

The 2016 Indonesia Manufacturing Innovation Capability Survey (the 2016 Indonesia ICS)

The 2016 Indonesia Manufacturing Innovation Capability Survey (**the 2016 Indonesia ICS**) is a collaboration between the Tilburg University and the Enterprise Analysis Unit (DECEA) of the Development Economics Group of the World Bank. This is part of a wider project undertaken by the Tilburg University to study the innovative capability of manufacturing firms in nine countries selected from three regions- Ethiopia, Kenya, Ghana, Uganda and Tanzania from Africa; Bangladesh and India from South Asia; and Indonesia and Vietnam from East Asia and Pacific.

The 2016 Indonesia ICS aims at studying the innovative activities and innovative capabilities of manufacturing firms in Indonesia, by collecting firm-level data using a suitably designed questionnaire and following the DECEA's global methodology of survey design. This survey is a follow-up to and complements the 2015 Indonesia Enterprise Survey (2015 Indonesia ES) undertaken by the World Bank Group. Data from the 2016 Indonesia ICS can be linked to the 2015 Indonesia ES using the "idstd" variable, enabling a richer analysis of the links between innovative capabilities, innovation and the performances of manufacturing firms in the country.

The **main objective** of the project is to collect firm-level data from manufacturing firms in the country to better understand:

- Sources of information and motivation for innovative activities by manufacturing firms;
- Key factors constraining innovative capability of the manufacturing firms;
- The ability of firms to locate, acquire and utilize knowledge for innovation.
- Access to foreign markets and firms' innovative capability.

The **Sampling Strategy** follows the standard ES global methodology of stratified random sampling¹. However, sample is drawn from manufacturing firms covered in the 2015 Indonesia Enterprise Survey

¹ Information on DECEA's global survey methodology can be found at the Unit's website (<http://www.enterprisesurveys.org/methodology>).

(ES))². Therefore, sample is stratified based on firm size and location, unlike the standard ES sampling methodology which includes sector as one of the three stratifying variables.

The universe consists of about 1069 manufacturing firms interviewed in the 2015 Indonesia ES, out of which 300 were interviewed for the 2016 Indonesia ICS. Firms are selected from all the nine regions covered in the 2015 Indonesia Enterprise Survey and distributed across small (5 to 19 employees), medium (20 to 99 employees) and large (100+ employees) firms. Table-1 provides distribution of the realized sample by region and firm size. Overall, the survey response rate is fairly good, with about 70% of the contacted interviews turned into completed interviews.

Table 1: Realized Sample for the 2016 Indonesia ICS

Region	Firm Size			Total
	Small	Medium	Large	
Jawa Barat	12	15	17	44
Jawa Timur	12	19	16	47
Jawa Tengah	12	16	12	40
DKI Jakarta	10	12	13	35
Banten	10	11	16	37
Sulawesi Selatan	11	8	8	27
Sumatera Utara	11	9	4	24
Bali	5	12	7	24
Lampung	9	7	6	22
Total	92	109	99	300

P.T Kadence International was hired to implement the fieldwork and data collection. The fieldwork for the 2016 Indonesia ICS was conducted during the period October 21, 2016 to February 10, 2017.

The **Sampling weights** for this survey are calculated from the 2015 Indonesia ES weights. More specifically, sampling weights in the 2015 Indonesia ES are multiplied by a cell-specific factor, which equals the proportion of total completed interview in the cell during the 2015 Indonesia ES to the

²Please see the World Bank's Enterprise Survey website (<http://www.enterprisesurveys.org/data/survey-datasets>) for detailed information on the 2015 Vietnam ES. In particular, the implementation reports of the survey contains useful information on the design and implementation of the surveys. Note that access to the raw data and implementation report require a log-in account.

completed interviews in the corresponding cell in the 2016 Indonesia ICS. More formally, sampling weights for this survey are computed as follows:

$$ICW_{ic} = ICW_{ES} * \frac{N_{ES}}{N_{IC}}$$

Where ICW_{ic} is sampling weight in the Innovation Capability survey for firm i in cell c^3 ; ICW_{ES} is the corresponding weight for the same firm in the 2015 Indonesia Enterprise Survey; N_{ES} is the number of completed interview in the ES for that particular cell; and N_{IC} is the corresponding number in the 2016 Indonesia ICS. Note that three sampling weights (variables *wstrict*, *wmedian*, *wweak* in the data) are computed for this survey corresponding to the three sampling weights in the 2015 Indonesia ES.

³ Cell is a variable created by combining three variables in the ES - sampling sector, location and size.