

## JDD Demand Enquiry<sup>1</sup>

Formal private businesses drive both productivity and employment growth in the developed countries. The share of formal private sector waged employment in total employment is higher the richer the country. However, in Low Income Countries, ‘informal is normal’; private sector waged employment in formal firms is a small share of total employment<sup>2</sup>, and formal contracted employment in these firms is a smaller share still. Since most capital and value added is concentrated in these formal private sector firms, the productivity of the jobs they create is much higher than the median in the economy. For LICs and MICs important jobs challenges are how to generate more of these higher productivity formal private waged jobs, how to help more workers to access them, and how to link informal sector firms and the self-employed to the value chains or to the capital embodied in the formal private firms. If performing well, the formal private sector can be a locus for better jobs outcomes throughout the whole economy. If the formal private sector is performing badly, an economy may lack the impetus for jobs and economic transformation.

The **demand side**<sup>3</sup> of the standardized jobs diagnostic sets out the profile, performance, and the growth dynamics of those private firms with at least one waged employee. As with the macro section, firm performance focuses on the key jobs outcomes: labor productivity and employment, and detailed analysis is made of economic transformation (the movement of labor and capital to higher productivity activities). Firm performance is calculated both in aggregate for the firms captured in the official data, and at firm level.

The *profile of private sector firms and jobs* shows the shares of firms, the shares of employment, sales and value added in these firms, and how these have evolved over time. The shares are presented by firm characteristics of age and size, by region, by sector and by firm ownership. The profile is compared with that of other countries to identify whether there are any peculiarities which may hint at constraints.

The analysis of trends in economic transformation in the formal private sector investigates how the aggregate picture from the macro and supply analysis regarding trends in waged employment and sectoral shifts in jobs, is reflected in the country’s “modern sector” firms. Most value added and most capital in most developing countries is in the large formal firms, which typically employ a low share of the workforce. Hence demand side analysis checks how capital and labor are being combined over time, whether the share of employment in the formal private sector is rising, and whether labor is moving from less to more productive sectors and locations and from less to more productive firms over time<sup>4</sup>.

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<sup>1</sup> Merotto, D., Weber, M., and Aterido, R. (2019) ‘Job Diagnostics’ Guidelines’ World Bank Group, Washington, DC. (Forthcoming). Job Diagnostics’ firm-level analysis is led by Reyes Aterido.

<sup>2</sup> Merotto, D., Weber, M., and Aterido, R. (2018) ‘Pathways to Better Jobs in IDA Countries: Findings from Jobs Diagnostics’ World Bank Group, Washington, DC.

<sup>3</sup> The standardized analysis of firms excludes public sector employees (except those in State Owned Enterprises) and excludes the self-employed. Whereas data analysis in this section of the Jobs Diagnostic is standardized in terms of techniques, variables and data cleaning, the raw data on which it is based are not standardized internationally the way they are for the Labor Force Surveys and Living Standards Measurement Surveys. This makes global comparison less definitive. The Jobs Group sets out the underlying data sources and data compatibility issues in our analysis. There is a general assumption that the standardized analysis deals with “formal firms” though this is not always the case, and so care must be exercised in interpreting the findings.

<sup>4</sup> Note that a move from more to less productive sectors need not be a bad thing for better jobs outcomes if it results in a shift of labor from the “traditional” to the “modern” sector. The results of demand side analysis need careful interpretation; a relative shift in the share of modern sector employment from highly capital-intensive production (for instance mining) to more labor-intensive

The *firm level analysis* then seeks to deepen the aggregate findings by providing an understanding of trends in employment, productivity and wages for specific firms (e.g. new, young, old, large, micro, urban or rural). By assessing firm-level performance over time for different firm characteristics, the diagnostic approach is to look for symptoms of constraints – typically in the business environment and factor markets - which could be preventing increased productivity and job creation in the formal private sector. Specific focus is given to entry and exit of new and inefficient firms and to market shares to assess whether competition and firm selection forces are working as they should in product markets to enhance productivity. For instance, do new firms enter? Do they expand and hire? Do efficient firms survive and grow, and do inefficient shrink and exit?

The coverage of firm level analysis (how broad and which variables) depends in practice upon the data available. Most countries collect firm-level data periodically to compile the national accounts (through business registers and censuses, and through surveys). Company tax data can also be used, especially if it can be linked to numbers of workers on the payroll. Yet there is no systematic and internationally standardized approach to the collection of firm-level data, and the frequency varies a lot between countries. This means it is not always possible to conduct the same analysis across countries; some countries have panel data for firms, some may only have one point in time; some have only census data capturing sales and employment without estimating value-added. Sometimes there are data inconsistencies in the same country over time. This means that teams undertaking demand-side analysis in a jobs diagnostic have a lot of up-front data work to do. Nor are definitions standardized. This is especially the case regarding formality. Some data sets ask whether businesses are registered<sup>5</sup>, many do not. But even if businesses are formally registered, employees in these businesses may not be permanent staff on contracts. This is an important consideration when interpreting results between the demand and supply sides of the jobs diagnostic.

### **Question 1: What is the profile of the formal private sector and how has it evolved overtime?**

First question 1.1 of the demand side diagnostic uses firm level-indicators to set out levels and changes over time in the number and shares of *formal<sup>6</sup> private sector firms, employment, and value added<sup>7</sup>* by sector, firm age, firm size, ownership structures, and spatial location.

Second the profile analyses the *concentration of sales and employment* (question 1.2). For most LICs, value added (like capital) is highly concentrated in a few big companies, and in a few big capital-intensive sectors, especially in mineral rich countries<sup>8</sup>. This concentration can have implications for growth in labor productivity and employment and so provides important context for questions 2 and 3 below. Question 1.2 selects the top

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manufacturing can be highly beneficial if it results in a net gain in “better jobs”. However, a shift in labor within mining firms from the more productive to the less productive firms would be cause for concern, as might a job-reducing shift out of formal manufacturing firms (with access to capital) back into the (capital thin) traditional sector.

<sup>5</sup> Tax return data can of course be assumed to be “formal”, although companies obviously have an incentive to reduce value added (because it gets taxed).

<sup>6</sup> The approach excludes sole traders and family businesses with no paid employees. A facet of the data used is that household-based enterprises are also excluded.

<sup>7</sup> Sales if value added not available. All monetary values throughout the analysis are reported in a multiple of local currency and values are deflated.

<sup>8</sup> Some sectors have by nature few firms; thus, concentration is not a proxy of lack of competitiveness issues. Likewise, concentration in specific sectors can be due to legitimate reasons given the country specific characteristics and degree of economic transformation.

ten sectors by their market share in manufacturing and services, provides the share of firms, sales, and jobs in these ten sectors (to their total in manufacturing and services), then selects the top 4 firms and provides the share of firms, sales, and jobs of these top firms in each of the 10 selected sectors.

The profile in 1.1 and 1.2 is then compared to that of other countries (question 1.3) to identify any outlier results that could offer clues about constraints to growth and employment creation in formal private firms. For instance, if firms in a stable country are significantly older on average than in other countries, this could be a signal of barriers to entry and exit. If there are very few medium-sized firms compared to other countries, and if concentration of sales and employment is exceptionally high amongst a few large firms, this could signal regulatory barriers that dissuade expansion, and which create a lack of competition for the market. These results should be interpreted alongside the symptoms from question 3. A lack of competition might for instance be associated with a movement of workers to less productive firms or if the firm-level productivity analysis in question 3 shows that larger firms are less, or becoming less, productive than new smaller firms or the average incumbent firm.

1.1. What is the composition of the formal private sector (firms, workers, and value added by sector, location, size, age, and ownership) and how this changed overtime?

Indicator	Variable	Determinants	Output <sup>9</sup>
Share <i>variable</i> in end year.	Number of firms	Sector	Figka_varsh_sect_endyr_CCC.gph
	Number of workers	Location	Figka_varsh_reg_endyr_CCC.gph
	Value added	Size	Figka_varsh_sz_endyr_CCC.gph
		Age	Figka_varsh_ag_endyr_CCC.gph
		Ownership	Figka_varsh_own_endyr_CCC.gph
Share <i>variable</i> overtime.	Number of firms	Sector	Figkb_varsh_sect_CCC.gph
	Number of workers	Location	Figkb_varsh_reg_CCC.gph
	Value added	Size	Figkb_varsh_sz_CCC.gph
		Age	Figkb_varsh_ag_CCC.gph
		Ownership	Figkb_varsh_own_CCC.gph
Number of <i>variable</i> first and end year.	Number of firms	Sector	Figkc_var_sect_CCC.gph
	Number of workers	Location	Figkc_var_reg_CCC.gph
	Value added	Size	Figkc_var_sz_CCC.gph
		Age	Figkc_var_ag_CCC.gph
		Ownership	Figkc_var_own_CCC.gph
Total, mean, min, max, sd of N, L, VA end year	Number of firms	Sector	Table1.xlsx
	Number of workers	Location	
	Value added	Size	
		Age	
		Ownership	

<sup>9</sup> Figure numbers (k) are consecutive and vary depending on availability of data. For question 1.1, figure numbers are ordered by dimension.

## 1.2. Which sectors hold most market power and how many workers do they employ?

Indicator	Variable	Determinants	Output
10 sectors with largest market share in manufacturing. 10 sectors with largest market share in services <sup>10</sup> .	Share market share Share number of firms Share employment		Table2.xlsx
Share of four firms with largest market share of 10 top sectors in manufacturing and 10 top sectors in services <sup>11</sup> .	Share market share Share number of firms Share employment		

## 1.3. How does the profile of operating firms compare to other countries?

Indicator	Determinants	Output
Share of number of firms and workers	Sector Size: micro firms versus large <sup>12</sup> Age: young versus old <sup>13</sup>	Fig1_benchmark_CCC.gph Fig2_benchmark_CCC.gph Fig3_benchmark_CCC.gph
Share of workers by 1 percent largest firms Share of revenues by 1 percent largest firms	Cross-country Cross-country	Fig4_benchmark_CCC.gph Fig5_benchmark_CCC.gph

### **Question 2: What are the trends in economic transformation and jobs in the formal private sector?**

Having described and compared the profile of formal firms, employment, and value added, the demand-side jobs diagnostic analyzes the contribution of changes in formal private sector labor productivity and employment shifts to overall productivity growth in the formal private sector and assesses whether the gains in growth in value added accrue as returns to capital or labor. This section therefore relates closely to the aggregate trends in productivity and employment in the macro and supply sections.

The most important *aggregate indicators* of formal private sector performance are total number of jobs, total value added per total employment (aggregate labor productivity), unit labor costs (total wage bill per total employment), and total capital / labor ratio. In a healthy growing economy, we would expect to see over time:

- Growth in output, value added and employment in the formal sector which exceeds growth in economy wide output, value added and total employment (i.e. the formal sector is expanding in share);
- Labor productivity growth in line with, but exceeding, growth in unit labor costs (for all firm types);

<sup>10</sup> And commercial agriculture if available

<sup>11</sup> And commercial agriculture if available

<sup>12</sup> Micro firms have 1 to 9 employees; large firms have 100 or more employees

<sup>13</sup> Young firms are 5 or less years old; old firms are 10 years old or more

- An increase in the capital / labor ratio in key high employment sectors (capital deepening across form types), unless the sector has become more labor intensive for good reasons (i.e. the removal of prohibitive labor taxes, removal of labor market distortions);
- Labor productivity rising within sectors over time; for both new and older firms, large and small firms
- Employment shifts towards the more productive (higher labor productivity) sectors;

## 2.1 How are factor shares distributed, and how has the composition evolved over time?

Question 2.1 seeks to understand how the functional distribution of income is evolving in the formal private sector<sup>14</sup>. This high-level indicator can act as a proxy for understanding the relative scarcity and returns to capital and labor in the formal private sector, and assessed together with trends in the capital/labor ratio (question 2.3) it can help identify whether growth in the formal private sector is labor-rich.

Indicator	Determinants	Output
Capital and labor shares of value added	Year (first and end year)	Figk_factor_shares_CCC.gph

## 2.2 Is sectoral labor productivity correlated with labor and unit labor costs? What are the sectoral changes in labor productivity, labor, and unit labor costs?

Question 2.2 and 2.3 reports total employment, sales, value added, labor costs, and capital over time and by sector, location, size, age, and ownership. Figures show whether sectors with high productivity provide more jobs with higher labor cost unit. When analyzed next to the macro section 3.3, the results show the extent to which the formal private sector is driving growth, economic transformation and better jobs outcomes in the economy. Analysis of the relative changes in the aggregate indicators can also give clues about whether the business environment for private sector firms is growth-and-jobs-friendly.

Indicator	Determinants	Output
Aggregate number of firms, labor, value added, labor costs, capital	Sector and year Location and year Size and year Age and year Ownership and year	Table3.xlsx
Labor productivity, labor, and unit labor cost <sup>15</sup>	Sector	Figka_bubble_CCC.gph

<sup>14</sup> See Atkinson, A. B. "Factor shares: the principal problem of political economy?" Oxford Review of Economic Policy, Volume 25, Number 1, 2009, pp.3-16

<sup>15</sup> This is a three-dimensional figure (2 axes and size of the bubble). Depending on availability of data, the size of the bubble will be the third dimension or size of the sector measure by employment

Change <sup>16</sup> in labor productivity, employment, and labor share of labor cost	Sector (first year to end year)	Figkb_bubble_CCC.gph
Change <sup>17</sup> in labor productivity	Sector 2-digit (first year to end year)	Figka_prod2_CCC.gph
Change <sup>18</sup> in employment	Sector 2-digit (first year to end year)	Figkb_prod2_CCC.gph

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2.3. Is growth in labor productivity in the formal sector coming from gains within sector, or from labor movements between sectors?

Indicator	Determinants	Output
Decomposition of aggregate labor productivity (in within and between contributions)	Sector	Figk_decomp_CCC.gph

2.4. Are sectors increasing their capital stock and capital intensity?

Question 2.4 taken together with question 2.1 helps the analyst to understand whether growth in the formal private sector has been capital or labor intensive.

Indicator	Determinants	Output
K trend	Sector <sup>19</sup> and year	Figka_ktrend_CCC.gph
K/L ratio trend	Sector <sup>20</sup> and year	Figkb_ktrend_CCC.gph

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<sup>16</sup> This is a three-dimensional figure (2 axes and size of the bubble). Depending on availability of data, the size of the bubble will be the third dimension or size of the sector measure by employment

<sup>17</sup> This is a scatter plot looking at changes in more disaggregated sectors (2-digit).

<sup>18</sup> This is a scatter plot looking at changes in more disaggregated sectors (2-digit).

<sup>19</sup> Major sectors: manufacturing, and services (commercial agriculture if available)

<sup>20</sup> Major sectors: manufacturing, and services (commercial agriculture if available)

### *Question 3: What is the pattern and trend in firm level growth dynamics and jobs outcomes by firm type?*

The purpose of the firm-level section of the demand side analysis is to identify which types of firms and which firm dynamics (entry, exit, growth and shrinkage) are behind the trends observed in section 2 in the jobs outcomes of labor productivity and employment<sup>21</sup>.

The questions and the techniques applied are taken from industrial organization theories and applied studies. For instance, empirical literature suggests that reallocation of resources between firms within a country (through processes of firm selection) can be as important to total productivity gains as from innovation (productivity catch up by firms with the industry frontier, i.e. through spillover effects).<sup>22</sup> This section of the demand-side diagnostic therefore; (i) calculates the effects on jobs outcomes of firm entry, exit, growth and shrinkage; (ii) identifies which firm types enter, exit, grow and shrink (i.e. the drivers of jobs outcomes); and (iii) how the entry and exit rates compare with other countries.

Since literature<sup>23</sup> also suggests that new micro firms tend to grow the fastest, that most firms grow or exit within their first 5-10 years, that older firms tend to increase profitability by economizing on costs, and that agglomeration effects are important, this section of the demand side analysis specifically looks at whether micro firms grow, whether older firms are larger on average (employment size), whether older and larger firms have higher labor productivity, and whether certain locations are associated with better labor productivity and employment outcomes. Where possible, the results for the country are compared to other countries.

Interpretation of the symptoms in this section can be important in identifying policy, regulatory and investment constraints to more and better jobs in the formal private sector. For instance, a country with low rates of entry may face barriers to entry or competition or high start-up costs (for instance financing); a country where older firms are not larger may face constraints in the investment climate; countries with widening patterns of labor productivity may lack spillover learning effects.

3.1. Are firm labor productivity<sup>24</sup> and wages<sup>25</sup> rising across the distribution of firms? In which sectors and locations has average labor productivity and wages increased most? How firm's labor productivity correlates with firm's wages?

Unlike section 2 where sectors ranks were determined by their aggregate labor productivity and wage, this section looks at which sectors or regions have the highest firm's average labor productivity and wage. The structured enquiry starts by observing how labor productivity and wage changes from the beginning to the

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<sup>21</sup> Indicators in this section are averages of firm level. As such, patterns may differ from section 2. Moving down to the firm level gives clearer understanding of what is driving the changes observed.

<sup>22</sup> See for example Tsieh, C. and Klenow, P. (2009) "Misallocation and Manufacturing TFP in China and India", *The Quarterly Journal of Economics*, Volume 124, Issue 4, 1 November 2009

<sup>23</sup> Syversson, C. (2011) "What Determines Productivity?" *Journal of Economic Literature* 2011, 49:2, 326–365

<sup>24</sup> Labor productivity is firm's VA/L (or output if value added not available).

<sup>25</sup> Wage is the unit labor cost, a proxy of firm's average wage (our default is permanent employees because in most cases weighted measure of temporary workers is not available.) Average wage is likely tilted towards firms with larger share of temporary workers. The difference in average wage is found to be small when temporary workers are included (weighted by days worked).

end of the period. It first looks at changes in average labor productivity (and wage) in each decile of the distribution and compares the average value of each decile in corresponding year. This indicates where in the distribution firms became less or more productive (lower or higher wages). Second, it looks at the changes in the density distributions. If the distribution moves to the right, firms have become more productive (increased average wage). Whether there are more firms in the right or left tail, or whether the distribution becomes more or less dispersed, are also indications of how performance evolved over the period. For the last year of the period, densities are also examined by different firm types. What firm characteristics are associated with employment size, labor productivity levels and wages? Put more simply, which firms have the highest labor productivity, and do they tend to pay higher wages? It also plots firm's and wages to derive from the correlation whether higher firm productivity is associated with higher wages, and whether firms are operating with higher margins. Compliance with minimum wage regulations can be derived if this is plotted.

<b>Indicator</b>	<b>Determinants</b>	<b>Output</b>
Average firm labor productivity distribution	Decile and year (first to end year)	Figka_lpdec_CCC.gph
Average firm wage distribution	Decile and year (first to end year)	Figkb_wgdec_CCC.gph
Average firm labor productivity density	Year (first to end year)	Figka_lpdens_yr_CCC.gph
Average firm wage density	Year (first to end year)	Figkb_wgdens_yr_CCC.gph
Average firm labor productivity density	Sector (end year)	Figka_lpdens_sect_CCC.gph
Average firm wage density	Sector (end year)	Figkb_wgdens_sect_CCC.gph
Average firm labor productivity density	Region (end year)	Figka_lpdens_reg_CCC.gph
Average firm wage density	Region (end year)	Figkb_wgdens_reg_CCC.gph
Average firm labor productivity density	Size (end year)	Figka_lpdens_sz_CCC.gph
Average firm wage density	Size (end year)	Figkb_wgdens_sz_CCC.gph
Average firm labor productivity density	Age (end year)	Figka_lpdens_ag_CCC.gph
Average firm wage density	Age (end year)	Figkb_wgdens_ag_CCC.gph
Average firm labor productivity density	Ownership (end year)	Figka_lpdens_own_CCC.gph
Average firm wage density	Ownership (end year)	Figkb_wgdens_own_CCC.gph

Firm's average labor productivity	Sector and year (first and end)	Figka_avlp_sect_CCC.gph
Firm's average wage	Sector and year (first and end)	Figkb_avwg_sect_CCC.gph
Firm's average labor productivity	Region and year	Figka_avlp_reg_CCC.gph
Firm's average wage	Region and year	Figkb_avwg_reg_CCC.gph
Firm's labor productivity and wage	End year	Figk_lpwg_CCC.gph

### 3.2. Which sectors and locations have greater dynamism proxied by entry and jobs created at entry?

Outputs in this question refer to the distribution of entry and jobs created at entry by sector and region. Sectors and regions with a buoyant private sector will have higher entry with more jobs created at entry. Whilst higher entry, but relatively lower jobs created at entry, indicates a high share of small firms entering the market. Few new large firms can revitalize a region boosting the demand for products due to the additional formal jobs generated. Because entry can be cyclical with different peaks in sectors and regions, looking at how entry evolves over time, allows to assess patterns and identify lagging bundles. Gauging the potential and barriers of both strong and poor performers provides evidence to formulate the right policies.

Indicator	Determinants	Output
Share of new firms	Sector and year	Figka_en_sect_CCC.gph
Share of new jobs	Sector and year	Figkb_Len_sect_CCC.gph
Share of new firms	Region and year	Figka_en_reg_CCC.gph
Share of new jobs	Region and year	Figkb_Len_reg_CCC.gph
Entry rates	Cross-country	Figk_benchmarking_CCC.gph

### 3.3. What firm characteristics<sup>26</sup> predict firm's size, labor productivity, and wage?

Regression analysis<sup>27</sup> allows to estimate the contribution of certain firm characteristics to an outcome while all other characteristics are hold constant. Although, causality is not claimed here, the analysis yields a more robust way of measuring correlations. Although, these regressions are cross-sectional, in the absence of panel data some suppositions can be inferred. For example, a firm that learn by doing becomes more productive as it ages, expands as it becomes more productive, and increases wages as it becomes more productive. Thus, if age coefficients are monotonically

<sup>26</sup> Size, age, ownership, efficiency of capital, sector, and location.

<sup>27</sup> Standard errors are clustered by broad categories of size, sector, and location.

positive in size, productivity, and wages regressions, this would be consistent with a virtuous development in the life of the firm. If more productive firms are not larger is suggestive that they do not expand possibly due to market failures (i.e. constraints in finance, supplies, skills, logistics or regulations, etc...) Estimations also tests the efficiency in the use of capital and assess which are the best performers in terms of jobs, productivity and wages. A benchmarking exercise compares the lifecycle of the firm (proxied by the average size of the firm as it gets older) evaluating whether it is healthier in the country under study.

<b>Indicator</b>	<b>Determinants</b>	<b>Output</b>
Determinants of firm's size	age, ownership, efficiency of capital, sector, and location	Figk_reg_L_CCC.gph Regressions_JDD_CCC.xlsx
Determinants of firm's productivity	size, age, ownership, efficiency of capital, sector, and location	Figk_reg_P_CCC.gph Regressions_JDD_CCC.xlsx
Determinants of firm's wage	size, age, ownership, efficiency of capital, productivity, sector, and location	Figk_reg_W_CCC.gph Regressions_JDD_CCC.xlsx
Average employment size of the firm by age	cross-country	Figk_benchmarking_CCC.gph

### 3.4 Do workers move to more productive firms?

Outputs test for possible signs of misallocation by undertaking static productivity decompositions<sup>28</sup>.

The decomposition techniques show the contributions to productivity through reallocation. A positive covariance identifies higher labor shares labor in more efficient firms. Trend overtime indicates whether reallocation is being gainful.

<b>Indicator</b>	<b>Determinants</b>	<b>Output</b>
Covariance decomposition of aggregate productivity	Sector (j) and year	Figk_OPj_CCC.gph
Covariance decomposition of aggregate productivity	Sector (sector 2-digit) and year	Table 4

<sup>28</sup> Olley-Pakes

### 3.5 Do firms grow<sup>29</sup>? Which ones? Which firms create/shed jobs?

Whether firms grow can be only assessed with a panel structure where firms are observed over time. A common objective for countries is to put their limited resources to support activities, locations and types of firms with highest potential to boost the economy. Incentives to small firms becomes a dilemma since the formal private sector is plagued by micro firms often with less skills and wages. Because of the limit access to panel data, the first output under this question benchmarks the share of young micro firms. If the proportion of older micro firms is relatively large, is an indication that those small firms tend to not grow.

When panel data is available, a more thorough analysis allows to identify whether firms grow, in which sectors and locations, and what type of firms. Outputs address these questions in a variety of ways. First looking at the job flows overtime and to determine job creation, destruction and net job creation. High churning can suggest creative destruction or stagnation. Net job creation could be due to incumbents or entrants. Different sectors and regions contribute in different degrees. Transitions are also examines looking at what firm's size are more likely to upgrade.

Indicator	Determinants	Output
Share of young/old micro firms	Country	Figk_benchmarking_CCC.gph
Share of firms transitioning size	Size	Table 5
Job creation, destruction, net creation	Incumbents, new, exit and year	Figk_flows_CCC.gph
Net job creation	Sector and year	Figk_njc_sect_CCC.gph
Net job creation	Region and year	Figk_njc_reg_CCC.gph
Net job creation	Size and year	Figk_njc_sz_CCC.gph
Net job creation	Age and year	Figk_njc_ag_CCC.gph
Net job creation	Ownership and year	Figk_njc_own_CCC.gph

### 3.6 What firm characteristics predict firms' employment growth, productivity growth, and wage growth? What firm characteristics predict firm's exit<sup>30</sup>?

<sup>29</sup> It refers to employment.

<sup>30</sup> Probit regressions reporting marginal effects.

This final section of the demand-side firm-level analysis is undertaken where firm-level panel data exists. It estimates employment, labor productivity and wage growth through regression analysis<sup>31</sup>. Thus, holding all other firm characteristics constant. Likewise estimates the determinants of probability of exit. Where more productive firms more likely to exit, would provide evidence of market failure.

<b>Indicator</b>	<b>Determinants</b>	<b>Output</b>
Determinants of employment growth	Average size, age, ownership, capital, labor productivity, sector, location, and year	Figk_reg_Lg_CCC.gph Regressions_JDD_CCC.xlsx
Determinants of productivity growth	Average size, age, ownership, capital, sector, location, and year	Figk_reg_Pg_CCC.gph Regressions_JDD_CCC.xlsx
Determinants of wage growth	Average size, age, ownership, capital, labor productivity, sector, location, and year	Figk_reg_Wg_CCC.gph Regressions_JDD_CCC.xlsx
Determinants of firm's exit	Size, age, ownership, capital, productivity, sector, location, and year	Figk_exit_CCC.gph Regressions_JDD_CCC.xlsx

## ANNEX

<b>Indicator</b>	<b>Variables</b>	<b>Dimension</b>	<b>Output</b>
Count, average, median, standard variation, minimum, maximum	Employment, age, productivity, average wage, sales, wage bill, capital	year	Table A1

<sup>31</sup> Random effects model where panel nature of the data is accounted for. Standard errors are clustered by broad categories of size, sector, and location.