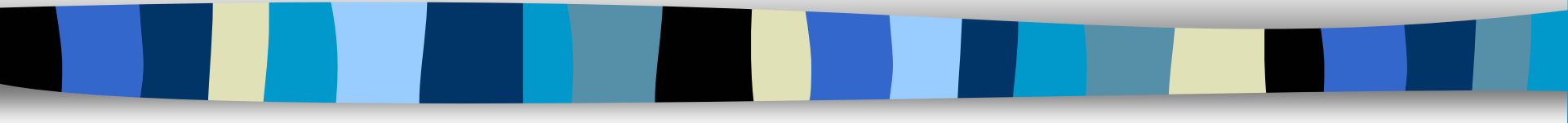# Occupational structure and structural change in Indonesia, 1880-2000

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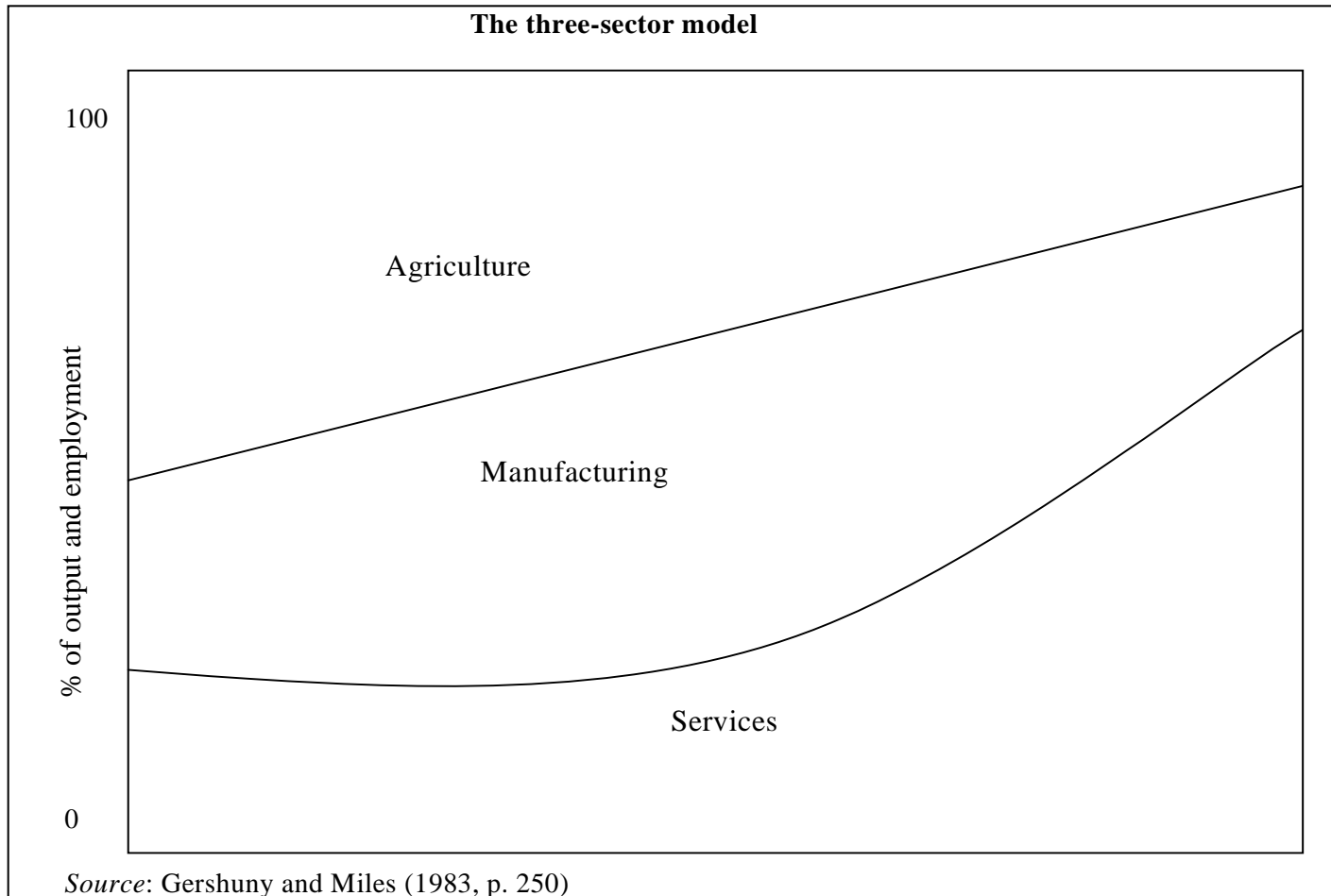
Structure of presentation

- Motivation

- Data sources

- Occupational structure and modern economic growth in Indonesia:
  - Employment structure
  - Labour productivity
  - By-employment

- Conclusions

Motivation

- Profound changes in the structure of labour markets are considered an important aspect of economic development (Manning, 1998, p. 12).

- This idea was introduced by Kuznets (1957, 1966)

Development and structural change

The three-sector model

% of output and employment

100

Agriculture

Manufacturing

Services

0

Source: Gershuny and Miles (1983, p. 250)

Kuznets' modern economic growth

- Shift of labour away from low productivity (agricultural) sectors to high productivity (industrial/service) sectors.

An anthropologist view

- "(…), the major reason for the lack of economic progress should be sought in the essential nature of the Javanese: an amalgam of traditional society and archetypical personality. Javanese were characterized as essentially subsitence minded wet-rice agriculturalists with limited needs who placed a very high value on leisure and social obligations and preferred to share resources rather than compete for them."

Aim of this paper

■ Assess changes in occupational structure of Indonesia for the period 1880-2000 by looking at 3 issues:

  – Employment figures
  – Labour productivity
  – By-employment

Data sources (1)

- From 1880-1900: population surveys every five years.
  - Limited area covered (only Java & Madura)
  - Only male adults

- 1905: Enumeration including both men and women and information on secondary job

Data sources (2)

■ 1920: First population census (planned already for 1910): produced less information while the reliability was not much better:

"in view of all the inadequacies, the population census of 1920 can best be considered as a rehearsal for the 1930 census" (Boomgaard & Gooszen, 1991, p. 28)

Data sources (3)

- 1930: population census: large quantity of data and quite reliable results.

- 1961, 1971, 1980, 1990, 2000: population census

- Since 1976/77: National Labour Force Survey (Sakernas) conducted annually (except in 1981, 1983 and 1984).
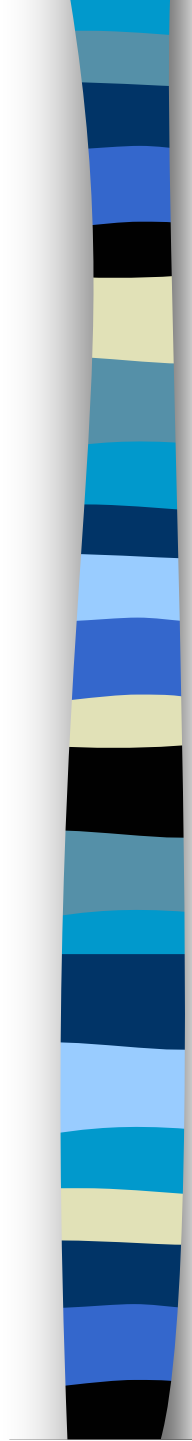
Employment structure, 1905-2000: structural change?
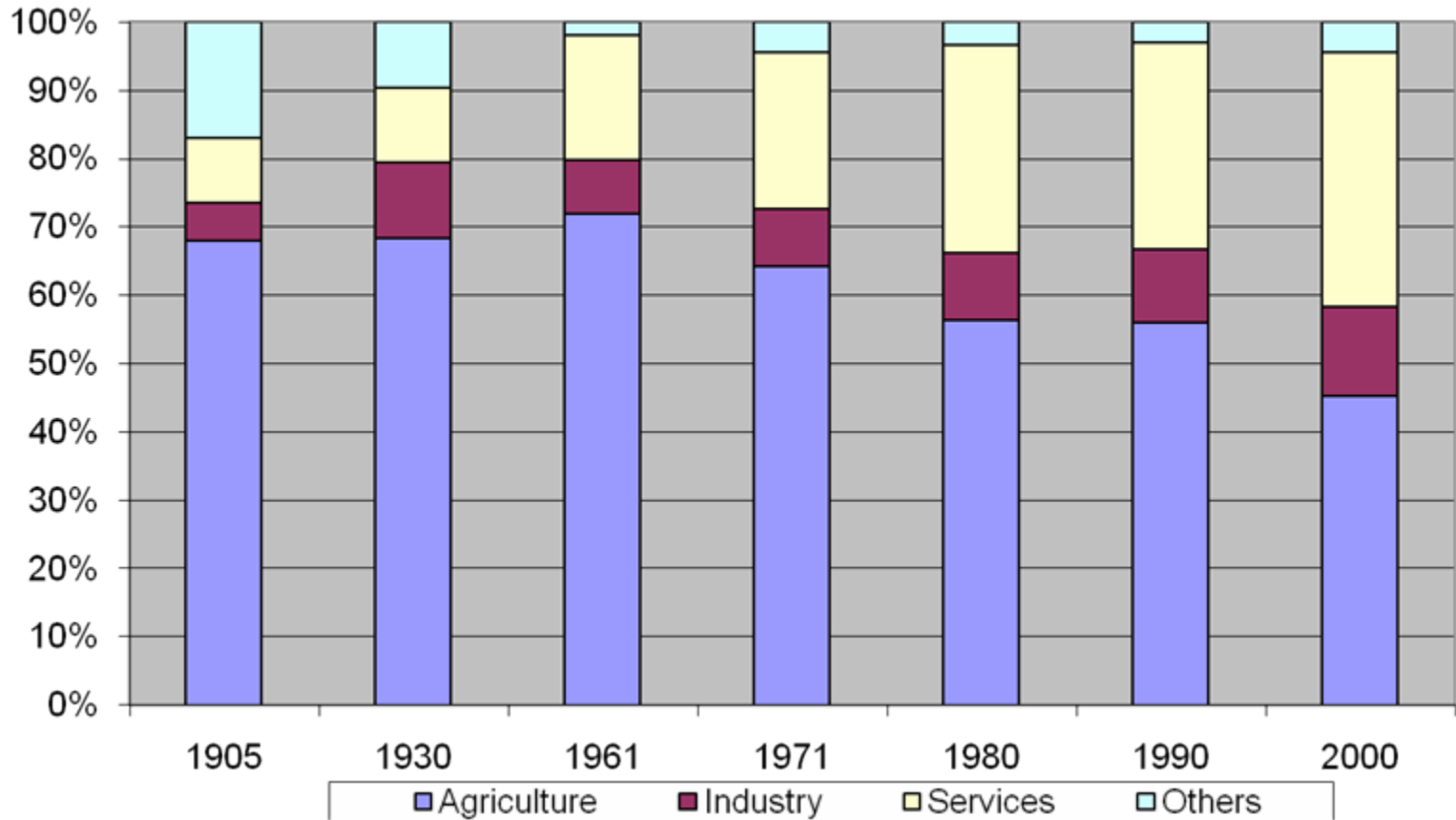
Annual growth in employment

	Agriculture	Industry	Services	Labour Force
1930-1961	1.6%	-0.5%	3.1%	1.5%
1961-1971	1.2%	3.6%	4.7%	2.4%
1971-1980	1.0%	6.9%	5.8%	2.5%
1980-1990	3.8%	5.0%	3.9%	3.9%
1990-2000	-0.4%	3.5%	3.9%	1.7%

Conclusions employment structure

- Already in early phase of development service sector is important.

- Not Kuznets' sectoral model: A-> I -> S

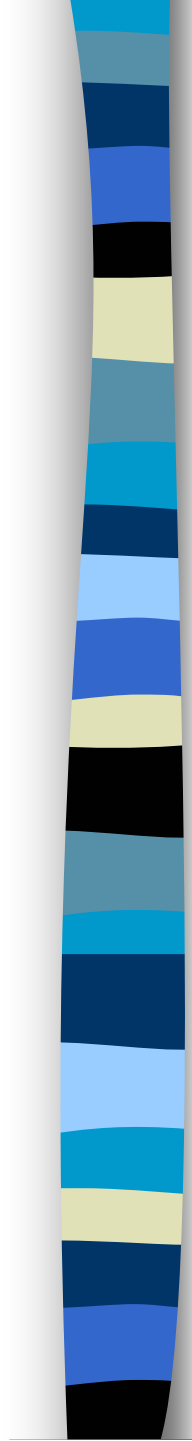- Transformation to modern economy suggested to start in 1970s

Labour productivity

Table 3: Labour productivity in Indonesia, 1905-2000
(in fl/Rp per labourer constant 1990 prices)

	Agriculture	Industry (excl. oil and gas)	Trade	Transport & Communication	Financial sector	Total service sector
1905	1,018.3	4,071.0	3,961.1	1,497.8		3,291.7
1930	978.4	2,625.1	3,726.6	2,976.2		3,682.2
1961	939.5	3,559.2	2,208.6	3,289.8		2,385.7
1971	1,148.7	5,346.7	1,545.9	3,212.3	5,602.6	2,112.0
1980	1,170.0	11,742.8	3,118.8	5,101.4	7,057.0	2,724.1
1990	1,205.8	12,526.8	3,310.5	7,077.7	22,689.9	3,789.7
2000	1,685.6	15,764.6	3,115.8	6,964.6	27,038.2	4,390.4

Sources: Employment figures: Population censuses; GDP estimates: for Agriculture and Industry: vd Eng (2002). Other sectors: own estimates

Growth in labour productivity

	Agriculture	Industry (excl. oil and gas)	Trade	Transport & Communication	Financial Sector	Total service sector	Total labour productivity
1930-1961	-0.13%	0.99%	-1.67%	0.32%		-1.39%	
1961-1971	2.03%	4.15%	-3.50%	-0.24%		-1.21%	2.32%
1971-1980	0.20%	9.14%	8.11%	5.27%	2.60%	2.87%	4.97%
1980-1990	0.30%	0.65%	0.60%	3.33%	12.39%	3.36%	2.31%
1990-2000	3.41%	2.33%	-0.60%	-0.16%	1.77%	1.48%	2.62%

Source: own calculations from table 3

Decomposing labour productivity growth

$$LP_t - LP_0 = \sum (LP_{(t,i)} - LP_{(o,i)}) \times S_{(o,i)} + \sum_{i=1}^{n} (S_{(t,i)} - S_{(o,i)}) \times LP_{(o,i)} + \sum_{i=1}^{n} (S_{(t,i)} - S_{(o,i)}) \times (LP_{(t,i)} - LP_{(o,i)})$$

1. Intrasectoral productivity growth: growth within sector
2. Static shift effect: effect of change in sectoral employment share on overall growth
3. Dynamic shift effect: effect of shift of labour to sectors which improve their productivity performance

Decomposition of labour productivity growth

		1930-1961	1961-1971	1971-1980	1980-1990	1990-2000
Labour productivity growth per year		-0.03%	1.53%	4.94%	2.57%	2.97%
Intrasectoral growth			52.4%	67.0%	84.0%	56.4%
Structural change	Static		62.0%	21.8%	12.8%	38.4%
	Dynamic		-14.4%	11.2%	3.1%	5.1%
	Total		100.0%	100.0%	100.0%	100.0%

Source: own calculations

Conclusions labour productivity

- Looking at labour productivity it can be questioned whether Indonesia has already transformed into a modern economy.

The issue of by-employment

- "Although it has not been completely neglected, an entire socio-economic stratum of rural (...) society is not easily accounted for in any of the taxonomic formulations presently available (...). Characteristic of this population segment is occupational multiplicity or plurality wherein the modal adult is systematically engaged in a number of gainful activities, which for him form an integrated economic complex." (Comitas, 1973, p. 157)

Proportion of agricultural workers to total labour force in Java, 1937-1930

Year	No. of agricultural workers	Total labour force	% of total labour force
1837	1,277,297	1,388,366	92%
1867	1,911,595	2,471,008	77%
1880	2,565,974	3,362,159	76%
1905	5,508,347	7,611,674	72%
1930	8,230,087	12,594,369	65%

Note: before 1880 numbers refer to all households, thereafter to the labour force
Source: Fernando (1992), p. 4.

Table 7: Peasants engaged in by-employment, 1905

Residency	No. of peasants	% of peasants with land	No. of peasants in by-employment	% of all peasants
Banten	256,522	80	119,647	47
Batavia	362,914	75	152,510	42
Priangan	665,414	50	416,387	63
Cirebon	412,577	50	299,961	73
West Java	1,697,427	60	988,505	58
Pekalongan	406,046	52	249,555	61
Banyumas	272,378	95	158,304	58
Semarang	554,028	68	266,522	48
Kedu	567,638	51	368,240	65
Rembang	313,174	73	121,519	39
Central Java	2,113,264	60	1,164,140	55
Madiun	297,527	53	184,717	62
Kediri	344,506	57	195,275	57
Surabaya	468,173	62	277,915	60
Pasuruan	455,368	54	288,540	63
Besuki	212,009	78	66,770	32
East Java	1,777,583	60	1,013,217	57
Java	5,588,274	60	3,165,862	57

Table 8: 1905 enumeration

		Java & Madoera	Outer Islands	Total
Agricultural workers				
Landowners		3,787,564	1,744,040	5,531,604
Landless				
Renting land		341,110	152,007	493,117
Wage labourers		2,599,557	252,934	2,852,491
Total		6,728,231	2,148,981	8,877,212
Non-agricultural workers				
Central Government		31,172	10,485	41,657
Local Government	A	322,640	46,219	368,859
	B	26,910	10,074	36,984
Religious services	A	8,272	10,325	18,597
	B	8,009	5,654	13,663
Teachers	A	10,166	4,415	14,581
	B	5,993	2,379	8,372
Trade	A	187,070	24,317	211,387
	B	455,202	52,967	508,169
Transport workers	A	63,144	14,853	77,997
	B	54,044	12,661	66,705
Industry	A	145,609	46,489	192,098
	B	384,891	72,190	457,081
Proto-industry		62,866	49,835	112,701
Domestic servants		100,181	10,057	110,238
Others	A	483,698	63,431	547,129
	B	1,625,204	149,013	1,774,217
Total work force		9,482,712	2,524,296	12,007,008

Note:
A: already included as agricultural worker (thus having a secondary job);
B: not yet included

Distortion of by-employment in 1905 enumeration

		1905 (adjusted)		1905 (unadjusted)	
		No.	%	No.	%
1.	Agriculture, Hunting, Forestry and Fishing	8,162	68.0%	8,877	73.9%
2.	Mining and Quarrying				
3.	Manufacturing	666	5.5%	570	4.7%
4.	Electricity, Gas & Water				
5.	Construction				
6.	Trade, Hotels and restaurants	614	5.1%	508	4.2%
7.	Transport & Communication	106	0.9%	67	0.6%
8.	FIRE and Business services				
9.	Community, social and personal services	412	3.4%	211	1.8%
0.	Activities not adequately defined	2,048	17.1%	1774	14.8%
	Total	11,999	100.0%	12,007	100%

Note: Adjustment is done by assuming that those classified as also employed in agriculture are assigned for 50% to agriculture and for 50% to their secondary job.

By-employment and economic development

Stage of Economic Development
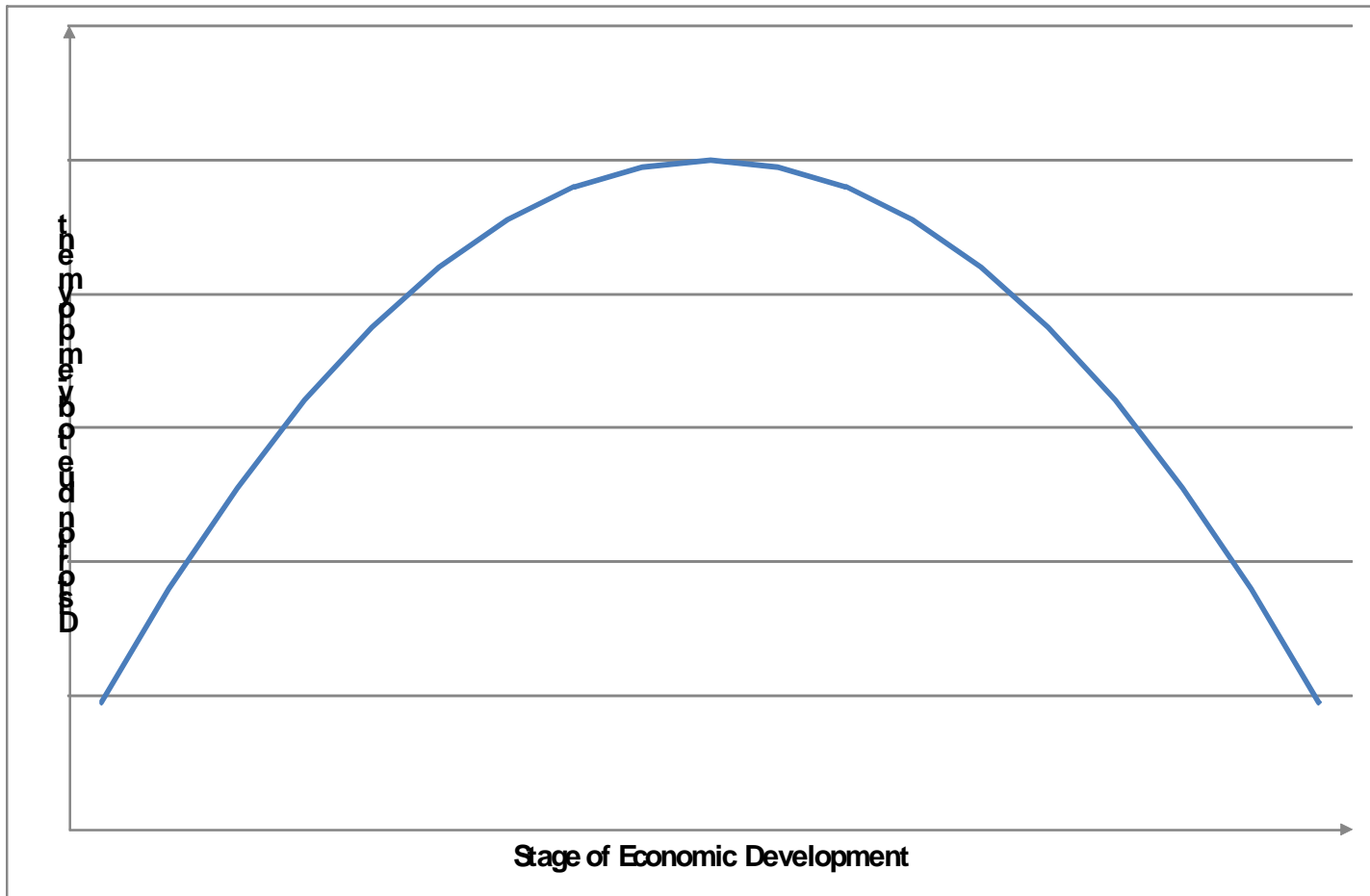
Conclusions

- When and whether Indonesia transformed into a Kuznets-like modern economy is not easy to answer.

- Looking at this in three different ways (i.e. employment structure, labour productivity and by-employment) leads to different answers.

- I would argue that the decisive step still has to be made…..

Terimah kasih atas perhatian Anda!