# A Guide to Working with Indonesian Survey Data

# The National Labor Force Survey
# *SAKERNAS*

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# with Indonesian Survey Data

## The National
## Labor Force Survey
# *SAKERNAS*

**Another Guide to Working with Indonesian Survey Data:**

*The National Socio-Economic Survey – SUSENAS*  (2014)

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# I. Overview

## 1.1 History of Sakernas

Sakernas (the National Labor Force Survey) is one of the nation-wide surveys conducted regularly by BPS – Statistics Indonesia. The survey is intended to collect main labor indicators, among which are: labor force participation, employment rate, unemployment rate, sector of employment, employment status, occupation, formality, income/wage, working hours, etc.

Since the first implementation in 1976, Sakernas has experienced several changes in data collection activities, such as in the frequency of surveys and in the range of territorial and household samples.  At first, Sakernas was implemented as a module of the National Socio-Economic Survey (Susenas), but has been conducted regularly and separately from Susenas since 1986, except in 1995 when Sakernas was not conducted[1]. In the period of 1986 to 1993 Sakernas was conducted quarterly; in 1994 to 2001 the survey was conducted annually every August; in 2002 to 2004, in addition to annual implementation, Sakernas was also executed quarterly for the purpose of trials, while from 2005 to 2010 it was conducted bi-annually in February and August.  Since 2007, sampling for the August round has been designed in such way that the survey data produced will be representative up to district/city level.

Due to the urgent demand for more frequent updates of Indonesia labor indicators, since 2011 data collection activities of Sakernas was carried out every three months again, i.e. in February (Quarter I), May (Quarter II), August (Quarter III), and November (Quarter IV). Except for August data, each quarterly survey data is representative up to the provincial level. The August surveys also include additional samples to produce representative annual estimates up to the district/city level. Table 1 shows changes in the Sakernas since 1976 in terms of level of representativeness, frequency of data collection, and sample size.

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1        In 1995, when Sakernas was not conducted, the employment data was obtained from 1995 Intercensal Population Survey (Supas 1995).

| Period | Frequency | Level of Representativeness | Survey size*) | | Note |
|---|---|---|---|---|---|
| | | | Households | Individuals | |
| 1986 | Annual | Province | 16,000 | 31,000 | |
| 1987-1988 | Annual | Province | 65,000 | 230,000-235,000 | |
| 1989 | Annual | Province | 77,000 | 283,000 | |
| 1990-1993 | Annual | Province | 82,000 | 280,000-291,000 | |
| 1994 | Annual | Province | 72,000 | 245,000 | |
| 1995 | Annual | Province | 217,000 | 736,000 | Employment data was retrieved from supas 1995 |
| 1996-1997 | Annual | Province | 66,000-77,000 | 219,000-247,000 | |
| 1998-1999 | Annual | Province | 48,000-49,000 | 156,000-164,000 | 1999: Started to exclude east timor |
| 2000-2001 | Annual | Region | 31,000-38,000 | 99,000-120,000 | 2000: Without maluku |
| 2002-2004 | Annual | Province | 70,000-76,000 | 209,000-275,000 | |
| 2005 | February | Province | 69,000 | 216,000 | |
| | November | Province | 66,000 | 203,000 | |
| 2006 | February | Province | 66,000 | 206,000 | Started to cover 33 provinces |
| | August | Province | 71,000 | 194,000 | |
| 2007 | February | Province | 69,000 | 222,000 | |
| | August | District | 286,000 | 910,000 | |
| 2008 | February | Province | 69,000 | 219,000 | |
| | August | District | 292,000 | 932,000 | |
| 2009 | February | Province | 69,000 | 219,000 | |
| | August | District | 289,000 | 927,000 | |
| 2010 | February | Province | 67,000 | 213,000 | |
| | August | District | 294,000 | 953,000 | |
| 2011 | February | Province | 49,000 | 134,000 | |
| | August | District | 192,000 | 525,000 | |
| 2012 | February | Province | 46,000 | 126,000 | |
| | May | Province | 46,000 | 125,000 | |
| | August | District | 186,000 | 508,000 | |
| 2013 | February | Province | 45,000 | 123,000 | |
| | May | Province | 45,000 | 122,000 | |
| | August | District | 181,000 | 495,000 | |

*) Rounded

## 1.2 Information Collected

There are two main types of information collected in the Sakernas, i.e. household information and individual information.

### 1.2.1  Data on Household Information

Data on household information includes location identification (province, district/city, sub-district, village, urban/rural, census block number, sample code number, etc.), summary on total household members, and total household members aged 10 years or older, as shown in the Figure 1.

FIGURE 1. HOUSEHOLD INFORMATION SINCE SAKERNAS 2012

| I. LOCATION IDENTIFICATION | | | |
|---|---|---|---|
| 1 | Province | | ☐☐ |
| 2 | District/City *) | | ☐☐ |
| 3 | Sub-district | | ☐☐☐ |
| 4 | Village/Kelurahan *) | | ☐☐☐ |
| 5 | Village/Kelurahan classification | 1. Urban      2. Rural | ☐ |
| 6 | Census block number | | |
| 7 | Sample code number | | ☐☐☐☐☐ |
| 8 | Household sample sequential number | | ☐☐ |
| 9 | Name of household head | | |
| 10 | Result of visit | 1. Succeed | |
| | | 2. Refused | BLOCK III, STOP |
| | | 3. Cannot be found | |

| II. SUMMARY | | |
|---|---|---|
| 1 | Total household members | ☐☐ |
| 2 | Total household members aged 10 years or older | ☐☐ |

However, the availability of location identification in the Sakernas raw data supplied by BPS varies across survey periods.  The complete information on location identification is needed to generate a single household ID variable which is absolutely necessary to estimate labor parameters at household level. A household ID variable can be generated by using the following STATA command (with the variable names used in this example are according to Sakernas August 2007 data):

```
// create household ID
Sort b1p01-b1p10
egen hhid = group(b1p01-b1p10)
// with b1p01= province
// b1p02= district/city
// b1p03= sub-district
// b1p04= village/kelurahan
// b1p05= village/kelurahan classification
(urban/rural)
// b1p07= sample code number
// b1p10= household sample sequential number
```

Although the complete information on location identification would be ideal, household ID can also be generated by using the combination of at least province, district/city, urban/rural status, sample code number, and household sample sequential number. Table 2 shows Sakernas periods where the household identifiers are available, thus enabling household ID generation.

| Period | Location Identification Available | Can household ID be created? |
|---|---|---|
| 1986 | province, urban/rural, hh sample sequential number | No |
| 1987-1989 | Province, district, sample sequential number, hh sample sequential number | No |
| 1990-1994 | province, district, urban/rural, sample code number, hh sample sequential number | Yes |
| 1995 | Complete | Yes |
| 1996-February 2007 | province, district, urban/rural, sample code number, hh sample sequential number | Yes |
| August 2007– February 2008 | Complete | Yes |
| August 2008-February 2009 | province, district, urban/rural, sample code number, hh sample sequential number | Yes |
| August 2009 | province, district, urban/rural, hh sample sequential number | No |
| February 2010 | province, urban/rural, hh sample sequential number | No |
| August 2010 | province, district, urban/rural | No |
| February 2011 | province, urban/rural | No |
| August 2011 | province, district, urban/rural | No |
| February-May 2012 | province, urban/rural | No |
| August 2012 | province, district, urban/rural | No |
| February-May 2013 | province, urban/rural | No |
| August 2013 | province, district, urban/rural | No |

### 1.2.2   Data on Individual Information

Data on individual information available from the Sakernas include (according to the sequence and classification on the questionnaire):

- **Demographic characteristics**: name, relation to the head of household, sex, age, marital status, and education attainment.

- **Activities during last week**: working, attending school, doing housekeeping and others (pension, disabled, etc.), temporary not working, looking for work, preparing a new business, the main reasons for not looking for work or preparing a new business, and willingness to accept a job offer; for respondents who were working: total working days and working hours during last week for all jobs

- **Main job**: sector/industry, occupation, total working hours during last week, employment status, and net wage/salary/income received during last month, duration of working in the main job, location of the main job, commuting to the main job (frequency, distance, duration, means of transportation used), first time working in the main job/business, and duration of looking for the main job/preparing the main business.

- **Additional job**: whether having additional job(s) during last week, and sector/industry of the additional job.

- **Activities of looking for work or preparing a business**: main reason for looking for work or preparing a business, efforts made during the period of looking for work or preparing a business, duration of looking for work or preparing a business, and whether looking for full or part-time work, or preparing full or part-time business.

- **Work experience**: whether having work experience, whether terminating/changing work during last year, the main reason for terminating/changing work, sector/industry of the last work/business, and status of the last employment.

Questions about name, relation to the head of household, sex, and age were addressed to all household members, while other questions on individual characteristics, including on employment information, were asked only to household members aged 10 years and older.  However, there are years when Sakernas raw data only includes individuals from the age of 15.  Inclusion of the employment data for respondents aged younger than 15 years old are necessary to produce indicators related to child labor. Please refer to Table 3 for the availability of data for individuals aged 10 to 15 years across Sakernas periods.

| Period | Age Coverage |
|---|---|
| 1986-2003 | 10 years and older |
| 2004 | 15 years and older |
| 2005 | 10 years and older |
| 2006 February | 10 years and older |
| 2006 August | 15 years and older |
| 2007-2010 | 10 years and older |
| 2011-2013 | 15 years and older |

### 1.2.3   Additional Specific Labor Data in Sakernas

In addition to the regularly collected labor data as described above, BPS has occasionally (under particular circumstances and requests) collected other information of interest, such as:

- Willingness to work abroad (available in Sakernas August 2008 to August 2010)

- Total number of employees (was asked only to employers assisted by permanent/paid workers) (available in Sakernas 2001 to August 2010)

- Presence of efforts from employer to improve worker's performance (available in Sakernas August 2008 to February 2009)

- Social protections provided by the main job: ASKES, ASTEK, health care reimbursement, health facility in the workplace, life/health insurance, pension plan; availability of private health insurance and pension plan (available in Sakernas February 2008)

- Availability of social insurance in the main job; availability of private insurance, insurance from employer, or both; and union membership (available in Sakernas August 2007)

- Comparison between current and last year's condition in the workplace in the following aspects (was asked only to employees): income, facilities, health insurance, safety, transportation facility, condition in general (available in Sakernas 1998 to February 2007)

**Additional Module of Job Tenure and Job Termination**

In February 2008, the World Bank piggybacked on the Sakernas to gather the latest information on job tenure and job termination as the post-crisis feature, in order to support more in-depth research and policy recommendations on employment. The survey data collection was conducted in parallel with Sakernas. As a result, in Sakernas February 2008, in addition to the current set of questions in Sakernas, the following areas were covered:

- Duration of work
- Ownership status and size of company
- Employment contract status
- Main reason for job termination or job change
- Severance payment
- Health benefit

The supplementary questions were only asked to those who experienced job loss or job change within the last two years, i.e. since February 2006, with his/her status on previous employment was employee. The samples covered approximately 2,700 individual respondents from 47 districts across 12 provinces, i.e.: North Sumatera, Lampung, Kepulauan Riau, DKI Jakarta, Banten, West Java, Central Java, DI Yogyakarta, East Java, Bali, West Kalimantan, and South Sulawesi.

# II. Concept and Definition

The concepts and definitions used in the collection of employment data by Statistics Indonesia-BPS are in accordance with those used by the International Labor Organization (ILO). This concept suggests division of the population into two groups, i.e. the working-age population and the non-working age population. Furthermore, the working age population is divided into two groups based on their main activity: labor force and non-labor force. Distribution of population by employment status and activity is shown in Table 4 and Figure 2.

TABLE 4. POPULATION DISTRIBUTION BY EMPLOYMENT STATUS AND ACTIVITY

| Total population | Working-age population | Labor force (broad definition) | Employed | Working |
| | | | Unemployed | Searching for work |
| | | | | Establishing a new business |
| | | | | Discouraged |
| | | | | With future job arranged |
| | | Non-labor force (broad definition) | Student | |
| | | | Homemaker | |
| | | | Others | |
| | Non-working age population | | | |

FIGURE 2. POPULATION DISTRIBUTION BY EMPLOYMENT STATUS AND ACTIVITY
(USING AUGUST 2013 DATA AS AN EXAMPLE)
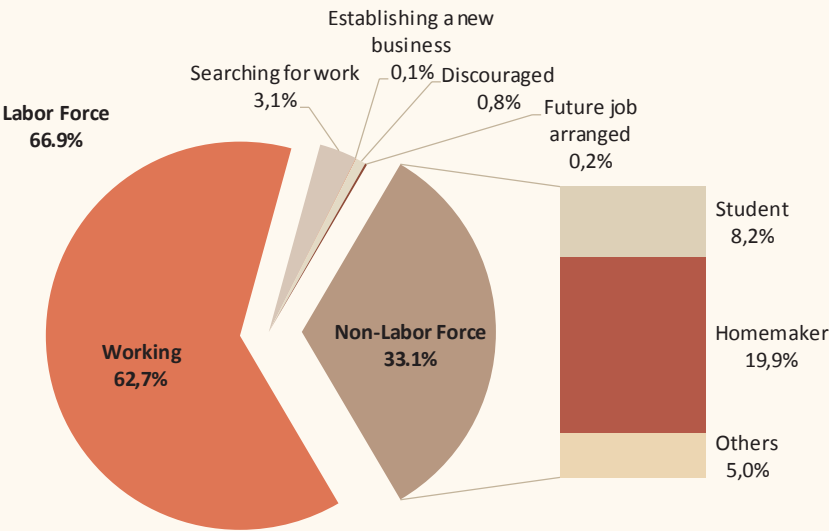


The followings are concepts and definitions used for measurement of labor indicators in Indonesia.

## 2.1 Working-Age Population

The working-age population is the population within a certain age bracket that is considered to be able and likely to work. The working-age population indicates the total number of potential workers within an economy. For most countries, the working-age population is defined as persons aged 15 years and older. Some countries apply different upper limit, such as 65 or 70 years, while in most OECD countries it includes those in the age group of 15 to 64. For the purpose of generating labor indicators in Indonesia, BPS defines the working-age population as those ages 15 years and older.

## 2.2 Labor Force

### 2.2.1  Labor Force – Broad Definition

Based on the broad definition, the labor force includes those who have a job and those who are unemployed but are still actively searching for work, or have given up hope of finding a job (discouraged workers), or are establishing a new business, or have a future job arranged.

### 2.2.2  Labor Force Participation Rate – Broad Definition

The labor force participation rate-broad definition is derived by dividing the broad labor force by total population 15+ years.

$$LFPR_{broad\ definition} = \frac{labor\ force_{broad\ definition}}{total\ population\ 15\ +} \times 100$$

### 2.2.3  Labor Force – Core Definition

Based on the core definition, the labor force includes those who have a job and those who are unemployed but are still actively searching for work.

$$LFPR_{core\ definition} = \frac{labor\ force_{core\ definition}}{total\ population\ 15\ +} \times 100$$

### 2.2.4  Labor Force Participation Rate – Core Definition

The labor force participation rate-core definition is derived by dividing the core labor force by the total population 15+ years.

### 2.2.5  Non Labor Force

The non-labor force includes those who are full-time students, full-time homemakers, the sick, elderly, disabled, etc., within working-age population.

## 2.3 Employment

### 2.3.1  Employed

The employed population includes those who have a job, including those who are single-handedly running their business, employers assisted by either temporary or permanent workers, agriculture and construction laborers, salaried employees, and unpaid family workers.

### 2.3.2  Employment Rate

The employment rate is derived by dividing the employed population by the total population 15+ years.

$$Employment\ Rate = \frac{employed\ population}{total\ population\ 15\ +} \times 100$$

## 2.4 Unemployment

### 2.4.1  Unemployed – Broad Definition

Based on the broad definition, unemployed population includes those who are unemployed but are still actively searching for work, or have given up hope of finding a job (discouraged workers), or are establishing a new business, or have a future job arranged.

### 2.4.2  Unemployment Rate – Broad Definition

The unemployment rate-broad definition is derived by dividing the unemployed population based on the broad definition by broad labor force.

$$Unemployment\ Rate_{broad\ definition} = \frac{unemployed\ population_{broad\ definition}}{labor\ force_{broad\ definition}} \times 100$$

### 2.4.3  Unemployed – Core Definition

Based on the core definition, unemployed population includes those who are unemployed but still actively searching for work.  Data for core unemployment in Sakernas is available only from 1994.

### 2.4.4  Unemployment Rate – Broad Definition

The unemployment rate-core definition is derived by dividing the unemployed population based on the core definition by core labor force.

$$Unemployment\ Rate_{core\ definition} = \frac{unemployed\ population_{core\ definition}}{labor\ force_{core\ definition}} \times 100$$

## 2.5 Underemployment

The underemployed population includes people who are working less than 35 hours a week, and its rate is calculated by dividing underemployed population by total employed population.

$$Underemployment\ Rate = \frac{underemployed\ population}{employed\ population} \times 100$$

Underemployment is distinguished between voluntary underemployment and involuntary underemployment.

### 2.5.1 Voluntarily Underemployment

The voluntarily underemployed population includes people who are working less than 35 hours a week but are not willing to accept another job.

### 2.5.2 Involuntarily Underemployment

The involuntarily underemployed population consists of those who are working less than 35 hours a week and still looking for or willing to accept another job. However, according to the formula provided by BPS in generating involuntary unemployment indicator, it appears that the identification of this group of workers is not as simple and straightforward as its definition. Based on the formula from BPS, a detailed definition of involuntarily underemployed population would therefore be those who are working less than 35 hours a week and are:

- still looking for a job, or

- not looking for a job but are setting up a business, or

- not looking for a job nor setting up a business because they feel discouraged or have a future job arranged, or

- not looking for a job nor setting up a business for reasons other than feeling discouraged or already having a future job arranged, but are willing to accept another job.

Below is the STATA command to identify voluntary and involuntary underemployment, with the variable names according to the Sakernas August 2013 raw data from BPS.

```
*Create involuntary and voluntary underemployment
rename b5p12 status
replace status = . if status == 0
gen stp = 2 if status >= 1 & b5p8b>=1 & b5p8b<=34
replace stp = 1 if status>=1 & b5p8b>0 & b5p8b<35 & b5p4==1
replace stp = 1 if status>=1 & b5p8b>0 & b5p8b<35 & b5p4==2 & b5p5==1
replace stp = 1 if status>=1 & b5p8b>0 & b5p8b<35 & b5p4==2 & b5p5==2 & b5p6<3
replace stp = 1 if status>=1 & b5p8b>0 & b5p8b<35 & b5p4==2 & b5p5==2 & b5p6>2 & b5p7==1


label var stp "voluntary & involuntary underemployment"
label define stp 1 "Involuntary Underemployment" 2"Voluntary Underemployment"
label value stp stp
```

## 2.6 Employment Sectors

Employment sector is the field of activity of work/business/company/office in which a person is employed. Employment sectors in Sakernas are classified according to the Indonesian Standard Industrial Classification (Klasifikasi Baku Lapangan Usaha Indonesia- KBLI), which has been revised several times according to revisions in the international standard classification (please see next section for detailed explanation about KBLI).  However, to maintain consistent comparison across different periods, sectors of employment are classified into 9 or 16 main categories according to KBLI 2005 and KLUI 1990, as indicated in Table 5 below.

TABLE 5. CLASSIFICATION OF SECTORS OF EMPLOYMENT

| 3 Sectors | 9 Sectors | 16 Sectors |
|---|---|---|
| Agriculture | Agriculture, hunting, forestry, and fishing | Agriculture, hunting, and forestry |
| | | Fishing |
| Industry | Mining and quarrying | Mining and quarrying |
| | Manufacturing | Manufacturing |
| | Electricity, gas, and water supply | Electricity, gas, and water supply |
| | Construction | Construction |
| Services | Wholesale & retail trade, and hotels and restaurants | Wholesale and retail trade |
| | | Hotels and restaurants |
| | Transport, storage, and communication | Transport, storage, and communication |
| | Financing, insurance, real estate, and business services | Financial intermediation |
| | | Real estate, renting, and business activities |
| | Community, social, and personal services | Public administration and defense; compulsory social security |
| | | Education |
| | | Health and social work |
| | | Other community, social, and personal service activities |
| | | Others |

### 2.6.1 KBLI – Indonesian Standard Industrial Classification

The sector of employment in Sakernas is identified using KBLI (Indonesian Standard Industrial Classification- *Klasifikasi Baku Lapangan Usaha Indonesia*), or formerly KLUI (Indonesian Industrial Classification- *Klasifikasi Lapangan Usaha Indonesia*). KBLI is a reference used to classify economic activities into several business fields/areas which are distinguished by the type of their products/outputs in the form of goods as well as services.  KBLI is developed based on the International Standard Industrial Classification of All Economic Activities (ISIC) of the United Nations, and expanded into more detailed classifications by BPS to accommodate specific Indonesian economic activities.

Over Sakernas periods, the industry classification system has gone through several changes according to the revisions applied to ISIC.  To date, BPS has published seven versions of industry classifications, i.e.:

1. Indonesian Industrial Classification- KLUI 1977
2. Indonesian Industrial Classification- KLUI 1983
3. Indonesian Industrial Classification- KLUI 1990
4. Indonesian Standard Industrial Classification- KBLI 1997
5. Indonesian Standard Industrial Classification- KBLI 2000
6. Indonesian Standard Industrial Classification- KBLI 2005
7. Indonesian Standard Industrial Classification- KBLI 2009

KLUI 1977, 1983, and 1990 were developed based on the ISIC Rev. 2- 1968, KBLI 1997 and 2000 were developed based on ISIC Rev. 3- 1990, while KBLI 2005 was a revision from KBLI 2000 since there were several economic activities that had not been covered and because of inaccuracy in classifying some activities. KBLI 2009, as the most current classifications, was developed based on ISIC Rev. 4- 2008, ASEAN Common Industrial Classification (ACIC) – 2006, and East Asia Manufacturing Statistics (EAMS) – 2007.

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### A Brief Comparison of KBLI 2000, 2005, and 2009

■ Compared to KBLI 2000, KBLI 2005 provides a more detailed classification at all levels, and the activities were coded using five-digit numbers instead of three-digit numbers as applied in KBLI 2000.

■ Compared to KBLI 2005, KBLI 2009 provides a more detailed classification at all levels, especially in the service activities.

■ Some activities that are classified significantly differently under KBLI 2009 are:

● Auto repair maintenance service: was classified as "Other Community, Social, and Personal Service Activities" is now classified as "Wholesale and retail trade"

● Another important change is the addition of new sub-activities under Manufacturing category, i.e. repair and installation services of Machinery and Equipment, which includes activities of repair and installation services of the products of machinery and equipment industries.

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Table 6 below explains which KBLI version was implemented across different Sakernas periods, while table 7 shows correspondence between industrial classifications based on KBLI 2005 and KLUI 1990.

TABLE 6. VERSION OF INDUSTRIAL CLASSIFICATION ACROSS SAKERNAS PERIODS: 1990-2014

| Sakernas Period | Industrial Classification Reference |
|---|---|
| 1990-1994 | Modified KLUI 1990 |
| 1996-1999 | KLUI 1990 |
| 2000-February 2007 | KBLI 2000 |
| August 2007-August 2010 | KBLI 2005 |
| February 2011-present | KBLI 2009 |

TABLE 7. CORRESPONDENCE BETWEEN CATEGORIES IN KBLI 2005 AND SECTORS IN KLUI 1990

| KBLI 2005 | | | KLUI 1990 | |
|---|---|---|---|---|
| Category | Category Title | Main Classification (2-digit code) | Sector | Sector Title |
| A | Agriculture, hunting, and forestry | 01-02 | 1 | Agriculture, hunting, forestry, and fishing |
| B | Fishing | 05 | | |
| C | Mining and quarrying | 10-14 | 2 | Mining and quarrying |
| D | Manufacturing | 15-37 | 3 | Manufacturing |
| E | Electricity, gas, and water supply | 40-41 | 4 | Electricity, gas, and water supply |
| F | Construction | 45 | 5 | Construction |
| G | Wholesale and retail trade | 50-54 | 6 | Wholesale & retail trade, and hotels and restaurants |
| H | Hotels and restaurants | 55 | | |
| I | Transport, storage, and communication | 60-64 | 7 | Transport, storage, and communication |
| J | Financial intermediation | 65-67 | 8 | Financing, insurance, real estate, and business services |
| K | Real estate, renting, and business activities | 70-74 | | |
| L | Public administration and defense; compulsory social security | 75 | 9 | Community, social, and personal services |
| M | Education | 80 | | |
| N | Health and social work | 85 | | |
| O | Other community, social, and personal service activities | 90-93 | | |
| P | Private households with employed persons | 95 | | |
| Q | Extra-territorial organizations and bodies | 99 | | |
| X | Activities not adequately defined | 99999 (5-digit code) | 0 | Activities not adequately defined |

### 2.6.2 Handbook of Correspondence between KBLI 2009 and KBLI 2005

To accommodate the changes on the business activities classifications, BPS developed a handbook of correspondence between KBLI 2009 and KBLI 2005. The correspondence table shows the links of the selected classifications under KBLI 2009 to those under KBLI 2005, and vice versa, so that data users can trace the differences and conduct necessary conversion to maintain the consistency of employment sectors classification across periods. In order to make it easier for data users in tracing the differences between classification codes in KBLI 2009 and KBLI 2005, the World Bank team has converted the PDF format of conformity tables available from the handbook into spreadsheet format.

The following tables explain two main differences between the classification systems in KBLI 2009 and KBLI 2005. Please refer to the handbook published by BPS for detailed correspondence between these two versions of Indonesian standard industry classification.

| Structure of KBLI | | KBLI 2009 | KBLI 2005 |
|---|---|---|---|
| Category | (alphabet) | 21 | 18 |
| Main Classification | (2 digits) | 88 | 63 |
| Classification | (3 digits) | 241 | 186 |
| Sub-Classification | (4 digits) | 512 | 409 |
| Group | (5 digits) | 1,434 | 1,148 |

TABLE 9. DIFFERENCES IN THE STRUCTURE OF CATEGORIES BETWEEN KBLI 2009 AND 2005

| KBLI 2009 | | | KBLI 2005 | | |
|---|---|---|---|---|---|
| Category | Category Title | Main Classification (2-digit code) | Category | Category Title | Main Classification (2-digit code) |
| A | Agriculture, Forestry, and Fishing | 01-03 | A | Agriculture, hunting, and forestry | 01-02 |
| B | Mining and Quarrying | 05-09 | B | Fishing | 05 |
| C | Manufacturing | 10-33 | C | Mining and quarrying | 10-14 |
| D | Electricity, Gas, Steam, and Air Conditioning Supply | 35 | D | Manufacturing | 15-37 |
| E | Water supply; Sewerage, Waste Management and Remediation Activities | 36-39 | E | Electricity, gas, and water supply | 40-41 |
| F | Construction | 41-43 | F | Construction | 45 |
| G | Wholesale and Retail Trade; Repair of Motor Vehicles & Motorcycles | 45-47 | G | Wholesale and retail trade | 50-54 |
| H | Transportation and storage | 49-53 | H | Hotels and restaurants | 55 |
| I | Accomodation and Food Service Activities | 55-56 | I | Transport, storage, and communication | 60-64 |
| J | Information and Communication | 58-63 | J | Financial intermediation | 65-67 |
| K | Financial and Insurance Activities | 64-66 | K | Real estate, renting, and business activities | 70-74 |
| L | Real Estate Activities | 68 | L | Public administration and defense; compulsory social security | 75 |
| M | Professional, Scientific, and Technical Activities | 69-75 | M | Education | 80 |
| N | Administrative and Support Service Activities | 77-82 | N | Health and social work | 85 |
| O | Public Administration and Defense; Compulsory Social Security | 84 | O | Other community, social, and personal service activities | 90-93 |
| P | Education | 85 | P | Private households with employed persons | 95 |
| Q | Human Health and Social Work Activities | 86-88 | Q | Extra-territorial organizations and bodies | 99 |
| R | Arts, Entertainment and Recreation | 90-93 | X | Activities not adequately defined | 99999 (5-digit code) |
| S | Other Service Activities | 94-96 | | | |
| T | Activities of Households as Employers | 97-98 | | | |
| U | Activities of Extraterritorial Organizations and Bodies | 99 | | | |

### 2.6.3 Employment Sector Data Format across Sakernas Periods

Starting from Sakernas February 2011, in the period of transition from using KBLI 2005 to KBLI 2009, data on sector of employment are already classified into nine sectors of industry according to KLUI 1990, 16 categories[2] and 63 main classifications based on KBLI 2005, but not in the three or five-digit codes format as previously provided by BPS. As a result, analysis by sector of employment in detailed classification is no longer possible. In August 2013, BPS provides industry data in more specific breakdown although not more than three digits. A detailed description on the format of occupational data in Sakernas from time to time can be seen in Table 10.

TABLE 10. EMPLOYMENT SECTOR DATA FORMAT ACROSS SAKERNAS PERIODS: 2000-2013

| Sakernas Period | Industry Variable | Variable Value | Classification Detail |
|---|---|---|---|
| 2000 | b4p7 | 11-950 | 186 classifications (KBLI 2000) |
| 2001-February 2007 | b4p7/b4cr7 | 0-990 | 186 classifications (KBLI 2000) |
| August 2007-February 2008 | b4p7 | 1111-99999 | 1,148 groups (KBLI 2005) |
| | klui | 1-9 | 9 sectors (KLUI 1990) |
| August 2008-February 2009 | b5p7 | 1111-99999 | 1,148 groups (KBLI 2005) |
| August 2009-August2010 | b5p7 | 1111-99999 | 1,148 groups (KBLI 2005) |
| | klui | 1-9 | 9 sectors (KLUI 1990) |
| February 2011-August 2011 | kbli9 | 1-9 | 9 sectors (KLUI 1990) |
| | kbli18 | 1-16 | 16 categories (KBLI 2005) |
| | kbli2 | 1-95 | 63 main classifications (KBLI 2005) |
| February 2012-May 2012 | klui9 | 1-9 | 9 sectors (KLUI 1990) |
| | klui18 | 1-16 | 16 categories (KBLI 2005) |
| | kbli2 | 1-95 | 63 main classifications (KBLI 2005) |
| | kbli21 | 1-20 | 20 categories (KBLI 2009) |
| August 2012-May 2013 | klui9 | 1-9 | 9 sectors (KLUI 1990) |
| | kbli21 | 1-20 | 20 categories (KBLI 2009) |
| | kbli63 | 1-95 | 63 main classifications (KBLI 2005) |
| | kbli88 | 1-98 | 88 main classifications (KBLI 2009) |
| August 2013 | klui9 | 1-9 | 9 sectors (KLUI 1990) |
| | kbli2005_2 | 1-95 | 63 main classifications (KBLI 2005) |
| | kbli2000_3 | 11-950 | 186 classifications (KBLI 2005/2000) |

## 2.7 Occupation

Occupation is the type of work performed by a worker or assigned to a worker. A question on occupation was asked to Sakernas respondents for the first time in 1994 and is classified according to the Indonesian Standard Classification of Occupations (*Klasifikasi Baku Jenis Pekerjaan Indonesia - KBJI*). The first basis for occupation classification used in Sakernas is the Indonesia Classification of Occupation (*Klasifikasi Jenis Pekerjaan Indonesia - KJI*) 1982. KJI 1982, which refers to ISCO (International Standard Classification of Occupations) 1968, was then revised became KBJI 2002 which refers to ISCO 1988. BPS has also developed KBJI 2000 which was implemented in Sakernas 2000. However, KBJI 2000 was not fully applicable since its classification system and structure tended to follow the Australian Standard Classification of Occupations (ASCO) 1997. Table 11 presents different occupational classification versions for different Sakernas periods.

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2        According to KBLI 2005, there are 18 categories of industry (see Table 7). However, since February 2011, the last two categories ("extra-territorial organizations and bodies" and "activities not adequately defined") are no longer exist in Sakernas data.

| Sakernas Period | Industrial Classification Reference |
|---|---|
| 1994-1999 | KJI 1982 |
| 2000 | KBJI 2000 |
| 2001-February 2007 | KJI 1982 |
| August 2007-2014 | KBJI 2002 |

Compared to KJI 1982, KBJI 2002 presents more detailed occupation classification. However, for data comparison needs, occupation classification in KJI 1982 was taken into consideration when the coding system and structure in KBJI 2002 was developed. In addition, to maintain consistent comparison across survey periods in Sakernas where KBJI 2002 was implemented, data of occupational classification 2002 was converted into the occupational classification 1982. Table 12 below shows the difference in classification of occupations between KBJI 2002 and KBJI 1982.

**TABLE 12. CLASSIFICATION OF OCCUPATIONS BASED ON KBJI 2002 AND KJI 1982**

| KBJI 2002 (Refers to ISCO 1988) | | KJI 1982 (Refers to ISCO 1968) | |
|---|---|---|---|
| Major Group | Occupation Classification | Major Group | Occupation Classification |
| 1 | Legislators, senior officials and managers | 1 | Professional, technical and related workers |
| 2 | Professionals | 2 | Administrative and managerial workers |
| 3 | Technicians and assistant of professionals | 3 | Clerical and related workers |
| 4 | Administrative workers | 4 | Sales workers |
| 5 | Service workers and market sales workers in shops and markets | 5 | Service workers |
| 6 | Agricultural and animal husbandry workers | 6 | Agriculture, animal husbandry and forestry workers, fishermen and hunters |
| 7 | Processing and related craft workers | 7/8/9 | Production and related workers, transport equipment operators and laborers |
| 8 | Plant and machine operators and assemblers | x | Workers not classifiable by occupation |
| 9 | Clerical, cleaners, and related workers | 0 | Armed Forces |
| 0 | Armed forces | | |

### 2.7.1 Occupational Data Format across Sakernas Periods

Similar to data on sector of employment, from Sakernas February 2011 to May 2013, occupational data provided by BPS is no longer in the most detailed format of occupational classification (four-digit code), but already grouped into eight major groups according to KJI 1982. In August 2013, most specific occupational classification based on KJI 1982 became available again.

TABLE 13. OCCUPATIONAL DATA FORMAT ACROSS SAKERNAS PERIODS: 2000-2013

| Sakernas Period | Occupation Variable | Variable Value | Classification Detail |
|---|---|---|---|
| 2000 | b4p8 | 111-999 | 83 unit groups (KBJI 2000) |
| 2001-February 2007 | b4p8/b4cr8 | 1-999 | 241 unit groups (KJI 1982) |
| August 2007-February 2008 | b4p8/b5p8 | 110-9333 | 415 categories (KBJI 2002) |
| | kji | 1-8 | 8 major groups (KJI 1982) |
| August 2008-February 2009 | b5p8 | 110-9333 | 415 categories (KBJI 2002) |
| August 2009-August 2010 | b5p8 | 110-9333 | 415 categories (KBJI 2002) |
| | kji/kbji2000/kbji | 1-8 | 8 major groups (KJI 1982) |
| February 2011-May 2012 | kbji2000 | 1-8 | 8 major groups (KJI 1982) |
| August 2012-May 2013 | kji | 1-8 | 8 major groups (KJI 1982) |
| August 2013 | kji1982 | 1-999 | 241 unit groups (KJI 1982) |
| | kbji2000_1 | 1-8 | 8 major groups (KJI 1982) |
| | kbji2002 | 0-9 | 10 major groups (KBJI 2002) |

## 2.8 Employment Status

Status of employment refers to the status of an economically active person with respect to his or her employment. In other words, it refers to the type of explicit or implicit contract of employment with other persons or organizations that the person has in his/her job. There are seven categories of employment status in the Sakernas:

- **Own-account worker**: is a person who works on their own account or with one or more partners, holds the type of job defined as a self-employed job, and has not engaged on a continuous basis any employees to work for them during the reference period.

- **Employer assisted by temporary/unpaid workers**: is a person who does his/her business at his/her own risk with the assistance of unpaid temporary workers, usually their family members.

- **Employer assisted by permanent/paid workers**: is a person who does his/her business at his/her own risk with the assistance of paid permanent workers.

- **Employee**: is a person who works for another person or an institution/office/company with a stable contract, implicit or explicit, for pay in cash or in kind. Those with no permanent employer are not classified as employees, but casual workers. Someone is considered to have a permanent employer if he/she worked for one same employer during the last month.

- **Casual worker in agriculture**: is a person who works for another person or institution/office/company temporarily (more than one employer during the last month) in agricultural sector for pay in cash or in kind.

- **Casual worker not in agriculture**: is a person who works for another person or institution/office/company temporarily (more than one employer during the last month) in non-agricultural sector for pay in cash or in kind.

- **Unpaid family worker**: is a person who works without pay in an economic enterprise operated by a related person living in the same household, families, or neighbors.

## 2.9 Formality

- **Formality - simplified definition**: based on the simplified definition from BPS, formal workers include employees and employers assisted by permanent worker. BPS uses this definition to compute formality presented in their publications.

- **Formality - official definition**: based on the official definition, which was initially adopted by BPS in 2001, formal and informal sector classification uses a combination of work status and types of main occupation (classified based on KJI 1982), as shown in Table 14 below:

TABLE 14. FORMALITY MATRIX BASED ON OFFICIAL DEFINITION

| Status of Employment | Occupation | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Professional, Technical & Related Workers | Administrative & Managerial Workers | Clerical & Related Workers | Sales Workers | Services Workers | Agriculture & Forestry Workers, Fishermen & Hunters | Production, Transport equipment operators & laborers | Others |
| Own account | Formal | Formal | Formal | Informal | Informal | Informal | Informal | Informal |
| Employer assisted by temporary worker | Formal | Formal | Formal | Formal | Formal | Informal | Formal | Informal |
| Employer assisted by permanent worker | Formal | Formal | Formal | Formal | Formal | Formal | Formal | Formal |
| Employee | Formal | Formal | Formal | Formal | Formal | Formal | Formal | Formal |
| Casual worker in agriculture | Formal | Formal | Formal | Informal | Informal | Informal | Informal | Informal |
| Casual worker not in agriculture | Formal | Formal | Formal | Informal | Informal | Informal | Informal | Informal |
| Unpaid family worker | Informal | Informal | Informal | Informal | Informal | Informal | Informal | Informal |

### Anomaly of Formality Identification in Sakernas 1990-1993 and 2000

For the periods of 1990-1993 and 2000, when the data on occupational categories was problematic, formality was determined using a combination of work status and agriculture/non-agriculture classification, as shown below:

| Status of Employment | Agriculture/Non-Agriculture Sector | |
|---|---|---|
| | Agriculture | Non-Agriculture |
| Own account | Informal | Informal |
| Employer assisted by temporary worker | Informal | Formal |
| Employer assisted by permanent worker | Formal | Formal |
| Employee | Formal | Formal |
| Unpaid family worker | Informal | Informal |

## 2.10 Net Income/Wage/Salary

Net income/wage/salary is the earnings received by workers or remuneration paid to employees by their employer, including payment in cash or in kind. This net income/wage/salary is calculated after deductions for compulsory contributions, income tax, etc. In Sakernas, the question on income/wage/salary is only asked to employed respondents with the following status of employment:

- Own-account worker, or

- Employee, or

- Casual worker

BPS does not assign missing values in the income/wage/salary variable for respondents without labor income information (instead using a zero value). Thus, care must be taken in calculating the labor income by making sure to include only those three employment status in the calculation, or by converting all the zero values into missing values for respondents with employment status other than those three, to avoid underestimation due to many "zero" income levels.

Before 2011, information on labor income was differentiated between a question on income and a question on wage/salary. While the question on income was addressed to own-account workers and casual workers, wage/salary was asked to employees only. However, since 2011 these two questions have been combined into one question, i.e. question on wage/salary/income received.

Please note that, before 2001, since agricultural and construction laborers were classified as salaried employees, wage/salary information also includes labor income for these two groups of workers. Since 2001, when agricultural and construction laborers became categorized as casual workers, data on wage/salary is only attributed to employees.

# III. Changes in the Concept and Definition

In 2001, there have been significant changes in the concepts and definitions used by BPS for several labor indicators. Some of these changes result in inconsistency on the series, simply because variables required to construct these particular indicators using the new definition are not available in Sakernas before 2001. To avoid misinterpretation from data users due to significant increases or declines that might be observed, dissemination of such changes becomes necessary.

## 3.1 Unemployment

Before 2001, unemployment is defined as those who are unemployed but still actively searching for a job (unemployment based on core definition). However, since 2001, definition of unemployment is expanded to cover also those who are unemployed but not searching for a job because of one of the reasons below:

- establishing a new business, or

- giving up hope of finding a job (discouraged workers) , or

- having a future job arranged.

Before 2000, there is no question asked to unemployed respondents on their main reason for not searching for a job. Therefore, the series of unemployment based on this broad definition can be generated only since 2001.

## 3.2 Labor Force

As a consequence of the change in the definition of unemployment, the definition of labor force also becomes broader. Starting from 2001, labor force population not only includes those who are employed and those who are unemployed but still actively searching for work, but also those who are unemployed but are establishing a new business, or have given up hope of finding a job, or with a future job arranged.

## 3.3 Employment Status

Before 2001, following BPS's decision to classify agricultural and construction laborers as salaried employees, there were only five categories of employment status used in Sakernas: own-account worker, employer assisted by temporary/unpaid workers, employer assisted by permanent/paid workers, salaried employee, and unpaid family worker. Starting from 2001, when agricultural and construction laborers were no longer classified as employees, status of employment has been broken down into more detailed seven categories, as indicated in the Table 15 below.

TABLE 15. EMPLOYMENT STATUS CATEGORIES BEFORE AND AFTER 2001

| Before 2001 | 2001 and After |
|---|---|
| Own account worker | Own account worker |
| Employer assisted by temporary worker | Employer assisted by temporary worker |
| Employer assisted by permanent worker | Employer assisted by permanent worker |
| Employee | Employee |
| | Casual worker in agriculture |
| | Casual worker in non-agriculture |
| Unpaid family worker | Unpaid family worker |

## 3.4 Formality

By definition, the changes in classification of employment status automatically results in change to formality status of workers. Before 2001, agricultural and construction laborers were classified as salaried employees, not casual workers, and therefore were considered formal. This explains the drop in the formality series between 2000 and 2001. To generate consistent series of formality based on the old definition of employees, casual workers should be added to the series.

# IV. Sampling Methods

As a result of changes in the frequency of Sakernas data collection as well as in the level of data representativeness, there were also changes introduced in the sample selection method implemented in Sakernas. This chapter will briefly explain sampling methods used in Sakernas in general and specific examples for specific Sakernas rounds. Please refer to Sakernas-Supervisor's Guidelines issued by BPS for complete and detailed explanations about the sampling methods.

Generally, Sakernas uses two-stage cluster sampling, which are (i) selecting census blocks (as the main sampling unit), and (ii) selecting households[3] (as the ultimate sampling unit) within each selected census blocks. Probability Proportional to Size method (PPS) is used when selecting census block from Master Sampling Frame (MSF) which contains the list of primary sampling units (PSU or wilcah/wilayah pencacahan). Sampling frame for the annual Sakernas was developed using the results of population census conducted previously before the respective Sakernas was conducted, while sampling frame for the quarterly Sakernas was obtained from the sampling frame of Susenas. For example, sampling frame for Sakernas 2003 was derived from the results of 2000 Population Census (SP2000), while sampling frame used in Sakernas 2011 was coming from Susenas 2011 sampling frame.

After census blocks were selected, a systematical random sampling method is then used to select households within census block (16 households per census block before 2011 and 10 households per census block since 2011). To describe more clearly about how the sampling is done in Sakernas, this chapter covers two specific examples, i.e. for Sakernas 2007 to 2010 and 2011 to 2015.

## 4.1 Examples

### 4.1.1 Sampling Method in Sakernas 2007 to 2010

In Sakernas 2007 to 2010, the Master Sampling Frame was developed using the results of 2006 Economic Census. Sampling procedure was done by district/city and was separated between urban and rural areas. For each district/city, there were two stages sampling method as follows:

- First stage: From the MSF, $n_h$ census blocks were selected (h=1 for urban and h=0 for rural) using Probability Proportional to Size (PPS) method.

- Second stage: From each census block that had been selected in the first stage, 16 households were selected using a systematic random sampling method.

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3      Special households, e.g. barracks, boarding school, etc. are not included in the sample.

### Additional Census Blocks in Sakernas August 2007 - 2010

2007 is the year when, for the first time, Sakernas August data became able to produce representative estimates up to the district/city level. Census blocks in the sampling frame for Sakernas 2007 to 2010 were divided into two groups: one was used to provide estimates at the provincial level, and another group, when added to complement the first group, could be used to produce estimates that are representative up to the district/city level. Census blocks group for provincial estimates was used in February, while census block group for district/city estimates was implemented in August period.

#### 4.1.2  Sampling Method in Sakernas 2011 - 2015

In Sakernas 2011 to 2015, the Master Sampling Frame is developed using the results of 2010 Population Census (SP2010), which has been updated every time before the survey will take place. Starting from 2011, the period in which Sakernas began to be conducted quarterly, household samples are selected using three-stage withdrawal, with the following steps:

- First stage: From the MSF, 30,000 PSUs are selected for Susenas sampling frame by using the method of PPS. These 30,000 PSUs are then randomly allocated evenly for each quarter of Susenas, i.e. 7,500 PSU for each quarter. From 7,500 PSUs of Susenas Quarter I, 5,000 PSUs were systematically selected to be used for Sakernas Quarter I (February), and will be used again for Sakernas Quarters II (May), III (August), and IV (November).

- Second stage: From each PSU in the 5,000 selected PSUs, two census blocks were selected using PPS method, proportional to number of households based on SP2010 results. These selected census blocks were then randomly allocated for Susenas and Sakernas (1 census block for Susenas and 1 census block for Sakernas). The selected census blocks for Sakernas were utilized for provincial estimates and divided into 4 sample packages, each of which consists of 1,250 census blocks.

### Additional Census Blocks in Sakernas August 2011 - 2015

Specifically for Sakernas Quarter III (August), which is intended to build estimates up to the district/city level, some additional census blocks are required. Two census blocks were selected from each 15,000 PSUs for Susenas Quarter II and III, one census block for Susenas, another census block for Sakernas. These additional 15,000 census blocks for Sakernas were combined with the initial 1,250 census blocks for Sakernas Quarter III and used to produce reliable district/city estimates.

- Third stage: From each census block selected in the second stage, 10 households were selected using systematic random sampling.

Hence, by using this sampling method, it is expected to obtain 50,000 sample households for each Quarter I, II, and IV, and 200,000 sample households for Quarter III. Stages for selecting household samples in Sakernas 2011 to 2015 are shown in Figure 3 on the next page.
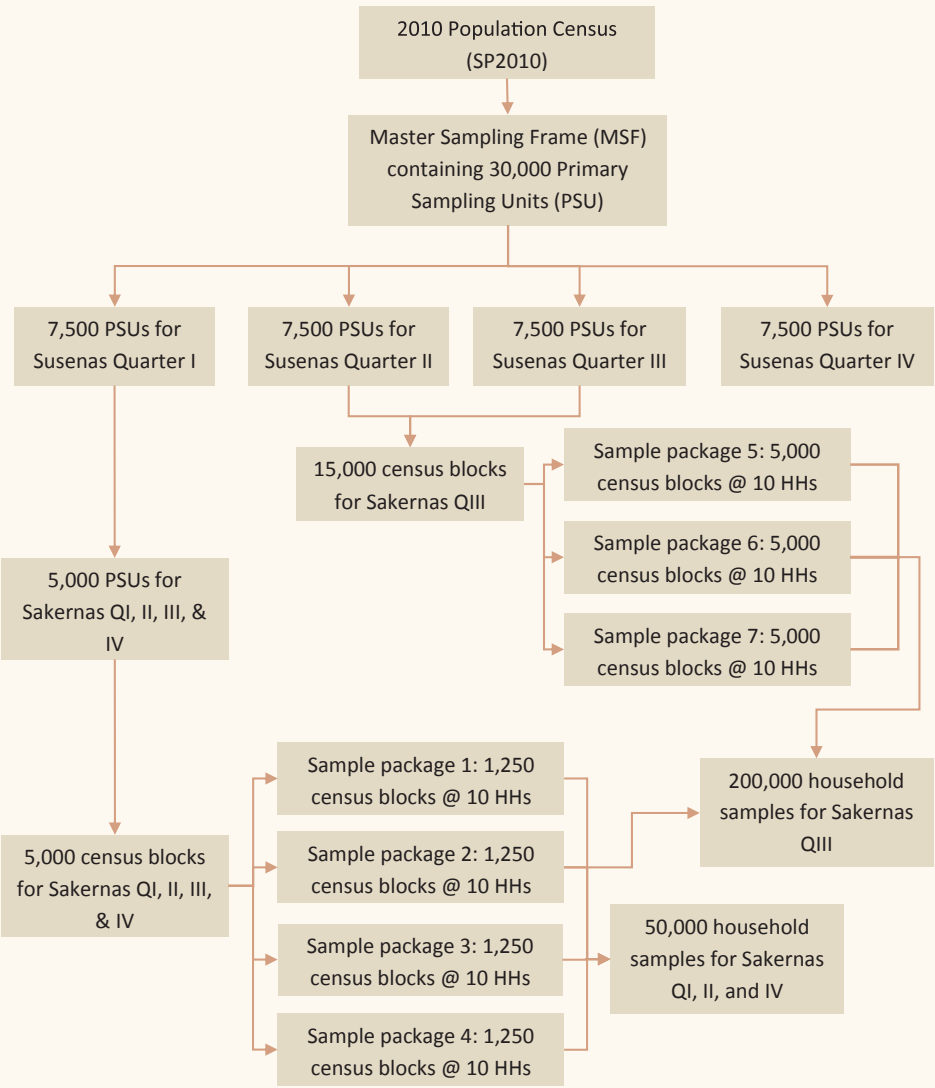
## 4.2 Weights in Sakernas

Since Sakernas is not a census, sample weights must be used in the analysis in order to produce correct and unbiased labor estimates. Although the sampling unit in Sakernas is households, but the weight used in Sakernas is individual weight, whereas household weight is not available. Please note that the individual weights in Sakernas data will not sum up to the total population in Indonesia, since the data only contains individual aged 10 years and older. Weights in Sakernas are developed using two different methods for different rounds:

- For February, May, and November rounds:
  Population projections/estimates by province, gender, urban/rural, and age group are divided by number of Sakernas sample with the same classification (province, gender, urban/rural, and age group). The result are then rounded and inputted into Sakernas data as variable "weight".

- For August round:
  In Sakernas August, the same approach is implemented but with more specific geographical classification, i.e. district/city. Thus, respondent classification used in Sakernas August to develop weights is by district/city, gender, urban/rural, and age group.

**Backcasting on Sakernas Data of February and August 2011 to 2013**

Just recently, in February 2014, BPS applied backcasting to the Sakernas datasets of February and August 2011 until February and August 2013. In the dataset of Sakernas February 2014, weights were developed using population projections. Population projections were calculated by using the results of Population Census 2010 (SP2010) as a base, and taking into account the assumptions of TFR (total fertility rate), IMR (infant mortality rate), as well as internal and international migration.  New weights used in the Sakernas datasets of February and August 2011 to 2013 are the backcasting results of the weights applied in the Sakernas February 2014. Whereas, in the previous datasets of Sakernas 2011 to 2013, weights were generated based on the results of population estimates which were calculated based on SP2010 and population growth rate. This backcasting practice causes the differences between labor indicators for 2011 to 2013 that are published by BPS before and after February 2014.

# V. Rotation of Household Sample Packages

Since 2006, Sakernas performed partial rotation of household sample packages, that some sample packages for the current survey period are obtained from the previous period of Sakernas.  As a result, although Sakernas is not designed as a panel survey, this sampling repetition allows us to develop partial panel data. However, based on its rotation pattern (as is illustrated below), it is only possible to develop a very short span of panel data. The explanation about partial panel data produced from rotation in Sakernas will be discussed in the following sub-section.

Except in 2006, rotation of household sample packages is basically done by maintaining ¾ of sample packages used in the previous survey period. Below is a brief explanation on how rotation is performed in 2006, 2007 to 2010, and 2011 to 2015.

## 5.1 Rotation in Sakernas 2006

In Sakernas 2006, two household sample packages were used for sampling purpose. One package was a repetition of the previous period (i.e. from August 2005 for February 2006, and from February 2006 for August 2006), while another one was a fresh sample. Total number of household samples in these two packages was sufficient to produce representative estimates at the provincial level. The configuration of sample packages used in Sakernas 2006 is as follows:

TABLE 16. ROTATION OF HOUSEHOLD SAMPLE PACKAGES IN SAKERNAS 2006

| 2005 | | 2006 | | | |
|---|---|---|---|---|---|
| **August** | | **February** | | **August** | |
| 2,150 census blocks | 2,150 census blocks | | | | |
| A | B | 2,150 census blocks | 2,150 census blocks | | |
| 34,400 HHs | 34,400 HHs | B | C | 2,150 census blocks | 2,150 census blocks |
| | | 34,400 HHs | 34,400 HHs | C | D |
| | | | | 34,400 HHs | 34,400 HHs |

The above table suggests that the rotation of household sample packages in Sakernas 2006 was carried out by maintaining ½ of sample packages used in the previous period.

## 5.2 Rotation in Sakernas 2007 to 2010

2007 is the year in which for the first time Sakernas August data is able to produce representative estimates up to the district/city level.  In Sakernas 2007 to 2010, rotation of household samples was conducted on each survey period from August 2007 up until August 2010. The rotation was implemented such way that only ¼ of samples changed every semester.  Furthermore, in every August round, new samples was determined such that the sum of previous samples and new samples will produce estimates that are representative up to the district/city level.

For provincial estimates, rotation of household sample packages was completed by maintaining ¾ of household sample packages used for provincial estimates, added by ¼ new sample packages. For district/city estimates, it was carried out by maintaining ½ of the complementary sample packages (which were used to produce district/city estimates) and adding ½ new sample packages. Rotation setting of household sample packages on each survey period is shown in Table 17. In August 2007, sample groups B+, C+, and D+ were previously used in February 2007 but had been updated, while sample group E+ was a new sample but developed in February 2007 and also had been updated.

census blocks, for example, will potentially produce inconsistent household ID across Sakernas periods. To have the correct panel data, additional data on the unique household identity from BPS is required.

Please also note that, as mentioned above, rotation arrangements implemented causes the length of panel data to be very restricted. For example, in Sakernas 2006, the panel data will end after one semester, in Sakernas 2007 to 2010, it is ended after three semesters for provincial estimates but only two semesters for district/city estimates, and in Sakernas 2011 to 2015 panel data is spanned only across three quarters for provincial estimates and a year for district/city estimates.

TABLE 17. ROTATION OF HOUSEHOLD SAMPLE PACKAGES IN SAKERNAS 2007 TO 2010

| Census Block Group | Sample Package | 2007 | | 2008 | | 2009 | | 2010 | |
| | | Household Group | | Household Group | | Household Group | | Household Group | |
| | | Feb | Aug | Feb | Aug | Feb | Aug | Feb | Aug |
| Samples for Provincial Estimates | 1 | A | E+ | E+ | E+ | E+ | I+ | I+ | I+ |
| | 2 | B | B+ | F+ | F+ | F+ | F+ | J+ | J+ |
| | 3 | C | C+ | C+ | G+ | G+ | G+ | G+ | K+ |
| | 4 | D | D+ | D+ | D+ | H+ | H+ | H+ | H+ |
| Samples for District Estimates | 5 | | AA | | CC+ | | CC+ | | EE+ |
| | 6 | | BB | | BB+ | | DD+ | | DD+ |

## 5.4 Rotation in Sakernas 2011 to 2015

In Sakernas 2011 to 2015, its rotation pattern causes that only ¼ of household sample packages used for provincial estimates changes every quarter, while the additional sample packages used to produce district/city estimates are rotated every year by maintaining 2/3 of these packages. The arrangement of rotation in each survey period from February 2011 to November 2015 is described in details in Table 18 below.

TABLE 18. ROTATION OF HOUSEHOLD SAMPLE PACKAGES IN SAKERNAS 2011-2015

| Census Block Group | Sample Package | 2011 | | | | 2012 | | | | 2013 | | | | 2014 | | | | 2015 | | | |
| | | Household Group | | | | Household Group | | | | Household Group | | | | Household Group | | | | Household Group | | | |
| | | Q1 Feb | Q2 May | Q3 Aug | Q4 Nov | Q1 Feb | Q2 May | Q3 Aug | Q4 Nov | Q1 Feb | Q2 May | Q3 Aug | Q4 Nov | Q1 Feb | Q2 May | Q3 Aug | Q4 Nov | Q1 Feb | Q2 May | Q3 Aug | Q4 Nov |
| Samples for Provincial Estimates | 1 | A | E+ | E+ | E+ | E+ | I+ | I+ | I+ | I+ | M+ | M+ | M+ | M+ | Q+ | Q+ | Q+ | Q+ | U+ | U+ | U+ |
| | 2 | B | B+ | F+ | F+ | F+ | F+ | J+ | J+ | J+ | J+ | N+ | N+ | N+ | N+ | R+ | R+ | R+ | R+ | V+ | V+ |
| | 3 | C | C+ | C+ | G+ | G+ | G+ | G+ | K+ | K+ | K+ | K+ | O+ | O+ | O+ | O+ | S+ | S+ | S+ | S+ | W+ |
| | 4 | D | D+ | D+ | D+ | H | H+ | H+ | H+ | L+ | L+ | L+ | L+ | P+ | P+ | P+ | P+ | T+ | T+ | T+ | T+ |
| Additional samples for District Estimates | 5 | | | AA | | | | DD+ | | | | DD+ | | | | DD+ | | | | GG+ | |
| | 6 | | | BB | | | | BB+ | | | | EE+ | | | | EE+ | | | | EE+ | |
| | 7 | | | CC | | | | CC+ | | | | CC+ | | | | FF+ | | | | FF+ | |

In May 2011, samples group A was replaced by group E+ which was developed in February 2011 but had been updated, while other groups (B, C, and D, but had been updated and therefore were named B+, C+, and D+) were used again. Sample groups AA, BB, and CC in August 2011 were fresh samples and were rotated in August 2012 by maintaining only BB and CC.

## 5.5 Sakernas Panel Data

As previously described, as the result of rotation of household sample packages, it is theoretically possible to develop panel data for Sakernas. However, merging different Sakernas datasets using the household ID developed based on location identification should be done very carefully as the household ID might not be unique across different survey periods. "Pemekaran wilayah" or splitting of regions and the increasing number of household samples within

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