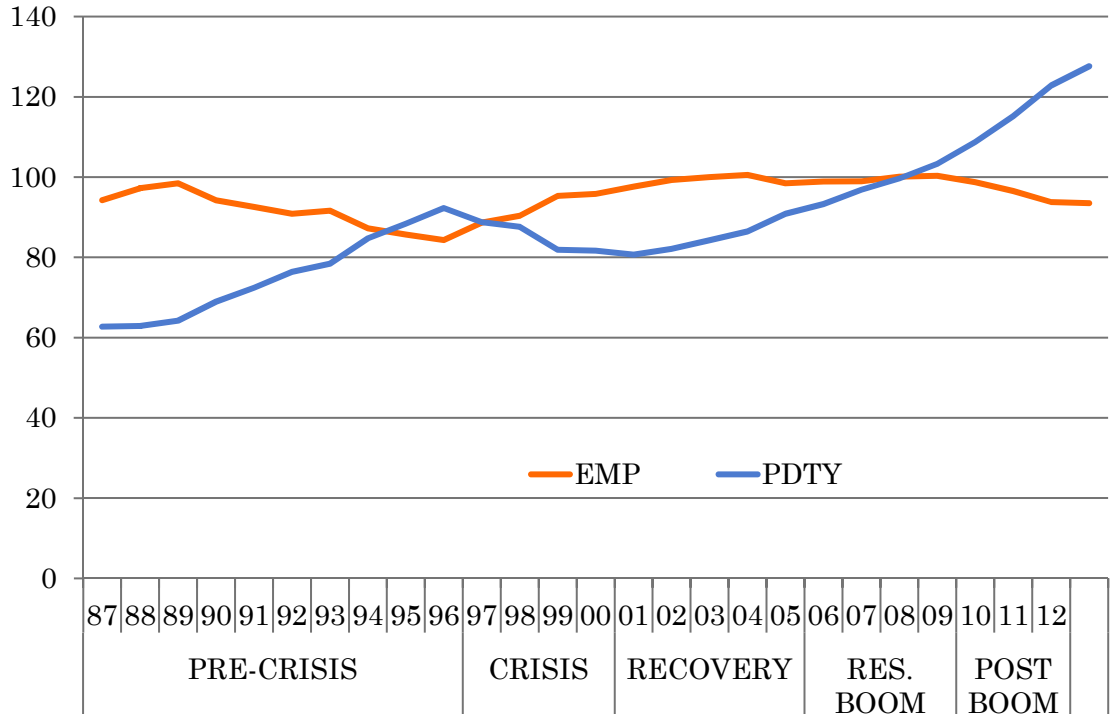
- Japan, Korea and Taiwan unique – even in China the movement out of agriculture has been much slower
  - Manufacturing not played the same role in job creation

- In Indonesia, movement out of agriculture gradual over longer term
  - Faster in pre-crisis and recent periods, but slow during crisis and recovery
  - Faster on Java than the Non-Java (especially if count diversification in household income sources)



- Why the shift out so slow?
  - Slower overall growth, and agric do better relatively in Indonesia
  - Disappointing manufacturing output, exports and employment
- Productivity and wages: gains in agricultural productivity modest and gap with other sectors still large. However,
  - Productivity gains accelerate in past 5 years
  - Wages track productivity closely (though lag on Java) – though growth much slower than in China mid 2000s

Index of Employment and Productivity in Agriculture, Indonesia 1986-2014 (2008=100)*



Sum up on Agriculture:

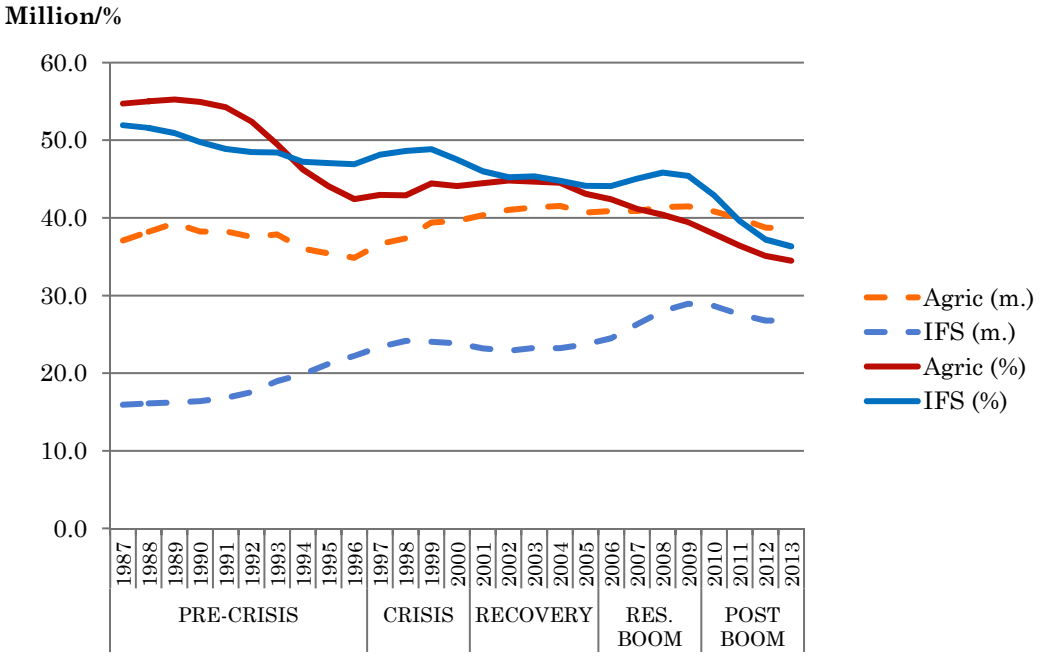
- Definite shift in labour market conditions in agriculture in late, and post, resources boom period (2009/10-2013/14), but coming on top of long period of stagnation
- Maybe entering a turning point period – questions about sustainability in medium term

. LABOUR MARKETS AND THE TURNING POINT I(*CTD*)

2. Informal sector (*outside agriculture*)

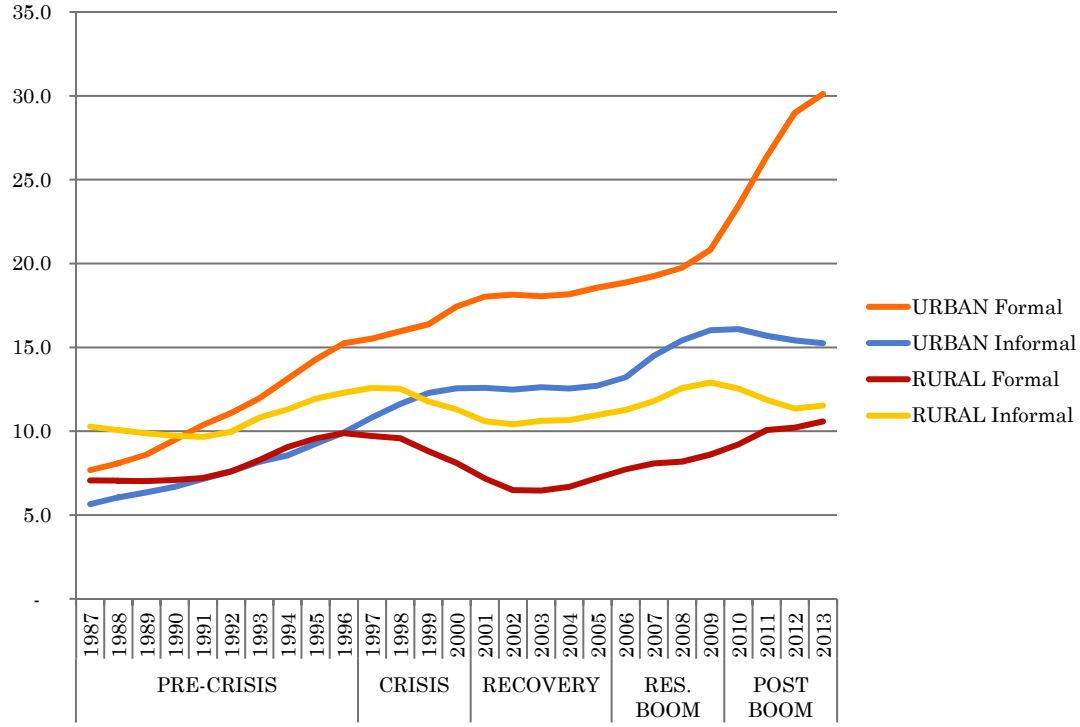
- IFS to FS: One of the big shifts which has typically accompanied the turning point (eg. Minami on family workers)
- Indonesia no exception
  - The pattern similar to agriculture
  - Absolute size of IFS grows (even in rural areas) but share of IFS work contracts like agriculture

Employment in Agriculture and the Non-Agriculture Informal Sector, Indonesia 1987-2014



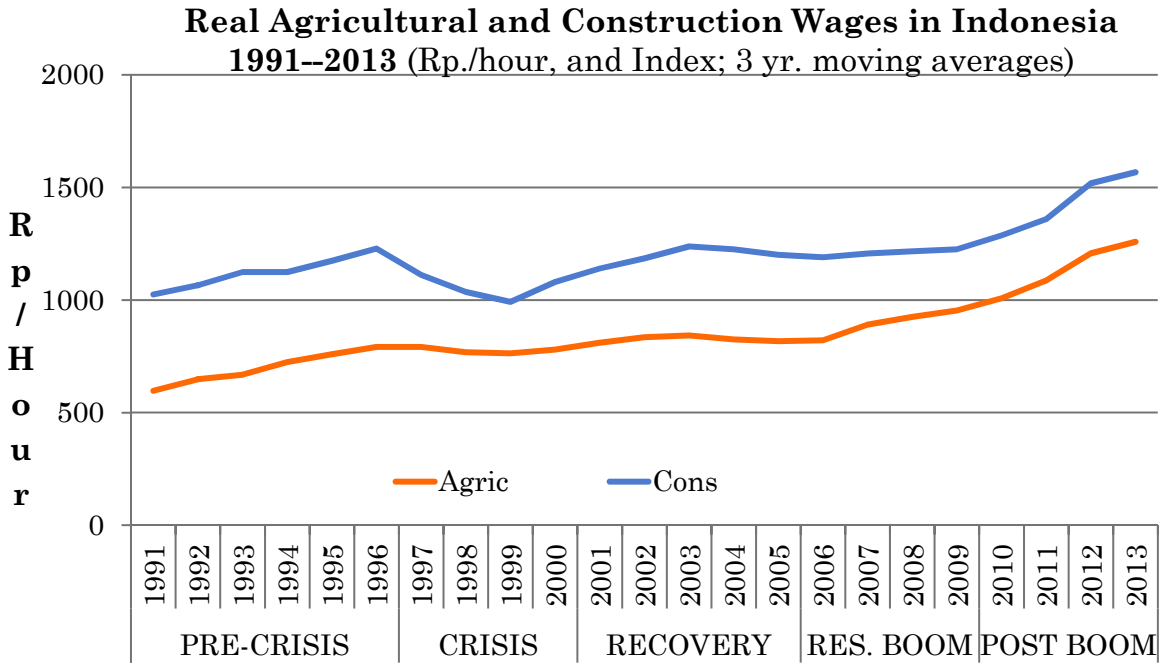
Biggest growth segment is the urban formal sector – surprisingly fast from around the Global Crisis in 2009

Employment in Formal and Informal Sectors, Urban and Rural Indonesia, 1986-2013 (millions)*



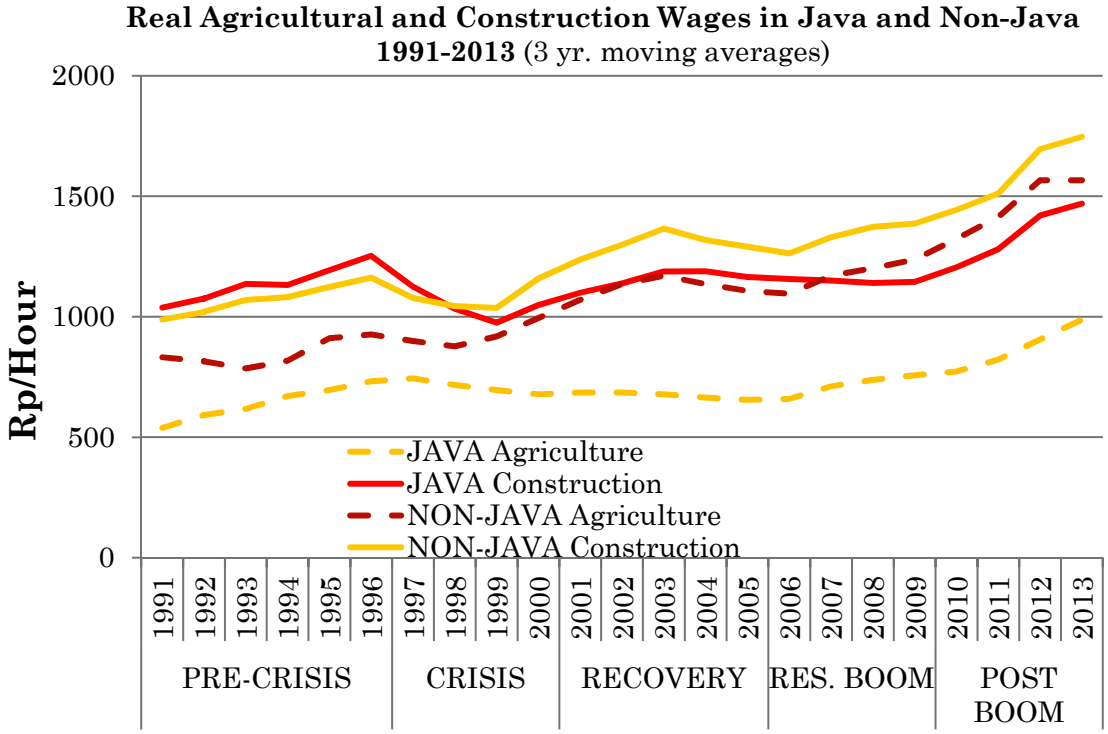
3. Wage Trends
Agriculture and Construction

- Two periods of accelerated growth: 1990s and late 2000s (noughties)



3. Wage Trends
Agriculture and Construction

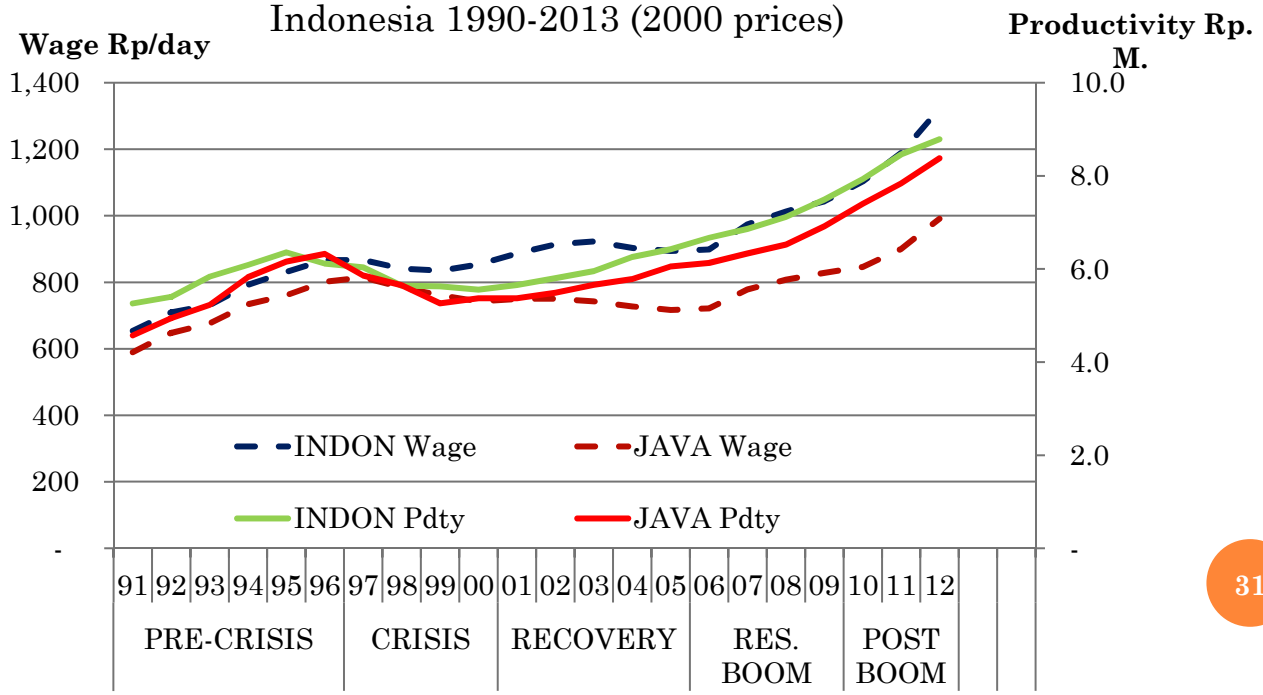
- Slower growth in Java esp. of agricultural wages makes sense



3. Wage Trends

- Wages track labour productivity in agriculture

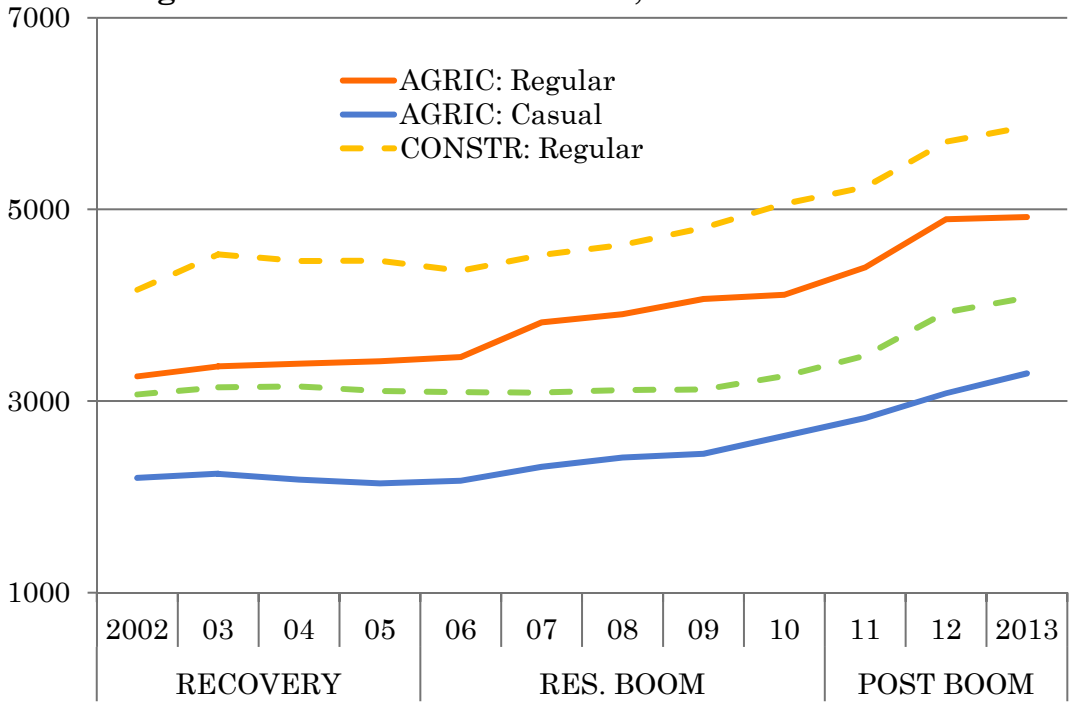
Trends in Real Wages and Productivity in Agriculture, Indonesia 1990-2013 (2000 prices)



Regular and Casual: 2000s

- Recent period, both casual and regular employees experience accelerated wage growth

Real Wages of Regular and Casual Workers, Agriculture and Construction, Indonesia 2002-2013*



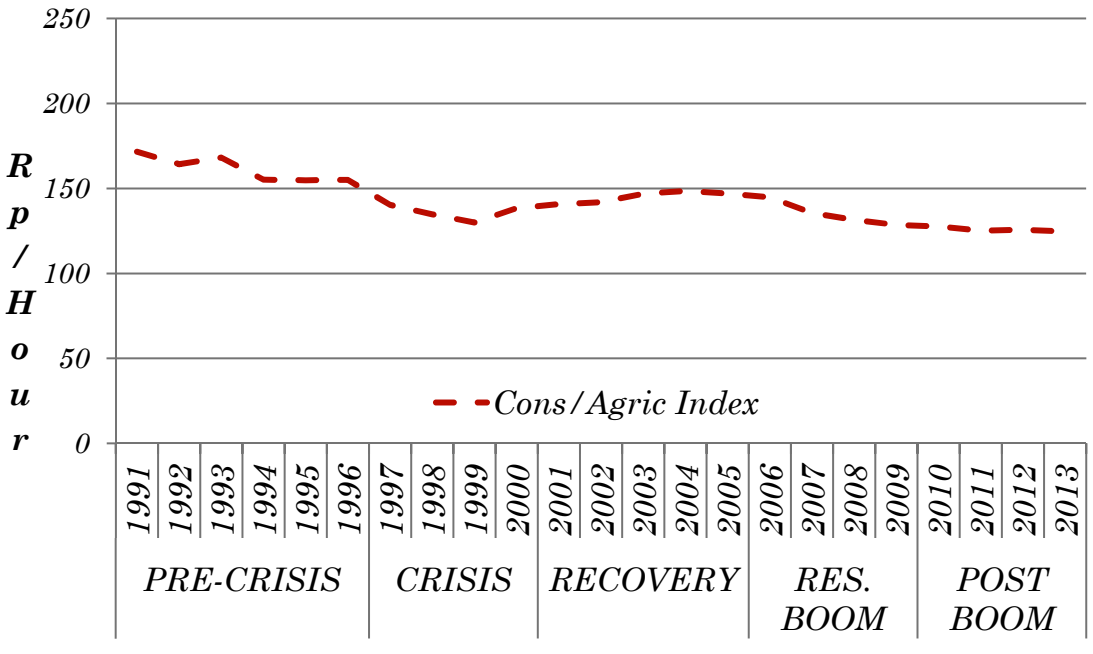
V. Labour markets and the turning point II: Wage differentials

- Looking for a narrowing of wages at the bottom end of the labour market. Test two sets of differentials
  - Agriculture versus construction (1990-2014)
  - Casual versus Regular workers (2001-2014)
- Why these two industries?
  - Agriculture has the lowest hourly wages among sectors
  - Construction regarded as less affected by government legislation or union pressures

Wages Agriculture and Construction

- Wage trends show familiar pattern
- (Uncontrolled) Differentials decline during periods of more rapid growth

Real Agricultural and Construction Wages in Indonesia 1991--2013 (Index; 3 yr. moving averages)



Wage Convergence Between Sectors: Estimation Strategy

- A typical Mincerian wage regression equation is applied to the SAKERNAS data to test the extent of convergence between wages at lower end of the wage distribution.

  Mincerian wage equation

$$\ln y_i = \beta_0 + \beta_1 educ_i + \beta_2 exper_i + \beta_3 exper_i^2 + \beta_4 agriculture_i + \beta_5 male_i + \sum_j \alpha_j Location_{ij} + \varepsilon_i$$

- Variables:
  - Dependent variable: log of hourly wages
  - Dummy for sector of employment (agriculture=1, construction=0 **(negative sign implies lower wages in agriculture)**
  - Other control variables (human capital, region)

Wage Convergence Between Sectors: Estimation Strategy (cont)

- Estimation was done separately for five years (1990, 1996, 2001, 2007 and 2014)
- Also estimates using pooled data with time dummies and interaction between time and agriculture dummies

$$\ln y_{it} = \beta_0 + \beta_1 educ_{it} + \beta_2 exper_{it} + \beta_3 exper_{it}^2 + \beta_4 agriculture_{it} + \beta_5 male_i + \sum_t \gamma_t YearDummy_t_t + \sum_t \theta_j (YearDummy_t_t * agriculture_i) + \sum_j \alpha_j Location_{ij} + \varepsilon_i$$

- Results: Table 1
  - Dummy for agricultural wages negative
  - No narrowing before the crisis
  - differences decline over time during the resource boom in the 2000s: compare coefficient in 2001 and 2007 with 2014
    - Narrowed from around 20% to just over 10% by 2014

Wage Determination in Agriculture and Construction, 2001 - 2014

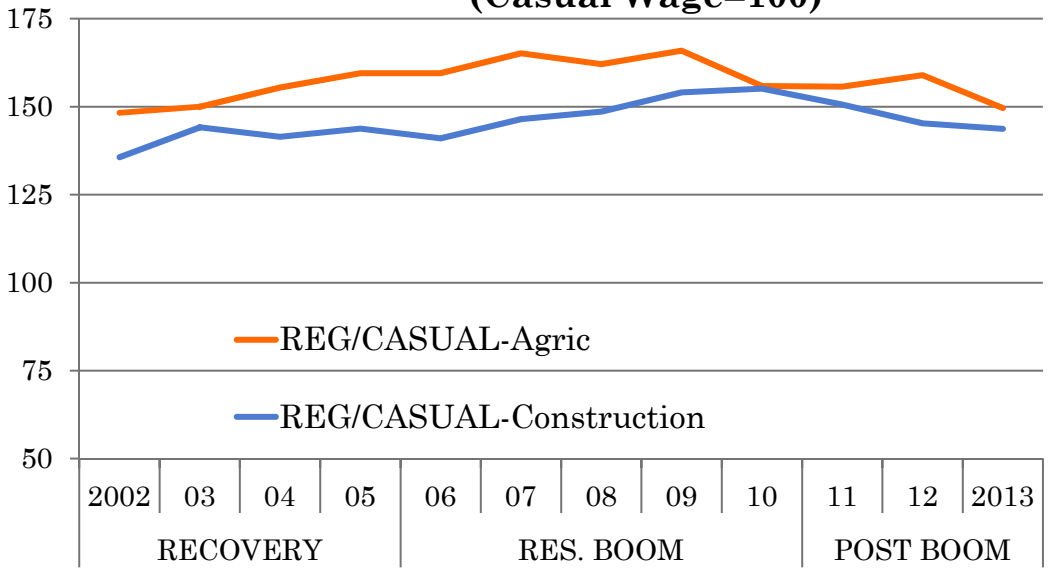
	1990	1996	2001	2007	2014	1990 - 2014
Agriculture	**-0.264*** **	**-0.234*** **	**-0.207*** **	**-0.218*** **	**-0.116*** **	**-0.346*** **
Year of Schooling	0.068***	0.065***	0.070***	0.058***	0.048***	0.056***
Experience	0.026***	0.022***	0.023***	0.018***	0.019***	0.019***
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
Male	0.288***	0.260***	0.324***	0.216***	0.108***	0.204***
Urban	0.103***	0.115***	0.098***	0.026***	-0.004	0.033***
d96 *Agriculture						**0.050*** **
d01 *Agriculture						**0.052*** **
d07 *Agriculture						**0.133*** **
d14 *Agriculture						**0.265*** **
Constant	5.428***	5.873***	5.688***	5.906***	6.330***	5.750***
Region dummies	yes	yes	yes	yes	yes	Yes
Year dummies	-	-	-	-	-	yes
Number of observations	10,892	11,043	5,675	54,929	36,776	119,315
Adjusted R2	0.383	0.258	0.243	0.198	0.103	0.261
F	666.51	357.68	164.68	1,283.97	379.87	2,469.12

Note: *** Significant at 1%. ** Significant at 5%. * Significant at 10%.

WAGE DIFFERENTIALS: CASUAL VERSUS REGULAR EMPLOYEES

- Appears a similar pattern of wage increases as previously, though narrowing is earlier

The Ratio of Regular to Casual Wages in Agriculture and Construction, Indonesia 2002-12 (Casual Wage=100)



WAGE DIFFERENTIALS: CASUAL VERSUS REGULAR EMPLOYEES

- Apply a similar equation as previously, for the post-crisis period (years 2001, 07, 14)

$$\ln y_i = \beta_0 + \beta_1 educ_i + \beta_2 exper_i + \beta_3 exper_i^2 + \boldsymbol{\beta_4 casual_i} + \beta_5 male_i + \sum_j \alpha_j \, Location_{ij} + \varepsilon_i$$

- Dummy variable: casual worker==1 and regular
- worker=0
- Also estimates using pooled data with time dummies and interaction between time and casual dummies

- *Results*: Mincerian equation also indicates a narrowing of differentials after the boom (actually turns positive in agriculture)

Results: Mincerian equation also indicates a narrowing of differentials after mid 2000s (actually turns positive in agriculture)

Wage determination of Regular and Casual Workers in Agriculture, 2001 - 2014

Dependent variable: Log hourly wages	2001	2007	2014	2001-2014
Casual	**-0.227*** **	**-0.186*** **	**0.044*** **	**-0.237*** **
Year of Schooling	0.048***	0.044***	0.043***	0.043***
Experience	0.017***	0.013***	0.015***	0.014***
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***
Male	0.334***	0.214***	0.127***	0.191***
Urban	0.095***	-0.006	-0.042***	-0.014**
d07 * Casual				**0.035**
d14 * Casual				**0.313*** **
Constant	5.827***	5.958***	6.278***	5.982***
Region dummies	yes	yes	yes	yes
Year dummies	-	-	-	yes
Number of observations	3,656	36,778	21,945	62,379
Adjusted R2	0.214	0.195	0.096	0.210
F	101.273	903.266	222.485	1,226.411

Wage determination of Regular and Casual Workers in Construction, 2001 - 2014

	2001	2007	2014	2001-2014
Casual	**-0.170*** **	**-0.159*** **	**-0.031*** **	**-0.149*** **
Year of Schooling	0.069***	0.066***	0.051***	0.059***
Experience	0.034***	0.025***	0.025***	0.025***
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***
Urban	0.016	0.012	0.028***	0.020***
d07 * Casual				**-0.015**
d14 * Casual				**0.123*** **
Constant	5.957***	6.090***	6.332***	6.107***
Region dummies	yes	yes	yes	yes
Year dummies	-	-	-	yes
Number of observations	2,019	18,151	14,831	35,001
Adjusted R2	0.231	0.173	0.111	0.167
F	41.119	308.301	158.045	427.130

- *Conclusion on wage differentials*: Clearly some narrowing. pointing to tighter labour markets
  - But still significant differentials among blue collar workers

VI. SUMMING UP

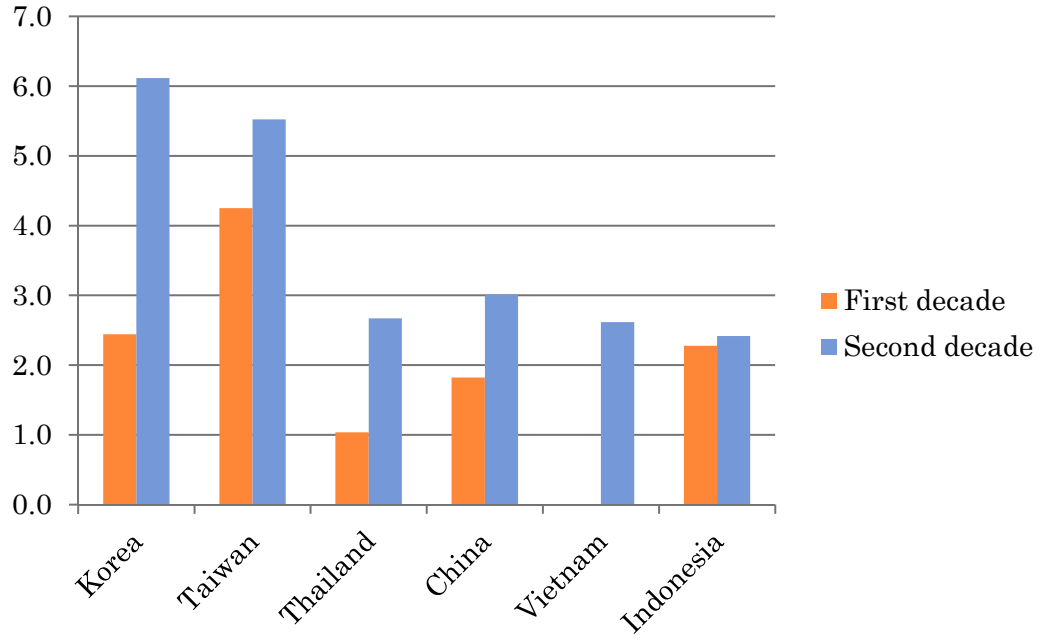
- Lewis idea
  - very influential and proved important for understanding Japan, Korea and Taiwan
  - harder to identify TP in larger more fragmented economies – even ones growing as fast as China
  - Indonesia (and other SEAsian countries) an added complication of land and resource abundance

- From the employment and wages data, it seems that there are two periods where employment declines in agriculture and in the informal sector and wages rises in agriculture (1986 – 1996 and 2007 – 2014)
- Econometrics exercise shows that the shift is much more significant from 2007 onwards
- Indonesia seems to have been moving toward a turning point in 2013-2014
- The question is will this trend continue in the current downturn?

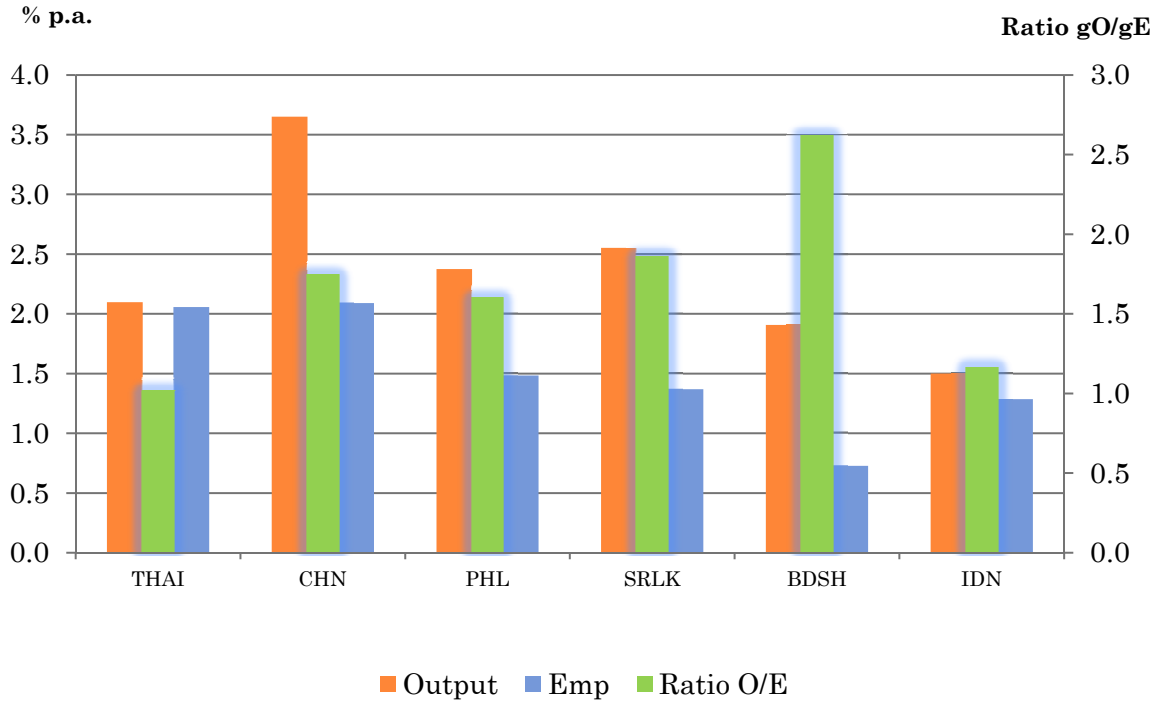
- Follow-up work needed
  - More econometric work, especially on determinants of agricultural and informal sector employment
  - Inter-regional migration and important factor in Indonesia – eg. Resource boom affects Java labour market more intensively?
  - Need more careful measurement of key variables (wages, informal work etc.)

THANK YOU

Rate of Decline in the Share of Agricultural Employment over Two Decades, Selected Countries in Asia (% per annum)*



Rate of Decline in Output and Employment Shares in Agriculture, Selected Countries in Asia



Shares of Employment and Job Increases by Main Industry, Selected Asian Countries 1991-2012

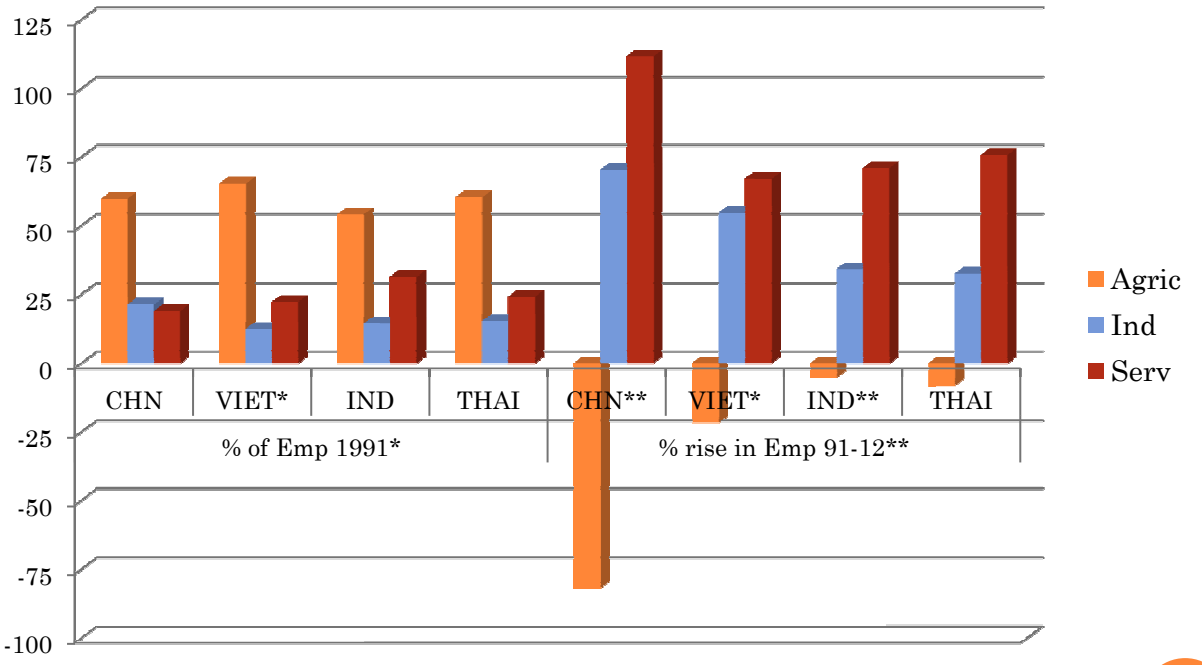


Table 5.3 Several Characteristics of the Services Industry, Indonesia 1989-2014 *(two year averages)*

	1989/90	2001/2*	2013/14
Share of Employment (%)	33.4	37.2	47.9
Output per Worker			
Rp. Million (2000 prices)	11.4	16.1	26.8
Change over time (1989/90=100)	100	141	235
Relative to agriculture (Agric=1.0)	2.5	2.8	3.0
Informal Sector (% of all jobs)	56	54/57	48
Growth of employment (% per annum)	*1989/90-1996/7*		*2001/2-2013/14*
	5.7		4.0