MODULE

CAPACITY BUILDING WORKSHOP ON
LABOR MARKET ANALYSIS TOWARDS
DECENT WORK

COOPERATIONS

DEMOGRAPHIC INSTITUTE FE-UI
INTERNATIONAL LABOUR ORGANIZATION
EUROPEAN UNION

Morrisey Hotel, Jakarta
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susenas</td>
<td>National Socio-Economic Survey (NSES)</td>
</tr>
<tr>
<td>SUPAS</td>
<td>Inter-Census Population Survey</td>
</tr>
<tr>
<td>Sakernas</td>
<td>National Labor Force Survey (NLFS)</td>
</tr>
<tr>
<td>SDKI</td>
<td>Indonesian Demographic and Health Survey</td>
</tr>
<tr>
<td>Surkesnas</td>
<td>National Health Survey</td>
</tr>
<tr>
<td>Sakerti</td>
<td>Indonesian Household Living Aspects Survey</td>
</tr>
<tr>
<td>Kesra</td>
<td>people's welfare</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>NSOs</td>
<td>National Statistical Organizations</td>
</tr>
<tr>
<td>Bekerja</td>
<td>Work</td>
</tr>
<tr>
<td>BPS</td>
<td>Central Board of Statistic</td>
</tr>
</tbody>
</table>
### List of Content

1. Modul S-2 and S-3: Introduction to Training Materials  
   
2. Modul S-4: Economic and Social Context for Decent Work  
   
3. Modul S-5 and S-6: Employment Opportunities  
   
4. Modul S-7: Equal Opportunity and Treatment in Employment  
   
5. Modul S-8: Adequate Earnings and Productive Work  
   
6. Modul S-9: Decent Hours  
   
7. Modul S-10: Social Security and Safe Environment  
   
   
9. Modul S-12 and S-13: Econometric Analysis  
   
<table>
<thead>
<tr>
<th>Modul</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-2</td>
<td>Introduction to Training Materials</td>
<td>4</td>
</tr>
<tr>
<td>S-4</td>
<td>Economic and Social Context for Decent Work</td>
<td>11</td>
</tr>
<tr>
<td>S-5 and S-6</td>
<td>Employment Opportunities</td>
<td>21</td>
</tr>
<tr>
<td>S-7</td>
<td>Equal Opportunity and Treatment in Employment</td>
<td>33</td>
</tr>
<tr>
<td>S-8</td>
<td>Adequate Earnings and Productive Work</td>
<td>43</td>
</tr>
<tr>
<td>S-9</td>
<td>Decent Hours</td>
<td>54</td>
</tr>
<tr>
<td>S-10</td>
<td>Social Security and Safe Environment</td>
<td>68</td>
</tr>
<tr>
<td>S-11</td>
<td>Social Dialogue, Workers and Employer's Representation</td>
<td>75</td>
</tr>
<tr>
<td>S-12 and S-13</td>
<td>Econometric Analysis</td>
<td>85</td>
</tr>
</tbody>
</table>
1. Introduction

The term secondary data in Indonesia refers to data that has been collected by other parties, such as BPS. While data collected for certain research purposes are frequently known as primary data. Secondary data in Indonesia may be in the form of census or survey. In Indonesia, population census is implemented once every 10 years, while data on village potential is categorized as census. Survey data in Indonesia is varied, including among others the National Socio-Economic Survey (Susenas), Inter-Census Population Survey (Supas), National Labor Force Survey (Sakernas), Indonesian Demographic and Health Survey (SDKI), National Health Survey (Surkesnas), Indonesian Household Living Aspects Survey (Sakerti), etc.

Since Indonesian independence, the Population Census has been conducted 6 times, specifically in 1960, 1971, 1980, 1990, 2000 and 2010, while during the colonial period a population census was once held in 1930. Population Census data consists of two parts, Core and Module. The KOR part is primary data with 15 questions related to population affairs, such as place of domicile, sex, marital status, age, occupation, and number of children. Core data is related to the entire population of Indonesia, with or without dwellings. Besides Core, Population Census has Module questions consisting of 35 questions. Module questions are not asked to each member of the population, but only to some 5 percent of the existing population.

Supas is a survey made between two population census implementation periods. Supas is aimed at estimating birth, mortality, and migration rates, and to obtain population data according to population characteristics. Generally, information collected in Supas activities is nearly similar to information collected in the population census module.

The National Socio-Economic Survey is among the surveys made by BPS designed to collect extensive population social data. Since 1992 the Susenas data collecting system was renewed, namely information used as indicators of people’s welfare (Kesra) was entered in Kor. Therefore, data to monitor development of people’s welfare will be available every year.

Susenas data consists of two parts, namely Kor and Module. In Susenas Kor there are questions on condition and behaviour of community members closely related to aspects of community welfare. The aspects covered in Susenas Kor data include education, economic
activities, health disturbances, method of treatment, marriage, family planning, birth assistance, breastfeeding and so forth. Information at household level comprises household expenses/consumption and housing condition and facilities.

There are three types of Susenas modules, i.e. household consumption and income, Socio-cultural and Education, Health and housing. Information in modules is collected alternately in the three year period. In 2008 the Susenas module was related to consumption, while Susenas 2009 was related to Socio-cultural and education information. Information in the modules is designed to elicit more detailed and specific information. This differs from questions found in core. Questions found in core are very limited. Therefore the combination of core and module can be used to analyze various government programs and make new policy formulation greatly required in planning.

Data related to manpower information is generally found in Data Sakernas. Sakernas is in fact designed to collect information about manpower in Indonesia. Data collecting is implemented twice, in February and August.

2. Sampling Frame of Secondary Data

Each territory is divided in smaller territorial units known as Census Block. Each Census Block possesses easily recognized physical boundaries, such as road boundaries, rivers, markets, schools, and so forth. BPS is a body possessing authority for making Census Blocks. Census Blocks are renewed every 10 years, in line with implementation of the Population Census. Furthermore the Census Block will become the basis of each sampling survey conducted by BPS.

Census blocks have relatively extensive territorial coverage, usually consisting of 80 – 120 households. This is meant to facilitate selection of household samples. In each Census Block a number of household samples will be taken. The number of household samples will be for each survey implementation, for instance Susenas collects samples from 16 RT in each census block, while Sakernas takes samples from more than 16 RT.
3. Indicators and Data sources

Indicators, which will be used in the decent work according to the national tripartite consultation, are presented in Table 1. These indicators' sources are mostly the Central Bureau of Statistics' (BPS), such as: Sakernas, Supas, Population Census, and Supas.
Table 1. List of statistical indicators for monitoring and Data Sources on decent work

<table>
<thead>
<tr>
<th>Elements of the Decent Work Agenda</th>
<th>Indicator Identifier</th>
<th>Indicator (M = main indicator, A = additional indicator, C = context indicator; all indicators marked ‘S’ should also be disaggregated by sex.)</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employment opportunities</strong></td>
<td>Empl-1</td>
<td>M – Employment-to-population ratio, 15-64 years (S)</td>
<td>1. Pop. Census</td>
</tr>
<tr>
<td></td>
<td>Empl-2</td>
<td>M – Unemployment rate (S)</td>
<td>2. Inter Census Pop Survey</td>
</tr>
<tr>
<td></td>
<td>Empl-3</td>
<td>M – Youth not in education and not in employment, 15-24 years (S)</td>
<td>3. NLFS</td>
</tr>
<tr>
<td></td>
<td>Empl-4</td>
<td>M – Informal employment (S)</td>
<td>4. NSES</td>
</tr>
<tr>
<td></td>
<td>Empl-5</td>
<td>A – Labor force participation rate, 15-64 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empl-6</td>
<td>A – Youth unemployment rate, 15-24 years (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empl-7</td>
<td>A – Unemployment by level of education (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empl-8</td>
<td>A – Employment by status in employment (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empl-9</td>
<td>A – Proportion of own-account and contr. family workers in total employment (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empl-10</td>
<td>A – Share of wage employment in non-agricultural employment (S)</td>
<td></td>
</tr>
<tr>
<td><strong>Adequate earnings and productive work</strong></td>
<td>Earn-1</td>
<td>M – Working poor (S)</td>
<td>NSES</td>
</tr>
<tr>
<td></td>
<td>Earn-2</td>
<td>M – Low pay rate (below 2/3 of median hourly earnings) (S)</td>
<td>NLFS</td>
</tr>
<tr>
<td></td>
<td>Earn-3</td>
<td>A – Average hourly earnings in selected occupations (S)</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td></td>
<td>Earn-4</td>
<td>A – Average real wages (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Earn-5</td>
<td>A – Minimum wage as % of median wage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Earn-6</td>
<td>A – Manufacturing wage index</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Earn-7</td>
<td>A – Employees with recent job training (past year / past 4 weeks) (S)</td>
<td></td>
</tr>
<tr>
<td><strong>Decent hours</strong></td>
<td>Hour-1</td>
<td>M – Excessive hours (more than 48 hours per week; ‘usual’ hours) (S)</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td></td>
<td>Hour-2</td>
<td>A – Usual hours worked (standardized hour bands) (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hour-3</td>
<td>A – Annual hours worked per employed person (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hour-4</td>
<td>A – Time-related underemployment rate (S)</td>
<td></td>
</tr>
<tr>
<td><strong>Work to be abolished</strong></td>
<td>Abol-1</td>
<td>M – Child labor [as defined by ICLS resolution] (S)</td>
<td>NLFS</td>
</tr>
<tr>
<td></td>
<td>Abol-2</td>
<td>A – Hazardous child labor (S)</td>
<td>NLFS</td>
</tr>
<tr>
<td><strong>Stability and security of work</strong></td>
<td>Stab-1</td>
<td>M – Precarious work (informal employment)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empl-4</td>
<td>M – Informal Employment (S)</td>
<td>NLFS</td>
</tr>
<tr>
<td></td>
<td>Stab-2</td>
<td>A – Employment tenure (S)</td>
<td>NLFS</td>
</tr>
<tr>
<td></td>
<td>Stab-3</td>
<td>A – Number and wage of casual workers/daily workers</td>
<td>NLFS</td>
</tr>
<tr>
<td>Elements of the Decent Work Agenda</td>
<td>Indicator Identifier</td>
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<td>Data Sources</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Equal opportunity and treatment in employment</td>
<td>Equa-1</td>
<td>M – Occupational segregation by sex</td>
<td>NLFS, NSES</td>
</tr>
<tr>
<td></td>
<td>Equa-2</td>
<td>M – Female share of employment in ISCO-88 groups 11 and 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equa-3</td>
<td>A – Gender wage gap</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equa-4</td>
<td>A – Indicator for Fundamental Principles and Rights at Work (Elimination of discrimination in respect of employment and occupation) to be developed by the Office</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equa-5</td>
<td>A – Measure for discrimination by race / ethnicity / of indigenous people / of (recent) migrant workers / of rural workers where relevant and available at the national level.</td>
<td>Pop. Census</td>
</tr>
<tr>
<td>Safe work environment</td>
<td>Safe-1</td>
<td>M – Occupational injury rate, fatal</td>
<td>Administrative Records</td>
</tr>
<tr>
<td></td>
<td>Safe-2</td>
<td>A – Occupational injury rate, non-fatal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Safe-3</td>
<td>A – Time lost due to occupational injuries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Safe-4</td>
<td>A – Labor inspection (inspectors per 10,000 employed persons)</td>
<td></td>
</tr>
<tr>
<td>Social security</td>
<td>Secu-1</td>
<td>M – Share of population aged 65 and above benefiting from a pension (S)</td>
<td>Inter census Pop Survey</td>
</tr>
<tr>
<td></td>
<td>Secu-2</td>
<td>M – Public social security expenditure (% of GDP)</td>
<td>NSES</td>
</tr>
<tr>
<td></td>
<td>Secu-3</td>
<td>A – Health-care exp. not financed out of pocket by private households</td>
<td>NSES</td>
</tr>
<tr>
<td></td>
<td>Secu-4</td>
<td>A – Share of population covered by (basic) health care provision (S)</td>
<td></td>
</tr>
<tr>
<td>Social dialogue, workers and employers’ representation</td>
<td>Dial-1</td>
<td>M – Union density rate (S)</td>
<td>Administrative Records</td>
</tr>
<tr>
<td></td>
<td>Dial-2</td>
<td>M – Enterprises belonging to employer organization [rate]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dial-3</td>
<td>M – Collective bargaining coverage rate (S)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dial-4</td>
<td>M – Indicator for Fundamental Principles and Rights at Work (Freedom of Association and Collective Bargaining) to be developed by the Office</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dial-5</td>
<td>A – Strikes and lockouts/rates of days not worked</td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
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<th>Indicator (M = main indicator, A = additional indicator, C = context indicator; all indicators marked ‘S’ should also be disaggregated by sex.)</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cont-1</td>
<td>C – Children not in school (% by age) (S)</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td>Cont-2</td>
<td>C – Estimated % of working-age population who are HIV positive</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td>Cont-3</td>
<td>C – Labor productivity (GDP per employed person, level and growth rate)</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td>Cont-4</td>
<td>C – Income inequality (percentile ratio P90/P10, income or consumption)</td>
<td>NSES</td>
</tr>
<tr>
<td>Cont-5</td>
<td>C – Inflation rate (CPI)</td>
<td></td>
</tr>
<tr>
<td>Cont-6</td>
<td>C – Employment by branch of economic activity</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td>Cont-7</td>
<td>C – Education of adult population (adult literacy rate, adult secondary-school graduation rate)</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td>Cont-8</td>
<td>C – Labor share in GDP</td>
<td></td>
</tr>
<tr>
<td>Cont-9</td>
<td>C (additional) – Real GDP per capita in PPP$ (level and growth rate)</td>
<td></td>
</tr>
<tr>
<td>Cont-10</td>
<td>C (additional) – Female share of employment by industry (ISIC tabulation category)</td>
<td>NSES, NLFS, Pop. Census, Inter census Pop. Survey</td>
</tr>
<tr>
<td>Cont-11</td>
<td>C (additional) – Wage / earnings inequality (percentile ratio P90/P10)</td>
<td>NSES, NLFS</td>
</tr>
<tr>
<td>Cont-12</td>
<td>C (additional) – Poverty indicators (gap and rate)</td>
<td>NSES</td>
</tr>
</tbody>
</table>

### 4. Introduction to SPSS

SPSS (*Statistical Products and Solution Services*) is reliable and extensively used statistics software. This is not separate from the role of Microsoft that was able to develop as a fully interactive and user-friendly software. Since 2002 one representation was opened in Indonesia, while previously users in Indonesia were still sub distributors of Singapore.

One of the advantages of SPSS compared with other statistics software is that the user is not required to possess basics of programming. With this advantage and fulldown menu SPSS can be used by various users with varying degrees of interest. However, SPSS will be able to be used optimally if the user has sufficient knowledge of data structure, variable, unit analysis, modification of variable/data and statistics analysis tools.

With progress and increasing demands from users, SPSS required continues to grow. Since version 15 SPSS has already been able to load more than one data. This capacity
greatly supports several user who often work with numerous data. However, such ability must be supported by adequate computer specifications. Loading data in one aspect can become a weakness, since it requires very large memory compared with other statistics software that does not require data loading. Development of SPSS is also evident from various modules possessed by SPSS. Several analysis tools are entered into additional modules able to be used by users only requiring them, such as AMOS or SEM (structural Equation Model).

Structurally, SPSS consists of three parts, the Data editor, Syntax Editor and Output Editor. Data editor is the data display part, while Output Editor is the output display after being processed by users. Syntax editor is the syntax part and syntax making display. Many users do not want to work with syntax, for the reason of not having programmer background, difficulties in memorizing and they feel it is more difficult to make syntax. Frequently there is an attitude of choosing to make difficult from something easy.

Actually, working with syntax will greatly benefit users. Syntax is a process phase that has been conducted to produce output. Therefore, as long as we save syntax we will get output that is exactly the same. Meanwhile, saving syntax is far easier and smaller in size compared with saving output. On the other hand, the origin of each variable modification made by users will be able to be traced. And most importantly, authenticity of raw data possessed can be maintained, because the data does not need to be “saved”.

Working with syntax is basically very easy; users only have to click “PASTE” after operating through the menu. Each menu provided in the SPSS program always has available the option “PASTE” so that previous instructions are copied in syntax form. Thus syntax does not need to be memorized, only understood. In syntax editor the menu “RUN” shows instruction to run the syntax made. Options in menu RUN can be adapted to user needs, whether all syntax will be run or only a portion.

5. Questionnaires (Sakernas, Susenas and SUPAS)

A requirement in data processing is to understand the questionnaires and their structure. Structure of questions in a questionnaire will form data structure that will greatly affect the validity of data processing. BPS data generally knows two levels, namely individual and household data. Each level has many questions that have been formulated and adapted to suit their respective purposes.

The SUPAS 2005, Susenas 2009 and sakernas 2009 questionnaires are shown in the annex.
1. Introduction

Economic and social condition can not be ignored. The concept of both economic and social should also be considered because decent work is generated in this economic and social. There are three contexts being considered here: socio-economic context which may condition or affect the sustainability of decent work, socio-economic performance that the achievement of decent work might affect, and aspects of employment composition that are needed to measure some decent work indicators.

By not considering informal economy indicators, here we only include the indicators which available in Indonesia data base. The following twelve indicators may be considered.

1. Children not in school (% by age)
   Children in the school age (5-17 years old) who are not attending school.

2. Estimated percentage of working age population who are HIV positive
   Percentage of them in working age population (15 year old and more) who suffer HIV positive.

3. Labor productivity (GDP per employed person, level, and growth rate)
   Rate of output per worker (or a group of workers) per unit of time as compared with an established standard or expected rate of output. Here, the GDP represent output.

4. Income inequality (percentile ratio P90/P10, income or consumption)
   The unequal distribution of household or individual income across the various participants in an economy. Income inequality is often presented as the percentage of income to a percentage of population. When we short the data, P90 is the percentile of 90% highest data, while P10 is the percentile of 10% lowest data. By comparing P90 and P10, we may describe inequality.

5. Inflation rate (CPI)
   The percentage increase in the price of goods and services, usually annually. Consumer price index (CPI) is the preferred measure for inflation, which is used widely as a price deflator to obtain real prices, wages, and incomes.

6. Employment by branch of economic activity
   There are three types of economic activity branch: agriculture, industry, and services. Each of them has its own number of employment.
7. Education of adult population (adult literacy rate, adult secondary-school graduation rate)

8. The literacy rate is the percentage of people with the ability to read and write, and we may use the category of more than 15 years old people to be included in adult.

9. Labor share in GDP

10. Real GDP per capita in PPP (level and growth rate)

11. Real GDP takes into account inflation. In other words Real GDP measures the actual increase in goods and services and excludes the impact of rising prices. Real GDP per capita takes into account the average GDP per person in the economy

12. Female share of employment by industry

13. The proportion of women working in industrial sector.

14. Wage/earning inequality (percentile ratio P90/P10)

15. When we short the data, P90 is the percentile of 90% highest data, while P10 is the percentile of 10% lowest data. By comparing P90 and P10, we may describe inequality.

16. Poverty indicator (gap and rate)

17. Indicators describing whether a population is categorized as in poverty.

Employed person is a person who conducts economic activity in order to gain or help to gain income or profit, at least one hour and continue during one past week. These activities also include unpaid worker activities which help a business/economic activity.

Labor productivity is measured as output or GDP per worker is calculated, and although imperfect, this also measure the whole economy ability to generate value of labor input. Its growth rate can be thought of as measuring economic growth abstracting from the growth of the labour force. Low or declining labour productivity is a signal of broad economic difficulties. Much of the variation in labour productivity reflects different levels of capital accumulation and is therefore closely correlated with the level of economic development. Furthermore, influencing labour productivity is also important. These include human capital, the technical efficiency of production methods that transform inputs into economic output, and features of the political economy of the country that enhance or inhibit the efficiency of the economy.

In an economy with stagnant or even low labor productivity, at least in a short run, policy maker will face menu option between decent work and economic objective that barely interesting. However, it should not be presumed that providing decent work is necessarily antithetical to economic growth. On the contrary, research in a number of areas has suggested various microeconomic channels for positive feedback between aspects of decent work and economic success. The nature of the macroeconomic feedback depends critically on the details of implementation of labour market and social policies for decent work.
The presence of high inflation, regardless of its cause, is a signal that implementation of policies to improve decent work is likely to face an uphill struggle. Inflation rate in a country put a burden on decent work in several ways. First, because of contractual, legal and customary considerations, the monetary value of wages is often fixed for a specific or indefinite period. In addition, it may be difficult to adjust the prices of the goods or services they sell, even though the prices of inputs and consumer items are increasing. Another reason behind the burden that inflation gave to decent work is the root cause and social consequences of inflation itself. The preferred measure for inflation rate is the consumer price index, which is used widely as a price deflator to obtain real prices, wages, and incomes.

Education, wherever it is, is the main requirement to get desired job. It also significantly affects labour productivity and therefore economic growth. Education is becoming increasingly important with each passing year and with the increasing pace of technological change. Among the skills and knowledge gained through formal education, the single most important one is the ability to read. Since reading is usually learned and schooling completed before labour market entry, educational attainment does not measure decent work per se, but is a critical part of the backdrop for decent work and the sustainability of progress towards decent work.

The observed prevalence of decent work in a country is determined in part by the structure of its economy. Certain industries are, by nature, safer, more likely to be unionised and provide higher than average compensation. The indicators selected to represent the broad outlines of a country’s economic structure are the shares of employment in agriculture, industry, and services. In example: workers in agriculture tend to work on family owned farms and have relatively low incomes, industrial workers are often paid relatively well and are more likely to be union members, labour statistics are likely to be most complete for the industrial sector.

Decent work is much related with income distribution and inequality. Decent work is unlikely to be viable where the distribution of economic rewards is grossly unequal, and great inequality can be taken as a sign of socio-political resistance to decent work. Economy output distribution will never be equal where decent work prevails and decent work policies are believed to help reduce inequality.

2. Indicators and Variables

Since the indicators which will be measured in this analysis are more contextual characteristics, then the variables needed in this analysis are also contextual or aggregated. The aggregated variables are not embedded on the individual, but usually are embedded on region where the individual live. The regions analyzed might be some provinces, kabupatens, or urban/rural characteristics. The scope of regions which are aggregated depends on the raw data’s sampling frame. Usually, the aggregation in Sakernas data is in province, island java-
outer java), or urban/rural characteristics. For Susenas, especially KOR data, the aggregation can be extended to kabupaten/kota.

Following is the list consisting of indicators, variables and source of data which are needed to obtain some measurements.

Table 3. Economics and Social Indicators for Decent Work

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators</th>
<th>Variables</th>
<th>Data Sources</th>
</tr>
</thead>
</table>
| 1  | Children not in school (% by age)                    | ▪ Age of member of HH  
▪ Schooling participation of member of HH  
▪ Place of residence (province/kabupaten/urban-rural) | Sakernas/Susenas                 |
| 2  | Estimated % of working age population with HIV positive | ▪ Age of member of HH  
▪ Activity during a week ago  
▪ Data on health | Other source of data         |
| 3  | Labor productivity (GDP per employed person, level and growth rate) | ▪ Activity during a week ago  
▪ GDP by region | Sakernas/Susenas/other source of data |
| 4  | Income inequality (percentile ratio P90/P10, income or consumption) | ▪ Monthly average HH’s income  
▪ Monthly average HH’s consumption  
▪ Region (province/kabupaten/urban-rural) | Susenas |
| 5  | Inflation rate (CPI)                                | ▪ Time series data on CPI by selected cities. | Other source of data |
| 6  | Employment by branch of economic activity           | ▪ Activity during a week ago  
▪ Main industry/sector  
▪ Region (province/kabupaten/urban-rural) | Sakernas/Susenas/other source of data |
| 7  | Education of adult population (adult literacy rate, adult secondary school graduation rate) | ▪ Age of member of HH  
▪ Educational attainment  
▪ Place of residence (province/kabupaten/urban-rural) | Sakernas/susenas |
| 8  | Labor share in GDP                                  | ▪ Activity during a week ago  
▪ Main industry/sector  
▪ GDP by region | Sakernas/susenas/other source of data |
| 9  | Real GDP per capita PPP (level and growth rate)     | ▪ Monthly average HH’s consumption  
▪ HH size  
▪ GDP by region | Sakernas/Susenas/other source of data |
| 10 | Female share of employment by industry              | ▪ Activity during a week ago  
▪ Main industry/sector  
▪ Place of residence (province/kabupaten/urban-rural) | Sakernas/Susenas |
| 11 | Wage/earnings inequality                            | ▪ Wage received during a month ago from main industry  
▪ Place of residence (province/kabupaten/urban-rural) | Sakernas/Susenas |
| 12 | Poverty indicator (gap and rate) |  |  |
Table 4. Economics and Social Indicators and Data Set

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators (DWIs)</th>
<th>Variables to compute the DWIs (1)</th>
<th>Source : Survey Name</th>
<th>Name of variables (1) as in the datasets</th>
<th>Related questions in questionnaires (code number)</th>
<th>Variables for disaggregation (2)</th>
</tr>
</thead>
</table>
| 1. | Children not in school | Numerator: Schooling participation | Susenas Core_individu 2009 | • Age of member of HH  
• Schooling participation of member of HH  
| | Denominator: Ages of 5-17 | | | | • UMUR (age)  
• B5R13 (Schooling participation) | • JK (sex) |
| 2. | Labor Productivity (GDP per employed person) | Numerator: GDP  
Denominator: Number of employed person | Sakernas 2009  
Other source on GDP (BPS) | • Activity during a week ago  
• GDP by region | • UMUR (age)  
• B5P2A1  
• B5P3  
• B5P4  
• B5P5  
• B5P22 | • JK (sex) |
| 3. | Income inequality (percentile ratio P90/P10) | Numerator: Cut off for Percentile 90  
Denominator: Cut off for Percentile 10 | Susenas Kor_rt2009 | • Monthly average HH’s income  
• Monthly average HH’s consumption | • EXPEND (monthly average household expenditures) | • JK (sex) |
| 4. | Employment by branch of economic activity | Numerator: Number of employed person by branch of economic activity | Sakernas 2009 | • Activity during a week ago  
• Main industry/sector | | | |
| 5. | Adult literacy rate By sex | Numerator: Number of literate person by age  
Denominator: Number of people by age | Susenas kor_individu 2009 | • Age of member of HH  
• Educational attainment | • UMUR  
• B5R17A  
• B5R17B  
• B5R17C | • JK (sex) |
3. Data Processing

Main working in this measurement of contextual indicators is aggregating variables. Each variable which has been transformed into indicator is aggregated by regions (province/kabupaten/urban-rural).

Some stages of data aggregating are as follow:

1. On SPSS, put the cursor on main menu ‘Data’, and then put in on option ‘Aggregate...’

   ![SPSS Aggregate tool](image)

2. Fill in column ‘Break Variables’ with “provinsi” variable. It means that this working data is aggregated by province. Then fill in column ‘Summaries of Variables’ with “B5P11A” variable. It means that the aggregated variable is ‘monthly average net income’ (B5P11A). In this column, next to B5P11A variable, there is a word in the bracket ‘MEANS’. This means that the default parameter of aggregation is ‘mean’, where in this context; the aggregated monthly average net income is provincial mean. The default parameter can be replaced by other parameters by clicking box ‘Function...’
3. When clicking ‘Function...’, the screen will show some other aggregate parameters, for example, ‘sum’. When this parameter ‘sum’ is selected, this means that the individual income is added totally by province. Then click ‘continue’ to continue this analyze.
4. The aggregation result can be saved in SAV (SPSS) format which consists of aggregated income data (sum) by province. To save this data, click on command ‘Write a new data file containing only the aggregated variables’. Then write the file name in this format, which will be used for further analyze.
Figure 4

A screenshot of the Aggregate Data window in SPSS, showing options for saving aggregated variables. The highlighted option is 'Write a new data file containing only the aggregated variables.'
EMPLOYMENT OPPORTUNITIES

1. Introduction

The idea of decent work directly describes the state or availability of employment opportunity for all persons who are willing to work and searching for work. Therefore, employed population rate in a country is an essential element for decent work. Employment opportunity may also measure in negative sense through unemployment and underemployment and the lack of employment opportunity.

In Indonesia, the number of working age population on February 2009 is 168,26 million, increase 1,62 million compared with six month ago, August 2008, which calculated as 166,64 million and increase 2,70 million compared with a year behind. In the same period, there are an increase in force calculated as 104,48 million, increase 1,93 million compared with August 2008 which calculated as 102,44 million, and increase 2,44 million compared with February 2008 which calculated as 102,05 million.

The number of unemployment on February 2009 is 9,26 million, decrease about 136 thousand compared with August 2008 which calculated as 9,39 million, or decrease 169 thousand compared with February 2009 which calculated as 9,43 million.

Population employed in informal sector on February 2009 is around 64,84 million or increase 2,02 million compared with August 2008 which calculated as 62,82 million, but increase 2,00 million compared with February 2008. Each of three provinces in Java Island (West, Centre, and East Java) has the highest number of informal worker which calculated as 12,57 million, 8,88 million and 9,55 million.

Statistic data about employment or labor in Indonesia is collected through National Manpower Survey (SAKERNAS) which is a special survey to collect employment or labor data. The concept and definition being used in gathering employment or labor data by Central Board Statistic has never changed since 1976, except for the open unemployment concept and employment status. In 2001, those concepts were broadening.

Employment data collection through SAKERNAS has three main objectives which are used to be informed about employed population characteristics, unemployment and a
half unemployment, and population who included in the category of non-labor force such as them who go to school, do house job and do other activities beside private activities.

The concepts and definitions being used in this data collection are Labor Force Concept which is suggested by the International Labor Organization (ILO) which divides population into two groups: working age and non-working age population. The working age population is differentiated into two groups based on the main activity being conducted: Labor force and Non labor force. Related definition toward these concepts in Indonesia may be explained in brief as follows:

1. Working age population is population in the age of 15 and above.
2. Labor force is working age population or 15 and above who work, or have a job but temporarily not work and unemployment.
3. Non labor force population is working age population or 15 and above who still in school, do house job and do other activities beside private activities.
4. Employed is economic activity conducted by someone in order to gain or help to gain income or profit, at least one hour and continue during one past week. This activity also includes unpaid worker activities which help a business/economic activity.
5. Have a job but temporarily not work is a state of someone who has a job but along a week ago do not work due to several things such as ill, taking time off, waiting for harvesting, strike and etc.
6. Open unemployment consist of them who do not have a job and searching for a job, do not have a job and preparing business, do not have a job and not looking for work because they feel it is impossible to get a job, and already had a job but not start yet. This definition may be refered to “An ILO Manual on Concepts and Methods”.
7. Half unemployment is them who work under standard working hour or less than 35 hours a week. This category may be grouped into two: involuntary underemployment (them who work under standard working hour or less than 35 hours a week, and still looking for and willing to accept a job) and voluntary underemployment (them who work under standard working hour or less than 35 hours a week, but not looking for a job and not willing to accept other job. Part-timer is included in this group).
8. Schooling is an activity of someone to go to school in the formal term, start from base to high education during a week ago before the survey is conducted. Not including school holiday.
9. Taking care of household is activity of someone who doing household job without receive any payment. In the contrary, household helper or maid who receive wage is considered as employed.
10. Other activities is activities of someone beside all of activities stated above, for example who retired and physical defect who do nothing during a week ago.

11. Highest completed education is education level attained by someone after following course on the highest education level or class and gain certificate.

12. Number of working hour is time needed in terms of hour that being used for work, not include official break time and working hour being used for other activities beside job during a week ago.

13. Working field is a unit of activities of job/business/firm where someone works. The classification of working field types is based on Indonesia Standard Industrial Classification 2005.

14. Type of job/work/position is type of job conducted by someone or assigned to someone who is working or temporarily not working.

15. Net wage/salary is payback received during a month by employee/worker both in the form of money or good paid by firm/office/boss. Payment in the form of good is valued with local price. Net wage/salary is a wage/salary after deducted by tax, etc.

16. Employment status is the type of someone position in conducting a job in a unit of business/activity. Since 2001, employment status has been divided into 7 categories: self employed, self employed with unpaid worker, self employed with pad worker, employee, free employee in agriculture, free employee in non agriculture, and unpaid worker.

17. Informal activities refer to economic activity which generally traditional, do not have a clear organization structure, do not have a clear relationship between employee and employer, and do not have bookkeeping. The table below describes the approach of informal activity constraint, formulated from the combination of type of main job and employment status.
Table 1. The Constraint of Informal Activity

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Main classification of occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Employed</td>
<td>Formal</td>
</tr>
<tr>
<td>Self Employed With Unpaid Worker</td>
<td>Formal</td>
</tr>
<tr>
<td>Self Employed With Paid Worker</td>
<td>Formal</td>
</tr>
<tr>
<td>Employee</td>
<td>Formal</td>
</tr>
<tr>
<td>Agriculture Free Worker</td>
<td>Formal</td>
</tr>
<tr>
<td>Non Agriculture Free Worker</td>
<td>Formal</td>
</tr>
<tr>
<td>Unpaid Worker</td>
<td>Informal</td>
</tr>
</tbody>
</table>

Here are the decent work indicators lists from employment opportunity side, and you will find the explanation below.

1. Employment to population ratio
2. Unemployment rate
3. Share of youth not in education and not in employment, 15-24 years
4. Informal employment
5. Labor force participation rate
6. Youth unemployment rate
7. Unemployment by level of education
8. Employment by status in employment
9. Proportion of own-account and cont family worker in total employment
10. Share of wage employment in non-agricultural employment

Ten decent work indicators, as stated above, in employment opportunity area are suggested. Two of them measure employment opportunity directly: labor force participation and employment to population ratio. In addition, another two of them measure the lack of employment opportunity: unemployment and youth unemployment. Share of wage
employment in non-agricultural employment provide us information about employment opportunity in a country.

Another indicator of employment opportunity for decent work are obviously showed in the way a job is taken by worker, is it working with others or self employed. In addition, most of this indicator is disaggregated based on gender, as female wage share in non agricultural employment sector will measure employment opportunity for woman, and this is one of the Millennium Development Goal indicators.

Labor force participation rate measures a level in which working age population in a country is economically active working. This level is a whole indicator of labor activities which then divided based on gender and age to a get profile of population distribution which economically active. Labor force participation rate or measurement of labor relative to the size of related population will provide a measurement of economic aggregate activity and often used as denominator for other indicators.

Employment population ratio measure the proportion of working age employed population. These indicators provide information about a level in which an economy generates employment. Definitions and concepts of employment such as working age and labor force may be refer to the beginning part of this module.

Unemployment rate measure the number of population who do not have a job as the percentage of labor force. Unemployment definition being used in Indonesia is already described before in the beginning of this module. In most industrialized countries, the unemployment rate is regarded as an important indicator of labor market performance. In low-income countries, significance and meaning of the unemployment rate is much more limited. In the absence of unemployment insurance or other public relief schemes, relatively few people can survive lengthy unemployment without family support. The majority of the workers must engage in some form of economic activity although insignificant or inadequate. This is often become the reason behind the establishment of the informal economy and/or in self-employment. In the other side, we can say that the unemployment rate has limited applicability in countries where self-employment is the dominant form of employment.

The population most at risk of unemployment is generally the educated youth entering the labor market for the first time. Youth unemployment rates are typically two or three times higher than the adult rates throughout the world. Since first-time job seekers are mostly young, it follows that youth unemployment rates are generally higher than the adult rates. Another reason is that younger workers have higher job turnover rates, and, at each re-entry they risk a new spell of unemployment.
The share of wage and salary employment in non-agricultural employment is one of indicator of employment opportunities, especially for developing countries. This is because it conveys considerable information about the nature of employment opportunities. Wage and salary employment in the formal sector tends to have higher and more regular earnings, better benefits, and wider social protection than self-employment.

Table 2 below summarizes the definition of employed person, unemployment, and informality and distinguished them in national and ILO term.

Table 2. National and ILO Definition of Employed Person, Unemployment, and Informality

<table>
<thead>
<tr>
<th>Indicators</th>
<th>National definition (as defined in SAKERNAS)</th>
<th>ILO definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed person</td>
<td>Working age population: 15 and above[Employed persons: Employed is economic activity conducted by someone in order to gain or help to gain income or profit, at least one hour and continue during one past week. Persons of working age are included as employed person if they satisfied that requirement. These economic activities also include unpaid worker activities which help a business/economic activity.]</td>
<td>Working age population: 15 and above[Employed persons: Persons of working age are classified as employed if, during a short reference period such as a day or a week, (i) they did some work (even for just one hour) for pay, profit or family gain, in cash or in kind; or (ii) they were attached to a job or had an enterprise from which they were &quot;temporarily&quot; absent during this period (for such reasons as illness, maternity, parental leave, holiday, training, industrial dispute). Employed persons include those persons of working age who worked for at least one hour during the reference period as contributing family workers (formerly referred to as unpaid family workers) working in a family business.]</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Open unemployment: This category consist of them who do not have a job and searching for a job, do not have a job and preparing business, do not have a job and not looking for work because they feel it is impossible to get a job, and already had a job but not start yet. Half unemployment: This category consists of them who work under standard working hour or less than 35 hours a week. This category may be grouped into two: involuntary underemployment (them who work under standard working hour or less than 35 hours a week, and still looking for and willing to accept a job) and voluntary underemployment (them who work under standard working hour or less than 35 hours a week, but not looking for a job and not willing to accept other job. Part-timer is included in this group). [The &quot;unemployed&quot; comprise all persons above a specified age who during the reference period were &quot;without work&quot;, i.e. were not in paid employment or self-employment; &quot;currently available for work&quot;, i.e. were available for paid employment or self-employment during the reference period; and &quot;seeking work&quot;, i.e. had taken specific steps in a specified reference period to seek paid employment or self-employment. Persons temporarily absent from their jobs with no formal job attachment who were currently available for work and seeking work should also be regarded as unemployed in accordance with the standard definition of unemployment.]</td>
<td>Informal activities refer to economic activity which generally traditional, do not have a clear organization structure, do not have a clear relationship between employee and employer, and do not have bookkeeping [ILO first used the term &quot;informal sector&quot; to describe the activities of the working poor who were working very hard but who were not recognized, recorded, protected or regulated by the public authorities.]</td>
</tr>
</tbody>
</table>

2. Indicators and Variables
Indicators for decent work from the side of employment opportunity completely exist on variables someone’s activity around a week ago. Some indicators are the regional aggregation. The following table is variable and data source list which may provide indicators being studied.

Table 3. Employment Opportunity Indicators For Decent Work

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators</th>
<th>Variables</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Employment to population ratio, 15-64</td>
<td>- Household member age&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>2</td>
<td>Unemployment rate</td>
<td>- Household member age&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>3</td>
<td>Share of youth not in education and not in employment, 15-24 years</td>
<td>- Household member age&lt;br&gt;- School participation&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>4</td>
<td>Informal employment</td>
<td>- Household member age&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>5</td>
<td>Labor force participation rate</td>
<td>- Household member age&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>6</td>
<td>Youth unemployment rate</td>
<td>- Household member age&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>7</td>
<td>Unemployment by level of education</td>
<td>- Highest education attained&lt;br&gt;- Activities during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>8</td>
<td>Employment by status in employment</td>
<td>- Status/position on main job during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>9</td>
<td>Proportion of own-account and cont family worker in total employment</td>
<td>- Status/position on main job during a week ago&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
<tr>
<td>10</td>
<td>Share of wage employment in non-agricultural employment</td>
<td>- Main work field during a week ago&lt;br&gt;- Net wage/salary received during a month ago from main job&lt;br&gt;- Living area (province/district/urban-rural)</td>
<td>Sakernas/ Susenas</td>
</tr>
</tbody>
</table>
Table 4. Employment Opportunity Indicators and Data Set

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators (DWIs)</th>
<th>Variables to compute the DWIs (1)</th>
<th>Source</th>
<th>Name of variables (1) as in the datasets</th>
<th>Related questions in questionnaires (code number)</th>
<th>Variables for disaggregation (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Employment to Population Ratio, 15-64 years by sex</td>
<td>Numerator: Number of employed person age 15-64</td>
<td>Sakernas 2009</td>
<td>• Household member age</td>
<td>• Age • B5P2A1 • B5P3 • B5P4 • B5P5 • B5P22</td>
<td>• JK (sex)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Denominator: Number of labor force age 15-64</td>
<td></td>
<td>• Activities during a week ago</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Unemployment Rate</td>
<td>Numerator Number of unemployed person age 15 years and over</td>
<td>Sakernas 2009</td>
<td>• Household member age</td>
<td>• Age • B5P2A1 • B5P3 • B5P4 • B5P5 • B5P22</td>
<td>• JK (sex)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Denominator Number of labor force age 15 years and over</td>
<td></td>
<td>• Activities during a week ago</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Share of Youth not in Education and not in employment, 15-24</td>
<td>Numerator Number of people not in education age 15-24 years</td>
<td>Sakernas 2009</td>
<td>• Household member age</td>
<td>• Age • B5P2A1 • B5P3 • B5P4 • B5P5 • B5P22</td>
<td>• JK (sex)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Denominator Number of people age 15-24 years</td>
<td></td>
<td>• School participation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Activities during a week ago</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Informal employment</td>
<td>Numerator Number of employed person in informal sector</td>
<td>Sakernas 2009</td>
<td>• Household member age</td>
<td>• Age • B5P10A • kbji2000</td>
<td>• JK (sex)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Activities during a week ago</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table provides indicators and associated datasets for employment opportunity. The variables are described in the related questions in the questionnaires (code number) and the variables for disaggregation (2) are listed. The indicators include employment to population ratio, unemployment rate, share of youth not in education and not in employment, and informal employment.
3. Data Processing

Data processing in providing these indicators is conducted by doing data transformation, data selection, and data aggregation.

Data Transformation

In conducting data transformation, there are several steps as described below:

1. Transform → Compute variable...

![Figure 1](image)

2. Entry the target variable name (new variable) which will be made, such as: ‘employ’, then entry its numerical expression according to the formula and concept of employment. Due to complexity, this issue will be explained in detail in the practice section.
Data Selection

Another activity in data processing is data selection. For example, the data that will be processed is only on youth 15-24 years old. Then the steps to be generated are:

1. Choose main menu ‘Data’, then click ‘Select cases’
After that, in the screen you will see:

Figure 3

After that, in the screen you will see:

Figure 4
Then click ‘if…’, so that you will see this in the screen:

**Figure 5**

Do numeric expression which fulfills requirements we need. In this case, we only want to process data which fulfill the requirement of 15-24 years old.

Next, click ‘continue’, then the screen will be back to start. After that, click ‘filter’ and click ‘OK’. Therefore the data being process will be the data that fulfill the requirement of youth 15 to 24 years old.

**Data Aggregation**

To conduct data aggregation more detail, please see the modul of ‘Economic and Social Context for Decent Work’.
EQUAL OPPORTUNITY AND TREATMENT IN EMPLOYMENT

The 2008 Declaration also encourages member States of the ILO to monitor and evaluate progress on decent work through possible establishment of “appropriate indicators or statistics, if necessary with the assistance of the ILO, to monitor and evaluate” progress on decent work. The “Monitoring and Assessing Progress of Decent Work” (MAP) project was developed and is being implemented in ten selected countries, including four countries in Asia (Bangladesh, Cambodia, Indonesia and one further country), two in Africa (Niger and Zambia), two in Europe (Ukraine and one additional country) and two in Latin America (Brazil and Peru). The main objective of the project is to develop a global methodology and strengthen capacity of member countries to self-monitor and self-assess progress on decent work.

Decent work is a part of the eight goals of the Millennium Development Goals (MDGs), which were initiated ten years ago. The four pillars of decent work, namely employment, social protection, social dialogue and fundamental principles and rights at work, are instrumental to the achievement of the MDGs.

Decent work indicators should cover all workers, with particular emphasis on the most vulnerable workers; integrate gender as a cross-cutting concern; and take into consideration the importance of the economic and social context.

The main objectives of the measurement of decent work are two-fold. The main purposes are: i) to assist constituents in assessing progress towards decent work, and ii) to provide comparable information for analysis and policy development. It emphasized the importance of covering all dimensions of decent work, meaning to go beyond employment and include rights at work, social protection, social dialogue and gender issues. The measurement should be built on existing statistics.
<table>
<thead>
<tr>
<th>Substantive elements of the DWIs</th>
<th>Strategic objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employment opportunities</td>
<td>Rights, employment</td>
</tr>
<tr>
<td>2. Adequate earnings and productive work</td>
<td>Rights, social protection</td>
</tr>
<tr>
<td>3. Decent hours</td>
<td>Rights, social protection</td>
</tr>
<tr>
<td>4. Combining work, family and personal life</td>
<td>Rights, social protection</td>
</tr>
<tr>
<td>5. Work that should be abolished</td>
<td>Rights, social protection</td>
</tr>
<tr>
<td>6. Stability and security of work</td>
<td>Rights, employment, social protection</td>
</tr>
<tr>
<td>7. Equal opportunity and treatment in employment</td>
<td>Rights, employment, social protection</td>
</tr>
<tr>
<td>8. Safe work environment</td>
<td>Rights, social protection</td>
</tr>
<tr>
<td>9. Social security</td>
<td>Rights, social protection</td>
</tr>
<tr>
<td>10. Social dialogue, workers’ and employers’ representation</td>
<td>Rights, social dialog</td>
</tr>
</tbody>
</table>

Quality of employment is an issue of importance to many. Nobody wants bad working conditions for themselves, and all but a few would want to eradicate the worst forms of work and labour for others. As a result, countries have labour laws and regulations that prohibit or limit certain forms of work. Some types of employment are deemed illegal (e.g. forced or child labour), while other rules regulate the workforce, without banning activities outright (e.g. by setting maximum working hours). Other labour regulations protect the safety of the worker. The issue of quality of employment, however, extends beyond aspects of work that are illegal or regulated, extending to personal preferences about what workers want from their time spent at work.

1. What is Quality of Employment?

What is quality of employment? What indicators ought to be used to assess such a concept? Neither question is easy to answer. How it is answered depends upon the perspective that one has. The European Foundation has identified three perspectives on the quality of work and employment: societal, corporate and individual. From a societal perspective, it may be desirable to have good quality of employment, since high quality employment is assumed to have social spin-offs. However not all aspects of the societal point of view would imply that quality of employment is positive. For example, although public employment generally represents high quality employment, large growth in this sector may not be desirable because it can burden government budgets.

The proposed framework and its indicators are primarily designed to measure quality of employment from the perspective of the individual or worker. However, there is also some element of the social perspective built into this framework because work is something that delivers a large variety of benefits and negativities to individuals and societies, and individual and societal tastes for what they want from work are equally varied.
As a result, there is no one, single definition of what it means to be working in “good” employment.

2. The Quality of Employment Framework

In developing the framework, the following main principles have been used:

1) The measurement of quality of employment should be comprehensive, with many elements and dimensions.
2) Not all aspects of quality of employment will be relevant for measurement in all countries. Each aspect of quality of employment should be sufficiently problematic within a country to justify measurement.
3) The measurement of quality of employment should have a transparent logical structure to be called a framework.
4) The statistics of quality of employment are designed to be feasible or practical for National Statistical Organizations (NSOs). While designed to draw from existing sources, countries may need to consider expanding the collection of statistics on quality of employment. Each aspect of quality of employment is designed to be technically feasible.
5) Use, wherever possible, internationally accepted computational methodologies and definitions.

The first and second principles ensure that comprehensive, varied indicators suggested in the framework will help measure quality of employment for workers in any economic sector, of any age, in any occupation, or status in employment and in any country. The framework is flexible enough to address the particular needs of any part of the world. Because it has been developed with a broad approach to the measurement of quality of employment, countries may not find all parts of the measurement framework to be applicable.

The third principle relates to the organization of the framework itself. A framework needs a clear structure. The structure chosen here is based on human needs from work. Employment or work can be viewed as an activity to meet human needs. This view offers a logical structure to the Quality of Employment framework and ensures all aspects of quality of employment are covered. Seven basic dimensions of quality of employment are proposed with indicators specified under each.
The fourth principle ensures practicality, producing simple indicators that can be produced using data collection programs common in many countries, such as population censuses or household surveys (e.g. labour force surveys). This aims to facilitate ease of use, although it should be of lower priority in terms of a guiding principle for the framework – practicality is important, but simply choosing what is currently available would not be appropriate for statistical framework development. There are important aspects of quality of employment which are rarely measured by NSOs. For those aspects indicators are proposed where, in principle, measurement is considered to be feasible. All indicators in the Framework have been measured in at least one country, as reflected in the “Country Pilot Reports” commissioned by the Task Force.

The fifth principle relates this framework to the international standards now in place. There are two advantages that this brings to the framework – first, there is no point in any application in effort; second, this principle facilitates an evolution into an international standard, should the international community decide to proceed down that route.

Table 1. Indicators on “Equal opportunity and treatment unemployment”

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Indicator (M = main indicator, A = additional indicator, C = context indicator; all indicators marked ‘S’ should be disaggregated by sex)</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQUA-1</td>
<td>M – Occupational segregation by sex</td>
<td>SAKERNAS</td>
</tr>
<tr>
<td>EQUA-2</td>
<td>M – Female share of employment in ISCO-88 groups 11 and 12</td>
<td>SAKERNAS</td>
</tr>
<tr>
<td>EQUA-3 A</td>
<td>Gender wage gap (n.a.)</td>
<td>SAKERNAS</td>
</tr>
<tr>
<td>EQUA-4 A</td>
<td>Indicator for Fundamental Principles and Rights at Work (Elimination of discrimination in respect of employment and occupation) to be developed by the Office</td>
<td>---</td>
</tr>
<tr>
<td>EQUA-5 A</td>
<td>Measure for discrimination by race/ethnicity/indigenous people/ (recent) migrant workers/rural workers where relevant and available at the national level.</td>
<td>---</td>
</tr>
</tbody>
</table>
Table 2. List of variables involved in wage gap measurements

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators (DWIs)</th>
<th>Variables to compute the DWIs (1)</th>
<th>Source : survey name</th>
<th>Name of variables (1) as in the datasets</th>
<th>Related questions in questionnaire (code number)</th>
<th>Variables for disaggregation (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EQUA-1</td>
<td>Occupation</td>
<td>Sakernas 2009</td>
<td>Type of occupation</td>
<td>B5P8</td>
<td>SEX (selected cases: age 15+, working people)</td>
</tr>
<tr>
<td>2</td>
<td>EQUA-2</td>
<td>Occupation</td>
<td>Sakernas 2009</td>
<td>Type of occupation</td>
<td>B5P8</td>
<td>SEX (selected cases: age 15+, working people)</td>
</tr>
<tr>
<td>3</td>
<td>EQUA-3</td>
<td>Income gap between male and female</td>
<td>Sakernas 2009</td>
<td>Net Income</td>
<td>B5P11A</td>
<td>SEX (selected cases: age 15+, working people)</td>
</tr>
</tbody>
</table>

3. The data

Data used to measure occupational segregation and female share of employment is from SAKERNAS 2009. By occupation there are 10 categories of occupation. These occupations range from legislative, professional, military and others. Of the six indicators used to measure equal opportunity and treatment in employment, that is available in SAKERNAS is occupation. The indicator could be segregated by sex. Occupation is available by variable b5p7. Since occupation is coded by four digit, it will be classified one (for EQUA-1) and two digit to capture female share of employment in ISCO-88 groups 11 and 12 (EQUA-2). Example of the SAKERNAS 2009, questioner is as followed:
**V.A. EDUCATION**

| NAME :............................ SERIAL NUMBER:............... |
| INFORMERS:.......................................................... |

**V.B. ACTIVITIES A WEEK AGO**

2.a. During the past week:

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

b. Of activites 1-4 that states "yes" above, which activity uses the most time during the past week?

1.  
2.  

**R6 – R15 ONLY FOR HOUSEHOLD MEMBERS WHO WORK (R2.a.1=1 OR R3=1)**

6.a. Number of working days during the past week?

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. How many hours of work from all the work every day during the past week?

<table>
<thead>
<tr>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**V.C. MAIN JOB**

7. What is the field business/ occupation of the place (NAME) work during the past week?

8. What is the type of work/ position of the main job (NAME) work during the past week?

9. How many hours of work (NAME) on the main job during the past week?

10.a. What is the status/ position (NAME) in the main job during the past week?

11.a. What is the net income (NAME) a month ago from the main job?

12. What is the wage/ salary received by (NAME) during the previous month from the main job?

13. How long has (NAME) been working at the job now?
From SAKERNAS session “V. Information of household member above age 10 year”, on population age 10 and above that are working. This section has 6 sections regarding worker’s education, activities during the last week, primary work, secondary work, seeking for work activities, and work experience. From these six sections we to develop the indicators for equal opportunity and treatment in employment, we will used information that is listed in the major work section.

For the occupation classification is as followed:

<table>
<thead>
<tr>
<th>Category</th>
<th>Indonesian Standard Classification of Business Field 2005</th>
<th>KLUI 1990</th>
<th>Page</th>
<th>Base Class</th>
<th>Indonesian Standard Type of Job Classification 2002</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Agriculture and Hunting</td>
<td>Agriculture, plantation, forestry, hunting and fishing</td>
<td>1</td>
<td>1</td>
<td>Legislative Officials, Senior Officials and Managers</td>
<td>14</td>
</tr>
<tr>
<td>B</td>
<td>Hunting/ Catching and Breeding of Wildlife</td>
<td>1 – 2</td>
<td>3</td>
<td>14</td>
<td>Skilled Professionals</td>
<td>14</td>
</tr>
<tr>
<td>C</td>
<td>Mining and Quarrying</td>
<td>Mining and Quarrying</td>
<td>6</td>
<td>5</td>
<td>Personnel business services and personnel sales in stores and markets</td>
<td>16</td>
</tr>
<tr>
<td>D</td>
<td>Processing Industry</td>
<td>2 – 6</td>
<td>4</td>
<td>15</td>
<td>Personnel administration</td>
<td>15</td>
</tr>
<tr>
<td>E</td>
<td>Electricity, gas, water</td>
<td>6 – 9</td>
<td>7</td>
<td>16 – 17</td>
<td>Personnel processing and crafts</td>
<td>16</td>
</tr>
<tr>
<td>F</td>
<td>Construction</td>
<td>6 – 6</td>
<td>11</td>
<td>17</td>
<td>Machine operators and assemblers</td>
<td>17</td>
</tr>
<tr>
<td>G</td>
<td>Wholesale and Retail Trade</td>
<td>10 – 11</td>
<td>16</td>
<td>17 – 18</td>
<td>Rough Workers, Cleaning services and ybdi personnel</td>
<td>17</td>
</tr>
<tr>
<td>H</td>
<td>Provision of accommodation and the provision of eating and drinking</td>
<td>10 – 11</td>
<td>17</td>
<td>18</td>
<td>Members of the Indonesian National Army (TNI) and the RI State Police</td>
<td>18</td>
</tr>
<tr>
<td>I</td>
<td>Transportation, warehousing, and communication</td>
<td>11 – 0</td>
<td>18</td>
<td>18</td>
<td>Members of the Indonesian National Army (TNI) and the RI State Police</td>
<td>18</td>
</tr>
<tr>
<td>J</td>
<td>Financial intermediaries</td>
<td>12 – 13</td>
<td>19</td>
<td>19</td>
<td>Members of the Indonesian National Army (TNI) and the RI State Police</td>
<td>19</td>
</tr>
</tbody>
</table>

Central Bureau of Statistics
In the major work sections, there are 9 issues that were collected. Some of the issues asked more than one question. For example the issues of wage, besides asking information on monetary wage received, information on wage in-kind was also collected but transform into monetary values.

When developing indicator for wage (EQUA 3A), we will need to merge these two information into one to form a single wage for each respondents.

Information on occupation has 4 digits. Classification for occupation follows the classification made by the Central Bureau of Statistics (CBS). That is noted under “Indonesia Standard Industrial Classification 2005, Indonesia Standard Classification of occupations 2002 and education by type” manual book issued by CBS.

4. Data processing

Indicator 1: EQUA-1
EQUA-1, will only segregate occupation by sex. For this data processing there are 10 major occupations (see table on classification above) or ISCO. But as stated above, in the data set there is a four code ISCO. This ISCO should be converge to one (1) digit.
To do this, data transformation (recoding data) should be done.
Below is the syntax in creating EQUA-1:

SELECT AGE: 15+
FILTER OFF.
USE ALL.
SELECT IF (UMUR >= 15).
EXECUTE.
FREQUENCIES VARIABLE
S=UMUR
/ORDER=ANALYSIS.

SELECT EMPLOYED PERSON:

COMPUTE WORK = 0.
if (b5p2a1 = 1 | b5p3 = 1) WORK = 1.

SELECT WORK:1
FILTER OFF.
USE ALL.
SELECT IF (WORK=1).
EXECUTE.

RECODE THE VARIABLE B5P8 (TYPE OF OCCUPATION) INTO ISCO CLASIFFICATION

RECODE B5P8 (110 thru 190=0) (1110 thru 1319=1) (2111 thru 2939=2) (3111 thru 3960=3) (4111 thru 4223=4) (5111 thru 5230=5) (6111 thru 6210=6) (7111 thru 7442=7) (8112 thru 8340=8) (9111 thru 9333=9) INTO occ.
VARIABLE LABELS occ 'occupation'.
EXECUTE.
VAL LAB occ 1'Legislators, senior officials and managers' 2'professionals' 3'Technicians and associate professionals' 4'Clerks' 5'Service workers and shop and market sales workers' 6 'Skilled agricultural and fishery workers' 7'Craft and related trade workers' 8'Plant and machine operators and assemblers' 9'Elementary occupations' 0'Armed forces'.
EXECUTE.

CONSTRUCT CROSS-TAB FOR VARIABLE OCCUPATION BY SEX

CROSSTABS
/TABLES=J K BY occupation
/FORMAT=AVALUE TABLES
/CELLS=COUNT ROW
/COUNT ROUND CELL

**Indicator 2: EQUA-2**

SELECT AGE: 15+
FILTER OFF.
USE ALL.
SELECT IF (UMUR >= 15).
EXECUTE.
FREQUENCIES VARIABLES=UMUR
/ORDER=ANALYSIS.

SELECTING EMPLOYED PERSON:

COMPUTE WORK = 0.
if (b5p2a1 = 1 | b5p3 = 1) WORK = 1.

SELECT WORK:1
FILTER OFF.
USE ALL.
SELECT IF (WORK=1).
EXECUTE.

SELECT OCUPATION OF GROUP 11 & 12
COMPUTE OCC2 = 0.
if (b5p8 = 1110-1239) OCC2 = 1.
VARIABLE LABELS occ2 'occupation2'
SELECT OCC2:1.
FILTER OFF.
USE ALL.
SELECT IF (OCC2=1).
EXECUTE.

*Indicator 3: EQUA-3*

SELECT AGE: 15+
FILTER OFF.
USE ALL.
SELECT IF (UMUR >= 15).
EXECUTE.
FREQUENCIES VARIABLES=UMUR
/ORDER=ANALYSIS.

SELECTING EMPLOYED PERSON:

COMPUTE WORK = 0.
if (b5p2a1 = 1 | b5p3 = 1) WORK = 1.

SELECT WORK:1
FILTER OFF.
USE ALL.
SELECT IF (WORK=1).
EXECUTE.

SELECT OCCUPATION OF GROUP 11 & 12

COMPUTE OCC2 = 0.
if (b5p8 = 1110-1239) OCC2 = 1.

VARIABLE LABELS occ2 'occupation2'

SELECT OCC2:1.
FILTER OFF.
USE ALL.
SELECT IF (OCC2=1).
EXECUTE.

CONSTRUCT CROSS-TAB FOR VARIABLE INCOME BY SEX

CROSSTABS
/TABLES=J K BY B5P11A
/FORMAT=AVALUE TABLES
/CELLS=MEAN MEDIAN MODE MIN MAX STANDAR DEVIATION
/COUNT ROUND CELL
Modul S-8

Adequate Earnings and Productive Work

There are three main indicators in topic “Adequate Earnings and Productive Work”.

Scope and definition:

EARN1   M – Working Poor (S)
EARN2   M – Low pay rate (below 2/3 of median monthly earnings (S)
EARN3   A – Average hourly earnings in selected occupation (S)
EARN4   A – Average real wages (S)
EARN5   A – Minimum wages as % of median wage (S)

1. Poor employees/wokers

The worker’s poverty rate is defined as the percentage of the number of employed persons in poor households divided by the total number of employed poor among all workers.

\[
WPR = \frac{\text{Number of employed persons in poor households}}{\text{Total number of employed persons}} \times 100
\]

2. Low pay rate:

Number of employees (status = 4, 5 or 6) who earn less than 2/3 of median monthly earnings as a share of total employees (status= 4,5 or 6).

*Note*: monthly earnings used as a substitute for hourly earnings.

3. Average real wages:

Average [mean] nominal wages of employees.
- Differences in reference periods: hourly wages; monthly wages; monthly for full-time equivalents.
- Differences in exclusion or inclusion of bonuses and in-kind benefits.
- Differences in coverage, e.g. only manufacturing.

Table S8.1
Poverty Line by Provinces, Indonesia, 2010

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Poverty Line (Rp)</th>
<th>Provinces</th>
<th>Poverty Line (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nangroe Aceh Darussalam</td>
<td>278,389</td>
<td>West Nusa Tenggara</td>
<td>196,185</td>
</tr>
<tr>
<td>North Sumatera</td>
<td>222,898</td>
<td>East Nusa Tenggara</td>
<td>175,308</td>
</tr>
<tr>
<td>West Sumatera</td>
<td>230,823</td>
<td>West Kalimantan</td>
<td>189,407</td>
</tr>
<tr>
<td>Riau</td>
<td>256,112</td>
<td>Central Kalimantan</td>
<td>215,466</td>
</tr>
<tr>
<td>Jambi</td>
<td>216,187</td>
<td>South Kalimantan</td>
<td>210,850</td>
</tr>
<tr>
<td>South Sumatera</td>
<td>221,687</td>
<td>East Kalimantan</td>
<td>285,218</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>225,857</td>
<td>North Sulawesi</td>
<td>194,334</td>
</tr>
<tr>
<td>Lampung</td>
<td>202,414</td>
<td>Central Sulawesi</td>
<td>203,237</td>
</tr>
<tr>
<td>Bangka Belitung</td>
<td>286,334</td>
<td>South Sulawesi</td>
<td>163,089</td>
</tr>
<tr>
<td>Riau Islands</td>
<td>295,095</td>
<td>South east Sulawesi</td>
<td>165,208</td>
</tr>
<tr>
<td>DKI Jakarta</td>
<td>331,169</td>
<td>Gorontalo</td>
<td>171,371</td>
</tr>
<tr>
<td>West Java</td>
<td>201,138</td>
<td>West Sulawesi</td>
<td>171,356</td>
</tr>
<tr>
<td>Central Java</td>
<td>192,435</td>
<td>Maluku</td>
<td>226,030</td>
</tr>
<tr>
<td>DI Yogyakarta</td>
<td>224,258</td>
<td>North Maluku</td>
<td>212,982</td>
</tr>
<tr>
<td>East Java</td>
<td>199,327</td>
<td>West Papua</td>
<td>294,727</td>
</tr>
<tr>
<td>Banten</td>
<td>208,023</td>
<td>Papua</td>
<td>259,128</td>
</tr>
<tr>
<td>Bali</td>
<td>208,152</td>
<td>Indonesia</td>
<td>211,726</td>
</tr>
</tbody>
</table>
Data processing by SPSS

Before discussing these indicators, we must understand the definition of work. ‘Working’ according to the BPS, which refers to the recommendations of the International Labor Organization (ILO) as contained in the book "Surveys of Economically Active Population, Employment, Unemployment and Underemployment", an ILO Manual on Concepts and Methods (ILO 1992), defines: economic activity a person does with the purpose of obtaining or assist in obtaining income or profit of at least 1 (one) hour uninterrupted for about a week ago. Those who classified as working people are those who are working and those who have jobs but in the past week did not work for a while by reason of leave, sick, and the like. The concept of working one hour a week ago also used by many countries including Pakistan, Philippines, Bulgaria, Hungary, Poland, Romania, Russian Federation, and others.

Based on that definition, there are two variables used for the definition of Work, namely:

B5R20a1 : Activity a week ago
B5R21 : Having a job, not working for a while

If the two variables are answered "YES" then the person is declared as the people who work. Operational Definition: If B5p2a1 = 1 or B5p3 = 1, writing in SPSS syntax is as follows:

\[
\text{COMPUTE bekerja} = 0 .
\]
\[
\text{if (b5r20a1 = 1 | b5r21 = 1) bekerja} = 1.
\]

Basically, the indicator in the “Adequate earnings and productive work” is related to the person with the status of work. Therefore, we must ensure that the calculation of indicators related only to the people who work. In SPSS, we have to select cases which variable work = 1. That is, the calculation of indicators only for the people whose status is work. The steps to perform select cases are as follows:
Click the Data menu and choose select cases, as shown below:

After that a dialog box will appear as shown below. Then click the if condition is satisfied. After IF .... is active, then click the IF .. so that the next dialog box appears.

In this third dialog box select the variable that will be used as a selection preference. In this case the variable bekerja (work variable) is a preference. If difficult to look for variable bekerja (work variable), we can write directly on the place of the existing dart. When finished, click "Continue" and select "Paste". Then this 'select cases' process will be moved to the syntax.
The following image will appear in the syntax editor:

```
COMPUTE bekerja = 0.
IF (b5r20a1 = 1 | b5r21 = 1) bekerja = 1.
freq bekerja.
exec.
```

After that, we are now going to make the indicators in the "adequate earnings and productive work"
1. Working poor

To calculate the working poor indicator, it is necessary to set the limit of the poverty line. In practice, we only use the Total (Indonesia) poverty line that is Rp. 211.726. So, the working people who have expenditure below than 211.726 rupiahs will be grouped as “working poor”. In susenas data, a monthly expenditure are household data, so to calculate the expenditure at the individual level should be divided by the number of household members.

Syntax :

```
compute expen_i = b7r25 / b2r1.
recode expen_i (lowest thru 211726 = 1) (else = 2) into w_poor.
```

* General Tables.

```
TABLES
/FORMAT BLANK MISSING('.')
/GBASE=CASES
/FTOTAL= $t000001 "Total"
/TABLE=JK + $t000001 BY w_poor
/STATISTICS
   count( w_poor( F5.0 )
   c pct( w_poor( F5.1 ) '%':JK ).
```

exec.

After the syntax is completely blocked, proceed by clicking the RUN menu and select selection. Output in percentage of working poor as follow:

<table>
<thead>
<tr>
<th></th>
<th>Working poor</th>
<th>Not working poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>9.321.350</td>
<td>14,2</td>
</tr>
<tr>
<td>Female</td>
<td>6.071.865</td>
<td>14,7</td>
</tr>
</tbody>
</table>
2. Low pay rate indicator is determined based on 2/3 median wage. The problem of wage data in the survey only asked to self-employed and employee, while information of other worker not available. So, there are some working people who do not receive wage, meanwhile they have working hours. Median wage be calculated only to worker who receive wage or salary, so have to selected the case. The syntax used:

```
USE ALL.
COMPUTE filter_$(earn > 0).
VARIABLE LABEL filter_$(‘earn > 0 (FILTER)’).
VALUE LABELS filter_$(0 ’Not Selected’ 1 ’Selected’).
FORMAT filter_$(f1.0).
FILTER BY filter_$(.
EXECUTE .
```

After that, we proceed to calculate median by cross tabulation to male and female.

* General Tables.

```
TABLES
/OBSERVATION= earn
/GBTACE=CASES
/FTOTAL= $t000001 "Total"
/TABLE=jk + $t000001 BY earn
/STATISTICS
mean( earn)
median( earn).
```
After we get the median value, furthermore we will calculate the percentage of person who paid low wages by sex, the syntax:

Compute LPR = 0.
IF (earn < 366666.7 & jk = 2) LPR = 1.
IF (earn < 533333.3 & jk = 1) LPR = 1.

After that, we will calculate the percentage of low pay rate by sex with cross tabulation.

* General Tables.
TABLES
/FORMAT BLANK MISSING('.')
/GBASE=CASES
/FTOTAL= $t000002 "Total"
/TABLE=JK + $t000002 BY LPR
/STATISTICS
  count( LPR( F5.0 ) )
  cpct( LPR( F5.1 ) '%';JK ).

The output are:

<table>
<thead>
<tr>
<th>Sex</th>
<th>Low Wages</th>
<th>above 2/3 median</th>
<th>below 2/3 median</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Count</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>29063030</td>
<td>71.3</td>
</tr>
</tbody>
</table>
3. **Compute average hourly wages.** It should be noted that there is information of working hours is zero or the information about working hour not available. This is due to condition of worker who are not working, although he received wages, the syntax:

USE ALL.

```plaintext
COMPUTE filter_$(= (earn > 0 & b5p6b > 0)).
VARIABLE LABEL filter_$( 'earn > 0 & b5p6b > 0 (FILTER)'.
VALUE LABELS filter_$( 0 'Not Selected' 1 'Selected'.
FORMAT filter_$( (f1.0).
FILTER BY filter_$(.
EXECUTE .
```

Compute \( Av\_wage = \frac{earn}{B5P6B} \).

* General Tables.

```plaintext
TABLES
/FORMAT BLANK MISSING(''.')
/OBSERVATION= av\_wage
/GBASE=CASES
/FTOTAL= $t000001 "Total"
/TABLE=jk + $t000001 BY av\_wage
/STATISTICS
mean(av\_wage) .
```

Exec.

After the syntax is completely blocked, proceed by clicking the RUN menu and select selection. The output as follow:

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Male</td>
<td>27357.88</td>
</tr>
</tbody>
</table>
4. **Average real wages**: average wages estimation can lead to an interesting debate. However, to calculate indicators such as *average real wages* are intended to be a lot of obstacles. Therefore, in accordance with the existing data, then the real wages will be calculated based on earn variable which is sum of wages (money and good) and income to self-employed. The average wages will be presented by sex. The Syntax:

```plaintext
* General Tables.
TABLES
   /FORMAT BLANK MISSING('.
   /OBSERVATION= earn
   /GBASE=CASES
   /FTOTAL= $0001 "Total"
   /TABLE=jk + $0001 BY earn
   /STATISTICS
      mean( earn) .
exec.
```

Output of average wages are:

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Male</td>
<td>1 129 491.21</td>
</tr>
<tr>
<td>2 Female</td>
<td>848 086.25</td>
</tr>
<tr>
<td>Total</td>
<td>1 034 401.72</td>
</tr>
</tbody>
</table>

5. Compute percentage of person who receive wages below than median wage. To compute person who have wages below than median wage are make category or
grouped of people who are working and receive wages below than median wage, the syntax:

Compute WUM = 0.
IF (earn < 550000 & jk = 2) WUM = 1.
IF (earn < 800000 & jk = 1) WUM = 1.
Exec.

Furthermore, we will calculate percentage of low pay rate by sex used cross tabulation.

* General Tables.

TABLES
/FORMAT BLANK MISSING(.'
/GBASE=CASES
/FTOTAL= $t000002 "Total"
/TABLE=JK + $t000002 BY WUM
/STATISTICS
count(WUM ( F5.0 ))
cpct(WUM ( F5.1 ) '%':JK ).
Exec.

Output are :

<table>
<thead>
<tr>
<th></th>
<th>Above Median</th>
<th>Below Median</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Male</td>
<td>20682968</td>
<td>50.7</td>
</tr>
<tr>
<td>2 Female</td>
<td>10415002</td>
<td>50.1</td>
</tr>
<tr>
<td>Total</td>
<td>31097970</td>
<td>50.5</td>
</tr>
</tbody>
</table>
Module S-9
Decent Hours

Decent hours possess 4 indicators encompassing:

HOUR-1 M – Excessive hours (more than 48 hours / week; 'usual' hours (S)
HOUR-2 A – Usual hours worked (standardized hour bands) (S)
HOUR-3 A – Annual hours worked per employed person (S)
HOUR-4 A – Time-related underemployment rate (S)

Before discussing indicators, we must understand the definition of work. Work according to BPS refers to the recommendation of the International Labour Organization (ILO) as mentioned in the book “Surveys of Economically Active Population, Employment, Unemployment and Underemployment” An ILO Manual on Concepts and Methods, ILO 1992 defines: Economic activity undertaken by a person for the purpose of acquiring or helping to acquire income or benefit for at least 1 (one) hour without interruption for the past week. Work activity includes those currently working as well as those with work but in the past week are temporarily not working, for instance due to leave, illness and so forth. The concept of work for one hour during the past week is also used by many other countries, including Pakistan, the Philippines, Bulgaria, Hungary, Poland, Romania, Russian Federation, and others.

Based on this definition, two variables are used for the definition of Work, i.e. :

B5p2a1 : Activity of the previous week

B5p3 : Has work, temporarily not working

If the two variables are answered with “YES” the person is declared as a person who works. Definition of operational: If B5p2a1 = 1 or B5p3 = 1, the writing of syntax in SPSS is as follows:
COMPUTE work = 0.

if (b5p2a1 = 1 | b5p3 = 1) work = 1.

Basically indicators in decent hours are related to people with working status. Therefore, we should ensure that calculation of indicator is only related to working people. In SPSS, we must make select cases for work variable = 1. Means the process of calculating indicator will only be made for persons with working status. Steps to making select cases are as follows:

Click DATA menu and choose select cases, such as in the diagram below:

Afterwards the dialog box will appear as in the drawing below, then click *if condition is satisfied*, after IF…. Active click IF…so that the next dialog box appears thus.
In the third dialog box choose the variable to become selection preference. In this case the work variable is the preference, if difficult to find the work variable, we can write directly in the space indicated by an arrow. After completing click “Continue” and choose “Paste” for the select cases process to be moved to syntax.

In syntax editor the display will appear like the following:
After that, we will now make indicators in decent hours,

\[
\text{compute Hour1} = 0.
\]

\[
\text{if (b5p6b > 48 ) Hour1} = 100.
\]

\[
\text{compute Hour2} = 0.
\]

\[
\text{if (b5p6b <= 48 & b5p6b >= 35) Hour2} = 100.
\]

\[
\text{compute Hour3} = \text{b5p6b} \times 52.
\]

\[
\text{compute Hour4} = 0.
\]

\[
\text{if (b5p6b < 35 & b5p6b > 0) Hour4} = 100.
\]

\[
\text{freq Hour1 Hour2 Hour4}.
\]

\[
\text{desc Hour3}.
\]

\[
\text{exec}.
\]

After syntax is completed, continue by clicking menu RUN and choose all. Note the output produced by SPSS for indicator Hour1 to Hour4. Is the output already correct, at least the
total percentage for hour1, hour2 and hour4 will be less than 100 percent. If output is no longer to be doubted we can add variable label for each indicator that we make. The syntax can be written as follows:

**Var lab Hour1 'Work hours over 48 hours/week'**

/Hour2 'Standard work hours 35 – 48 hours/week'

/Hour3 'Total work hours in a year'

/Hour4 'Work hours less than 35 hours/week'.

Next we will present indicators in the form of cross tabulation with gender. For more enrichment in making analysis the table to be made will be presented according to province. In SPSS 13, click menu ANALYZE and choose TABLES and then click GENERAL TABLES, so that the following dialog box appears:

Select variable B1P01 (province) and save in the Rows section and click Insert Total. While the columns section is filled with variable JK (gender). Indicator Hour1 is also entered in Columns and click Nest (blue arrow), and then click also "is summarized". Variable
expressed as summarized is the numerical variable that can be displayed by various statistical numbers. After that, click “Edit Statistics”, so that the following dialog box appears:

Statistic figure to be displayed is the mean; the number display format can be arranged in the area circled with green. If arrangement of format and label are suitable click “Change” followed by “Continue”.

Next for variable hour2, hour3 and hour4 click “is summarized” the format will be made the same as hour1. Particularly for hour4, additional statistic display is required in the form of total population of people working (N). Find “Valid Value Count” and add to cell statistics and also arrange display format. If it is suitable click PASTE.
<table>
<thead>
<tr>
<th></th>
<th>STATK</th>
<th>SEK</th>
<th>Label</th>
<th>Status Perkawin (1, 1 Belum Kerja)</th>
<th>Partisipasi Se (1, 1 Tidak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Numeric</td>
<td>1</td>
<td>0</td>
<td>Status Perkawin (1, 1 Belum Kerja)</td>
<td>Partisipasi Se (1, 1 Tidak)</td>
</tr>
<tr>
<td>16</td>
<td>Generic</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In Syntax Editor the following will appear:

* General Tables.

TABLES

/FORMAT BLANK MISSING('.,')
/OBSERVATION= Hour1 Hour2 Hour3 Hour4
/GBASE=CASES
/FTOTAL= $t000001 "Total"
/TABLE=B1P01 + $t000001 BY JK > (Hour1 + Hour2 + Hour3 + Hour4)
/STATISTICS
mean( Hour1( F7.2 ) '%')
mean( Hour2( F7.2 ) '%')
mean( Hour3( F7.2 ) '%')
mean( Hour4( F7.2 ) '%')
validn( Hour4( COMMA10.0 ) 'N').
exec.

If the syntax is RUN all, the following outputs are obtained:

<table>
<thead>
<tr>
<th>Province</th>
<th>1 Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work hours over 48 hours/week</td>
</tr>
<tr>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Aceh</td>
<td>26.0</td>
</tr>
<tr>
<td>North Sumatra</td>
<td>28.1</td>
</tr>
<tr>
<td>West Sumatra</td>
<td>32.5</td>
</tr>
<tr>
<td>Riau</td>
<td>26.8</td>
</tr>
<tr>
<td>Jambi</td>
<td>23.6</td>
</tr>
<tr>
<td>South Sumatra</td>
<td>27.6</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>28.6</td>
</tr>
<tr>
<td>Province</td>
<td>Latitude</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Lampung</td>
<td>29.6</td>
</tr>
<tr>
<td>Bangka-Belitung</td>
<td>28.9</td>
</tr>
<tr>
<td>Riau Islands</td>
<td>42.5</td>
</tr>
<tr>
<td>DKI Jakarta</td>
<td>37.8</td>
</tr>
<tr>
<td>West Java</td>
<td>34.3</td>
</tr>
<tr>
<td>Central Java</td>
<td>32.6</td>
</tr>
<tr>
<td>DIY (Yogyakarta)</td>
<td>35.9</td>
</tr>
<tr>
<td>East Java</td>
<td>33.2</td>
</tr>
<tr>
<td>Banten</td>
<td>31.9</td>
</tr>
<tr>
<td>Bali</td>
<td>40.6</td>
</tr>
<tr>
<td>NTB (West Nusa Tenggara)</td>
<td>28.0</td>
</tr>
<tr>
<td>NTT (East Nusa Tenggara)</td>
<td>14.9</td>
</tr>
<tr>
<td>West Kalimantan</td>
<td>28.3</td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>26.5</td>
</tr>
<tr>
<td>South Kalimantan</td>
<td>29.2</td>
</tr>
<tr>
<td>East Kalimantan</td>
<td>40.7</td>
</tr>
<tr>
<td>North Sulawesi</td>
<td>28.8</td>
</tr>
<tr>
<td>Central Sulawesi</td>
<td>27.4</td>
</tr>
<tr>
<td>South Sulawesi</td>
<td>28.2</td>
</tr>
<tr>
<td>Southeast Sulawesi</td>
<td>29.7</td>
</tr>
<tr>
<td>Gorontalo</td>
<td>42.1</td>
</tr>
<tr>
<td>West Sulawesi</td>
<td>18.5</td>
</tr>
<tr>
<td>Maluku</td>
<td>28.9</td>
</tr>
<tr>
<td>North Maluku</td>
<td>25.6</td>
</tr>
<tr>
<td>West Papua</td>
<td>26.4</td>
</tr>
<tr>
<td>Papua</td>
<td>14.4</td>
</tr>
<tr>
<td>Total</td>
<td>31.5</td>
</tr>
</tbody>
</table>
Continued

<table>
<thead>
<tr>
<th>Province</th>
<th>2 Female</th>
<th></th>
<th></th>
<th></th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work hours over 48 hours/week</td>
<td>Standard Work Hours 35 - 48 hours/week</td>
<td>Total Work Hours in that year</td>
<td>Work Hours less than 35 hours/week</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>N A D (Aceh)</td>
<td>10.8</td>
<td>28.7</td>
<td>1,592.3</td>
<td>58.2</td>
<td>631,646</td>
</tr>
<tr>
<td>North Sumatra</td>
<td>19.1</td>
<td>35.3</td>
<td>1,863.4</td>
<td>43.4</td>
<td>2,344,135</td>
</tr>
<tr>
<td>West Sumatra</td>
<td>20.7</td>
<td>29.6</td>
<td>1,799.9</td>
<td>45.6</td>
<td>797,830</td>
</tr>
<tr>
<td>Riau</td>
<td>20.3</td>
<td>34.3</td>
<td>1,911.7</td>
<td>43.8</td>
<td>562,790</td>
</tr>
<tr>
<td>Jambi</td>
<td>19.3</td>
<td>28.9</td>
<td>1,811.6</td>
<td>50.0</td>
<td>445,100</td>
</tr>
<tr>
<td>South Sumatra</td>
<td>19.7</td>
<td>29.7</td>
<td>1,832.1</td>
<td>48.4</td>
<td>1,219,423</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>17.1</td>
<td>33.7</td>
<td>1,804.8</td>
<td>46.8</td>
<td>304,416</td>
</tr>
<tr>
<td>Lampung</td>
<td>22.2</td>
<td>26.8</td>
<td>1,812.9</td>
<td>49.1</td>
<td>1,180,655</td>
</tr>
<tr>
<td>Bangka-Belitung</td>
<td>19.7</td>
<td>36.4</td>
<td>1,886.3</td>
<td>41.4</td>
<td>155,209</td>
</tr>
<tr>
<td>Riau Islands</td>
<td>44.5</td>
<td>36.2</td>
<td>2,558.6</td>
<td>17.9</td>
<td>232,220</td>
</tr>
<tr>
<td>DKI Jakarta</td>
<td>35.1</td>
<td>48.7</td>
<td>2,497.8</td>
<td>14.8</td>
<td>1,610,244</td>
</tr>
<tr>
<td>West Java</td>
<td>26.9</td>
<td>39.5</td>
<td>2,124.9</td>
<td>31.4</td>
<td>5,608,164</td>
</tr>
<tr>
<td>Central Java</td>
<td>24.0</td>
<td>33.7</td>
<td>1,952.8</td>
<td>40.2</td>
<td>6,629,774</td>
</tr>
<tr>
<td>D I Y (Yogyakarta)</td>
<td>30.2</td>
<td>37.6</td>
<td>2,107.7</td>
<td>30.4</td>
<td>823,536</td>
</tr>
<tr>
<td>East Java</td>
<td>24.2</td>
<td>28.7</td>
<td>1,910.0</td>
<td>45.2</td>
<td>7,768,544</td>
</tr>
<tr>
<td>Banten</td>
<td>28.7</td>
<td>43.1</td>
<td>2,191.0</td>
<td>23.8</td>
<td>1,251,321</td>
</tr>
<tr>
<td>Bali</td>
<td>29.6</td>
<td>34.5</td>
<td>2,107.6</td>
<td>34.5</td>
<td>952,590</td>
</tr>
<tr>
<td>N TB (West Nusa Tenggara)</td>
<td>23.5</td>
<td>30.0</td>
<td>1,836.7</td>
<td>44.3</td>
<td>883,049</td>
</tr>
<tr>
<td>NTT (East Nusa Tenggara)</td>
<td>9.1</td>
<td>24.2</td>
<td>1,490.3</td>
<td>61.9</td>
<td>922,283</td>
</tr>
<tr>
<td>West Kalimantan</td>
<td>19.0</td>
<td>40.6</td>
<td>1,921.3</td>
<td>39.2</td>
<td>846,496</td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>17.1</td>
<td>44.1</td>
<td>1,947.3</td>
<td>37.8</td>
<td>354,498</td>
</tr>
<tr>
<td>South Kalimantan</td>
<td>21.2</td>
<td>29.8</td>
<td>1,833.7</td>
<td>45.6</td>
<td>672,377</td>
</tr>
<tr>
<td>Province</td>
<td>Pop.</td>
<td>Female</td>
<td>Married</td>
<td>S.</td>
<td>Population</td>
</tr>
<tr>
<td>---------------------</td>
<td>------</td>
<td>--------</td>
<td>---------</td>
<td>----</td>
<td>------------</td>
</tr>
<tr>
<td>East Kalimantan</td>
<td>29.4</td>
<td>38.2</td>
<td>2,168.1</td>
<td>30.4</td>
<td>405,133</td>
</tr>
<tr>
<td>North Sulawesi</td>
<td>23.6</td>
<td>38.3</td>
<td>2,027.2</td>
<td>35.8</td>
<td>268,996</td>
</tr>
<tr>
<td>Central Sulawesi</td>
<td>17.7</td>
<td>26.0</td>
<td>1,739.0</td>
<td>53.6</td>
<td>410,676</td>
</tr>
<tr>
<td>South Sulawesi</td>
<td>22.4</td>
<td>30.2</td>
<td>1,831.1</td>
<td>44.6</td>
<td>1,218,649</td>
</tr>
<tr>
<td>Southeast Sulawesi</td>
<td>15.0</td>
<td>22.9</td>
<td>1,596.7</td>
<td>59.4</td>
<td>390,075</td>
</tr>
<tr>
<td>Gorontalo</td>
<td>23.1</td>
<td>35.2</td>
<td>1,923.7</td>
<td>39.6</td>
<td>135,534</td>
</tr>
<tr>
<td>West Sulawesi</td>
<td>14.3</td>
<td>29.1</td>
<td>1,581.9</td>
<td>53.2</td>
<td>188,603</td>
</tr>
<tr>
<td>Maluku</td>
<td>15.7</td>
<td>36.0</td>
<td>1,775.8</td>
<td>46.8</td>
<td>203,666</td>
</tr>
<tr>
<td>North Maluku</td>
<td>13.5</td>
<td>33.3</td>
<td>1,706.5</td>
<td>50.7</td>
<td>140,268</td>
</tr>
<tr>
<td>West Papua</td>
<td>15.1</td>
<td>42.1</td>
<td>1,914.9</td>
<td>41.0</td>
<td>114,494</td>
</tr>
<tr>
<td>Papua</td>
<td>7.8</td>
<td>45.5</td>
<td>1,763.1</td>
<td>45.6</td>
<td>464,291</td>
</tr>
<tr>
<td>Total</td>
<td>23.4</td>
<td>33.9</td>
<td>1,954.5</td>
<td>40.4</td>
<td>40,136,685</td>
</tr>
</tbody>
</table>

If you want to create tabulation based on residence (or address) and sex, then copy the existing Syntax and change the analyzed variables as follows:

* General Tables.

```
* TABLES

/TABLES

/OBSERVATION= Hour1 Hour2 Hour3 Hour4

/GBASE=CASES

/FTOTAL= $t000001 "Total"

/STATISTICS

mean( Hour1( F7.2 ) '%')

mean( Hour2( F7.2 ) '%')

mean( Hour3( F7.2 ) '%')

mean( Hour4( F7.2 ) '%')

validn( Hour4( COMMA10.0 ) 'N').

exec.
```
If you RUN the Syntax, you will get the following output:

<table>
<thead>
<tr>
<th>Residence</th>
<th>Sex</th>
<th>Working Hour &gt; 48 hr/ week</th>
<th>Standard Working hour 35 - 48 hr/ week</th>
<th>Total Working Hour in a year</th>
<th>Working Hour &lt;35 hr/week</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>1 Urban</td>
<td>1 Male</td>
<td>37.0</td>
<td>46.7</td>
<td>2,421.6</td>
<td>16.3</td>
<td>26,794,249</td>
</tr>
<tr>
<td></td>
<td>2 Female</td>
<td>31.9</td>
<td>40.8</td>
<td>2,260.5</td>
<td>27.4</td>
<td>16,587,473</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>35.0</td>
<td>44.4</td>
<td>2,360.0</td>
<td>20.5</td>
<td>43,381,722</td>
</tr>
<tr>
<td>2 Rural</td>
<td>1 Male</td>
<td>27.7</td>
<td>38.2</td>
<td>2,063.9</td>
<td>34.2</td>
<td>38,878,843</td>
</tr>
<tr>
<td></td>
<td>2 Female</td>
<td>17.5</td>
<td>29.1</td>
<td>1,739.0</td>
<td>53.3</td>
<td>23,549,212</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>23.8</td>
<td>34.8</td>
<td>1,941.3</td>
<td>41.4</td>
<td>62,428,055</td>
</tr>
</tbody>
</table>

Likewise, you can also display the tabulation of working hour according to education and age. It you recode the age into 4 groups, which are 15-24y.o., 25-34 y.o., 35-59 y.o., and 60 y.o. and above, then the Syntax would be as follows:

* General Tables.

**TABLES**

/FORMAT BLANK MISSING('.')

/OBSERVATION= Hour1 Hour2 Hour3 Hour4

/GBASE=CASES

/FTOTAL= $t000001 "Total"

/TABLE=B5P1A + age + $t000001 BY (Hour1 + Hour2 + Hour3 + Hour4)

/STATISTICS

mean( Hour1( F7.2 ) '%')

mean( Hour2( F7.2 ) '%')

mean( Hour3( F7.2 ) '%')

mean( Hour4( F7.2 ) '%')

validn( Hour4( COMMA10.0 ) 'N').

exec.
If you RUN the Syntax, you will get the following output:

<table>
<thead>
<tr>
<th>1A Highest Educational Attainment</th>
<th>Working Hour &gt; 48 hr/ week</th>
<th>Standard Working hour 35 - 48 hr/ week</th>
<th>Total Working Hour in a year</th>
<th>Working Hour &lt;35 hr/week</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 No/Not School yet</td>
<td>17.8</td>
<td>31.9</td>
<td>1,759.4</td>
<td>50.3</td>
<td>6,110,009</td>
</tr>
<tr>
<td>2 No/Not finish the Elementary Sc.</td>
<td>24.8</td>
<td>32.6</td>
<td>1,942.3</td>
<td>42.6</td>
<td>19,446,979</td>
</tr>
<tr>
<td>3 Elementary Sc. / ibtidaiyah</td>
<td>30.1</td>
<td>35.2</td>
<td>2,100.6</td>
<td>34.7</td>
<td>29,649,833</td>
</tr>
<tr>
<td>4 Junior High Sc. /Tsanawiyah</td>
<td>32.8</td>
<td>36.9</td>
<td>2,191.6</td>
<td>30.3</td>
<td>17,994,746</td>
</tr>
<tr>
<td>5 Vocational Junior High Sc.</td>
<td>38.1</td>
<td>37.9</td>
<td>2,347.5</td>
<td>24.1</td>
<td>1,396,081</td>
</tr>
<tr>
<td>6 High Sc./Aliyah</td>
<td>33.1</td>
<td>45.1</td>
<td>2,319.4</td>
<td>21.9</td>
<td>14,582,130</td>
</tr>
<tr>
<td>7 Vocational High Sc</td>
<td>32.7</td>
<td>49.4</td>
<td>2,373.2</td>
<td>17.9</td>
<td>8,240,698</td>
</tr>
<tr>
<td>8 Diploma I/II</td>
<td>14.2</td>
<td>44.6</td>
<td>1,930.0</td>
<td>41.2</td>
<td>1,218,724</td>
</tr>
<tr>
<td>9 Diploma III</td>
<td>23.1</td>
<td>58.0</td>
<td>2,241.9</td>
<td>19.0</td>
<td>1,570,092</td>
</tr>
<tr>
<td>10 D.IV/ Under Graduate Sc.</td>
<td>15.2</td>
<td>61.6</td>
<td>2,102.1</td>
<td>23.2</td>
<td>4,319,662</td>
</tr>
<tr>
<td>11 Graduate/Post Graduate Sc.</td>
<td>12.3</td>
<td>68.3</td>
<td>2,073.7</td>
<td>19.4</td>
<td>341,709</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - 24</td>
<td>27.2</td>
<td>39.0</td>
<td>2,097.1</td>
<td>33.8</td>
<td>16,902,483</td>
</tr>
<tr>
<td>25 - 34</td>
<td>30.4</td>
<td>42.3</td>
<td>2,210.8</td>
<td>27.3</td>
<td>28,141,349</td>
</tr>
<tr>
<td>35 - 59</td>
<td>29.7</td>
<td>38.7</td>
<td>2,144.6</td>
<td>31.5</td>
<td>51,310,113</td>
</tr>
<tr>
<td>60+</td>
<td>19.2</td>
<td>29.3</td>
<td>1,744.3</td>
<td>51.5</td>
<td>8,516,718</td>
</tr>
<tr>
<td>Total</td>
<td>28.6</td>
<td>39.0</td>
<td>2,122.2</td>
<td>32.4</td>
<td>104,870,663</td>
</tr>
</tbody>
</table>
Module S-10

Social Security and Safe Environment

Module S10 actually consists of two parts namely Social security and safe environment. Indicators related to safe environment generally originate from company reports to the Manpower Ministry and there is no data yet based on HH survey. Therefore, this practice will not be discussed much.

Indicators that will be much discussed are indicators related to security. Of the 4 security indicators only three originate from the HH survey, i.e. secu1, secu3 and secu4. Indicator secu1 is related to pension recipients for the population aged 65 years and over. Information on pension recipients is only found in SUPAS. Thus we will calculate indicator secu1 based on SUPAS 2005, while secu3 and secu4 are calculated from Susenas 2009 data.

SAFE-1 M – Occupational injury rate, fatal
SAFE-2 A – Occupational injury rate, non-fatal
SAFE-3 A – Time lost due to occupational injuries
SAFE-4 A – Labour inspection (inspectors per 10,000 employed persons)
SECU-1 M – Share of population aged 65 and above benefiting from a pension (S)
SECU-2 M – Public social security expenditure (% of GDP)
SECU-3 A – Health-care exp. not financed out of pocket by private households
SECU-4 A – Share of pop. covered by (basic) health care provision (S)

Because data to be used originate from more than one source, in order to avoid any confusion, explanation on source of data used should be added. In syntax it may be written in full as follows:
Information on pension recipients is found in question P630b. In the questionnaire if the answer is “yes” fill in code 3 and if the answer is “no” fill in code 4. Next we need to label each variable to be used and the value of Syntax label in SPSS may be written as follows:

```plaintext
var lab secu1 'Pension Recipient'
   /sex 'Gender'.

val lab sex 1 'Male'
   2 'Female'
   /p101 12 '12. Sumut'
   13 '13. Sumbar'
   14 '14. Riau'
   15 '15. Jambi'
   16 '16. Sumsel'
   17 '17. Bengkulu'
   18 '18. Lampung'
   19 '19. Babel'
   21 '21. Kepri'
   31 '31. DKI'
   32 '32. Jabar'
   33 '33. Jateng'
   34 '34. DIY'
   35 '35. Jatim'
   36 '36. Banten'
```
* General Tables.

TABLES

/FORMAT BLANK MISSING('".

/OBSERVATION= secu1

/GBASE=CASES

/FTOTAL= $t000001 "Total"

/TABLE=P101 + $t000001 BY SEX > ( Secu1 )

/STATISTICS

mean( secu1( F7.2 ) '%')

validn( secu1( COMMA10.0 ) 'N')/Title '% Pension Recipient (Secu_1)'.
Output indicator seu1 as follows:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pension Recipient</td>
<td>Pension Recipient</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>12. Sumut</td>
<td>20.73</td>
<td>183,301</td>
</tr>
<tr>
<td>13. Sumbar</td>
<td>14.28</td>
<td>102,088</td>
</tr>
<tr>
<td>14. Riau</td>
<td>11.52</td>
<td>57,814</td>
</tr>
<tr>
<td>15. Jambi</td>
<td>7.87</td>
<td>37,227</td>
</tr>
<tr>
<td>16. Sumsel</td>
<td>15.50</td>
<td>112,058</td>
</tr>
<tr>
<td>17. Bengkulu</td>
<td>11.86</td>
<td>22,724</td>
</tr>
<tr>
<td>18. Lampung</td>
<td>3.26</td>
<td>176,705</td>
</tr>
<tr>
<td>31. DKI</td>
<td>39.36</td>
<td>114,163</td>
</tr>
<tr>
<td>32. Jabar</td>
<td>16.72</td>
<td>874,131</td>
</tr>
<tr>
<td>33. Jateng</td>
<td>10.95</td>
<td>997,553</td>
</tr>
<tr>
<td>34. DIY</td>
<td>19.05</td>
<td>135,409</td>
</tr>
<tr>
<td>35. Jatim</td>
<td>10.05</td>
<td>1,042,327</td>
</tr>
<tr>
<td>36. Banten</td>
<td>12.91</td>
<td>116,430</td>
</tr>
<tr>
<td>51. Bali</td>
<td>10.68</td>
<td>96,354</td>
</tr>
<tr>
<td>52. NTB</td>
<td>8.08</td>
<td>74,098</td>
</tr>
<tr>
<td>53. NTT</td>
<td>8.20</td>
<td>92,950</td>
</tr>
<tr>
<td>61. Kalbar</td>
<td>9.89</td>
<td>64,923</td>
</tr>
<tr>
<td>62. Kalteng</td>
<td>12.04</td>
<td>23,571</td>
</tr>
<tr>
<td>63. Kalsel</td>
<td>12.53</td>
<td>48,035</td>
</tr>
<tr>
<td>64. Kaltim</td>
<td>23.54</td>
<td>30,181</td>
</tr>
</tbody>
</table>
Indicator Secu3 and Secu4 sourced from Susenas data related to health expenditures and basic health care coverage. Health cost spending is not the personal burden of the individual, while in Susenas questions related to health cost expenses are made to all households. For this reason, we need additional information on whether ART has received free services in the past 6 months. Therefore it may be understood that health spending should be free. Syntax to make indicator secu3 is as follows:

* Use Datasets : SSN09_ILO.SAV .

USE ALL.

COMPUTE filter_$(B8R2A = 1).

VARIABLE LABEL filter_ $ 'B8R2A = 1 (FILTER)' .

VALUE LABELS filter_ $ 0 'Not Selected' 1 'Selected'.

FORMAT filter_ $ (f1.0).

FILTER BY filter_$. 

EXECUTE .
WEIGHT
BY WEIND29.

compute secu3 = b7r17b3.

* General Tables.
TABLES
/FORMAT BLANK MISSING(' .')
/OBSERVATION= secu3
/GBASE=CASES
/FTOTAL= $t000001 "Total"
/TABLE=B1R1 + $t000001 BY JK > ( Secu3 )
/STATISTICS
mean( secu3( Comma10.1 ) 'Rp')
validn( secu3( COMMA10.0 ) 'N') /Title 'Average Health spending per year (Secu_3').
exec.

Indicator secu4 is related to basic health care coverage. In susenas there are questions on health care insurance. Health care insurance here naturally includes basic health care, thus whatever the type of health care insurance it will naturally be included in basic health care coverage. In susenas 2009 questions on health insurance were asked at household (HH) level, so that we can only calculate the percentage of HH covered by basic health care, not of individuals. Syntax to make indicator secu4 may be displayed as follows:

USE ALL.

compute secu4 = 0.
if (b8r1a = 1 | b8r1b = 1 | b8r1c = 1 | b8r1d = 1 | b8r1e = 1 | b8r1e = 1 |
b8r1f = 1 | b8r1g = 1) secu4 = 100.

* General Tables.

TABLES

/FORMAT BLANK MISSING(.,)

/OBSERVATION= secu4

/GBASE=CASES

/FTOTAL= $t000001 "Total"

/TABLE=B1R1 + $t000001 BY JK > ( Secu4 )

/STATISTICS

mean( secu4( F7.1 ) '%')

validn( secu4( COMMA10.0 ) 'N') /Tittle '% pop covered by basic care (Secu_4)'.

exec.
MODUL S-11

Decent Work: Social dialogue, workers and employer’s representation

Positive aspects of our society are if the worker has the right to organize, to strike and collective bargaining with employers. The extent to which this freedom exists, and the extent to which persons employed can enter into social dialogue with employers and governments, generally viewed as positive aspects of the quality of work. Social dialogue, including freedom of association and right to organize and bargain collectively. Social dialogue includes all types of negotiation, consultation or simply exchange of information between representatives of governments, employers and workers, on issues of mutual interest relating to economic and social policies.

Social dialogue is defined as any type of negotiation, consultation or simply exchange of information between representatives of governments, employers and workers, on issues of mutual interest relating to economic and social policies.

Currently, the indicator of social dialogue is focused on gathering industry statistics relating to trade union membership, union density and bargaining coverage. Collection and analysis of these statistics should help the parties engage in social dialogue to assess the level of progress in the implementation of freedom of association and collective bargaining on a national or region in various sectors. Freedom of association and collective bargaining are the foundation of social justice and democracy. The core of the principles and rights at work, as stipulated in the Employment Act. Freedom of association and the right to bargain is very important both for workers and employers to engage in negotiations with a mutually beneficial agreement. Constructive negotiations promote more equitable economic development through collaborative efforts to increase productivity and improve working conditions. (ILO 2004).

Membership in organizations

Autonomous, independent and strong worker and employer organizations are the backbone of the system of tripartite and bipartite. Membership becomes important for the organization. In addition, the level and quality of workers 'and employers' organizations influence depends on the industrial relations framework of each country. When analyzing the trade unionists,
we know that the legal and legislative framework of industrial relations in some countries excludes workers in certain sectors. This most often applies to civil servants (especially in essential services such as the armed forces and police), the executive and managerial staff, agricultural workers, and workers in free trade zones, migrant and domestic workers (Article 47, ILO 1994). Differences in membership also apply to the entry of non-employees such as retired or unemployed labor force.

**Union membership**

Density union is a general indicator to compare the level of unionization among countries. However, the diversity of the definition of union membership, according to the inclusion / exclusion rules or practices mentioned above, makes it difficult to compare the density statistics. Union density can be measured as gross or net density. Gross density setting wages and salaries as the denominator, and all union members including members of the unemployed and retired as the numerator. Net density is only union members who serve as the numerator. Traxler et al. (2001) argues that the net density is more adequate to measure the strength of unions in the labor market. However, this does not necessarily apply to many developing countries where the agricultural sector and the informal economy as the most dominant employment.

Although the informal sector within the scope of application of international labor standards, there is in reality the problem application or enforcement, as well as measurements. Although some workers and organized employers in the informal economy, their organizations suffer from the volatility of the intrinsic vulnerability of informal activities and lack of resources (ILO 2002, 2004). By applying a statistical convention where informal sector employment is calculated as own-account workers and unpaid family workers, union density using total employment as the denominator may well reflect the economic realities of developing countries better than the measurements that take only a paid job as a denominator.

**Level Density States (workers)**

Many aspects of issues related to union density measurements, mainly because of problems gathering data, reliability and consistency of the denominator and definitions. As a measurement of relative rather than absolute size, the level of union density is more suitable for making comparisons. The numerator, or unit of union membership for union density calculations, perhaps the sum of all union members. Another concept is: net membership, minus the number of active members, or excluding non-working members (e.g., retired
works, full-time students and unemployed). Whatever concept is used, union membership expressed as a percentage of the population groups that represent workers 'qualified' or 'potential membership' in a country to see the level of union density.

Adjusted Density rate States or Union Density Adjusted Rate (ADR) is formulated as follows:

$$ADR = \frac{\text{(Membership - retired, students, Unemployed)}}{(\text{Wage and salaried employees - ineligible groups})} \times 100\%.$$  

Interpretation: A change in the ADR showed a change in union membership relative to the number of qualified employees. It can also indicate changes in national legislation or reporting requirements for union membership.

Sources: Survey of the labor force (Sakernas), administrative records

Another alternative indicator is the level of density that have not been adjusted or unadjusted Density Rate (UDR) in which the numerator is unchanged but the denominator becomes the total wage and salary employees).

$$UDR = \frac{\text{(Membership - retired, students, Unemployed)}}{\text{All wage and salaried employees}} \times 100\%.$$  

For the calculation of density-majority countries in agriculture in developing countries, the use of wage labor as a measure of potential union membership may not be appropriate, because it will tend to bring the level density is substantially decreased because both the ADR and the UDR.

Coverage rate of collective bargaining / Collective bargaining coverage rate

Assess different levels of coverage that the share of workers who have the legal right to bargain collectively. The numerator, or unit covered workers for the calculation of the level of coverage, may:

- the number of all employees who are covered, or
- total number of covered workers (including members who are not employees).
Adjusted and adjusted coverage rate can be calculated depending on the baseline adopted for the calculation:

Adjusted coverage rate (ACR) for certain groups of workers do not enjoy the right to collective bargaining. It evaluates the importance of bargaining by groups that qualify as alternatives to unilateral decisions by employers and individual bargaining. This practice varies between countries of the group of workers may not include the right to collective bargaining. (Examples of some working groups that may not be included are teachers, other civil servants, police or military personnel, selected public sector employees, certain administrators or managers, some farm laborers, domestic workers, foreign workers, etc.).

Definition: Adjusted Coverage Rate (ACR)

\[
ACR = \frac{\text{Covered employees}}{(\text{Wage and salaried employees} - \text{ineligible groups})} \times 100\%.
\]

Goals / interpretation: Changes in ACR showed changes in the employees covered by collective bargaining relative to the number of eligible employees. It can also indicate changes in national legislation or reporting requirements in terms of collective bargaining.

Coverage rates are not adjusted / unadjusted coverage rate (UCR) is a covered employee as compared to all wage and salary workers:

\[
UCR = \frac{\text{Covered employees}}{\text{All wage and salaried employees}} \times 100\%.
\]

Measurement methods

Coverage Statistics

Apart from coverage issues associated with individual statistical sources of data discussed below, identify a small union, the new union and unions to remove the stop may be a problem, especially in the case of an affiliated union or in countries where there is no obligation for trade unions to register. Find them and tracking them is required to maintain a complete picture of the universe. Official registration is not always enough, however, because the union may have difficulty or fail to return their membership. Underreported non-affiliated trade unions and non-registered is a problem in many countries, but the absence of
surveys, elections, and independent press reports it is difficult to estimate the size (ILO 1997).

Statistical Sources

There are several possible sources of data for these statistics, especially those that are administrative in nature or based on a survey of households in terms of union membership, but also a company or employer, for the coverage of collective bargaining. Some countries conduct surveys or census unions (this may be the periodicity, such as once every 2 or 5 years). These surveys typically collect information on some variables of the union directly. All statistical data sources produce different levels of inaccuracy.

Administration records as a source of statistical

Administrative record is the source of the most frequently used. There are three main types of administrative records that serve as a source of valuable statistics to official information, which varies depending on the model state. This is a record maintained by (i) workers ‘and employers’ organizations, their confederation, or bargaining unit, (ii) office was established under a specific legal framework of industrial relations in (various) ministries and iii) other official or central government such as the Office of Statistics National, the court of law or who is responsible for national taxation.

Household survey

Household surveys as sources of social dialogue which statistics are available when the survey includes (a) question (s) as whether the respondent is a member of a union or covered by collective agreements. Although the number of countries around the world with a workforce or other type of household survey continues to grow (over 100 in 2005), only a few labor force surveys in several countries requested statistical information developed in the scope of membership or bargaining. Surveys in some countries refer to "contact with the union” as one method of job search for the unemployed, but this does not result in membership statistics.

Household surveys obtain information directly from employees or other members of the household. Information they can gather presents several advantages compared to the registration unit union or bargaining based on administrative. They have more extensive, reliable coverage, information which includes all types of households and thus the report to members on all types and sizes of the union (which meets the definition) as well as other
categories of workers that could eventually be considered (e.g., casual and contract workers) to form part of the union.

The quality of information obtained during household surveys depends, among other things, about how respondents understand or assess the questions asked them. Union membership and affiliation with a union even where the person works the company can be formed through a few simple questions.

**Manpower Survey Questions**

To produce reliable results to examine the social dialogue, covering supplementary statistical organizations of employers' should be added to two sets of statistics of union membership and collective bargaining coverage seen in a broader context. This would ideally require regular statistical surveys. The following are sample questions from actual surveys in countries that measure trade union membership or collective bargaining coverage of the labor force survey. These questions could be asked of all household members over a certain age, but in practice in many cases they are only put to those interviewed who was first assigned as belonging to the category of persons employed. This eliminates the unemployed or those outside the category of economically active people:

"Do you belong to a trade union in connection with that job?"

"Is [the person] a union member at [...] ?" Name of main job and

"Is [...] covered by a union contract or collective agreement?"

"Are you Affiliated to a trade union?" And

"Are your remuneration and working conditions covered by a collective agreement?"

"Is there an Organisation (trade union) representing the interests of the employees in your enterprise / organization? "If yes,

"Are you a member of this Organisation?" If yes,

"Which trade union organization does it belong to?"

"Do you belong to the union in relation to the job?"
"Whether [the] union member at [name ..]?" main job and.

"Whether [...] covered by union contracts or collective agreements?"

"Are you affiliated with a union?" And

"What is the remuneration and working conditions are covered by collective committing?"

"Are there any organizations (unions) representing the interests of employees the company / organization? "If yes,

"Are you a member of this organization?" If yes,

"The union organization whether it belongs to?"

As more countries develop the labor force survey as a tool for the statistical measurement of labor in general and includes statistics related to social dialogue, the need for harmonization of questions and concepts to produce a simple, comparable indicators that will become clearer. Currently some surveys ask everyone all the relevant information. Sequence of five simple questions may be enough to get a good union representation and bargaining coverage:

Q1. Is (person) a member of a trade union / or / Employers' organization? if yes,

Q2. Which one? if No to Q1 then:

Q3. What is the reason (by choice, ineligibility, taxes, do not know, other)? if yes to Q1

then:

Q4. Is (person's) job/company/covered by a collective agreement? if yes,

Q5. Which one?

Q1. Whether (people) a member of a union/organizations/employers? if yes,

Q2. Which one? if there is no Q1 for later:

Q3. What reason (by choice, not qualified, tax, do not know, other)? if yes to Q1
then:

Q4. Does (person) job / company / covered by a collective agreement? If yes,

Q5. Which one?

It can be appropriate to include other forms of representation of trade union membership in Q1 in countries with diverse industrial relations system in which workers and trade unions or representatives of trade organizations for social dialogue is not strong but is widely practiced through other channels.

Sakernas-Indonesia 2007

Questions about union workers in the survey in Indonesia found only on Survey National Labor Force (Sakernas) in 2007. In the questionnaire Sakernas 2007 question 11.a and question 14 is as follows:

**Status of work:**

11.a What is the status / position (NAME) in the main job during the past week? [Possible answers: (4) Labor / employee / employee]

**Union Workers:**

14. Is (NAME) a member organization of workers / laborers during the past week? [Preferred answer; YES 1 NO 2]

**SPSS:**

Union Workers: B4p14

Sex: jk

Row:

[Jk, total]

Columns:

[B4p14 (row%, count)]
The results of ADR:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Sum of value</th>
<th>SP</th>
<th>Non-SP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Row %</td>
<td>Count</td>
<td>Row %</td>
<td>Count</td>
</tr>
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<td>2.20736E+13</td>
<td>10.97</td>
<td>2080988</td>
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<tr>
<td>Female</td>
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<td>8.18114E+12</td>
<td>11.67</td>
<td>1072997</td>
</tr>
<tr>
<td>Total</td>
<td>1074433</td>
<td>3.02547E+13</td>
<td>11.20</td>
<td>3153985</td>
</tr>
</tbody>
</table>

Strikes and lockouts / strikes and closure of workplaces

One measure of the failure of social dialogue is a strike or lockout. Industrial action - strike and lockout - is perhaps the most high profile aspects of social dialogue, at least in terms of media coverage and public impact and attention. At the same time in certain circumstances, the absence of a strike could indicate the existence of the right to strike and / or social dialogue is weak. ILO "Resolution concerning statistics of strikes, lockouts and other action due to a labor dispute" 6 gives the following definition for statistical purposes:

A strike is a temporary cessation of work performed by one or more groups of workers with the aim to uphold or reject claims or workers' grievances, or supporting the claim or complaint.

Lockouts is a total or partial temporary closure of one or more workplaces, or impede normal work activities of employees, by one or more companies with the aim to uphold or reject the claim or complaint reveals, or supporting other entrepreneurs in demand or their complaints.

Workers involved in strike: Workers directly involved in the strike are those who directly participated in stopped working. Workers not directly involved in the strike are those employees of the companies involved, or self-employed in the group involved, who did not participate directly by stopping work but are prevented from working because of the strike.

Workers involved in a lockout: Workers directly involved in a lockout are those employees of the companies involved are directly related to the labor dispute and who is prevented from working by the lockout. Workers not directly involved in a lockout are those employees of the
companies involved are not directly related to labor disputes, but are prevented from working by the lockout.

Data Source

In general, data about the strike and the closure is taken from administrative records of conciliation services concerned with employment, etc. However, the data can come from several sources, including strike notices, newspaper reports and direct questions addressed to 'the employer or employee organization, or a combination of these.

The main sources used by the countries listed below:
• Labour relations records
• Special data collection
• Labour Inspectorate records
• Labour-related establishment survey
• Records of Employers ' or workers' Organisations
• Administrative reports

Sources:


Igor Chernyshev. Decent work statistical indicators: strikes and lockouts statistics in the international context.
# MODUL S-12 AND S-13

## Econometric Analysis

### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction to Econometrics</td>
<td>2</td>
</tr>
<tr>
<td>II. Introduction to Stata</td>
<td>2</td>
</tr>
<tr>
<td>A. Starting Stata</td>
<td>2</td>
</tr>
<tr>
<td>III. Classical Linear Regression Model</td>
<td>5</td>
</tr>
<tr>
<td>A. Theory of Classical Linear Regression Model</td>
<td>5</td>
</tr>
<tr>
<td>A.1. Testing Hypothesis about a Coefficient</td>
<td>6</td>
</tr>
<tr>
<td>A.2. Classical Regression Model Applications in Wage Estimation</td>
<td>9</td>
</tr>
<tr>
<td>B. Classical Linear Regression Stata Applications</td>
<td>10</td>
</tr>
<tr>
<td>B.1. Starting Stata</td>
<td>10</td>
</tr>
<tr>
<td>B.2. Entry Data</td>
<td>10</td>
</tr>
<tr>
<td>B.3. Generating Variable (SAKERNAS)</td>
<td>12</td>
</tr>
<tr>
<td>C. Wage Equation Model</td>
<td>13</td>
</tr>
<tr>
<td>D. Classical Linear Regression Analysis</td>
<td>14</td>
</tr>
<tr>
<td>IV. Probit</td>
<td>20</td>
</tr>
<tr>
<td>A. Theory of Probit Model</td>
<td>20</td>
</tr>
<tr>
<td>B. Labor Force Participation Model</td>
<td>21</td>
</tr>
<tr>
<td>C. Stata Applications in Probit Model</td>
<td>22</td>
</tr>
<tr>
<td>C.1. Generating Variable (SUSENAS)</td>
<td>22</td>
</tr>
<tr>
<td>C.2. Estimated Labor Force Participation Model</td>
<td>23</td>
</tr>
<tr>
<td>C.3. Estimated Earning Functions</td>
<td>25</td>
</tr>
<tr>
<td>D. Probit Model Analysis</td>
<td>26</td>
</tr>
<tr>
<td>D.1. Probit Model Estimation</td>
<td>26</td>
</tr>
<tr>
<td>D.2. Interpretation dprobit coefficient</td>
<td>27</td>
</tr>
<tr>
<td>E. Interpretation of Earning Functions</td>
<td>27</td>
</tr>
<tr>
<td>Reference</td>
<td>29</td>
</tr>
</tbody>
</table>
I. Introduction to Econometrics

Econometrics is a combination of economic theory, mathematical economics, economic statistics. In other words, econometrics is a method used for the analysis of actual economic phenomena based on the development of theory and observation, linked with an appropriate inference method.

The stages of economic analysis using econometric:

1. Economic Theory
2. Econometric Model Theory
3. Data Collection
4. Parameter Estimation Model
5. Statistical Inference
6. Forecasting
7. Using the Model for Policy Objectives

II. Introduction to Stata

A. Starting Stata

Run Stata by downloading a "double-click" icon Stata. Views Stata consists of four main Windows:
All the commands that we give to our Stata typed in the **Commands Window**. These commands, and the results of this command, will appear in the **Result Window**. All previous orders that we give in a Stata session will appear in the **Review Window**. Once we load the data into memory, then all the variables in the data files that will appear in the **Variables Window**. This window is empty when we first opened Stata.

**use** The command we use to open a data file and load it into memory is **use**, followed by the full path of the data that we mean, or simply name the file if the file exists in the subdirectory where we are.

Example: use "D:\LD\Pelatihan_ILO\Data\Data_PelatihanILO_Fix_Stata8.dta", clear

Or

The command that we can use to open the files may also not by command but with click the file → Open → the folder name which the data is stored

Stata start with a number of specific memory. Sometimes, not enough memory available to load data files that we want. This may be because we often face **SUSENAS** data files or **SAKERNAS** generally large. If this happens we will see:
. use "D:\Data\Sakernas Feb2010\sak0210_diseminasi.dta", clear
no room to add more observations
An attempt was made to increase the number of observations beyond what is
currently possible. You have the following alternatives:
1. Store your variables more efficiently; see help compress.
   (Think of Stata's
data area as the area of a rectangle; Stata can trade off
width and length.)
2. Drop some variables or observations; see help drop.
3. Increase the amount of memory allocated to the data area
   using the set
memory command; see help memory.

lookup  if a message appears in red indicating a problem in our command . Code r (901)
is the error code. If we want to know more about the error that occurred, we
lookup type followed by an error code. Code 901 says that we need more memory
to load the data. Let us allocate 500 megabytes of memory to Stata.

set mem  clear
set mem 500m
use "D:\LD\Pelatihan_ILO\Data\PelatihanILO_Fix_Stata8.dta", clear
Clear command should we give before we change the memory allocation. This
command instructs Stata to remove all existing data in memory. The data we have
managed to fit into the memory. In the Variables window, we can see what
variables exist in the file. We can also see that some orders that we have given to
appear in Review Window. Review this window has several purposes. First, we
can look back at what we have done in this session. Second, if we click one of
these previous command, the command will appear in the Commands Window.
We can modify the command and press Enter to ask Stata to repeat the
command. Another way we can do is to press the Page Up on our keybord.

exit  To exit Stata, the command will we give is an exit, or we can also click the "X" at
the top right corner of the window Stata
III. Classical Linear Regression Model

A. Theory of Classical Linear Regression

The term regression introduced by Francis Galton. Regression analysis with respect to dependence study one variable, dependent variable, on one or more other variables are variables that explain the (independent variable), with the intention of estimating and/or predict the arithmetic average value (mean) or the average of the dependent variable. In the regression model there are 2 kinds of variables:

1. Dependent Variable: a variable that would predict
   Another name dependent variables: explained variable, predictand, regressand, response, endogenous, outcome, controlled variable

2. Independent Variable: variable that would explain the dependent variable.
   Another name independent variables: explanatory variable, predictor, regressor, stimulus, exogenous, covariate, control variable

One method of regression estimation is Ordinary Least Square (OLS).\(^1\) Method of Ordinary Least Square (OLS) presented by Carl Friedrich Gauss, a German mathematician nation. The principle of OLS method to get value estimators \(\beta_1\) and \(\beta_2\) (estimator) by minimizing the amount of residual squares \(\sum u_i^2\).

After estimated by OLS, there are some things to watch for mentukan whether the estimator is good or not. As described by the Gauss-Markov (Gauss-Markov theorem) where a good estimator of the estimator that has the nature of the BLUE (Best Linear Unbiased Estimator) or have a linear characteristic (linear in parameters), no bias (the expected value of the estimator equal to the value actual) and minimum variance.

To obtain estimators that are BLUE, then the regression model must satisfy the following assumptions:

1. The average value or expected value of the variable error term is zero
   \[ E(u_i|X_i) = 0 \]

2. Homoscedasticity or homoskedastisitas, namely variant (var) of the error term is the same.
   \[ \text{Var}(u_i|X_i) = E[u_i - E(u_i|X_i)]^2 \]
   \[ = E[u_i^2|X_i] = \sigma^2 \]

---

\(^1\) Regression equation can also be estimated with the method of maximum likelihood estimator where the principle of calculation of maximizing likelihood function with minimum value of error inherent in the likelihood equation. Maximum likelihood is more valid for large amounts of data.
3. There is no autocorrelation between the error term in one observation with another observation. For example there are two values $X_i$ that are $X_i$ and $X_j$ where $i \neq j$, so correlation between $u_i$ and $u_j$ : $Cov(u_i, u_j | X_i, X_j) = 0$

4. Covarian (Cov) between error term with variable $X_j$ are zero. Where there is no correlation between error and independent variable. $Cov(u_i, X_i) = 0$

5. Specified linear regression model correctly, there is no specification bias or error in the use of models in the empirical analysis.

6. There is no perfect multicollinearity or no perfect correlation between the independent variables.

A.1. Testing Hypothesis about a Coefficient

After getting the BLUE estimator (estimator that meet the assumption), testing the hypothesis of the estimator. Two types of hypothesis testing, the t test to test hypotheses on individual regression coefficients and F test to test the hypothesis on the coefficients in its entirety.

**t Test Procedure:**

1. Setting the initial hypothesis or null hypothesis ($H_0$) dan alternatif hypothesis($H_1$).
   
   Test one way : $H_0 : \beta \geq 0$ or $H_0 : \beta \leq 0$
   
   $H_1 : \beta < 0$ $H_1 : \beta > 0$

   Test two way : $H_0 : \beta = 0$

   $H_1 : \beta \neq 0$

2. Determining the critical value or region to reject or not reject $H_0$. (Based on t table statistic). By determining the level significance $\alpha$ (1%, 5%, 10%) and df = n-k, n= the number of observation, k=the number of parameter.

3. Calculating the value of t statistics in accordance with the distribution used.

$$t_{statistik} = \frac{\hat{\beta} - \beta}{S_{\hat{\beta}}} \quad \hat{\beta} : \text{value of the estimated regression coefficient}$$
\( \beta \) : parameter koefisien regresi, biasa dianggap nol.

\( S_{\hat{\beta}} \) : standar error koefisien regresi.

4. Making decisions statistically to reject or accept \( H_0 \) by comparing the value of statistical tests with a critical value. To test 2-way:

\[ |t_{statistik}| \geq t_{table} \rightarrow \text{it means } H_0 \text{ rejected} \]

If \( H_0 \) rejected, means that the variables of the estimator is tested significantly influence the dependent variable.

**F test Procedure**

1. Determine \( H_0 \) and \( H_1 \) from a model.

\( H_0 \) : The model does not significantly explain the dependent variable \( (X) \)

\( H_1 \) : The model explained significant independent variable \( (X) \)

Hypothesis for \( k \) variable: \( H_0 : \beta_1 = \beta_2 = \ldots = \beta_k = 0 \)

\( H_k : \text{At least one } \beta_k \neq 0 \)

2. Calculating Value \( F_{\text{statistik}} \)

\[
F = \frac{SSR/k}{SSE/(n-k-1)} = \frac{R^2/k}{(1-R^2)/(n-k-1)}
\]

Where \( n \) : the number of sample or observation

\( k \) : the number of independent variable

SSR : Sum Squared Regression

SSE : Sum Squared Error

3. Criteria for acceptance or rejection of the hypothesis:

\[ F_{\text{statistik}} \leq F_{\alpha,n_1,n_2} \rightarrow \text{it means } H_0 \text{ is not rejected} \]

\[ F_{\text{statistik}} \geq F_{\alpha,n_1,n_2} \rightarrow \text{it means } H_0 \text{ is rejected} \]

With \( n_1 = k-1 \) is the degree of numerator

\( n_2 = n - k \) is the degree of denominator
Coefficient of Determination

In Sample Regression, the closer the value of individual observations on the dependent variable of regression line, the better the regression. Estimator "Goodness of Fit" regression is the Coefficient of Determination ($R^2$). This value is interpreted as: what percentage of variation (fluctuation) is determined dependent variables (explained) by the independent variables. The roots of this $R^2$ is $R = r$ (correlation coefficient) when we use only one independent variable. $R$ this becomes meaningless if we use more than one independent variable.

Reporting and interpretation of regression results

Suppose that the simple reporting of the results of regression written as the following example:

$$Y = 0.1234 - 0.756 X$$

(1.897) (2.687)

$R^2 = 0.875$

Understanding the coefficient of $X$ or $\beta_1 = -0.756$:

If the value of $X$ rises one unit, then $Y$ would be reduced by 0.756 unit.

$R^2 = 0.875$ means: 87.5% variations in the value of the dependent variable ($Y$) can be explained by variations in the independent variables ($X$).

Numbers in parentheses are t-statistics (t-count) for each coefficient. This number can also be replaced with Standard Error p-value coefficients, or it provided an explanation. Inclusion of the value of t-stat and p-value allows the reader more than the standard error, because readers can directly estimate whether the coefficients of independent variables that included significant or not.

A.2. Classical Regression Model Applications in Wage Estimation

From the description above, can be made wage regression model developed by Mincer (Mincerian Earning Function) in estimating the earnings function. In this model Mincer want to see the relationship between education level and income. Mincer model explains why there are differences in the level of income obtained from individuals who have different educational levels.

Earnings equation model based on a model developed by Becker (1964) and Mincer (1974). Form income equation is as follows:
\[ \ln W_i = \beta_0 + \beta_1 X_i + \varepsilon_i \] 

Where \( \ln W_i \) is the natural logarithm of the wages received by workers, \( \beta \) and \( \varepsilon \) is the coefficient of determination of wages and the error term. The general procedure used to estimate the second equation above is by using the method of Ordinary Least Square (OLS), which is then carried out tests of significance for each independent variable.

The assumptions used for this method is that \( E(\varepsilon_i) = 0 \), which means that wage workers are distributed randomly. But wages are available only for those who participate in the labor market and earn wages or earnings. While information on wages for those with the status of unpaid workers or for those that do not participated in the labor market because wages offered by the company, not available. If you only use wage data are available then the sample will be cut off (truncated), because it does not involve the two groups over which they wage information was not recorded. This leads to a bias in sample selection. Thus, the assumptions used in estimating the income is not fulfilled and the result of earnings estimates using OLS will be biased.
B. Classical Linear Regression Stata Applications

B.1. Starting Stata

Run Stata by downloading a "double-click" icon Stata. Then set memory 500m

B.2. Entry data

To estimate the research model, then we must to enter data

Click File | Open | Folders Stored Data
Or

If for example with the command: with data stored in the directory D

use "D:\LD\Pelatihan_ILO\Data\Data_PelatihanILOFix_Stata8.dta", clear

Views workfile is as follows:

In the Variables box there are the variables that exist in the Sakernas February 2010. Code
and variable information (attached).
### B.3. Generating Variable (SAKERNAS)

To estimate the equation, the variables will be used to generate first.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Symbol</th>
<th>Operational Definition</th>
<th>Questions Code</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income per month</td>
<td>w</td>
<td>Income derived from salary or wages of the results of operations</td>
<td>b5p12a</td>
<td>Income in Rupiah</td>
</tr>
<tr>
<td>Age</td>
<td>age</td>
<td>Calculated from the last birthday</td>
<td>umur</td>
<td>Age in year</td>
</tr>
<tr>
<td>Sex</td>
<td>sex</td>
<td>Differences in biological genitals</td>
<td>jk</td>
<td>0. Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Male</td>
</tr>
<tr>
<td>Education</td>
<td>educ</td>
<td>Highest education level attained</td>
<td>b5p1a</td>
<td>0. Not Attending</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Primary</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2. Secondary</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3. Tertiary</td>
</tr>
<tr>
<td>Not Attending</td>
<td>educ0</td>
<td>Not Attending</td>
<td>b5p1a</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Not Attending</td>
</tr>
<tr>
<td>Primary</td>
<td>educ1</td>
<td>Elementary School /Junior High School</td>
<td>b5p1a</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Elementary</td>
</tr>
<tr>
<td>Secondary</td>
<td>educ2</td>
<td>Senior High School/Vocational School</td>
<td>b5p1a</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Secondary</td>
</tr>
<tr>
<td>Tertiary</td>
<td>educ3</td>
<td>Diploma I/II, Akademi/DIII, DIV/S1/S2</td>
<td>b5p1a</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Tertiary</td>
</tr>
<tr>
<td>Marital Status</td>
<td>marstat</td>
<td>Differentiated by marriage and not/ never married</td>
<td>statk</td>
<td>0. Not/Never Married</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Married</td>
</tr>
<tr>
<td>Location</td>
<td>ur</td>
<td>Differentiated by rural / urban</td>
<td>b1p05</td>
<td>0. Rural</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Urban</td>
</tr>
<tr>
<td>Job Training</td>
<td>kurs</td>
<td>Ever/Never attending Job training</td>
<td>b5p1d</td>
<td>1. Ever attending Job Training</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2. Never attending Job Training</td>
</tr>
</tbody>
</table>

### C. Wage Equation Model

Based on the above table, wage equation model can be made as follows:
\[ \ln W_i = \alpha + \beta_1 \text{age} + \beta_2 \text{age}^2 + \beta_3 \text{sex} + \beta_4 \text{marstat} + \beta_5 \text{educ0} + \beta_6 \text{educ1} + \beta_7 \text{educ2} + \beta_8 \text{educ3} + \beta_9 \text{ur} + \beta_{10} \text{kurs} + \varepsilon_i \]

Where:

- \( \ln W_i \) = Wage logarithm
- \( \text{age} \) = age
- \( \text{age}^2 \) = age square
- \( \text{sex} \) = sex
- \( \text{marstat} \) = marital status
- \( \text{educ0} \) = Not Attending School
- \( \text{educ1} \) = Elementary School
- \( \text{educ2} \) = Secondary School
- \( \text{educ3} \) = Tertiary School
- \( \text{ur} \) = Residence
- \( \text{kurs} \) = Training
- \( \varepsilon_i \) = error term

Based on the above equation, the regression command in Stata is:

\[ \text{Regress } \ln w \text{ age age2 sex marstat educ0 educ1 educ2 educ3 ur kurs, then press Enter} \]

Stata output so that the view is as follows:
D. Regression Model Analysis

D.1. Multicollinearity Test

One way of detecting the presence of multicollinearity is to look at tolerance or Variance Inflation Factor (VIF). If the tolerance is smaller than 0.1 or VIF values above 10, then there is multicollinearity. Command used to detect multicollinearity is by typing vif, so that the view Stata as follows:

![Multicollinearity Test Result](image1)

Based on the above results showed that only age and age square variable that has a VIF value above 10, for the other variables under 10. In this case between the same variables collinearity is not a problem. If between the different variables have a VIF value above 10 is just the problem of multicollinearity.

D.2. Heterocedasticity Test

To test the heterocedasticity, type hettest, so that the view Stata is as follows:

![Heterocedasticity Test Result](image2)

Based on the above results, chi2 prob value is 0.0001, or <0.05.

Based on the hypothesis that:

Ho: Homokastisitas
H1: Heterokedastisitas

So the value chi2 prob shows Ho is rejected, meaning there were heterocedasticity. To remove heterocedasticity, the steps that need to be done is as follows:

Click **Statistics | Linear regression and related | Linear Regression**

So that the workfile view would look as follows:
Write down the dependent and independent variables used in the estimation:

Click Robust SE, then tick the Robust Standards Errors and select the best for heterokedastic after that click Ok. So that the view Stata is as follows:
Based on the above results, it can be done step analysis as follows: Assume that $\alpha = 5\%$
D.3. Test Regression Model/Overall test/F-test

From the test results the F-statistic shows that the value of prob (F-statistic) is 0.0000. This value is smaller than the significance level at $\alpha = 5\%$, this indicates that overall, all independent variables together can affect dependent variables.

D.4. t-test statistics

From the partial test results can be viewed based on the value of prob (next to the t-statistic), concluded that age, age squared, sex, marital status, education level, status of residence and job training affect wages significantly.

D.5. Coefficient of Determination ($R^2$)

The $R^2 = 0.3310$ means that 33.10% of variable wage can be explained by age, age squared, sex, marital status, education level, status of residence and job training variables while the rest equal to 66.90% explained by other variables outside the model.

D.6. Interpretation of regression coefficients

Based on estimates can be written:

$$lnw = 1.0292 + 0.3552age - 0.00022 age^2 + 0.36571 \text{sex} - 0.10572 \text{marstat}$$
$$- 1.1127 \text{educ0} - 0.85342 \text{educ1} + 0.23566 \text{ur} - 0.15224 \text{kurs}$$

Because the data is data that has been transformed into logarithms, the coefficient describes the rate of growth so that its unit percent. But if the data is converted to logarithms, then the unit adapted to the unit from the data. Suppose the wage unit is thousand rupiah

- The value of age coefficient =0.3552 and age squared = -0.00022 means that if the age of 1 year labor rises, the wage will increase to 0.3552% and the addition of this age will eventually drive wages down at the age of 46 years.
- The value of sex coefficient= 0.36571 means that male have 0.36571 times higher wages than female.
- The value of marstat coefficient= -0.1057 means that wages a married workforce 0.1057 lower than single workers.
- The value of the variable coefficient educ0 = -1.1127 means that an uneducated workforce has lower wages 1.1127 times than workforce who have high education.
• The value of the variable coefficient educ1 = -0.85342 means that workforce who have elementary education has lower wages 0.85342 times than workforce who have tertiary education.

• The value of the variable coefficient educ2 = 0.42435 means that workforce who have secondary education has lower wages 0.42435 times than workforce who have tertiary education.

• The value of kurs coefficient = 0.23566 means that wages a workforce who live in the urban 0.23566 higher than workforce who live in the rural

• The value of kurs coefficient = 0.15224 means that wages a workforce who have experience in job training 0.23566 higher than workforce who have not experience in job training

• But if we estimate wages using OLS, the problem is selectivity bias as we explain above. Analysis tools in a more precise estimate of wages is a two step Heckman.

IV. Probit

A. Theory of Probit

Probit model using the assumption that the variable distribution is normal or normal standard. This model also assume that the variable dependent, $I_i$, is a continuous variable that is not unobservable (unobservable variable) for each i-th observation. That’s more often known as variable hidden (latent variable). In the economic problems, this variable often though of as an index of satisfaction (utility index), which describe the high and low levels of satisfaction achieved by the individual or workforce, and thus reasonable to assume as normal variables, which of course continuous. Individual satisfaction is influenced by a variety of independent variables $X_i$ which is nothing but reflect the characteristics of social, economic, and demographic of the i-th individual. In general, the equation that connects the two kinds of variables can be described briefly as follows:

$$I_i = X_i'\beta + \varepsilon_i$$

(4.1)

Where $\varepsilon_i$ is an error that scrambles, and is a parameter that we will to guess based on the information we have gained from samples in the field. Although not observable, we can imagine that there is always the upper threshold $I_i^*$ which is a critical threshold value (critical cut value) in terms of consumer decisions. That is, if equal to or greater than the threshold
value (critical cut off value) in terms of consumer decisions. That is to or greater than threshold value, above, then the workers to decided to participate in the labor market. If it is assumed that the latent variables follow a standard normal variable, then we can only speculate as that’s parameter, but can also obtain information about the index itself (Gujarati, 2003), as we can observe we link it with the latent variables of observable variables, which takes the value one if the event occurs and the value zero if the event does not occurs, as follows:

\[
y_i = 1 \begin{cases} i & I_i > I_i^* \\ 0 & I_i \leq I_i^* \end{cases}
\]

(4.2)

Thus the probability of labor force to participate in the labor market we can declare like this:

\[
P_i = \Pr(y_i = 1 | X_i, \beta) = \Pr(I_i \geq I_i^*) = \Pr(\varepsilon_i \geq -X_i'\beta) = (1 - F(-X_i'\beta))
\]

(4.3)

The latter in equation (3) is nothing but \( F(X_i'\beta) \), based on the simetry of the CDF.

As usual, the CDF is:

\[
F(Z_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} e^{-z_i^2/2} dZ_i
\]

(4.4)

And the probability density function (pdf) is:

\[
f(Z_i) = \frac{1}{\sqrt{2\pi}} e^{-z_i^2/2}
\]

(4.5)

Remember, says that \( I_i \geq I_i^* \) the same as saying that \( X_i'\beta + \varepsilon_i \geq I_i^* \). And because the threshold top it can always be put into thats intercept, then the latter can be expressed in the same way as: \( X_i'\beta + \varepsilon_i \geq 0 \) or that \( \varepsilon_i \geq -X_i'\beta \). Back to the equation (4.1), the marginal impact of the independent variable on the opportunity to participate in the labor market can be obtained by lowering the CDF of \( x_{ik} \), as below:

\[
\frac{\partial F(\beta'X_i)}{\partial x_{ik}} = f(\beta'X_i)\beta_k
\]

(4.6)

which \( f(\beta'X_i) \) is the standard normal pdf, which assessed the \( \beta'X_i \).
**B. Labor Force Participation Model**

Labor Force Participation Model used in this study is the structural Probit model in which the dependent variable is a discrete data where:

Probability (Participation) = 1, if the work and earn wages

Probability (Participation) = 0, if other (not working or working but not getting wages)

Probit estimation model is the first step to obtain the value of inverse mills ratio to be used as independent variables in the earnings equation. The general form of the participation model works is as follows:

\[ Z_i^* = \alpha + \beta_1 \text{age} + \beta_2 \text{age}^2 + \beta_3 \text{sex} + \beta_4 \text{marstat} + \beta_5 \text{educ0} + \beta_6 \text{educ1} + \beta_7 \text{educ2} + \beta_8 \text{educ3} + \beta_9 \text{ur} + \beta_{10} \text{kurs} + \epsilon_i \]

Where:

- \( Z_i^* \) = probit index
- \( \text{age} \) = age
- \( \text{age}^2 \) = age squared
- \( \text{sex} \) = sex
- \( \text{marstat} \) = marital status
- \( \text{educ0} \) = not attending
- \( \text{educ1} \) = elementary school
- \( \text{educ2} \) = secondary school
- \( \text{ur} \) = location
- \( \text{educ3} \) = High school
- \( \text{kurs} \) = job training
- \( \epsilon_i \) = error term

**C. Stata Applications in Probit Model**

**C.1. Generating Variabel (SUSENAS)**

To estimate the equation, the variables will be used to generate first. In the analysis of decent work, the description of variables used include:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Symbol</th>
<th>Operational Definition</th>
<th>Questions Code</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income per month</td>
<td>w</td>
<td>Income derived from salary or wages of the results of operations</td>
<td>b5dr33</td>
<td>Income in Rupiah</td>
</tr>
<tr>
<td>Working status</td>
<td>working</td>
<td>Working &gt;=1 hour serially during last week and get the wage</td>
<td>b5p2a1</td>
<td>0. Not Working</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Working</td>
</tr>
<tr>
<td>Age</td>
<td>age</td>
<td>Calculated from the last birthday</td>
<td>usia</td>
<td>Age in year</td>
</tr>
<tr>
<td>Sex</td>
<td>sex</td>
<td>Differences in biological genitals</td>
<td>jk</td>
<td>0. Female</td>
</tr>
<tr>
<td>Variable</td>
<td>Symbol</td>
<td>Operational Definition</td>
<td>Questions Code</td>
<td>Scale</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>---------------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Primary</td>
<td>educ1</td>
<td>Elementary School / Junior High School</td>
<td>b5cr18</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Elementary</td>
</tr>
<tr>
<td>Secondary</td>
<td>educ2</td>
<td>Senior High School / Vocational School</td>
<td>b5cr18</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Secondary</td>
</tr>
<tr>
<td>Tertiary</td>
<td>educ3</td>
<td>Diploma I/II, Akademi/DIII, DIV/S1/S2</td>
<td>b5cr18</td>
<td>0. Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Tertiary</td>
</tr>
<tr>
<td>Marital Status</td>
<td>marstat</td>
<td>Differentiated by marriage and not/ never married</td>
<td>b5cr18</td>
<td>0. Not/Never Married</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Married</td>
</tr>
<tr>
<td>Location</td>
<td>ur</td>
<td>Differentiated by rural / urban</td>
<td>st</td>
<td>0. Rural</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. Urban</td>
</tr>
</tbody>
</table>

### C.2. Estimated Labor Force Participation

By using data that has been generated in the beginning, then the command for probit is: probit working age age2 sex marstat educ0 educ1 educ2 educ3 ur. So workfile display will look like below
After getting the results of the probit estimation, the next step is to get the mills ratio. How to get mills ratio by typing predict mills. Then mills ratio is included in the wage regression equation. Unlike the classical linear regression, how to read a probit estimation is to calculate the marginal effects in advance. The command used is: probit working age age2 sex marstat educ0 educ1 educ2 educ3 ur exchange. So work file display will look like this:
C.3. Estimated Earnings Functions

After getting the mills ratio from the probit estimation, the next step is to estimate earnings functions by entering the mills ratio in it. Command in Stata are as follows: regress in wage age2 sex marstat educ0 educ1 educ2 educ3 ur mills. So the look Stata looks like this:
D. Probit Model Analysis

D.1. Probit Model Estimation

Results of the estimation model of labor force participation work is the result of the estimated probit model using the dependent variable 1 if work and earn wages and 0 if it works but do not earn income and also individuals who are not working. Estimates do all the labor force aged 15-65 years. Probability model to work with wages in the Stata results above can be written into the equation as follows:

$$Z_i^* = \alpha + 0.10135age - 0.00144age^2 + 0.42302sex - 0.32759marstat + 0.21238educ1 + 0.23948educ2 + 0.18356educ3 + 0.41875u + \varepsilon_i$$

The estimation results above is the best model "the most fit" because it was out-variable variables that are not significant in the equation. Based on the table all the independent variables significantly affect the probability of working. Probit estimation results can not be interpreted directly as in the equation using OLS regression. However, based on the coefficient already indicate the direction of the relationship between independent and dependent variables. The equation above shows that the variables age, sex, marital status,
residency status, area of residence and job training has a positive coefficient. This can be interpreted that all of these variables will increase the probability of work of the workforce. On the other side of the quadratic age variable, level of education has a negative coefficient. To see how changing from one unit of independent variable on the dependent variable then needs to be calculated marginal effects.

D.2. Interpretation of dprobit coefficient

- The value dprobit coefficient of age=0.0246 and age squared=-0.00029, means that for every 1 increase in age increases the probability to participate in the labor market by 0.0246 times. But the probability that decreases with increasing age
- The value dprobit coefficient of sex=0.1076, means that male laborforce had a higher probability of working for 0.1076 times compared with female laborforce
- The value of dprobit coefficient of marstat=0.0253, means that married laborforce had a higher probability of working for 0.00253 times compared with single laborforce
- The value dprobit coefficient of educ1=0.03734, meaning that laborforce who had elementary education had probability working 0.03734 times higher than laborforce who had not attending school
- The value dprobit coefficient of educ2=0.0468, meaning that laborforce who had secondary education had probability working 0.0468 times higher than laborforce who had not attending school
- The value dprobit coefficient of educ3=0.03670, meaning that laborforce who had tertiary education had probability working 0.03670 times higher than laborforce who had not attending school
- The value dprobit coefficient of ur =0.08068, meaning that laborforce who live in urban had probability working 0.08068 times higher than laborforce who had not attending school.

E. Interpretation of Earning Functions

Earnings model above is the result of the estimated earnings function based on data Sakernas 2010. Like previous models, the model obtained is the best model. All independent variables suspected to affect one's income, as stated in the previous chapter the analysis framework, it provides a significant contribution. In other words there is no penalty variable.

Income model can be written as follows:
Because the data is data that has been transformed into logarithms, the coefficient describes the rate of growth so that its unit percent. But if the data is converted to logarithms, then the unit adapted to the unit from the data. Suppose the wage unit is thousand rupiah

- The value of age coefficient $= 0.06533$ and age squared $= -0.00087$ means that if the age of 1 year labor rises, the wage will increase 0.06533 % and the addition of this age will eventually drive wages down at the age of 38 years.
- The value of sex coefficient $= 0.049321$ means that male have 0.049321 times higher wages than female.
- The value of marstat coefficient $= -0.0454$ means that wages a married workforce - 0.0454 lower than single workers.
- The value of the variable coefficient educ1 $= 0.32073$ means that an uneducated workforce has higher wages educ1 $= 0.32073$ times than workforce who have not attending school
- The value of the variable coefficient educ2 $= 0.5418099$ means that workforce who have secondary education has higher wages 0.5418099 times than workforce who have not attending school
- The value of the variable coefficient educ3 $= 0.58761$ means that workforce who have tertiary education has higher wages 0.58761 times than workforce who have not attending school
- The value of ur coefficient $= 0.23566$ means that wages a workforce who live in the urban 0.23566 higher than workforce who live in the rural

$$lnW_t = 11.35543 + 0.06533age - 0.00087age^2 + 0.49321ex - 0.0454marstat + 0.32073educ1 + 0.5418099educ2 + 0.58761educ3 + 0.26633:ur - 1.5110mills$$
Reference

Cameron, A. Colin dan Pravin K. Trivedi. 2009. Microeconomics Using Stata. Stata Corp LP, Texas

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