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

The 2016 Ethiopia Manufacturing Innovation Capability Survey **(the 2016 Ethiopia 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 Ethiopia ICS aims at studying the innovative activities and innovative capabilities of manufacturing firms in Ethiopia, 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 Ethiopia ES undertaken by the World Bank Group; data from this survey can be linked to the 2015 Ethiopia 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 sampling[1]. However, sample is drawn from manufacturing firms covered in the 2015 Ethiopia 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 about 380 manufacturing firms, and 204 firms were interviewed. Firms are selected from all the five regions covered in the 2015 Ethiopia 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 75% of the contacted interviews turned into completed interviews.

Table 1: Realized Sample for the 2016 Ethiopia ICS

Region	Size			Total
	Small	Medium	Large	
AddisAbaba	21	39	41	101
Amhara	6	6	1	13
Diredawa	2	3	5	10
Oromia	10	13	10	33
SNNPR	5	6	4	15
Tigray	20	9	3	32
Grand Total	**64**	**76**	**64**	**204**

WAAS International PLC was hired to implement the fieldwork and data collection. This was the same survey firm that implemented the fieldworks for the Ethiopia 2015 Enterprise Survey. The fieldwork for the 2016 Ethiopia Innovation Capability Survey was conducted during the period October 17 to December 23 2016.

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

---

[2]Please see the World Bank's Enterprise Survey website (http://www.enterprisesurveys.org/data/survey-datasets) for detailed information on the 2014 Ethiopia Innovation Follow-up survey and the 2014 Ethiopia ES. In particular, the implementation reports of the respective surveys contain useful information on the design and implementation of the surveys. Access to the raw data and the implementation reports requires having a log-in account.

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

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

Where ICw_{ic} is sampling weight in the Innovation Capability survey for firm i in cell c[3]; ICw_{ic} is the corresponding weight for the same firm in the 2015 Ethiopia 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 Ethiopia Innovation Capability survey. 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 Ethiopia ES.

---

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