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Theoretical Underpinnings of Jobs Diagnostics

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WORK-IN-PROGRESS



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The theoretical underpinnings of Jobs Diagnostics are a work-in-progress and will continue to evolve as we undertake more diagnostics and more experience is gained. Practical guidance on how to conduct a Jobs Diagnostics is summarized in [Jobs Diagnostics: A Step-By-Step Guide](#). Updates of information in this paper on theoretical underpinnings will be reflected, as it becomes available, on the [Jobs Diagnostics data website](#)¹.

The Jobs Diagnostic approach in the World Bank was developed under IDA17 as a specific request from the Bank’s clients and IDA Deputies. A team in the Jobs Group developed standardized data analysis tools for; (a) economy-wide aggregate data (Dino Merotto with Hild Rygnestad (Consultant)), (b) individual worker data from household surveys (Michael Weber with Jorg Langbein, Consultant), and (c) for firm-level data (Reyes Aterido with Adrian Scutaru, Consultant). These tools allow the user to answer a set of structured questions that were also designed by Dino Merotto, Michael Weber and Reyes Aterido to identify data “symptoms” as the foundation for the diagnostic approach set out here (see annex I). To date over 40 World Bank country teams have embarked on or completed a Jobs Diagnostic.² Section V of this report draws on examples of Jobs Diagnostics managed by; Elizabeth Ruppert Bulmer (Paraguay), Thomas Farole (Bangladesh) and Dino Merotto (Uganda).

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¹ <http://datatopics.worldbank.org/JobsDiagnostics/index.html>

² For more information visit: <http://datatopics.worldbank.org/JobsDiagnostics/index.html>

I. INTRODUCTION

This paper is a work-in-progress and was developed to advance our thinking on how to make Jobs Diagnostics more strategic and to explore how guidance can best bridge the link from jobs analysis through prioritization, to recommendations. It will continue to evolve as we undertake more diagnostics. The role of Jobs Diagnostics is to help operational teams think more deeply about evidence, guide them towards priority problems, and understand the constraints to better jobs outcomes with economic growth, and their likely causes. We believe a better link from standardized diagnosis to recommendations is needed, while recognizing that a single formulaic framework is not desirable. In general, Jobs Diagnostics guidelines should help *contribute to thinking* about causes of jobs problems identified in data tests, with priorities for policies and operations should be based on evidence and not be left *too open* to discretion. This is a first attempt to help practitioners narrow down Jobs problems, think deeply about their causes, and prioritize between possible solution areas. Thus, the examples given in this paper are not exhaustive, and its recommendations are not meant to be prescriptive. The guidance will be refined in the coming years, as more practical examples emerge and we gain further lessons in strategic prioritization.

WHY A JOBS LENS IS NECESSARY IN ECONOMIC GROWTH

1. **Jobs are at the center of economic development.** They are the primary source of income for most individuals and families, especially in the world's poorest countries. As a result, they drive poverty reduction and contribute to economic growth and social stability. From the perspective of workers, economies grow when more people join the labor force and find work, when workers get better at what they do, and when they move from low productivity work to better, higher productivity jobs. Each of these pathways to higher incomes varies in importance over time, depending on the rate of economic growth, stages of economic transformation and demographic transition at which a country finds itself.³
2. **The nexus between economic growth and jobs is the key to economic development.** Economic growth is not sufficient to generate more and better jobs. But all other things equal, growth is essential for a country to simultaneously raise workers' earnings and employment without reducing the profits of entrepreneurs. A country whose labor force is growing at 3 percent per year must achieve economic growth *above* 3 percent if it is to raise average labor productivity whilst keeping the employment rate and labor force participation constant. A country where wages are rising faster than labor productivity cannot avoid eroding returns to capital unless its businesses introduce labor saving technologies, cutting employment. In the long run it comes down to arithmetic⁴. There cannot be *more and better* jobs and buoyant private investment in the absence of economic growth. However, the absence of growth *can* result in fewer and *worse* jobs, as economies in recession typically shed jobs and business cycle slumps often entail labor-saving innovations. And there can

³ Merotto, Weber and Aterido (2018) "Pathways to Better Jobs in IDA Countries"

⁴ Blanchard, O., R. Solow and B.A. Wilson (1995), Productivity and Unemployment, mimeo., MIT.

be buoyant private investment and economic growth without the creation of good jobs for most workers, for instance where growth is driven by capital intensive mineral extraction.

3. **Sustained growth depends on a continuing process of economic transformation that raises different jobs challenges over time.** Low-income countries typically find themselves in the early stages of structural economic transformation, with surplus labor shifting from low-productivity agrarian employment to higher-productivity industrial and service sector employment. In these countries, getting people to work is not the main issue. As most people cannot afford not to work, labor force participation and employment rates tend to be highest in these countries. It is not so much the quantity of work that matters here, but the quality of the jobs available to and within reach of workers given their location and skill sets, and the pace of transformation to better jobs.
4. **In middle-income countries, the economic transformation across sectors and space has been largely completed.** Most of the population work off-farm, living in urban areas. The private sector is more mature and labor markets are less shallow and more integrated. Because economic transformation is more advanced, economic growth in middle-income countries depends more on within-sector productivity improvements (e.g., through capital investments, R&D spending and competition in, and for, the market) than on labor shifts across sectors. In these countries, a larger share of the labor force is *wage-based* and subject to *formal work arrangements*. Workers are generally better off and better educated, which results in higher reservation wages. Low labor force participation and high unemployment rates are usually more important issues in this group of countries than in low-income countries.
5. **Demographics fundamentally shape the jobs challenges countries face.** Countries that are just beginning their demographic transition face the steepest challenges in creating more *and* better jobs. Such is the case in the Sub-Saharan Africa region, which has a very young population with only about one-half being of working age. To keep the unemployment rates and labor force participation rates constant, Sub-Saharan Africa will have to create new jobs at an estimated rate of 3 percent per annum. This contrasts with East Asia, where the demographic transition is further advanced and the working-age population is around three-quarters of the population. To keep unemployment and labor force participation rates constant, the required annual job growth is estimated to be only 1 percent. While Sub-Saharan Africa faces a much greater challenge than East Asia in terms of job creation, it also faces a greater opportunity in the form of falling dependency ratios, often referred to as a “demographic dividend”. As the proportion of working-age population rises, workers have fewer mouths to feed on each salary, boosting per capita income. In countries near the end of the demographic transition, where population growth is declining toward a new plateau, the challenge is not to create more jobs, but to raise the productivity of existing jobs.

WHAT IS A JOBS DIAGNOSTIC?

6. **Jobs Diagnostics (JDs) support policy makers who want to look at economic growth and how inclusive it is, through the lens of work.** They aim to direct policy makers to interventions that will make growth more inclusive, by attuning the growth process to a country’s labor endowment and improving labor mobility and access to work. In short, they are designed to help advise developing

countries on the policies, regulations and investments required to create “good jobs” for their people as their economies grow. They examine how GDP, the labor force, labor productivity, earnings and employment patterns in a country are changing over time *in the context of a country’s demographic transition and stage of development*, with the aim of drawing attention to any jobs outcomes that may be signaling stagnation, reversal, or exclusion in the growth process. They investigate whether jobs-related transitions are happening as should be expected under “normal” circumstances or whether some workers are failing to make transitions to better jobs as the economy grows and, if so, whether the observed outcomes relate to worker gender, location, age, marital status or education level, or whether they reflect abnormalities in formal private sector patterns of productivity, employment and wages that may be constraining jobs outcomes. We can then formulate the objective of a Jobs Diagnostic as seeking to identify the key constraints preventing the attainment of a more favorable jobs outcome and to determine which policies would be best for removing that constraint. Beyond looking at current jobs constraints, Jobs Diagnostics also have the forward-looking objective of identifying the main challenges a country is likely to face in terms of creating and providing adequate access to more and better jobs in the future, given its stages of demographic and economic transition, and its current physical and human capital endowment.

7. **Key steps in carrying out a Jobs Diagnostic.**⁵ From experience, the World Bank’s Jobs Group has developed a standardized and step-wise approach to Jobs Diagnostics. Section II describes the initial steps involved in identifying the key jobs-related problem – i.e. what might need fixing. This first step identifies “*symptoms*” – a collection of informative data indicators (set out in a “*guided enquiry*” in annex 1) which are compared to benchmarks from appropriate comparator countries to check whether the country registers within a normal range, and to look for signs of abnormality. The key is to narrow down the most significant symptoms and use them to identify the “right” jobs-related question to be addressed through further analysis. That question may refer to a directly treatable jobs-related *constraint* (where there is a known and identifiable remedial solution in the form of a corrective policy or regulatory action or investment, we refer to this type of problem as a “constraint”), or else the question may refer to a jobs-related *condition*, described by a set of symptoms identifying ‘abnormal’ jobs-related outcomes that is not yet fully understood, or has no single specific remedy, but is negatively affecting workers⁶. Section III describes the iterative process of information gathering, integration and interpretation of additional information to determine the cause of the key jobs-related question. This process involves basic market-oriented economic reasoning, where sub-optimal jobs outcomes are interpreted as the product of economic or other factors that constrain the options of rationally behaving economic agents. The objective of this iterative process is to identify the key constraints responsible for the jobs-related outcomes that are perceived as sub-optimal. Finally, Section IV discusses the identification of appropriate

⁵ These Guidelines lean on the Growth Diagnostic approach that was developed by Hausmann, Ricardo, Bailey Klinger and Rodrigo Wagner (2008), “Doing Growth Diagnostics in Practice: A Mindbook” [CID Working Paper No. 177, September 2008] to address the broader question of how to identify and remove a country’s constraints on economic growth. The Jobs Diagnostic may be regarded as an application of the Growth Diagnostic approach to a slightly narrower sub-set of questions.

⁶ For instance, we identify structural dualism as a very significant and multi-faceted *condition* or *syndrome* for which the jobs solutions require more thought than would removal of a burdensome regulation or license.

solutions, that is, policies to either correct the jobs-related problem or condition identified at the beginning or to ensure that an existing jobs-related condition does not turn malignant for jobs outcomes. Section V presents examples from three country cases that have applied the Jobs Diagnostic approach. Further guidance on the key elements and steps in conducting a jobs diagnostic can be found in [“Jobs Diagnostics: A Step-By-Step Guide”](#) (Dino Merotto 2019).

II. IDENTIFYING THE RIGHT JOBS-RELATED QUESTION TO BE ADDRESSED THROUGH FURTHER ANALYSIS

STEP 1: CHECK USING A GUIDED ENQUIRY AND BENCHMARKS WHETHER JOBS OUTCOMES ARE WITHIN NORMAL RANGES

8. **To begin, gather economic and social indicators to generate a country and labor market profile and history.** This first step is equivalent to an initial visit to the doctor to check out a patient’s vital signs and medical history. If one or more of these indicators exhibit “abnormal” values – meaning significant departures from the historical trend, or from the average indicator values exhibited by comparable countries, then they may represent “symptoms” of an as yet undefined condition that warrants further attention.⁷ Economic development entails various economic transformations, and such transformations, in turn, depend on investments in human and physical capital and factor mobility across economic sectors, geographic locations and occupations. When an economy exhibits worse jobs-outcomes than those observed historically, or in other countries at similar stages of development, it signals that something has gone awry in the transformation process. The guided enquiry in Annex 1 was designed with recognition that development involves economic transformation.
- Using standardized data tools created by the Jobs Group⁸, complete the data checklist given by the “Guided Enquiry for Jobs Diagnostics”. This checklist is structured in three parts: the first part presents key macroeconomic and demographic indicators, the second part deals with the supply of labor and the third part looks at the demand for labor, with particular attention on the formal or modern sector of the economy.
 - For each indicator, check if there have been noticeable changes or breaks in the time series trends of these indicators. For example, has industrial sector employment stopped growing, has the unemployment rate spiked up, or has wage dispersion increased?
 - Compare each indicator value to the average values or ranges observed in comparable countries and identify any outliers; see paragraph 10.
 - Based on the resulting country and labor market profile/history, identify the jobs outcomes causing the most concern and that motivate the question to be answered through the Jobs Diagnostic exercise.

⁷ Perhaps the best medical analogy here is the use of growth charts in medicine to monitor the health of infants and children for the purpose of enabling early diagnoses of serious conditions. These charts plot the height, weight and age of a patient and compares them with the population average, where major deviations from the population averages – e.g., measurements below the 10th percentile or above the 90th percentile – signal a failure to thrive.

⁸ <https://worldbankgroup.sharepoint.com/sites/Jobs/Pages/Jobs-Diagnostic-Tools--03182019-095113.aspx#JobsStructureDemo>

9. **Make sure to take a broad enough look at the economy’s history before deciding on the “right” jobs-related question to be answered.** When a data series exhibits abnormal values, it is not immediately evident whether these deviations from the normal pattern merely represent cyclical variations versus structural departures or changes in trends that deserve deeper attention. In such situations, greater clarity may be achieved by extending the historical period under analysis. For example, if we were to examine Brazil’s waged employment share over the three decades (Figure 1), we might be tempted to conclude that waged employment had remained a fairly constant share, possibly reflecting a lack of dynamism amongst hiring firms. However, if we look over a longer period, we would see stagnation in the rate during the 1980s, collapse in the early 1990s and then a steady improvement from 2000-2014, amounting to an almost 10 percentage point increase. While the 1980s would not be signaling potential problems in employment, the early 1990s would, whereas the more recent period of growth raises questions about what is driving it and its sustainability.

Figure 1

Brazil: Waged Share of Employment



Source: Global Jobs Indicators Database, DEC/Jobs Group (2019)

Note: Waged Employment refers to the percent of employed persons in waged work

10. **Identify a set of benchmarks and comparator countries early in the diagnostic process.** This is important for determining whether certain indicator values lie within a “normal” range or represent potentially pathological outliers. Important criteria that are typically used in selecting the comparator group of countries include:
- *Stage of demographic transition.*

- Most developing countries fall between stage 2 (rapid population growth) and stage 4 (reaching a new population plateau) according to the 5-stage Demographic Transition Model (DTM).
- Stage of economic structural transition.
 - The most common criteria traditionally used for this purpose are the level of income per capita to measure stages of economic development (i.e., low income, lower-middle-income and upper-middle income status). Alternative criteria could be the GDP-shares or employment-shares of Agriculture, or some measure of industrialization.
- Regional location (i.e., Sub-Saharan Africa, South-East Asia, Latin America, etc.), which may serve as a proxy for common cultural values or similar market institutions.
- Other criteria, such as ‘small island status’, landlocked status or degree of natural resource dependence, may be relevant when analyzing particular country cases.

11. **Finding the right country comparators is critical.** Table 1 presents a selection of Jobs-relevant indicators averaged out over three sets of countries distinguished by per-capita income levels (low income, low-middle income, and upper-middle income), as well as over two different time periods (1995-2005 and 2006-2017). These average indicator values can serve as benchmarks for deciding whether or not certain indicators observed in particular countries represent statistical outliers meriting further analysis. For example, with agriculture sector employment representing 55 percent of total employment, Equatorial Guinea does not stand out in comparison to other African countries. However, when considering that Equatorial Guinea is a high-income country (where agricultural employment shares average less than 5 percent), this high level of agricultural employment does stand out as an outlier that may be reflecting a developmental problem. Similarly, with an urbanization rate of 52 percent, Haiti hardly stands out among countries in mostly middle-income Latin America. However, it does represent a statistical outlier when compared to other low-income countries, which average 30 percent, and is likely related to the extent of Haiti’s environmental degradation that has rendered agricultural activities unproductive and accelerated the rural exodus.

	Low Income		Lower Middle Income		Upper Middle Income	
	1995-2005	2006-2017	1995-2005	2006-2017	1995-2005	2006-2017
	<i>averages</i>		<i>averages</i>		<i>averages</i>	
Demographics						
Annual GDP growth (%)	3.9	5.2	4.9	5.9	4.8	5.4
Annual Population growth (%)	2.8	2.7	1.8	1.5	0.9	0.8
Annual Working Age Population growth (%)	2.9	3.0	2.3	1.9	1.7	0.8
Annual Labor Force growth (%)	2.9	2.9	2.3	1.4	1.3	0.6
Annual Employment Growth (%)	2.7	2.6	1.7	1.1	0.5	0.4
Economic Structure						
Agriculture share of GDP (%)	30.4	26.8	20.4	16.1	10.5	7.0
Agriculture share of Total Employment (%)	74.3	69.5	54.2	44.0	36.7	21.8
Agriculture Sector Productivity (constant 2010 US\$)	314	374	721	1,183	1,675	3,617
Total Labor Productivity (constant 2010 US\$)	769	970	1,930	3,197	5,936	10,816
Labor & Employment Characteristics						
Urbanization rate (%)	26.7	30.4	32.9	37.5	50.0	60.2
Literacy rate (%)	50.9	56.6	66.2	73.0	89.7	94.0
Share of Wage Employment (%)	20.7	22.3	25.7	31.0	52.3	63.0

Source: World Bank, World Development Indicators

	GDP/capita	Labor Productivity	Employment Rate	Labor Force Participation	Working Age Population
	$d\ln(\text{GDP}/P)/dt$	$d\ln(\text{GDP}/E)/dt$	$d\ln(E/LF)/dt$	$d\ln(LF/WAP)/dt$	$d\ln(WAP/P)/dt$
Country Category	A	B	C	D	E
	<i>Annual average percentages (1995-2017)</i>				
Low Income	1.83	1.87	-0.24	-0.02	0.22
Lower Middle Income	3.76	4.02	-0.48	-0.24	0.46
Upper Middle Income	4.27	4.68	-0.52	-0.26	0.37

Source: World Bank, World Development Indicators

Note that for each row, the item in column A equals the sum of items in columns B through E.

12. **In developing appropriate benchmarks to monitor progress in the jobs-related transformation that fuels the development process, keep in mind the pathways followed to better jobs.** As summarized in Merotto et al (2018), these pathways consist of increasing the hours worked, becoming more productive in a given job, moving from less productive locations, sectors, occupations and firms to more productive ones, and shifting from self-employed job categories to waged employment. To monitor the progress made on each pathway, we pay special attention to the levels and evolution of a number of indicators, including: un- and under-employment rates, within-sector productivity growth, rates of urbanization, static and dynamic reallocation effects from inter-sectoral movements in workers, improvements in the human capital of the workforce (which expand the opportunities for occupational shifts), the degree of competition among firms,

and the share of wage-based versus household enterprise employment. Except for increases in hours worked, these pathways represent different types of economic transformations that raise labor productivity, which is the main source, by far, of per-capita GDP growth.

13. **To assess progress in the jobs-related transformation process, look at jobs-outcomes in both a static and dynamic context.** The indicator values in Table 1 also serve to illustrate the typical transformation sequence followed by most countries on the path of development. (Note that the trend exhibited by these indicators across country income categories is the same as that exhibited across time within each income category.) The following are some key elements of this transformation sequence:⁹

- Most low-income countries (LICs) find themselves in the early stages of demographic transition. They exhibit higher rates of population growth and labor force growth than lower-middle and upper-middle income countries, which means that they face the greatest demographic challenge in terms of creating new jobs to accommodate new entrants into the labor force. Higher income countries tend to be closer to the end of their demographic transition. As noted earlier, their main challenge is to raise labor productivity over time, rather than increasing the number of jobs. As can be seen in Table 1, most have succeeded in meeting this challenge, considering that the average labor productivity rate for higher income countries is greater than for lower income countries.
- Labor productivity growth is the main source of real GDP growth per capita in every country grouping, but is especially important for low income countries, which exhibit the lowest labor productivity growth; see next paragraph and Table 2.
- Agricultural activity becomes progressively less important as countries develop, both as a share of GDP and of total employment.
- The contribution that structural change makes to labor productivity growth is especially important at low levels of income¹⁰.
- The rate of urbanization tends to increase in parallel with the declining economic importance of agricultural activities.
- As economies transition from traditional Agriculture activities to more sophisticated industrial and service activities, the demand for a better educated labor force increases and the returns to human capital investments rise. This is reflected in the expansion of labor force literacy rates over time and across income categories.
- As economies develop, the quality of jobs improves. This is reflected in the average increase of wage-based jobs as a share of total employment.

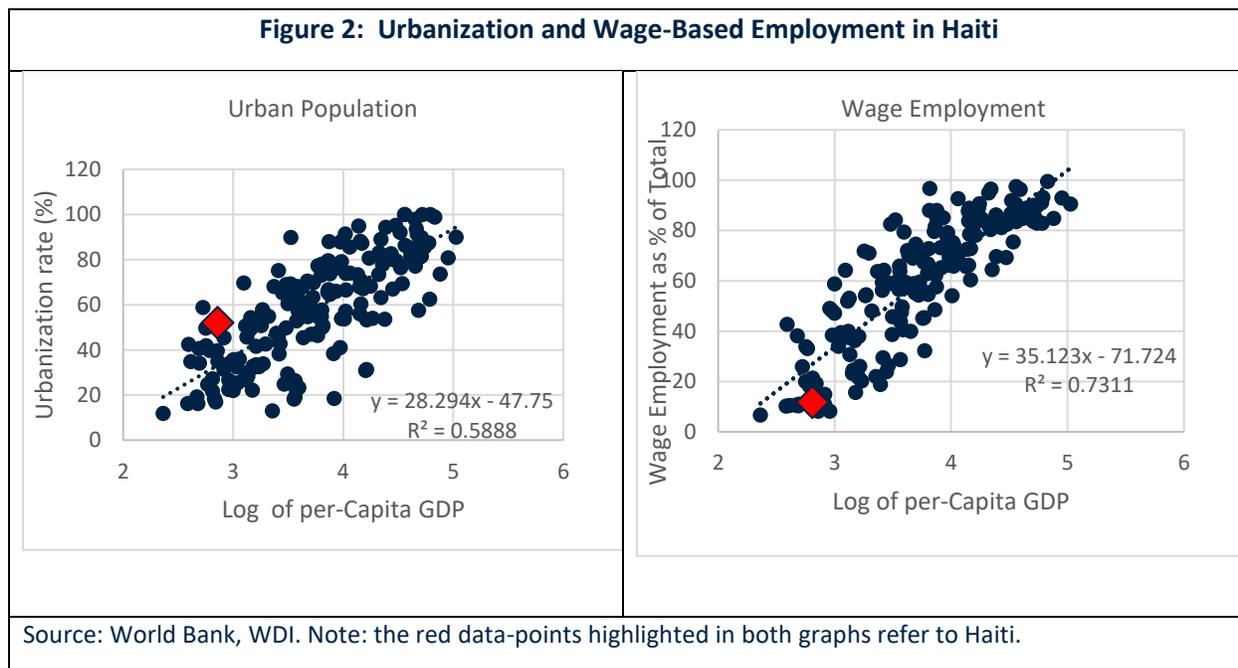
14. **Labor productivity represents the most important source of per-Capita GDP growth in most economies, especially over the long-term.** Table 2 shows the results from a Shapley decomposition that expresses the growth rate of per-capita GDP as the sum of growth rates of labor productivity, the employment ratio, the labor force participation ratio and the working age population ratio. It is clear that the lion's share of per-capita GDP growth is accounted for by labor productivity growth in all country income categories. Labor productivity, in turn, can be separated into within-sector

⁹ Other typical elements of this transformation sequence are discussed in Merotto et al (2018).

¹⁰ See Merotto et al (2018).

productivity growth and between-sector productivity growth. As noted in the Introduction, the relative importance of each source of productivity growth varies over time: between-sector productivity growth usually is the main source of growth in low income countries, while within-sector productivity growth increasingly dominates in low-middle and upper-middle income countries.

15. **Poor jobs-outcome indicators may be signaling inadequate synchronization in the pace of transformation across different pathways to better jobs.** For example, if the transition out of Agriculture takes place too slowly, it may be indicative of problems in geographic or rural-urban labor mobility, or rural / urban terms of trade, or of job-creation problems in the industry sectors.¹¹ If the transition out of Agriculture coincides with low productivity in agriculture, it may be indicative of push factors from Agriculture and may strain the urban sectors' capacity to absorb the influx of new workers and create new jobs. This would manifest itself in either an expanding un- or under-employment rate, or in the expansion of low productivity self-employment activities. This seems to be the problem in Haiti, for example, which has been exhibiting very rapid urbanization by peer group standards, but where, conversely, progress in expanding wage-based employment remains very limited. (Note from Figure 2 that Haiti's urbanization rate is well above the trendline for developing countries, which the level of wage employment is well below the trendline.) The latter outcome could be signaling bottlenecks in the modern sector of the economy (which tends to be urban-based), as the new immigrants from rural areas can only find employment in low-productivity household enterprises or informal activities.



¹¹ In the case of Equatorial Guinea, mentioned earlier, the slow transition from Agriculture to other sectors is linked to a high dependence on the extractive sector, which represents a highly capital-intensive enclave industry with few links to the rest of the economy. The extractives sector is part of the overall industry sector, which generates 56% of total GDP, but only 6% of employment. In contrast, Agriculture generates around 55% of total employment, but only between 1% and 2% of total GDP.

16. **Identify the right jobs-related question to be answered by the Jobs Diagnostic.** After completing the initial review of jobs-related indicators and peer group comparisons, we should be in a position to frame the most relevant jobs-related question *in the context of* a country's particular economic, demographic and social history. For example, the previous checklist may have revealed a sharp break in the time series of formal waged employment, so that its share of total employment is now significantly lower than before, and also that the average formal sector employment share observed in comparable countries is significantly higher. Then the relevant question may be: why has formal sector employment been stagnating? Alternatively, the initial data gathering process may have drawn attention to other possibly sub-optimal jobs outcomes, such as unusually high under-employment rates, a very low employment-growth elasticity (often referred to as "jobless growth"), the existence of high gender wage gaps, or steep differences in wages across different regions within the country, in which case the key relevant question is adjusted accordingly.
17. **The over-arching jobs-related question in most developing countries will eventually revolve around the generation of high-quality or "good" jobs.** These jobs are mainly to be had in the modern sector of the economy, in contrast to the traditional sectors. This is not to say that investing to raise productivity in the traditional sectors is without merit. In many low-income countries, it will take decades before the modern sector of the economy is in a position to "take off", even in the best of circumstances. Meanwhile, most people in those countries will continue to rely on agricultural employment and live in the rural sector. In that context, increasing agricultural productivity would be a priority, both in terms of having an immediate impact on the majority of workers as well as in setting the stage for the subsequent push to industrialize. Even so, the main engine for long-run real GDP growth, development and poverty reduction in most countries will remain linked to the creation of more employment in the modern sector represents. Unfortunately, data that fully captures the notion of modern sector employment is largely non-existent in most developing countries. Instead, analysts will have to rely on data from the existing employment classifications, which variously include formal employment, urban employment, industrial employment, or wage-based employment. While each of these employment concepts focuses on different attributes of modern sector employment, they may be adequate enough to establish a workable distinction from employment in the traditional sector, which is variously referred as informal, rural, agrarian or household enterprise employment.

STEP 2: PRIORITIZATION

18. **A more precise way of stating the key jobs-related question is to ask which jobs-constraint or condition is responsible for the sub-optimal jobs outcomes revealed through the guided enquiry and benchmarking process discussed previously¹².** This way of presenting the question draws attention to two important aspects of a jobs diagnostic exercise. One is the presumption that a

¹² Optimality can be expressed differently without changing the integrity of the diagnostic process. For instance, the policy maker might want to optimize the pursuit of poverty reduction or might want to improve wages and hours worked for the poorest 40%. Alternatively, s/he may be seeking to maximize growth of employment for the "middle class", or to bring median and mean real wages closer together.

“healthy” and liberal market economy will always converge to Pareto-optimal jobs outcomes in the absence of market or policy failures. A sub-optimal outcome, therefore, must be the result of either some to-be-identified constraint (read disease) or condition (read syndrome) that is preventing market forces from operating freely to achieve a Pareto-efficient equilibrium outcome, or the result of unusual circumstances that are yielding jobs-outcomes considered undesirable, even though they may be Pareto-efficient. In other words, the terms “constraint” and “condition” are used here to refer to jobs-development obstacles associated with market or policy failures, in contrast to *natural* obstacles not involving market or policy failures. See Box on Diagnostics Terminology and Annex IV.

19. **The other important aspect of this formulation of the jobs-related question is that the constraints/conditions of interest must be binding.** All developing countries are likely to exhibit constraints in a great number of factors that are important for development (e.g., gaps in productive infrastructure, and shortfalls in human capital, legal and regulatory systems, governance institutions). After all, that is why these countries are still considered to be in a developing stage. But these development constraints will not all be binding at the same time. Since the removal of non-binding constraints would not improve the abnormally low jobs outcomes observed, it is essential to identify and focus primarily on those that are binding. In other words, prioritization between constraints/conditions is critical.

III. IDENTIFYING THE BINDING JOBS CONSTRAINT

20. **How do we determine whether a jobs-constraint is binding?** The following principles were formulated by Hausmann et al (2008) to assess whether an economic constraint is binding:
 - The (shadow) price of the constraint should be high. For example, if the lack of human capital is constraining hiring, we should expect the returns to investment in human capital to be very high, as workers with more human capital command a higher wage premium.
 - Movements in the constraint should produce significant movements in the use of the constrained factor. Assume, for example, that a transport cartel is constraining the entry of new formal sector trucking firms and reducing the derived demand for HGV drivers. If the constraint is binding, we should expect the removal of barriers created by the cartel to allow new entrants and increase in the demand for HGV truck drivers.
 - Agents in the economy should be attempting to overcome or bypass the constraint. For example, when the government passes more restrictive labor legislation, we would expect the level of informal employment to increase even within formal companies, as agents seek to bypass the legislation by hiring workers off the books. If skills are the main constraint, we should expect to observe firms and industries working collaboratively with labor organizations to train staff to address the constraint. Or else we would see an increase in applications for work permits for foreign workers. In [Zambia](#) for instance the formal construction industry hires mostly Zimbabwean electricians.
 - Agents that are less (more) exposed to a particular constraint should be more (less) likely to survive and thrive under that constraint. For example, if human capital is a binding constraint,

we should expect the firms that have survived to rely mostly on production technologies with low human capital inputs.¹³

Box 1: A Note on Diagnostics Terminology

The Jobs Diagnostic approach presented in this report is similar in many ways to the clinical reasoning process commonly used to diagnose health problems. Upon meeting a new patient, the physician is confronted with a set of observations (e.g., weight, blood pressure and temperature readings) that provide an initial insight into the patient's overall health. If these readings happen to fall outside the range of normal values in a population, they may be signaling the presence of a disease, health syndrome or unusual living conditions. (For example, a very low weight reading could be symptomatic of a metabolic disease or may simply be reflecting a poor diet.) These abnormal readings are referred to as signs or symptoms, and the physician's objective is to identify their underlying cause. The physician proceeds by formulating an initial set of working hypotheses about the possible causes of these symptoms and then conducts additional diagnostic tests to see whether other symptoms that are known to be associated with a particular disease or health condition are exhibited by the patient or not. If the patient does not exhibit them, then that particular working hypothesis can be ruled out. This inductive iterative process continues, in principle, until all but one of the working hypotheses have been refuted by contrary evidence. At that point, the physician proceeds to the therapeutic stage to treat the disease, treat key symptoms, or to develop a coping strategy for the health condition that was diagnosed.

In this stylized account, the term "Symptom" refers to an observed indicator value, and the terms "Disease" and "Syndrome" refer to clusters of symptoms that occur together or co-vary over time. The difference is that with diseases the underlying cause (etiology) of the abnormal readings has been identified, but with syndromes it has not. This distinction is important at the therapeutic stage: in the case of diseases, medical protocols and treatments to address or eliminate the causes of the health problem have already been established, whereas for syndromes, physicians can only treat symptoms because the underlying virus or genetic disorder that define a disease has not yet been discovered. Finally, health "condition" also refers to a cluster of indicator values that describe a particular state of health, but without necessarily a connotation of an underlying disease.

A Jobs Diagnostic begins with a set of jobs-related data observations or jobs outcomes that give the analyst an initial insight into the country's overall jobs situation. When one or more of these observations exhibit a significant break over time, or fall outside the range of values normally observed in other countries with comparable structural characteristics and at similar stages of development, they represent symptoms of a possible jobs-related constraint or may just be reflecting an unusual jobs environment. (For example, an observation of unusually low labor productivity in Agriculture may be symptomatic of a land policy that inhibits investment in the sector or merely reflecting the presence of very poor terrain.) The analyst's objective is to identify the binding constraint or condition that causes the jobs outcomes reflected in the initial set of observations (referred to as the "Key Jobs-Related Issue" in Section II). This is done by formulating a set of working hypotheses about what caused the observed jobs outcomes, where each working hypothesis refers to a potential constraint or condition and the cluster of symptoms known beforehand to be associated with each; see Table 3. The iterative process of ruling out different hypotheses then follows the same pattern as the clinical reasoning process described above.

The terms "data observation" and "jobs-outcome" are analogous to "sign" or "symptom" in the medical context, the term "constraint" is analogous to "disease", and the terms "syndrome" and "condition" are the same in both

¹³ This is why the responses derived from Investment Climate Assessments about the severity of various constraints must be approached with some caution: since the responding firms have obviously survived, they were either not highly exposed to that constraint to start with or they have found ways to get around the constraint.

contexts. The difference between constraints and syndromes in the jobs context is that jobs-constraints (such as a poor land policy) reflect market or policy failures that impair the functioning of markets and therefore lead to inefficient jobs outcomes, while jobs-conditions (such as poor agricultural terrain) do not entail an impairment of markets, but can still result in abnormal job-outcomes as a result of an abnormal jobs environment. It is in principle possible to remove policy constraints or correct market failures through appropriate tax and regulatory policies, thereby curing the disease so to speak. In the case of jobs-conditions, a curative solution does not exist since there is no market failure to correct. Even though certain jobs outcomes represent an efficient equilibrium, however, they may still be deemed socially unsatisfactory (e.g., on distributive grounds). In that case, measures to shift the equilibrium toward a more socially acceptable outcome are likely to involve efficiency losses.

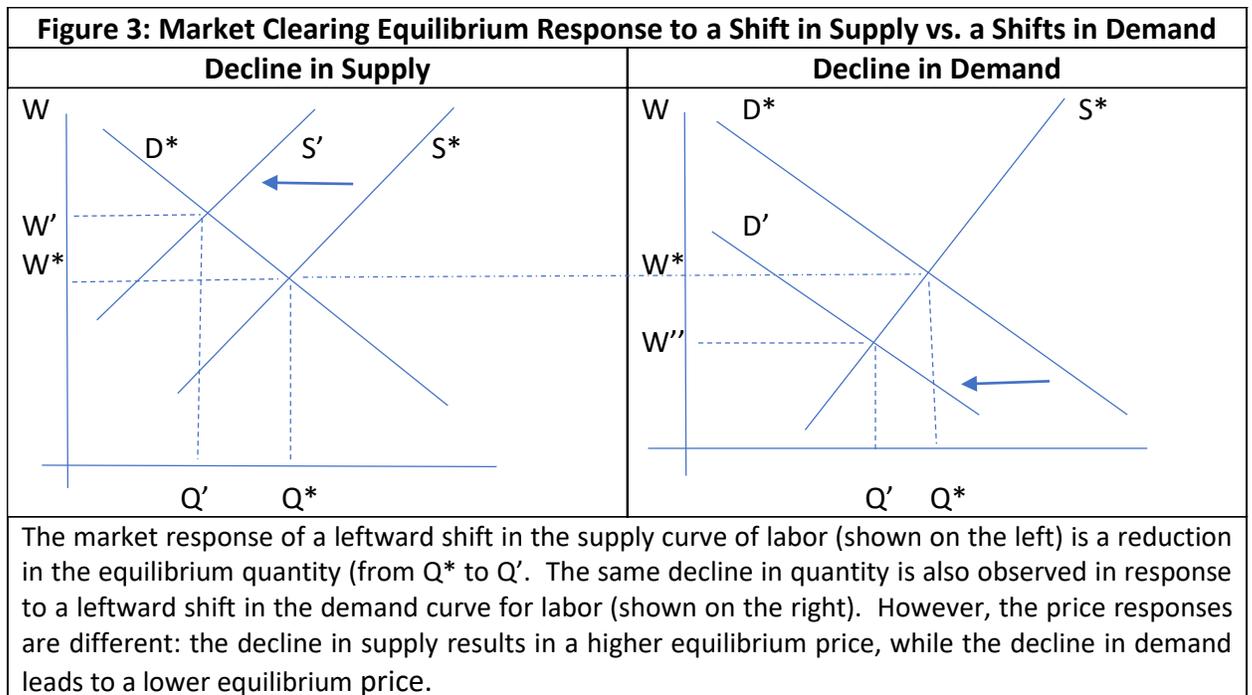
One important difference between clinical reasoning in health and economic diagnosis in low income countries is that unlike for instance growth in children's height and weight, there is no single normal path nor pace for economic development. Countries at lower stages of development may wish to accelerate improved jobs outcomes with economic growth or may wish to follow a more labor-intensive growth path. Benchmarks of what is realistic given global experience can serve as a useful reality check.

STEP 3: IS IT DEMAND OR SUPPLY?

21. **Carry out a differential analysis using the principles outlined above to identify the key constraint responsible for the sub-optimal jobs outcome.**¹⁴ Generally speaking, the key jobs-related question identified in Section II will point toward sub-optimal values of either the amount or the price of a particular set of jobs related variables. In the previous example, the key question focused on the level of formal sector employment, which was presumed to be unusually low (either in relation to historical trends or cross-country comparisons). Applying a simple, partial equilibrium analytical framework, this raises the follow-up question of whether the low level of formal employment is due to deficiencies in the supply of workers in the formal sector or to deficiencies in the demand for workers.¹⁵ Note that formal sector employment could be low because the supply curve of workers has shifted to the left, or because the demand curve for workers has shifted to the left; see Figure 3. Even though both shifts result in a decline in the equilibrium employment level, a negative shift in the supply curve would be associated with an increase in the equilibrium real wage of formal sector workers, while a negative shift in demand would be associated with a decrease in real wages. So, depending on the observed behavior of real wages amongst activities and locations, we can narrow down the list of potential constraints that may be responsible for the decline in employment. If real wages had *increased*, we would be more likely to focus on supply-side constraints and if real wages had fallen, we would be more likely to focus on demand-side constraints.

¹⁴ This step corresponds to the process described by Hausman et al (2008) of "going down the decision tree".

¹⁵ The same follow-up question would apply equally well if the key question had focused on the sub-optimal value of the wages paid to formal sector workers, instead of their level of employment.



STEP 4: WHAT'S THE LIKELY CAUSE?

22. **Develop a list of potentially binding constraints (and conditions) that could be causing shifts in the *supply curve* for workers and a list of constraints that could be causing shifts in the *demand curve*.** Clearly, once we know whether the decline in formal sector employment is associated with an increase or decrease in real wages, we would only need to focus on one of these two sets of constraints.

23. **Prepare a list of symptoms associated with each constraint.** Assume, for example, that the low level of formal sector employment is largely explained by a lack of demand for workers due to monopolistic control of production in otherwise labor-intensive sub-sectors, by politically connected business interests. Then we should expect to find that the country exhibits relatively *low real wages* and stagnant growth in real wages, and among others, the following symptoms: (i) slow growth in employment in the labor intensive sectors, (ii) a high degree of market concentration as determined by the Herfindahl-Hirschman index (see annex 1 demand side indicators), (iii) high average age of a firm in key sectors with low churning, and (iv) if lack of competition is generating economic rent for the monopolists, we may observe high labor productivity, high wages, and high capital intensity for a few large firms coexisting in the same activities as a large number of smaller much less productive firms that pay much lower real wages. Whether monopolistic competition represents a credible explanation for the low level of formal sector employment hinges on whether these associated symptoms are observed or not. From labor supply side data, we would see (v) relatively low changes in the formal waged share of workers, coupled with most likely; (vi) higher shares of self- and unpaid family workers, or low participation as family workers, especially women, are less inclined to enter the formal labor market in the absence of high probabilities of waged work; (vii) low returns to education and low wages for young people, who must queue for the few good

jobs. Aggregate employment data may reveal (viii) a slower pace of structural change into the monopolistic sub-sectors, and low average labor productivity growth over time. Note that in investment climate surveys the large dominant firms might not complain about competition, but smaller firms in the same activities may¹⁶.

24. **Look at disaggregated data symptoms.** The micro approach to the Jobs Diagnostic supply and demand sections of the guided enquiry permits a deeper look at symptoms. For instance, it permits a deeper look over time at hiring by firm type (age, size, activity, location), and at real earnings per hour and probabilities of finding waged employment for waged workers by their characteristics (by education, location, age and sex). A deeper diagnostic can check whether an anomaly is nationwide, or is unique to a region or sector, business or set of individual characteristics.

25. **Consider “supply-side stories” as well as “demand-side stories”.** If it had turned out that the depressed level of formal sector employment had been associated with *high real wages*, we would be looking for potential labor supply-side constraints restricting employment. One possible explanation that is more common in MICs than LICs, could be the presence of uneven market power in labor markets, leading to wages being set above the free market equilibrium. Another would be skills shortages which make skills-intensive firms uncompetitive because wages are high relative to the poorly skilled workers’ productivity. To be persuaded that uneven labor market power is the likely cause, we should also expect to see: (i) significant wage inflexibility, (ii) substantial unemployment including for workers with the requisite educations, and possibly (iii) a high share of wages in value added for formal sector firms, (iv) wage gaps between formal and informal sector firms and between unionized and non-unionized workers in the same sectors and with the same education, and (v) a comparatively high capital-intensiveness in production technology, as firms seek to reduce their dependence on labor¹⁷. Indirectly one might observe a strong presence of trade unions in policy debate, strong collective bargaining and the presence of various trade and artisanal guilds. If skills shortages were to blame, we would look for (i) comparatively low education outcomes in standardized literacy and numeracy tests; (ii) low public and/or private spending on education, (iii) high rates of return to education, and (iv) a high skills profile amongst immigrants relative to the local population, and (v) a high flow of work permit applications from growing firms in skills intensive activities. Yet another potentially binding supply-side constraint may be the presence of barriers to labor mobility that have resulted in low rates of urbanization, low internal migration and the persistence of wage gaps across locations. Such barriers may include high transport costs that have led to high food prices in urban areas, high housing costs that inhibit the move to urban areas, or absence of urban amenities (water, health care and education) in low income urban settlements.

¹⁶ To quote from Hausman et al. the diagnostician should “beware the came and the hippo” – the dearth of large foreign firms (hippos) in a country with monopolistic competition may mean that foreign firms don’t complain about poor competition in part because they have evolved to deal with it (they have become camels).

¹⁷ Note that symptoms (ii) and (iii) would also be consistent with imbalances in the tax code that favor capital over labor even where there is a substitution of jobs for what Acemoglu and Restrepo (2019) call “the wrong kind of AI”. But *high real wages* would be inconsistent.

26. **Posit a job-constraint, test its further implications, and look for corroborative evidence in an iterative manner.** After completing a first round of differential diagnosis, list all the symptoms examined so far and posit a constraint that appears consistent with those symptoms. Then consider possible further implications of that constraint – i.e., what other symptoms would one expect to see if that constraint were binding? Then see whether the country micro data for households and firms, or alternative data sources offers up evidence of such symptoms, corroborating the posited constraint. If not, posit alternative constraints and repeat the same process until the set of symptoms consistent with the posited constraint coincides with the country data.
27. **Make sure that all relevant symptoms are present before deciding which are the key constraints that need removing, or what is the condition that needs treating.** Note that some potential constraints share some of the same symptoms as other constraints and conditions. This means that the analyst will need to group symptoms as a physician would do to arrive at a diagnosis of the binding constraint. For example, suppose we had already determined that the stagnant level of formal sector employment is due to some supply-side constraint that is keeping wages and returns to education high, and that we had furthermore observed that the formal private sector exhibits significant wage inflexibility. This observation would support the notion that the binding constraint might be a high reservation wage supported by the government’s introduction of a generous income protection program, but it could also be reflecting unbalanced bargaining power in which unionized workers are able to set wages and enforce a closed shop of industry ‘insiders’. We would need then to look for further symptoms that are not shared by both constraints to determine which one is most binding. We would be prompted to look, for example, at the extent of unionization in the economy, or at the relevant labor regulations, to determine which of these explanations is more plausible. It is of course possible that both explanations reside together, as was found in the case of South Africa. There generous unemployment benefits are compounded by high transport costs from townships, and high search costs, to increase reservation wages for many urban workers¹⁸.

FROM SYMPTOMS TO CONSTRAINTS AND SYNDROMES

28. **Relating Symptoms to Constraints.** Table 3 lists a set of indicative supply-side and demand-side side constraints that could explain the depressed level of formal sector employment, and some symptoms associated with each constraint and condition. It is important to note that this list is not meant to be exhaustive. Even though Table 3 is constructed in a manner that suggests a clear distinction between the indicative constraint (given across the top row of each column) and the associated symptoms (listed in the column underneath each row element), this is not necessarily the case. The item referred to as a constraint might itself be considered just another symptom in the associated column. So, for a start, it would be advisable to consider all the elements in each column as simply a cluster of symptoms that vary together in a systematic manner.
29. **Conditions or Syndromes may not have specific causes.** After careful consideration it may be that the cluster of abnormal or unhealthy symptoms identified does not have a clear causal origin. For example, it is not evident off-hand what the main cause of low human capital levels might be. Is it due to low

¹⁸ South Africa Systematic Country Diagnostic, World Bank (2018)

spending on basic education, or is it from poor learning outcomes influenced by, say, poor child nutrition histories? Is it caused by ineffective tertiary training institutions or is it simply due to the introduction of some new sector or transformative technology that has caught the economy by surprise? In some sense it doesn't matter, because once identified the short-term solutions are clear – working with the private sector, policy makers should grant temporary work permits in the short-term so that firms are not skills constrained, should facilitate retraining (including through schemes that encourage firms to take on young trainees), and – again, involving the private sector - should begin to improve the external efficiency of the education system. A syndrome, that is getting renewed attention in the literature, is structural dualism¹⁹. In many LICs, where economic transformation is slow (symptom 1), the persistence of high wage gaps (symptom 2), and high and persistent skill premia between rural and urban labor markets (symptom 3) is commonplace. Large populations of workers such in countries often subsist or take unpaid family work (symptom 4), underemployed in capital-scarce 'traditional sector' occupations with low hours of work (symptom 5), low labor productivity and low hourly earnings (symptom 6). Meanwhile a more limited number of 'modern-sector' workers is typically employed in capital-rich, high labor productivity jobs in factories or office, enjoying much higher wages (symptom 7). Under these circumstances, market forces should operate so that modern sector wages are bid down by the inflow of excess workers from the traditional sector in search of higher waged work, and firms should expand employment until wages are equalized across the economy. But clearly, in many countries the process isn't working, and/or it takes a very long time. It is not easy to discern a single cause; high moving costs with low probabilities of employment could be a factor; faced with excess labor, low skills and risky business environments, formal businesses may train their staff and pay efficiency wages; there may be a more general constraint on the demand for goods and services in the modern sector that stems from the country's low income and limited access to export markets. To use a medical analogy, we refer to these indeterminate clusters of symptoms as forming conditions or "syndromes," and reserve the terms "constraints" for those clusters where we feel that the primary causes are fairly well established.²⁰

¹⁹ Lewis, A, (1954), "Economic Development with Unlimited Supplies of Labour", Rodrik and Sabel (2019) "Building a Good Jobs Economy".

²⁰ In this context, Hausmann et al (2008) have usefully defined "syndromes" as "a set of symptoms linked by a logically consistent causal story that accounts, as much as possible, for the facts we observe."

IV. IDENTIFYING THE RIGHT POLICIES TO REMOVE JOBS-CONSTRAINTS AND EASE JOB TRANSITIONS

30. **Brief Recapitulation.** As noted at the beginning, economic development entails various economic transformations, and such transformations, in turn, depend on investments in human and physical capital and factor mobility across economic sectors, geographic locations and occupations. When an economy exhibits worse jobs-outcomes than those observed historically, or in other countries at similar stages of development, it signals that something has gone awry in the transformation process. Section II focused on finding out if something needs to be fixed, by looking for such signals to identify symptoms of a malfunctioning transformation process. Section III, in turn, focused on identifying what needs to be fixed by relating the symptoms of possible malfunction to particular syndromes or constraints. Section IV now focuses on fixing the problem, either by proposing solutions to remove the constraint found to be responsible for the poor jobs-outcomes, or by treating the symptoms associated with the syndrome leading to poor jobs-outcomes when a particular constraint has not been identified.
31. **To justify government interventions to change poor jobs-outcomes on efficiency grounds, it is necessary to identify the relevant market or policy failure.** The Jobs Diagnostic approach is based on the notion that economic agents act rationally and that an unconstrained market economy generally yields Pareto-optimal equilibrium outcomes, at least in the long run. From this perspective, the only reason why labor markets would not converge to Pareto-optimal jobs outcomes is, either, because of the presence of market failures or the presence of policy failures. In both cases, the assumptions underlying the perfectly competitive model would not be met and, thus, the labor, product and capital markets would not automatically equilibrate at a Pareto-efficient point. From this perspective, the only justification on efficiency grounds for government intervention is the presence of market or policy failures.²¹ Expressed differently, identifying the relevant market or policy failure responsible for a particular jobs-outcome is tantamount to identifying the key constraint.

²¹ See Joseph E. Stiglitz (2000), “The Economics of the Public Sector” (New York: W.W. Norton), pg. 89, who writes, “The fundamental theorems of welfare economics are useful because they clearly delineate a role for the government. In the absence of market failures and merit goods all the government needs to do is worry about the distribution of income (resources). The private enterprise system ensures that resources will be used efficiently. If there are important market failures [...], there is a presumption that the market will not be Pareto efficient. This suggests a role for the government. But there are two important qualifications. First, it has to be shown that there is, at least in principle, some way of intervening in the market to make someone better off without making anyone worse off; that is, of making a Pareto improvement. Secondly, it has to be shown that the actual political process and bureaucratic structures [...] are capable of correcting the market failure and achieving a Pareto improvement.

Table 3

Key Issue (Example): Stagnation of Waged Employment

Supply-Side Constraints and Conditions					
Key Symptoms	Barriers to labor mobility (Constraint)	Low Labor Force Participation (Syndrome)	Monopoly Power in Factor Markets (Constraint)	High Reservation Wages (Syndrome)	Low Human Capital (Syndrome)
	<i>High real wages, low employment</i>				
	Low worker mobility across regions/sectors	Higher share of youth NEETs, longer school to work transitions	Frequent labor strikes/disruptions	Income Protection programs	High returns to education (high wages for skills in modern sector)
	Poor/costly labor placement services	Aging workforce, generous state pensions	Wage inflexibility, Wages may be rising faster than labor productivity		High probability of waged employment for educated workers
	High and persistent wage disparity across regions/sectors	Women take high shares of unpaid family work	Investments in capital-intensive production	High public sector wages	Immigrants with high skills profile
		Low female wages, high gender wage gaps	High wage gaps union vs non-unionized workers	Informal sector growth	Poor education outcomes, low spending on education
Binding Demand-Side Constraints and Conditions					
Key Symptoms	Poor Infrastructure (Constraint)	Structural Dualism & Jobs Externalities (Syndrome)	Low Competition in Product Markets (Constraint)	Restrictive Labor Regulations (Constraint)	Dutch Disease from Aid/Commodity Dependence (Syndrome)
	<i>Low median real wages, low waged employment share, slow economic transformation</i>				
	Low infrastructure spending	High and persistent wage gaps	Low selection through firm churning (entry, exit, shrink)	High payroll taxes	Stagnation of tradables sector output/employ.
	Congestion in urban areas	High employment share in low productivity work	Low growth in hiring	Large informal sector; bimodal wage distributions	Boom in service sector employment & wages
	Poor accessibility in some regions limits economic transformation	Small formal share of employment, slow growing. High unpaid.	Non-converging productivity, wide distance to frontier of avg firm-level productivity	Short-term work contracts; outsourcing	Rapid growth of mineral exports and real exch. rate appreciation
	Wide geographic gaps in earnings, lagging regions	Most workers either long hours or underemployed.	Low worker mobility between firms	Stringent severance payment requirements	Wage gaps and regional employment disparities

32. **Market and policy failures come in many forms.** They can be classified into four broad categories, based on whether they involve *public goods* (e.g., public infrastructure, education), *imperfect competition* (e.g., natural monopolies or monopsonies), *asymmetric information* (e.g., agent-principal problems) and *externalities* (i.e., when private and social benefits/costs differ). Economic theory tells us, furthermore, that the market distortions created by these market failures can in principle be corrected either; (i) through direct provision of public goods, (ii) through fiscal policies; taxation or subsidization of private production (Pigouvian solutions); (iii) through government regulations (involving changes in relative prices and market rules) or, (iv) through the assignation of property rights to promote private sector pricing solutions à la Coase. All constraints are therefore due either to the inability of the government to correct market failures, which may itself be construed as a form of policy failure (the “sins of omission” in the first two cases), or they are the result of government interventions that distort the functioning of markets in pursuit of objectives that are not related to any market failures (the “sins of commission” in the case of the latter two). Annex III provides a more detailed discussion on the main policy and market failures encountered in developing countries, together with a summary of the policy measures typically applied to address those failures.
33. **Jobs Externalities²² are a particularly important source of market failure influencing jobs-outcomes and justifying corrective action.** In labor-abundant, low-income countries, where young poorer workers underemployed in low productivity capital-scarce jobs²³ are getting restless, and where the modern sector is emergent but small, specific interventions may be needed to hasten the pace of economic transformation. As the Growth Commission noted citing Lewis (1954)²⁴, if one excess field hand leaves a farm to work in an export factory, the farm loses almost nothing. If that worker were to add one cent to the economy in their new factory job, society would gain. The problem is that an export factory cannot tempt new workers to migrate from the fields for one cent. The cost to the factory of hiring workers from the fields is therefore greater than the opportunity cost of their labor in the fields. As a result, the social return to factory employment can be higher than the private return for a long time, until most of the under-employed low-productivity workers are absorbed into the modern sector. Where demand for labor is low, this ‘jobs externality’ can take a long time to correct - even where product markets, business climates, capital markets and labor mobility are all working well, and even where wages in the modern sector are flexible in line with labor productivity.
34. **Tailor the removal of key constraints and the treatment of syndromes according to the underlying market or policy failure.** Table 4 presents the list of potential jobs-constraints shown in Table 3 grouped according to whether they are associated with market failures or policy failures. It also shows the generic economic policy measures that are typically applied to correct the distortions introduced by such market and policy failures. This generally involves, either, removing the source of the market failure or applying corrective tax and subsidy measures to eliminate the distortions created by the

²² Walker and Robalino (2017). Guidance note on the Economic Analysis of Jobs Projects. Jobs Group, The World Bank. Jobs Working Paper #7.

²³ Diao, McMillan and Rodrik (2017) “The Recent Growth Boom in Developing Economies: A Structural-Change Perspective”

²⁴ Commission on Growth and Development (2008), “The Growth Report: Strategies for Sustained Growth and Inclusive Development”.

market failure. For example, when the binding constraint is a monopolized industry in the product market, the preferred corrective interventions in the case of natural monopolies generally involve public ownership or tightly regulated oversight of utilities, and the application of anti-trust legislation in the case of private monopolies.

Table 4
TPOLOGY OF CONSTRAINTS AND GENERIC SOLUTIONS

		Source of Constraint	Nature of Market of Policy Failure	Examples: Possible Policy Solutions
CONSTRAINTS	Rooted in Market Failure	Low Human Capital	Public Good	1. Public provision of education 2. Subsidies to private sector provision of education
		Poor Infrastructure	Public Good	1. Public provision of infrastructure 2. Subsidize private infrastructure (e.g. PPP) 3. Re-assign property rights
		Monopoly power in product and factor markets	Imperfect Competition	1. Introduce utility regulations (natural monop.) 3. Introduce Anti-trust legislation (private monop.)
		Urban Congestion	Externality	1. Better land use / urban planning of infrastructure for industrial sites and low-cost housing 2. Improved public transport and car-pooling schemes
	Rooted in Policy Failure	Restrictive Labor Laws & High Minimum Wage	Policy Failure	1. Replace minimum wage with social protection program.
		High Reservation Wages (e.g., due to income protection programs)	Policy Failure	1. De-link income support payments from earnings (e.g., through universal income policy)
		Poor Macro-management/ Poor Governance	Externalities (Coord. Failure)	1. Pre-commitment policies • Create independent central bank • Commit to public investments in strategic areas
		Legal barriers to labor mobility (e.g., poor land tenure laws).	Policy Failure	1. Eliminate the land tenure restrictions and replace with unrestricted property titles
		Information barriers to labor mobility	Asymmetric information	1. Subsidize information dissemination services 2. Support labor placement services
	CONDITIONS (Rooted in Market Failure?)	Yes	Structural Dualism	Jobs Externality
No		Dutch Disease/ Commodity Dependence	None	Indeterminate, but increase productivity of roads, transport & logistics, energy and telecoms to maintain competitiveness. Gvt can also import for these.
No		Rapid growth of working age population	None	Indeterminate, but likely to need to expand external demand (exports) to accelerate economic transformation.
No		Natural barriers to labor mobility (e.g., mountain terrain)	None	Indeterminate, but may require communications and IT-based jobs solutions – exporting through the internet

35. **Some jobs-constraints can be removed directly, but others only indirectly,** through changes in other variables.²⁵ An example of the former is any jobs-constraint that came into being as a result of a government decision, such as the approval of legislation creating more restrictive labor regulations or removing an existing anti-trust law. Technically, these constraints can be removed through a direct government decision in the same manner as they were introduced. (As noted below, the political ramifications of their removal is another matter.) Other jobs-constraints, such as the lack of adequate human and poor or inappropriately located physical infrastructure capital, represent “stocks” that generally cannot be changed directly or immediately, but only indirectly over time through the government’s investment “flow” behavior, or through the introduction of private sector investment incentives. Furthermore, to the extent that increasing the level of human capital also involves actions (e.g., regulatory reforms) that go beyond the provision of money, the Federal Government may only be able to exert very little influence over that constraint, insofar as the decision-making power in that sector has been devolved to more decentralized levels of government. A similar situation pertains to the conduct of monetary policy or exchange rate management. Although it is directly controlled by the central bank, the relevant policymaker responsible for acting on a Jobs Diagnostic may only have a limited influence on the central bank.
36. **How do we know when a jobs-constraint rooted in market failure has been removed?** In theory, the answer to this question is fairly straightforward: the constraint will have been removed when remedial action has brought the economic activity in question to the point where the private benefits and private costs are equated to the social benefits and costs. In practice, of course, the answer is much more difficult, requiring considerable analytical work. But at least, by framing the question in terms of market failure, the analyst is given guidance on what parameters to examine. A related question is what happens when an economy is suffering from various market failures. Simultaneously, if one failure is binding at a point in time, then after the first binding constraint is removed, the same differential exercise will have to be repeated to identify the next most binding constraint. Eventually, when all or enough jobs-constraints have been removed, the periodic country reviews should no longer yield abnormal values or “unhealthy” symptoms.
37. **Not all poor jobs-outcomes can be traced to policy or market failures.** At the bottom of Table 4 there is listed also a set of obstacles that look like jobs-constraints, but that cannot be easily linked to market or policy failures. For example, a reduction in labor force participation on account of some epidemic is sure to result in a worsening jobs-outcome. However, this is an exogenous development that has nothing to do with market or policy failures. The same is true of Dutch Disease, which refers to the consequences of a rapid rise in the price of extractables, which leads to a real exchange rate appreciation, job-less growth and the stagnation of production in the tradables sector, and leaves an economy in a highly vulnerable state. This may not be a satisfactory jobs-outcome from a distributive view or otherwise. But it may be the efficient jobs-outcome of freely competing market forces in a country richly endowed with extractable resources. And although corrective policy action is needed to maintain the competitiveness of traded goods, it need not involve any market or policy failure.

²⁵ In the language of dynamic optimization, this question is analogous to asking whether the constraint to be removed is a “control” variable or a “state” variable that can only be influenced through another control variable.

38. **Policy interventions to change unsatisfactory jobs-outcomes not rooted in market or policy failures require caution.** Although the correction of jobs-outcomes that are not attributable to market or policy failures may not be warranted on efficiency grounds, there might still be other legitimate reasons beyond the search for efficiency to seek changes in particular jobs outcomes. For example, a society may place a high value on distributive criteria that represent a trade-off with achieving maximal efficiency. The nice thing about measures designed to address a market or policy failure is that they focus on removing or correcting the source of failure and “restoring” a healthy economy. When the underlying cause of an undesired economic outcome is not known, however, policymakers would only be addressing symptoms, rather than restoring a well-functioning economy. This raises the danger of introducing a new policy failure. In other words, policy interventions to change particular jobs-outcomes without a market or policy failure justification introduce new market distortions that could result in an even worse outcome.
39. **Review the experience of other countries in removing jobs-constraints.** A review of other countries’ experiences with policy measures adopted to remove similar jobs-constraints or address similarly onerous jobs-conditions is always a useful exercise to gain valuable insights into the practical aspects of policymaking emphasized in paragraph 33. Such country reviews are particularly important, however, when seeking to assess the effects of policies designed to change job-outcomes in the absence of market failure justifications. All policymakers are left with under such circumstances is to adopt an empirical approach and evaluate the outcomes of different policy packages adopted in other countries and assess whether those jobs outcomes are preferable overall to the jobs outcomes currently prevailing at home.
40. **Identify possible political economy impediments to the removal of binding constraints and identify technical assistance needs.** If a binding constraint results in an obviously Pareto-inefficient outcome, one might wonder why the government is not revising its policies or why political entrepreneurs have not already emerged to pounce on this issue and to remove the constraint. If it is merely a matter of technical competence, then this could be corrected fairly quickly with technical expertise based on, say, jobs-market model simulations to estimate the market response to different types of government interventions.²⁶ More often than not, however, government behavior reflects a constellation of various interests in society. In that case, a jobs-strategy to remove binding constraints would have to start by tackling the political economic question of how to break the stranglehold of the various interest groups. An important point to keep in mind in this regard is that the implementation of policies is not costless, but generally requires budgetary resources as well as “political capital”, both of which are finite.

ARE WE APPLYING THE RIGHT LABOR MARKET MODEL?

41. **Jobs Diagnostics may need to reach beyond a simple demand-supply framework for an adequate understanding of jobs-market dynamics.** The diagnostic analysis discussed above has only referred to a simple partial equilibrium framework. While useful for the purposes of the differential analysis discussed previously, such a model is limited in what it can explain, particularly when dealing with

²⁶ This underlines the importance of identifying the right labor market model for each particular country, as discussed below.

economies exhibiting significant differences between modern and traditional sector employment and productivity, and especially when looking toward future developments. As pointed out by Fields (2004),²⁷ there are at least four alternative ways to model the formal sector labor market, at least three ways of modeling the informal sector, and at least three alternative ways to model the linkages between both markets, which yields thirty-six possible combinations for modeling a country's labor market, each of which exhibits somewhat different labor dynamics. [These different combinations are explained in Annex III.]

42. **Identify the multi-sector labor market model that best describes the country being analyzed.** In view of the different behavior patterns exhibited by labor markets across the globe, there is no reason to assume that all countries are best represented by the same model. For example, the East Asian countries as a group exhibit relatively low wage dispersion and low unemployment, which is indicative of an Integrated Labor Market model with Wage Equalization and no Unemployment. That model exhibits different characteristics than those shown by Dual Labor Market models without unemployment (Lewis) or with unemployment (Harris and Todaro), which appear more characteristic of labor markets in sub-Saharan Africa. Labor Markets in Latin America, in turn, appear more integrated than in Africa, but also include a greater degree of institutional wage setting than is observed in East Asia. The Mexican labor market provides another contrast; instead of regarding the informal sector as a residual sector for workers that cannot find employment in the formal sector, it is largely considered a preferable working arrangement.
43. **Use the right labor market model for prognosis of the jobs-outcomes of particular policy interventions.** Depending on the question asked, the choice of model may be important when trying for understanding labor market behavior in the context of the differential analysis described previously. That is, the identification of binding constraints depends on piecing together the different observed symptoms into a coherent story line, and the choice of labor market model plays a crucial role in developing that story line because it determines what healthy or normal symptoms would look like. While the choice of model is important for interpreting past labor market developments, it may matter even more for identifying the right policy, regulatory or investment solutions. Since different models may yield different responses to particular policy interventions, using the right model is important for helping to ensure that those interventions are correctly aimed.²⁸

²⁷ Fields, G. (2004). [A guide to multisector labor market models](http://digitalcommons.ilr.cornell.edu/workingpapers/86/). Cornell University, School of Industrial and Labor Relations site: <http://digitalcommons.ilr.cornell.edu/workingpapers/86/>

²⁸ For example, some developing countries in Africa have tried to address the problem of high urban unemployment through urban employment-generation programs. These programs might have represented an appropriate policy response in the context of segmented labor markets, where unemployment is due to high minimum wage legislation or the result of collective bargaining. The absence of binding minimum wages and a weak union presence in those countries should have tipped off policymakers that this model was not appropriate. In any case, these programs had no impact and often ended up raising urban unemployment further, which is precisely the outcome that would have been predicted under the Harris-Todaro dual labor market model with unemployment. Based on the Harris-Todaro model, a more appropriate (though counter-intuitive) policy response would be to promote greater rural productivity.

V. THREE CASE STUDIES FROM JOBS DIAGNOSTICS

44. **The biggest challenge is to link jobs diagnostics to prescriptions for proven solutions.** Most of the 600 million new jobs that need to be created by 2030 are in LICs and LMICs. In these youthful, labor surplus economies, the long run relationship between growth and good jobs remains surprisingly neglected in empirical economic literature²⁹. Practical experience with Jobs Diagnostics has revealed that growth doesn't always generate a socially optimal number of good jobs. The causes of jobs outcomes observed with economic growth are varied and complex and deserving of the deeper analytic and practical understanding that jobs diagnostics can bring. Where the cause is a specific distortion from a bad policy or regulation, policy makers can remove it and directly improve jobs outcomes. Where it stems from poor public provision (e.g. insufficient or poorly allocated infrastructure or education) the treatment is longer term. But in practice constraints are interwoven, and so the first challenge of the diagnostic is to separate key symptoms of abnormality from the normal path of development. The second challenge is to interpret the collection of symptoms and relate these to underlying cause(s). The third is to recommend treatment from an evaluated stock of solutions, whilst prognosing the expected impact of these for measurement.
45. **Nascent experience at World Bank shows some promising applications of the approach, but more work on interpretation and prioritization of recommendations is needed.** For the first challenge, the Jobs Group has developed the data foundations for standard indicators and benchmarks in all countries, and tools that allow comparisons of growth episodes and jobs indicators. More attention is now needed to interpretation and prescription. Here for practical examples of the approach we showcase three efforts to use diagnostics to recommend solutions for jobs strategies in diverse country environments; the cases of [Uganda](#) (Sub-Saharan Africa, agrarian, LIC), [Bangladesh](#) (South Asia, emerging manufacturer, LMIC) and [Paraguay](#) (Latin America, small economy, high informality, MIC). Results are summarized in table 5³⁰.

²⁹ This is as true today as it was when Arthur Lewis first noted the gap.

³⁰ It is impossible to do justice to the depth of these reports in guidelines for a technical approach. The full reports are available at <https://www.worldbank.org/en/topic/jobsanddevelopment/publication/jobs-and-development-list->

Table V
THE JOBS DIAGNOSTIC APPROACH IN PRACTICE: CASE STUDIES

Country	Uganda	Bangladesh	Paraguay
Peer Groups for benchmarking	SSA, LICs, fast growing LICs and LMICs	South Asia, emerging manufacturers	LAC, MIC, fast growing economies
Key jobs problem(s)	<p>Higher than normal agric share in employment Falling median non-agric real wages</p> <p>Stalled Economic transformation (limited transitions from rural to urban, informal to formal, out of agric)</p> <p>Spatial inequality with high wage gaps</p> <p>High share of micro firms Insufficient labor demand in the 'modern' sector</p>	<p>Low labor force participation especially for women and youth</p> <p>Low share of waged employment</p> <p>Stalled productivity in formal firms in manufacturing</p> <p>Labor Productivity and participation too low to meet Government growth targets</p>	<p>High waged share</p> <p>High share of informality with limited transition of workers from informal to formal</p> <p>Rapid urbanization</p> <p>Dominance of micro firms (and persistence, Low firm entry)</p> <p>Low exports and low export growth (even for landlocked countries)</p> <p>Expanding public sector</p>
Constraint or Condition (Syndrome)	<p>Poor public service delivery for agriculture – bad enforcement of input and output quality, weak extension, inadequate support for cooperative integration</p> <p>Neglect of economic infrastructure in secondary towns</p> <p>Jobs Externalities</p>	<p>Poor investment climate (tax administration, customs, inspections, governance)</p> <p>Poor availability of infrastructure and especially land for private business expansion and export</p>	<p>Uncompetitive Product Markets, and inadequate export development</p> <p>Gender segregation</p> <p>Restrictive formal sector labor regulations dissuade formality</p>
Recommendations	<p>Realign public support in agriculture, incl. commercialization and value chain participation</p> <p>Prioritize infrastructure investments around economic transformation (agric processing hubs in secondary towns with potential)</p> <p>Facilitate export development in regional markets.</p>	<p>Export processing zones</p> <p>Infrastructure enhanced zones (better spatial planning)</p> <p>Investment climate reforms</p> <p>Labor regulations that support female participation</p>	<p>Reform competition policies and regulatory framework to prevent restrictive practices</p> <p>Facilitate trade, including by relating restrictive labor regulations for some labor-intensive exporters</p> <p>Education campaigns and mentoring programs for gender balance</p>

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ANNEX I: GUIDED INQUIRY FOR JOBS DIAGNOSTICS

INTRODUCTION

Economic growth and jobs are entwined. Economies grow when more people join the labor force and find work, when they get better at what they do, and as they move from low productivity work to better, higher productivity jobs. Jobs determine labor incomes and consumption for most people in the economy, driving the demand for goods and services from which, in turn, the demand for labor is determined.

Economic development involves structural change³¹ which entails a changing pattern of jobs. Job opportunities in an economy evolve as new investors open new firms in new locations, as they adopt new innovative techniques to produce new products in the economy that supply new demand either at home or abroad. The processes of creative destruction unleashed as entrepreneurs reallocate their capital causes some old jobs to be lost to the economy, and other new jobs to be created. Economic transformation ultimately happens through the workers' job transitions; workers (and capital) change sectors, move locations, and switch occupations. Workers move, for example, from self- to waged-employment and move between firms as economies grow and evolve. In low income economies a shift of labor out of low productivity "traditional" work to the higher productivity "modern sector" is a very significant engine of real GDP growth and can result in improved livelihoods for most individuals.

A jobs diagnostic identifies the core jobs challenges of a country following empirical evidence at the macro, worker, and firm level. The diagnostic identifies *symptoms*, interprets these symptoms, and prioritizes a set of jobs challenges. Data analysis is conducted at the level of the aggregate economy, at the level of the individual worker, and at the level of the firm. The macro analysis looks at the country's demography and the big picture for jobs outcomes in relation to real economic growth. The worker level (*labor supply*) analysis investigates who is getting what sorts of jobs in the economy. The firm-level analysis focuses on who is creating more *better* jobs in the formal private sector (as a proxy for *labor demand*).

The central enquiry of the jobs diagnostic is into how a country's jobs outcomes have changed with economic growth, and specifically, how people have transitioned into new jobs to take advantage of the growing economy. The jobs outcomes that are assessed in aggregate against growth in real GDP value added are the creation of more jobs (increased employment), and better jobs (increased labor productivity (value added per worker)). Employment, productivity (sales or value added per worker) and remuneration of workers are the focus of the formal private sector firm-level analysis, which distinguishes between types of firms based

³¹ McMillan and Rodrik (2011), "Globalization, structural change and productivity growth", NBER Working Paper 17143, June 2011.

on their characteristics. The worker-level labor supply analysis hanging patterns of employment, and earnings. Emphasis is placed on how the profile of jobs in the economy is changing, and which types of individuals (by age, gender, education, rural versus urban) get the jobs. This complements the overall analysis with measures for the inclusiveness of jobs.

The jobs diagnostic asks structured questions to identify a comprehensive set of ‘symptoms’ from data, which are then compared to “normal” results from other countries. A symptom can be symptomatic of more than one problem or underlying jobs challenge. Plus jobs challenges tend to evolve based on where a country is on its business cycle, and especially depending on its level of income (see Merotto, Weber and Aterido (2018)³²). The art of the Jobs Diagnostic therefore rests in *interpretation* of the findings or symptoms. Which of the symptoms suggests abnormality given the type of country (its characteristics), and its position on the economic cycle (its initial conditions)? Taking account of normal and abnormal symptoms, country characteristics and country conditions together, the jobs diagnostic strives to understand what may be the underlying cause (*or syndrome*) of the observed symptoms? This annex sets out the structured questions in the form of a guided enquiry.

WHAT IS THE OVERALL CONTEXT?

The overall context of the jobs diagnostic compares the country’s demographics and labor market indicators (share of working age population, labor force participation, employment by sector, urban and waged shares of employment) to other countries using international comparisons. Analysis is reconciled with the ‘supply side’ aggregates derived from household surveys for the profile of jobs and work in the economy (see supply side questions 1.1 – 1.5). The overall context identifies any challenges that are unique to a country’s context, by benchmarking the country’s jobs outcomes and labor market structures with those of similar countries, and with those of countries with slightly higher and slightly lower GDP per capita. Attention is paid to the important channels through which labor transitions into new, better jobs with economic transformation; i.e. formalization, structural change, and urbanization.

First the overview uses demographic data and projections from WDI and UNPOP data to identify past trends and to project growth in the population, the working age population, dependency, labor force, and employment rates. Where a country is on the demographic transition fundamentally affects its jobs challenges. Youthful countries must create more jobs annually than aging countries, and so face the challenges of creating better jobs for youth, and hastening the school-to-work transition. In contrast, aging countries and those that have entered the demographic transition must raise labor productivity, and may face the challenge of increasing labor force participation.

Second the overview uses Labor Force Surveys and WDI data to establish whether: (i) a higher share of jobs is waged, (ii) labor is moving from lower (agriculture) to higher productivity sectors (industry and services), and (iii) whether the share of people (and jobs) in urban areas is rising. Global analysis and the country diagnostics undertaken to date show that a growing

³² “Pathways to Better Jobs in IDA Countries” by Merotto, D. Weber, M. and Aterido, R. World Bank (2018)

economy experiencing economic transformation should expect to see better jobs created through these three channels of formalization, economic transformation and urbanization.

1.1. How does the country's demography (youthful, aging) affect its jobs challenges?

- a. What are the youth and old age dependency ratios and how do they compare with other countries? [*Benchmarking]

1.2. What share of the population is of working age?

1.3. What share of the working age population is in the labor force and how does this compare with other countries? [*Benchmarking]

1.4. What is the employment rate (share of labor force that is employed)?

1.5. What share of employment is salaried ("wage employment" in LFS) and how does this compare with other countries? [*Benchmarking]

1.6. What is the sectoral composition of employment?

1.7. Is the country urbanizing? What is the change in the share of the population in the primary city, other urban areas, and rural?

MACRO

The macro diagnostic sets the aggregate trends in demography, growth and jobs outcomes, which is then explored in more detail under the supply and demand diagnostics. The macro section uses WDI data or manually inputted data on sectoral employment and real GDP value added from other sources, to decompose per capita real GDP growth into growth in productivity, demography and employment, and to analyze trends in structural change over time. The results for a country's past growth episodes are compared against all countries' growth and structural change experiences, and to a group of comparable countries with similar characteristics and conditions. The comparisons allow an assessment of whether labor productivity and employment growth are within *normal ranges* for a similar country.

Question 1: How many jobs need to be created to accommodate new entrants to the workforce and what would be the number in the formal sector? (Reference should be made to the sectoral growth rates in employment in the supply and demand sections, and where feasible the growth rates should be reconciled).

The macro diagnostic starts by asking how many new jobs will need to be created for the future workforce. Taking UNPOP base case projections, and assuming the recent past elasticities of employment to GDP growth by sector continue, and that unemployment and labor force participation rates remain unchanged, the jobs diagnostic macro enquiry first asks *by how much employment will need to grow to find jobs for the new entrants to the workforce?*

Higher productivity “better” *waged* jobs have a higher share of total employment in richer countries. These jobs tend to be in the formal private sector. The macro diagnostic therefore also asks what share of the total jobs need to be in the formal private sector for the share of formal private sector in total employment to remain constant? The resulting number is then compared to past growth in the formal private sector (from the demand-side diagnostic) to assess whether it seems feasible. If not, the team should consider with MTI and FCI colleagues what would be needed to accelerate firm start-ups, entry and employment growth in formal private firms.

Next, to complete the analysis of scenarios for new entrants to the workforce, the macro diagnostic asks what sectoral shares of employment would be needed to absorb new entrants to the workforce without reducing aggregate average labor productivity. The calculations are provided as consistency tests for projecting jobs outcomes with GDP forecasts. This bounds testing can be done assuming no change to labor productivity, or by adjusting the forecast rate for labor productivity. An alternative approach is to take a given per capita GDP growth rate and then iterate between employment shifts and assumptions about labor productivity whilst achieving the Government’s targeted GDP per capita growth rate. These consistency calculations are performed through the Jobs Group’s JobStructures macro tool. The macro “JobStructures” excel-based tool allows the analyst to investigate scenarios for economic growth, jobs outcomes and structural change. It provides a consistency check on what outcomes for sectoral labor productivity, sectoral employment and inter-sectoral employment shifts are consistent with achieving a country’s targeted per capita GDP growth rate³³?

1.1. What growth rate in employment will be necessary to maintain a stable rate of unemployment (status quo)? What does this mean for the number of new jobs that need to be created? (Note: Using the JobStructures demography tool projections sheet, and applying UNPop projections and reasonable assumptions about labor force participation.

1.2. Considering the demand for labor, how many of these jobs need to be formal private sector jobs to maintain its share of total employment? (*Calculate on formality shares*)

1.3. What pattern of sectoral employment would be needed to absorb these new workers without reducing average labor productivity, or to achieve a given per capita GDP growth rate? (Note: Applying the JobStructures tool)

Question 2: Has the economy grown fast enough to create enough jobs for the working age population?

The macro enquiry then compares employment and labor productivity growth (in aggregate using employment elasticities, and by sector) against a country’s growth in working age

³³ The JobStructures structural change tool can be used for instance alongside MTI’s MFMod forecasting tool for sectoral real GDP, applying UNPop projections for the working population with default assumption that employment growth, patterns of

population, labor force and real GDP value added. The guided enquiry sets out to identify whether economic transformation is resulting in *enough better jobs* for the workforce given its growth over time.

2.1. What are the growth rates of real GDP relative to growth in:

- a. Population
- b. Working age population
- c. Labor force
- d. Employment

2.2. What is the employment elasticity of growth? Is employment rising with real GDP?

- a. In aggregate?
- b. By sector?

2.3. How do growth rates in the labor force and employment and the elasticities of employment to GDP compare with those in other countries? [*Benchmarking using JobStructures global comparison tool]

2.4. How do these results compare with growth episodes in other countries? [*Benchmarking]

Question 3: How have jobs contributed to income per capital and labor productivity growth, and was this through gains within sectors, or from structural change?

Questions 1 and 2 of the macro enquiry ask whether the country has been growing fast enough to create enough jobs for entrants, and whether (through growth in productivity) *better jobs* are being created on average in the economy. Questions 3.1 – 3.5 use growth decompositions to investigate how important changes in the working age population, labor force participation employment rate and productivity changes have been to growth in GDP per capita. The macro enquiry then explores through further decomposition what share of productivity growth came from gains *within sectors*, or from the *reallocation of labor* between sectors. This is a crucial part of the macro analysis, given that economic development involves structural change, which entails a changing pattern of jobs.

The macro enquiry establishes the growth rate in *aggregate and sectoral labor productivity*, which can be compared using the JobStructures global comparison tool, to other countries' growth episodes. The results are also compared for the country under investigation, with aggregates for the formal sector from the demand side analysis.

Next the enquiry sets out how important labor productivity growth has been to GDP per capita growth relative to growth in the employment rate, the labor force participation rate and dependency (the share of the working age population to total population). Again, this can be compared with growth episodes for all other countries, or for a selection of similar countries. For some countries it may for example show that whereas dependency is declining, labor productivity is growing more slowly, and is contributing much less to per capita GDP growth than in comparable countries. (This is the case in the Pakistan Jobs Diagnostic for instance, where productivity growth has been slower than in Bangladesh).

Third the macro enquiry sets out how sectoral shifts in value added (structural changes) in the economy are affecting patterns of employment in the economy, and how labor productivity is growing within and across sectors. Again, this is done using the JobStructures macro tool. This is a very important step of the macro enquiry, because it is where the analysis of structural change (economic transformation and jobs) is made. The channels identified in this section shape the lines of enquiry for deeper investigation using micro data in the supply and demand sections of the jobs diagnostic. The results of the productivity decomposition are compared with those from real GDP growth episodes in other countries using the JobStructures global comparison tool. The analysis can also be adapted to take account of the differentials in labor productivity between sectors in the country. In theory structural change slows down when marginal products between sectors are equalized. However, an important additional dimension is that averages for a sector do not reflect the sizeable differentials between the traditional / informal sector and the non-traditional formal sector. The analyst should therefore compare the results for changes in national averages for labor productivity with those from formal private firms in the demand-side diagnostic.

Finally, recognizing that the demand for labor is a derived demand from the demand for goods and services, the macro diagnostic can be *extended* using WDI data on real gross domestic expenditure, to analyze how aggregate demand is growing, and whether output in the economy is increasing to meet this demand. An extension to this component for the production of product groups that are found to be especially important activities for jobs outcomes (such as food products in LICs) could be to compare WITS data on real net trade flows for specific products to changes in real consumption of these products over time. This establishes whether the economy is getting better at supplying its own increased demand for significant products³⁴.

3.1.What are the growth rates in real GDP per employed person?

- a. In aggregate
- b. Within sectors; agriculture, industry, services (7 customizable sub-sectors is also possible using the Jobs Group's JobStructures tool).

3.2.What is the contribution to growth in per capita real GDP of changes in:

(Note: using a Shapley decomposition method)

- a. Working age/ Population
- b. Labor force participation (labor force / working age population)
- c. Employment rate (employment / labor force)
- d. Labor productivity (real GDP / employment)

3.3.What is the contribution to total productivity (decomposition) of:

- a. Productivity gains within sectors?

³⁴ The Jobs Group is piloting such a tool for use in FY19

b. Reallocation (inter-sectoral shift), ie are there shifts in employment between sectors?

3.4. How does this compare with other countries' growth episodes? [*Benchmarking} Source: JobStructures tool country comparison sheet

3.5. What is the change in labor productivity between industry and services relative to agriculture over time? (Calculations using outputs under 3.1)

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The supply side analysis sets the context for the country's core jobs challenges. It identifies *how* people work and *where*. It analyzes *who* gets access to *which types* of jobs as the economy grows over time. The analysis of trends in labor market indicators over time checks for symptoms of labor market rigidities or structural dualism. The supply side picks up from the results of the macro enquiry on economy-wide economic transformation and helps interpret the effects of macro-economic developments at the level of the individual worker. It deepens the macro findings by providing an understanding of trends in jobs outcomes for specific groups of people (e.g. female, young, educated, rural). To examine how individuals participate in the economy, it specifically looks into the main labor market indicators and outcomes, such as labor force participation, employment rates and types, hours worked, and labor earnings.

The systematic diagnosis of supply side data follows the profile of work, disaggregating indicators by worker characteristics. For characteristics such as gender, age, education, sector, and location, the jobs diagnostic examines both the pattern, and the trends in:

- demography (working age, dependency)
- labor force participation
- employment, unemployment and inactivity
- the determinants of employment,
- the determinants of labor income, job quality, underemployment

Whilst the supply enquiry deepens the macro narrative, each step of the supply-side enquiry builds on the other. The enquiry starts with the profile of jobs and work. It then traces back how this pattern has changed over time as the economy developed. It identifies *who* has been doing *which types* of jobs in the economy and how the different types of work changed over time. Finally, it provides information on how people benefit from their work, and which individual characteristics determine the sorts of jobs they get. For example, it looks into the probabilities of; (a) participation in the labor force, and (b) and the type of job a person gets (public vs private waged employment, formal vs informal employment, waged vs non-waged employment, agricultural vs non-agricultural employment).

Question 1: What is the profile of jobs and work in the economy?

The profile sets out the country's demographics and labor market indicators, and compares these to other countries using international comparisons. Analysis is reconciled with the 'macro' aggregates from WDI and ILO data for the profile of jobs and work in the economy (see overall context). The enquiry tracks the profile of jobs and work over time, and benchmarks the country's jobs outcomes and labor market structures with those of similar countries. This process identifies any challenges that are unique to a country's context. As in the macro enquiry, attention is paid to the important channels through which labor transitions into new, better jobs with economic transformation; such as formalization, structural change, and urbanization.

Using an analogy from medical diagnosis, establishing the profile of jobs and work when combined with the country type, is like checking a patient's height, weight, temperature, pulse and blood pressure. It can be used in combination with the patient's age, gender and location (country jobs typology and country characteristics), to establish bounds of normality for the symptoms arising out of subsequent diagnosis.

The profile of jobs and work can be used in combination with the past trends (next question in the supply guided enquiry), to infer how economic transformation should be affecting transitions in the jobs that workers have. For example, Figure 1 shows the average profile of work for Low and Middle-Income Countries combined (LIC, LMIC and UMIC). This broad country grouping has, on average, relatively high inactivity, low unemployment, only 31 percent of the workforce in agriculture, and about 55 percent of those employed are in waged work. In LMICs and UMICs, the transformation in jobs out of agriculture and into off-farm work is typically underway. Upper Middle-Income Countries typically have a higher share of formal, urban, waged jobs, and a lower share in self-employment. LICs and LMICs are typically usually youthful, and typically see an increase in enrollment in secondary and post-secondary education. The jobs issues they typically face include ensuring a smooth transition from school to work, managing urbanization, raising the productivity of off-farm work, and attracting women back into the labor market.

1.1. What share of the working age population is employed, unemployed, or inactive?

1.2. What share of those employed is in agriculture and non-agricultural employment?

1.3. What is the share of those employed in agriculture and non-agricultural employment is self-employed, waged employees, unpaid family workers or employers?

1.4. What share of wage employment outside of agriculture is formal or informal?

1.5. What share of formal wage employment outside of agriculture is in the public or in the private sector?

Question 2: What is the trend in labor supply and how is it related to the country's demography?

Second, the diagnostic analyzes *trends in the profile of jobs and work over time*, to check for symptoms of *labor market rigidities* and *structural constraints*.

A labor market rigidity is caused by a constraint that prevents the labor market from clearing. This could come from a policy distortion, a labor tax or a labor regulation, or from trade labor union restrictions. It could come from a lack of labor market information on vacancies and available workers, or from a lack of skills retraining. Labor rigidities could show up in persistent disparities in wages between formal and informal labor or in the coexistence of unemployment and under-employment with high wage differentials between sectors and employment types. (school to work transitions, unemployment to employment transitions)

A structural constraint arises from mismatches between workers and employers. A common example of a mismatch occurs when employers are looking for skills that are different from those offered by available workers. Another type of mismatch occurs when jobs are available in geographic regions with few qualified job seekers. Labor immobility due to housing costs or shortages of other amenities (like schools and healthcare) can create a structural constraint by preventing workers from moving between locations to take advantage of employment opportunities elsewhere. So too, conceptually, can mismatches in the demand for products in richer urban areas, and the supply of products by the rural poor.

Since Lewis (1954), structuralists have noted the coexistence in low-income countries between dynamic but small modern formal sectors and large residual rural pools of unskilled labor subsisting on marginal land in relative poverty. It could be argued that failure of a rural economy to supply its own urban food markets could create structural mismatch between the supply of rural farm labor and the derived demand for that labor. Structural constraints could show up where real wage and employment differentials persist over time across geography, or where in a fast-growing economy, hiring firms complain about skills gaps, pay increased real wages over time, or bring in foreign workers whilst returns to higher education in-country remain flat.

2.1. What share of the working age population participates in the labor force and are there important variations in participation over time overall and by population sub-groups³⁵?

2.2. What are the trends within the active labor force (employed and unemployed) overall and by population sub-groups?

³⁵ Data and sampling permitting, population sub-groups include age (youth vs adult), gender (men vs women), area (urban vs rural), regional disaggregation, education as well as combinations of the sub-groups, i.e. area and gender or area, gender and age.

Question 3: What are the trends in employment?

This is one of the most critical steps in the guided enquiry. It identifies over time *who* is working in what type of jobs and how these changing patterns of jobs can be linked to economic developments.

For those in employment, the next line of questioning is *what types of jobs workers are holding*, and how this is changing over time. The composition of employment types yields important insights into the functioning and welfare of the economy, thereby complementing the macro-economic analysis. For a growing economy, we expect to see three basic positive transformations in the jobs that people hold. First, we expect the economy to diversify out of agriculture into industry and services. Second, we expect the economy to urbanize, resulting in new employment opportunities. Third, we expect to see waged employment expand, ideally with an increase in the formality of labor contracts³⁶. Each of these transitions is explored in this step of the guided enquiry for employment type, sector and occupation. The results are prepared separately by worker characteristics, and can be compared through the global comparison data set to benchmark countries.

3.1. What types of employment³⁷ do workers hold, are their jobs formal, and how is this changing over time, by population sub-groups and sectors?

3.2. Which sectors employ workers and what are the variations over time and by population sub-groups?

3.3. Which type of occupations do workers hold and how do they change over time and by population sub-groups?

Question 4: What are the trends in education and how does it affect how people work?

A worker's level of education is often a key determinant of labor mobility and earnings. For example, in a growing economy that is investing and adopting new technologies and production techniques for more sophisticated products, the complexity and skills content of jobs can be expected to increase with economic transformation. Skills gaps can emerge that would typically be accompanied by high and rising earnings gaps between workers with no education and those with tertiary education. Conversely, a fall in the relative returns to education can be a signal that the supply of education in the economy is rising faster than the demand for workers with education. Given the importance of skills, this section focuses on the completed level of education as a proxy for skills. It tracks the education levels of different groups of workers and over time. Results are compared to the findings on returns to education and over time.

³⁶ Merotto, Weber and Aterido (20189) op cit.

³⁷ Different types of employment include self-employment, wage work, employer or unpaid.

4.1. How has the educational attainment of the working age population changed over time and by population sub-groups?

4.2. At what ages do people leave school to start working and what is the quality of those jobs?

Question 5: How much do workers earn from work and how do labor market outcomes compare across households?

An important indicator of whether the demand or the supply of a given type of labor is rising fastest, is what happens to labor earnings and gaps in labor earnings for different jobs and different workers over time. There are two components of earnings: wages (the price of labor) and hours worked (the quantity demanded), and both are analyzed over time in the fifth component of the supply-side diagnostic. Once again, to facilitate the understanding of *which sorts of workers* (gender, age, location, education) are benefiting from *which types of jobs* (occupation, formality status, sector), the analysis of hours worked and earnings is disaggregated by worker characteristics and occupation type. This is an important element for the analysis of inclusive growth through jobs.

The analyst should track not only the trends in each measure, but the relative differences over time. The key to the diagnostic lies in the interpretation of the symptoms. For instance, if the enquiry was to identify that hours worked were rising in urban areas, but earnings were not, or hourly earnings were falling in urban areas, and that this was true of all worker types on average, this would likely be an indicator that labor demand is not keeping up with labor supply. Similarly if wage differentials (hourly earnings) between rural and urban workers are declining, and differences in hours worked are declining, one might expect that the flow of workers to urban areas would slow down³⁸.

Another way to look at equity or inclusion is to compare labor market indicators across consumption or income deciles. One example would be to contrast labor force participation or the jobs poorer households hold with those of richer households and identify changes over time.³⁹ The analysis links employment status to income but adds a distributional component. It allows the identification of inequality patterns overall and for population subgroups.

5.1. What is the wage distribution by sectors, occupations, education, and population sub-groups and how does it change over time?

5.2. How many hours do workers work on average per week and are there changes over time and by sectors, education, formality type of work and population sub-group? What share of workers hold more than one job?

5.3. What are the employment related and regional differences between households along consumption or income deciles and how does this change over time?

³⁸ Because migration theories hold that the employment probability-adjusted earnings differential between rural and urban areas will determine the flow of workers between rural and urban areas.

³⁹ Whenever possible household consumption and income deciles are calculated but if this is not possible one is taken as a proxy for the other.

Question 6: Which worker characteristics determine labor market outcomes?

The supply side analysis is completed with regression analysis that controls for a wider set of socio-demographic and economic factors. This section of the supply side enquiry can test the size and significance of observed determinants to substantiate or reject the diagnostic results and storyline emerging from the other lines of supply side enquiry.

Multinomial logistic regressions of labor status show the average marginal effects on the probabilities of labor status (employed, unemployed, inactive) and include illustrations to ease the interpretation. The resulting average marginal effects over time can be combined with the findings in question 2 to verify who is faring best in terms of accessing new jobs in the growing economy.

Probit regressions are used to get average marginal effects over time for the probabilities of being in formal vs informal employment, waged vs non-waged employment, agricultural vs non-agricultural employment and public vs private waged employment. Crucially these regressions identify which types of workers are most likely to make which of the transitions in their jobs as the economy grows. Taken over time, and combined with the trends observed under question 3, changes in these marginal effects provide valuable signals of changes in the demand and supply of labor.

Mincerian regressions complement the picture and pinpoint the actual influence of factors like education, sector of work or gender on the workers income.

6.1. What individual worker and household characteristics best explain the probability of being employed relative to unemployment and inactivity and are there any changes over time?⁴⁰

6.2. Which worker, household, and employment characteristics are associated with the key labor market outcomes: public vs private waged employment, formal vs informal employment, waged vs non-waged employment, agricultural vs non-agricultural employment, earnings (return to education)? Are there any changes over time?

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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 employment⁴¹, 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

⁴⁰ Individual worker and household characteristics include gender, age, education level, marriage status, share of youth and elderly in household, size of household and number of children in household, area of household residence and region of household.

⁴¹ Merotto, D., Weber, M., and Aterido, R. (2018) 'Pathways to Better Jobs in IDA Countries: Findings from Jobs Diagnostics' World Bank Group, Washington, DC.

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**⁴² 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 time⁴³.

⁴² 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.

⁴³ 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 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.

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 registered⁴⁴, 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*⁴⁵ *private sector firms, employment, and value added*⁴⁶ 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

⁴⁴ 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).

⁴⁵ 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.

⁴⁶ Sales if value added not available. All monetary values throughout the analysis are reported in a multiple of local currency and values are deflated.

big capital-intensive sectors, especially in mineral rich countries⁴⁷. 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 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 has this changed over time?

Indicator	Variable	Determinants	Output ⁴⁸
Share <i>variable</i> in end year.	Number of firms Number of workers Value added	Sector Location Size Age Ownership	Figka_varsh_sect_endyr_CCC.gph Figka_varsh_reg_endyr_CCC.gph Figka_varsh_sz_endyr_CCC.gph Figka_varsh_ag_endyr_CCC.gph Figka_varsh_own_endyr_CCC.gph
Share <i>variable</i> overtime.	Number of firms Number of workers Value added	Sector Location Size Age Ownership	Figkb_varsh_sect_CCC.gph Figkb_varsh_reg_CCC.gph Figkb_varsh_sz_CCC.gph Figkb_varsh_ag_CCC.gph Figkb_varsh_own_CCC.gph
	Number of firms Number of workers	Sector Location	Figkc_var_sect_CCC.gph Figkc_var_reg_CCC.gph

⁴⁷ 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.

⁴⁸ Figure numbers (k) are consecutive and vary depending on availability of data. For question 1.1, figure numbers are ordered by dimension.

Number of <i>variable</i> first and end year.	Value added	Size Age Ownership	Figkc_var_sz_CCC.gph Figkc_var_ag_CCC.gph Figkc_var_own_CCC.gph
Total, mean, min, max, sd of N, L, VA end year	Number of firms Number of workers Value added	Sector Location Size Age Ownership	Table1.xlsx

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 ⁴⁹ .	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 ⁵⁰ .	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 ⁵¹ Age: young versus old ⁵²	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

⁴⁹ And commercial agriculture if available.

⁵⁰ And commercial agriculture if available.

⁵¹ Micro firms have 1 to 9 employees; large firms have 100 or more employees.

⁵² Young firms are 5 or less years old; old firms are 10 years old or more.

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);
- An increase in the capital / labor ratio in key high employment sectors (capital deepening across firm 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 sector⁵³. 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

⁵³ 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

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 ⁵⁴	Sector	Figka_bubble_CCC.gph
Change ⁵⁵ in labor productivity, employment, and labor share of labor cost	Sector (first year to end year)	Figkb_bubble_CCC.gph
Change ⁵⁶ in labor productivity	Sector 2-digit (first year to end year)	Figka_prod2_CCC.gph
Change ⁵⁷ in employment	Sector 2-digit (first year to end year)	Figkb_prod2_CCC.gph

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

⁵⁴ 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

⁵⁵ 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

⁵⁶ This is a scatter plot looking at changes in more disaggregated sectors (2-digit).

⁵⁷ This is a scatter plot looking at changes in more disaggregated sectors (2-digit).

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 ⁵⁸ and year	Figka_ktrend_CCC.gph
K/L ratio trend	Sector ⁵⁹ and year	Figkb_ktrend_CCC.gph

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 employment⁶⁰.

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).⁶¹ 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 literature⁶² 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.

⁵⁸ Major sectors: manufacturing, and services (commercial agriculture if available)

⁵⁹ Major sectors: manufacturing, and services (commercial agriculture if available)

⁶⁰ 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.

⁶¹ 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

⁶² Syverson, C. (2011) "What Determines Productivity?" Journal of Economic Literature 2011, 49:2, 326–365

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 productivity⁶³ and wages⁶⁴ 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 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.

Indicator	Determinants	Output
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

⁶³ Labor productivity is firm’s VA/L (or output if value added not available).

⁶⁴ 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).

Indicator	Determinants	Output
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 characteristics⁶⁵ predict firm's size, labor productivity, and wage?

Regression analysis⁶⁶ 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 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.

Indicator	Determinants	Output
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 decompositions⁶⁷.

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.

⁶⁵ Size, age, ownership, efficiency of capital, sector, and location.

⁶⁶ Standard errors are clustered by broad categories of size, sector, and location.

⁶⁷ Olley-Pakes

Indicator	Determinants	Output
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

3.5 Do firms grow⁶⁸? 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

⁶⁸ It refers to employment.

3.6 What firm characteristics predict firms' employment growth, productivity growth, and wage growth? What firm characteristics predict firm's exit⁶⁹?

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 analysis⁷⁰. 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.

Indicator	Determinants	Output
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

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

⁶⁹ Probit regressions reporting marginal effects.

⁷⁰ Random effects model where panel nature of the data is accounted for. Standard errors are clustered by broad categories of size, sector, and location.

ANNEX II: STYLIZED LABOR MARKET MODELS

The simple partial equilibrium model of the labor market, exemplified by Figure 2 in the main text, may be too limited in what it can explain, especially when analyzing economies exhibiting stark differences between the modern and traditional sectors. In some cases, it may even prove misleading when trying to model the labor market's response to certain policies seeking, for example, the removal of particular jobs-related constraints. It is important, therefore, to identify the right labor market model that best describes the economy being analyzed. For an overview of some of the available choices, Fields (2004) offers a useful "Guide to Multisector Labor Market Models" that distinguishes between four alternative models of wage and employment determination in the formal, modern or manufacturing sector of the economy, three models of wage and employment determination in the informal, traditional or agricultural sector of the economy, and three alternative assumptions about the linkages between the formal and informal labor market, yielding a total of 36 possible combinations. (Throughout this annex we will refer to the labor market duality interchangeably as modern versus traditional, formal versus informal or agricultural versus manufacturing.)

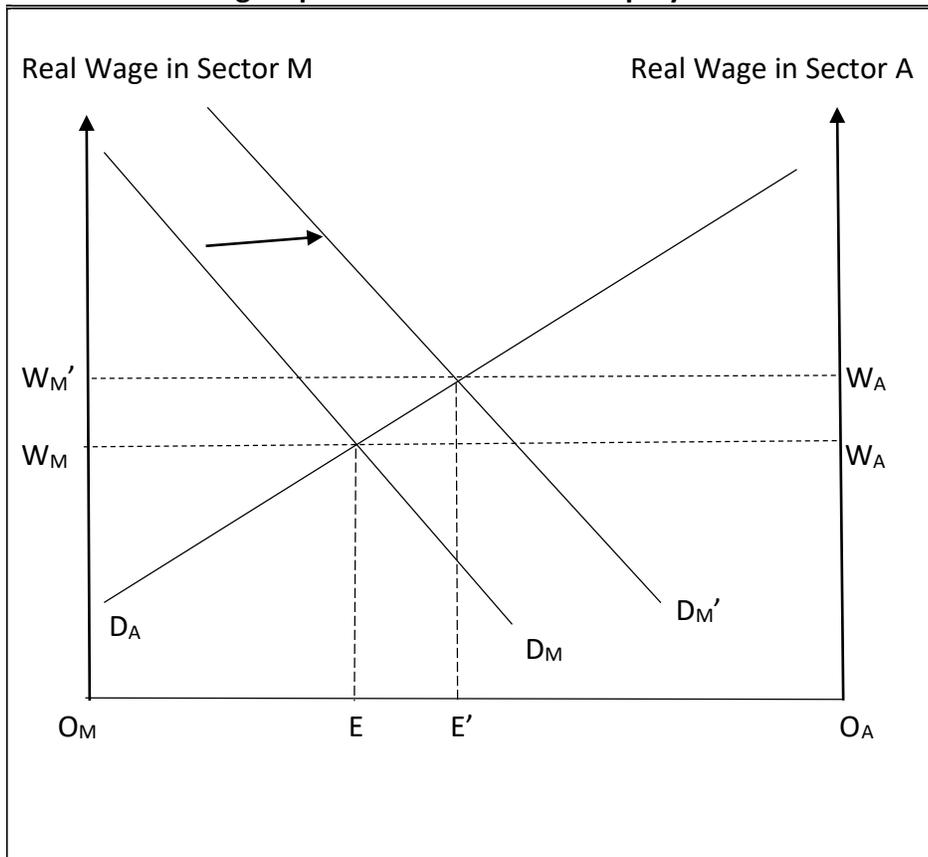
The four alternatives for modeling the formal sector labor market begin with the full market clearing model, where adjustments in labor demand, labor supply and wage movements are free to take place. (This corresponds most closely to the model represented by Figure 2.) The other three alternatives all involve some form of wage rigidity, where the formal sector wage lies above the market clearing rate and does not adjust. Several possible institutional reasons that may prevent wages from adjusting downward include minimum wage legislation, trade union agreements, public sector pay policies, multinational pay policies and restrictive labor codes. Two other possible reasons for wage rigidity include efficiency wage considerations on the part of enterprises in the formal sector and strategic wage bargaining behavior on the part of workers in the formal sector.

The three alternatives for modeling the informal labor market revolve around the following assumptions: one is that the informal sector is the employer of last resort where everyone can become employed, albeit at lower wages and poorer working conditions than in the formal sector. Another assumption is that the informal sector is an equally desirable arrangement for some workers because the non-monetary advantages of informal employment (e.g., greater work-hour flexibility or absence of bureaucratic red-tape) compensate for the observed wage differentials. A third alternative assumes that the informal sector labor market exhibits an internal duality, with one sub-sector operating as an employer of last resort and a higher-tier sub-sector that competes on a par with formal sector employment.

The three alternatives for modeling the inter-sectoral linkages between the formal and informal sectors of the economy are (i) the integrated labor market model with wage equalization and no unemployment, (ii) the multi-sector labor market model with wage differentials and no unemployment, and (iii) the multi-sector labor market model with wage differentials and unemployment. The second of these alternatives is often referred to as the W. Arthur Lewis model, while the third alternative is most often associated with the 2-sector labor market model pioneered by John Harris and Michael Todaro.

We now present some examples of different combinations of these dual labor market features, and show how they may lead to different conclusions about the impact of various policies, using simple graphic representations. It is assumed throughout that the size of the total labor force remains fixed over the period of analysis.

Annex Figure 1
The Fully Integrated Market Model:
Wage Equalization and No Unemployment



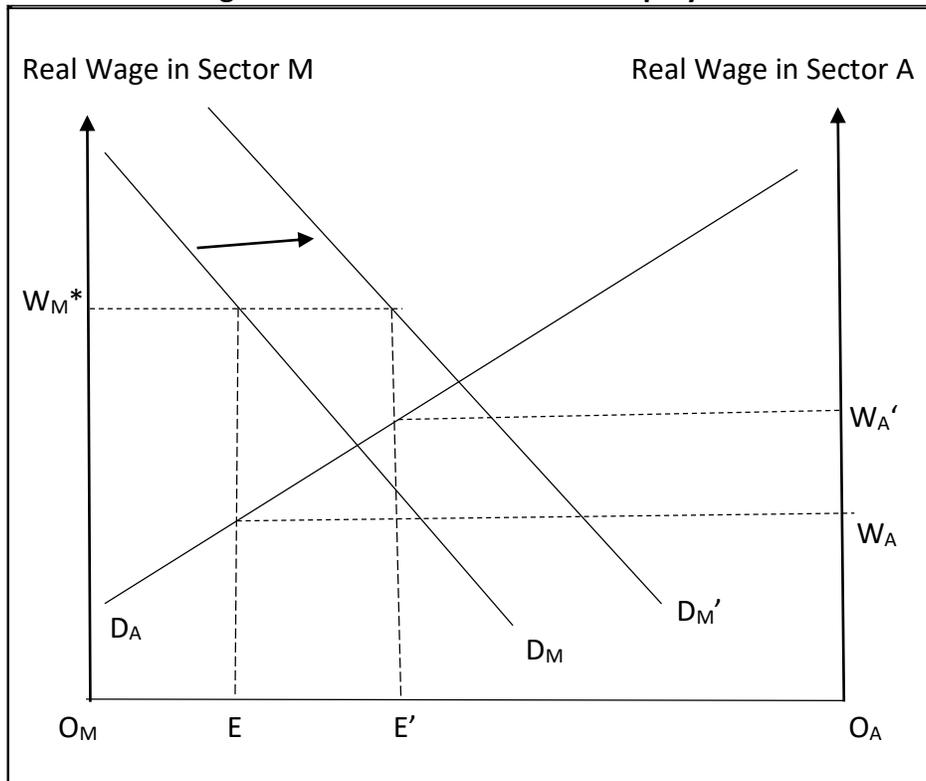
The Fully Integrated Market Model. The simplest labor market characterization is the fully integrated, market clearing model with wage equalization and no unemployment. This can be represented by Annex Figure 1. This model is perhaps most representative of fairly advanced developing or industrialized countries, where marginal productivity rates across sectors are quite close and labor is fairly mobile across sectors. The left-hand vertical axis in this diagram shows the real wage paid to labor in the manufacturing sector, while the right-hand axis shows the real wage paid to labor in the agricultural sector. The horizontal axis shows the labor employed in the manufacturing and agriculture sectors, such that the distance $O_M O_A$

represents the entire labor force. The curve denoted D_M represents the demand for labor in manufacturing. Its downward slope as a function of the real wage reflects the declining marginal productivity of labor in that sector. The curve denoted D_A represents the demand for labor in agriculture and it is also a declining function of the agricultural real wage. The initial equilibrium level of wages and employment in this model is given by the intersection of the two labor demand curves, D_M and D_A , with the manufacturing wage equal to the agriculture wage. At that point, the amount of labor employed by Manufacturing is given by the distance $O_M E$, and the amount of labor employed in Agriculture is given by the distance $O_A E$.

Now consider an exogenous increase in the productivity of labor in Manufacturing. This raises the demand for labor in manufacturing, shifting the demand curve to the right, from D_M to D_M' . (Alternatively, we can also imagine this rightward shift as being caused by a new government production subsidy designed to encourage industrialization.) Note that at the original equilibrium level of employment, the marginal productivity of labor is now higher than the previous equilibrium wage, which gives firms in the manufacturing sector an incentive to hire more workers and produce more. Since the total size of the labor force is fixed over the period of analysis, any increase in the labor employed in the manufacturing sector has to come at the expense of agricultural employment. As employment in agriculture declines, the marginal product of labor in agriculture increases; a process that continues until the wages in both sectors are equalized again. The new equilibrium is given by the intersection of the original labor demand curve in Agriculture, D_A , and the new labor demand curve in Manufacturing, D_M' . Comparing the new equilibrium with the previous one, we find that the increase in the productivity of labor in Manufacturing has led to (i) an increase in manufacturing employment and a decline in agricultural employment, and more surprisingly, (ii) an equal increase in the real wage in Manufacturing and in Agriculture. In other words, even though the increase in productivity was confined to the Manufacturing sector, wages in Agriculture ended up increasing by the same amount as manufacturing wages. We will next see how this compares with the outcomes obtained under different sets of labor market assumptions.

The Multi-Sector Model with Wage Differentiation and No Unemployment. This model relaxes the previous assumption of wage equalization across sectors, but continues to retain the assumption of no unemployment. This model, represented by Annex Figure 2, is perhaps most representative of poor countries with some labor market rigidities in the formal sector and a sizable informal sector that exhibits lower wages and less desirable working conditions than the formal sector. We assume that the real wage in the manufacturing (or formal) sector is set to W_M^* , which is above the market clearing rate, through minimum wage legislation that only applies to the manufacturing sector. From Annex Figure 2 we see that at that real wage level, the Manufacturing sector will employ the amount of $O_M E$ of labor, while the rest of the labor force, EO_A , will have to find jobs in the Agriculture (or informal) sector, which represents the employer of last resort. To accommodate this residual labor force, the agricultural wage cannot exceed W_A , which equals the marginal product of labor in Agriculture. Note that W_A is significantly lower than the manufacturing wage, W_M^* , as well as below the previous market clearing wage under the fully integrated model.

Annex Figure 2
The Multi-Sector Market Model with
Wage Differentiation and No Unemployment



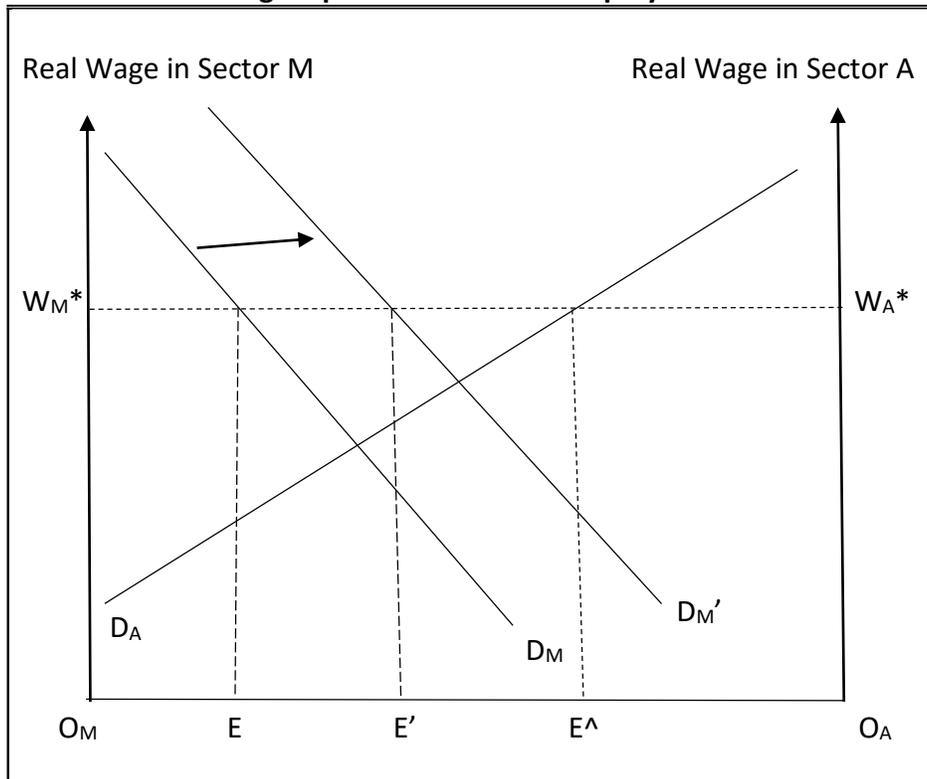
As before, consider again the same exogenous increase in the productivity of labor in the manufacturing sector, which raises the demand for labor in Manufacturing, shifting the demand curve to the right, from D_M to D_M' . In the absence of any policy changes the real wage in manufacturing remains fixed at W_M^* and so the rightward shift in the manufacturing labor demand curve translates into an increase in manufacturing employment from $O_M E$ to $O_M E'$. However, to attract these additional workers away from the Agriculture sector, the Agriculture wage has to increase from W_A to W_A' .

Comparing the response to an increase in manufacturing labor productivity under this model to the previous model response, we find an interesting difference. In both labor market models, employment in the manufacturing sector increases and employment in the agriculture sector declines. Also, in the previous model, real wages increased in both sectors. But under this model we now have an even more counterintuitive result, namely that the manufacturing wage does not change at all and only the agriculture wage increases.

The Multi-Sector Model with Wage Equalization and Unemployment. This model maintains the same wage equalization assumption as the fully integrated labor market model, but relaxes the assumption of no unemployment. This model may be considered representative of a somewhat less poor developing economy than in the preceding example, and with a more expansive, centralized state bureaucracy. One way to motivate such a model is also by assuming the existence of minimum wage legislation. But instead of only setting a minimum wage for the manufacturing sector, as in the previous model, we now assume

the minimum wage applies to both sectors of the economy. This wage is given by $W^* = W_A^* = W_M^*$ in Annex Figure 3. At this real wage level, which lies well above the market clearing rate, manufacturing employment is initially given by the distance, $O_M E$, and agricultural employment is given by the distance, $E^{\wedge} O_A$. The two sectors combined do not generate enough employment to keep the entire labor force employed. Instead, there is now a pool of unemployed workers, measured by the distance EE^{\wedge} .

Annex Figure 3
The Multi-Sector Market Model with
Wage Equalization and Unemployment

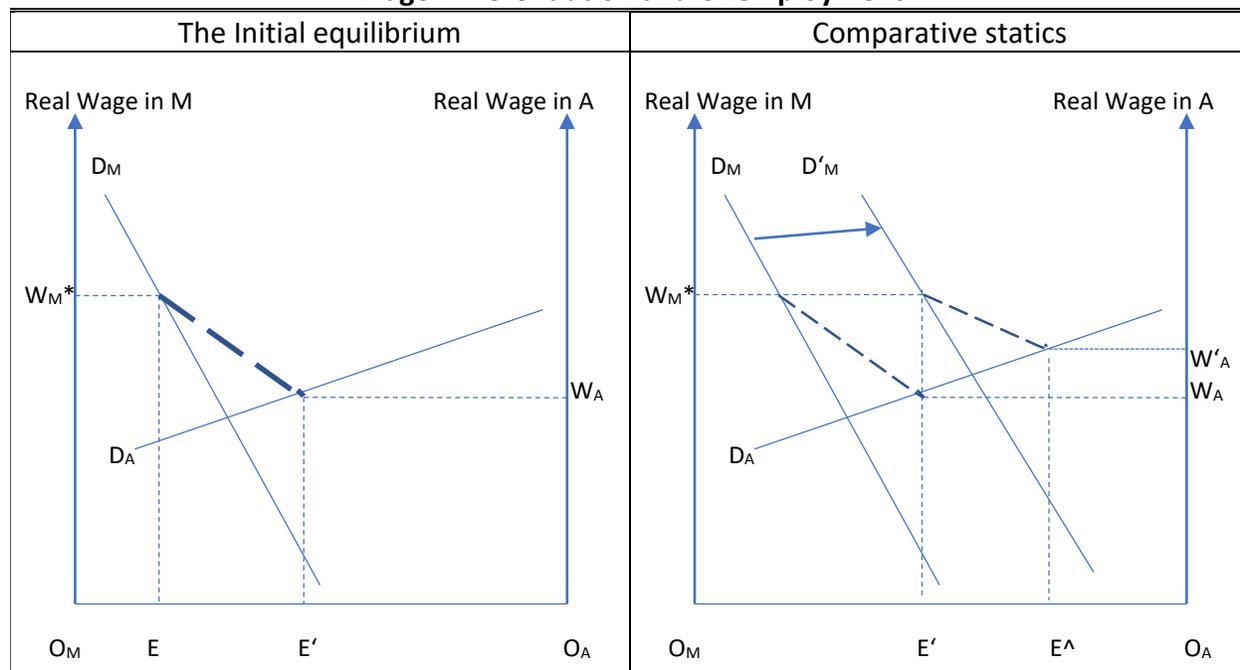


Carrying out the same comparative statics experiment as before, we now find that in response to an increase in the labor productivity in the manufacturing sector, manufacturing employment increases and the unemployment pool shrinks by the same amount, but there is no change in agricultural employment and no change in wages.

The Multi-Sector Labor Market Model with Wage Differentiation and Unemployment. As before, we assume that the manufacturing wage is fixed for institutional reasons at W_M^* , and that the number of workers hired in the manufacturing sector is given by the point where the marginal product of labor is equal to W_M^* . At the initial equilibrium, shown in the left-hand panel of Annex Figure 4, that point yields an amount $O_M E$ of manufacturing employment. With agricultural wages being flexible, the workers not hired in Manufacturing (given by $E O_A$ in Annex Figure 4) have the option of being employed in Agriculture, but this time they also have the option of joining the pool of unemployed workers waiting to be offered a

manufacturing job.⁷¹ The decision on whether to opt for an agricultural job or join the pool of unemployed urban workers is assumed to depend on whether the expected wage in Manufacturing is greater or smaller than the expected wage paid in Agriculture. In the Harris-Todaro models, the expected manufacturing wage is given by the actual wage paid when employed, W_M^* , times the probability of being employed, where the probability of employment is given by the ratio of Manufacturing employment divided by the total Manufacturing labor force.⁷²

Annex Figure 4
The Multi-Sector Labor Market Model with
Wage Differentiation and Unemployment



Under these assumptions, workers will move from the Agriculture sector to be part of the urban labor pool until the probability of being employed in the manufacturing sector has decreased enough that the expected wage in manufacturing is the same as the wage paid in Agriculture. That point is reached when the “quasi” demand curve for manufacturing labor (given by the long-dashed line declining to the right, but flatter than D_M)⁷³ intersects the demand curve for agricultural labor (D_A). At that point, we have that

⁷¹ A useful mnemonic image here is that the (urban) manufacturing firms hire workers every morning on a one-day contract. These workers cannot be hired directly from rural areas. Rather, to be eligible for those jobs, a worker has to be part of the urban (manufacturing) labor force, which at any time comprises the workers employed in manufacturing plus the unemployed workers waiting for a manufacturing job. Every morning, when the hiring process takes place, each worker in the labor force has an equal chance of being selected for a manufacturing job.

⁷² The probability of being employed can be expressed as: $x/y = x/(x + u)$, where x represents the number of workers employed in manufacturing ($O_M E$ in the left-hand panel of Annex Figure 2), u is the number of unemployed urban workers (EE') and y represents the total urban labor force ($O_M E'$).

⁷³ The formula for this “quasi” demand for labor curve is the expected wage equalization condition: $W_A = W_M^*(x/y)$,

the equilibrium Agriculture wage is below the Manufacturing wage, but higher than in the earlier model (Annex Figure 2), since the surplus workers in the urban unemployment pool are no longer being squeezed into the Agricultural sector.

The right-hand panel in Annex Figure 4 shows the response to the same kind of rightward shift in the demand curve for workers in Manufacturing. This time, assume that the cause of that shift is an increase in government subsidies to manufacturing with the aim of eliminating unemployment. From the left-hand panel we see that the total Manufacturing labor force (employed and unemployed) is equal to $O_M E'$. So, shift the labor demand curve to the right until the total manufacturing labor demanded at wage W_M^* is also $O_M E'$. In the model analyzed in Annex Figure 3, for example, such a policy would have eliminated unemployment, but in this model the result is that even though manufacturing employment has increased by the targeted amount, additional workers are now motivated to migrate to urban areas in search of manufacturing jobs and are thereby expanding the ranks of the unemployed. The reason is that as the initial batch of unemployed workers are hired, the probability of finding employment approaches 1, thus raising again the expected wage in manufacturing above the agricultural wage. In this model, the same dynamic would continue to occur until enough workers have migrated away from rural areas for the agriculture wage to rise to the same level as the manufacturing wage.

Summary

Annex Table 1 summarizes the different labor market outcomes obtained above in response to the same exogenous or policy stimulus. These responses are quite varied and sometimes counter-intuitive. This finding underlines the importance of identifying the right labor market model when preparing a Jobs Diagnostic. The JD process seeks to identify the binding constraint on economic activity by matching the symptoms observed in the data to the set of hypothetical symptoms generated by our labor market model in response to a particular constraint. Since different models can lead to very diverse responses, choosing the wrong model can lead to mis-diagnoses and poor policy interventions.

Annex Table 1

Simulated Impact of an Increase in Labor Productivity on Employment and Wages under Different Labor Market Models

	Model 1	Model 2	Model 3	Model 4
	Wage Equalization No Unemployment	Wage Differentiation No Unemployment	Wage Equalization Unemployment	Wage Differentiation Unemployment
Employment in Sector M	+	++	++	++
Real Wage in Sector M	+	0	0	0
Employment in Sector A	-	-	0	-
Real Wage in Sector A	+	+	0	+
Unemployment	0	0	-	+/-

ANNEX III: MARKET AND POLICY FAILURES IN PRESCRIBING SOLUTIONS

The final step in a jobs diagnostic is to prescribe solutions which should have their justification in policy or market failures. Outcomes are not constraints nor syndromes, so care is needed to identify key problems, their causes, and remedies that are justified from public choice principles. As we saw in sections II and III, progressing from diagnosis to the prescription of solutions requires; first, interpretation of the symptoms revealed by jobs outcomes; second, prioritization of the key problem revealed by these symptoms; then third, investigation of the underlying constraints or *syndrome* that is causing the problem. This is important, outcomes such as ‘jobless growth’, widening labor market duality, widespread informality, declining productivity in urban off-farm jobs, consumption cities, the lack of waged work, low participation rates, queuing for public sector jobs, or chronic youth unemployment etc. are *symptoms* of an underlying malaise that locks the economy into sub-optimal equilibrium from the perspective of society. Having posited what might constraints or syndrome might be causing these symptoms, the policy maker should justify prescribed solutions from the principles of public choice, which are briefly discussed here as a primer.

We adopt a neoclassical public choice framework to guide the justification for prescriptions. In neoclassical microeconomics, economic agents act rationally with perfect information, product and factor markets clear quickly⁷⁴. Price changes create incentives for investors to enter markets or increase production when market conditions allow. An increased demand for workers from these investors raises wages. The supply of labor responds to higher wage opportunities: people enter the workforce to seek work. This increased supply matches the increased demand and wages stabilize again at a new equilibrium. To neoclassical economists, underdevelopment is a result of a late start, often due to poor policy fundamentals, and, in the long run, all countries will converge in per capita incomes. The main barrier to optimal efficiency in markets in the neoclassical framework is “government failure” – ie under-investment in public goods or inappropriate policy fundamentals that restrain markets.

However, we also recognize the existence of market failure and “jobs externalities”⁷⁵. For many developing countries obvious public policy failures have restrained private investment and growth. In other countries that have spurred quite rapid growth, market incentives *are* leading to high return investments in growing markets, but these are not creating enough good jobs. Strong growth built on strong fundamentals is associated with persistent duality, inequality is widening in labor markets, suggesting that market failures are generating these socially sub-optimal solutions.

⁷⁴ Annex II discussed the need to consider alternative labor market models which include variants on the neoclassical closure. The disappointment of “big-push” development policies of the 1960s led World Bank economists in the late 1980s to adopt a “supply-side” neo-classical framework, with a strong leaning to Coasian approaches to letting the market compensate for market failures. In neo-Keynesian models, wages and prices are ‘sticky’, giving rise to periods on involuntary short-term unemployment, but in the long run prices clear markets. In ‘structuralist’ models, the law of one price may not hold and duality between a capital thin traditional sector and capital rich modern sector may persist through the long run.

⁷⁵ See Walker and Robalino (2017) op cit, Rodrik and Sabel (2019) op cit

Jobs problems arise from underlying market failures or public policy failures. To argue that an economy is suffering from a constraint or syndrome that is the *cause* of sub-optimal jobs outcomes, the policy maker must identify either a market failure or a public policy failure that prevents the constraint from self-correcting. Market failures in LICs can be categorized in four main groups:

- **Public goods;** non-payers cannot be excluded from using the product or service, and there is non-rival consumption (one person's use doesn't harm another's). Defense is the most obvious example, but trunk roads passing through rural areas, and city road networks would be another. The under-provision of public goods by the market requires public provision, but the public sector may fail to provide sufficient supply of the public good. Regions or Districts where market potential, land, and human capital are suitable and sufficient to attract labor intensive private investment that creates markets and economic transformation may be lacking public investments in infrastructure. (Examples were identified in spatial analysis undertaken for the [Bangladesh](#), [Zambia](#), [Tanzania](#) and [Uganda](#) Jobs Diagnostics).
- **Imperfect competition;** limited competition among buyers or sellers prevents the equality between demand price and supply price. Utilities are a classic example; economies of scale mean there are natural monopolies in the generation, transmission and distribution of electricity. However, in low income economies where demand is lower, where consumers and producers may be remote from each other, and where markets are less developed, numerous examples of imperfect competition may affect poor people. For example, in most rural farming villages there are many buyers but often one seller of fertilizer or seed. There may be many sellers but only one buyer and transporter of crops. The nearest branch of a bank or credit-making institution may be several hours' walk away, and even if there is more than one, they likely set similar expensive terms. As a market-based solutions, productive alliances and cooperatives in farming aim to give more bargaining power and profitability to smallholders (the [Mozambique Jobs Diagnostic](#) identifies this solution). New disruptive technologies like mobile banking and cellphone-based price information can also empower smallholders, but entry costs to getting access can present barriers. (The [Paraguay](#) and [Moldova](#) Jobs Diagnostics identified unfair competition in small markets as a cause and constraint of the insufficient growth of waged jobs).
- **Information asymmetry** occurs when buyers and sellers or investors in a market do not have access to all the same information. This can cause the equilibrium quantity of a product demanded or supplied to be greater or less than that which is best for society. One party can use their information advantage to exploit the other. Examples include moral hazard, the sale of 'lemons', and principal agent problems. Another example would be a hirer's lack on information on whether a job applicant really possesses the skills they claim to have. An important example can occur in low in come African countries that abolished marketing boards for major crops where price volatility and market imperfections can cause traders to offer lower and unstable prices to smallholders who therefore under-produce.
- **Externalities** occur when one person's actions affect another person's well-being and the relevant costs and benefits are not reflected in market prices. In other words, they occur when the private costs or benefits of actions deviate from social costs or benefits – there can be positive or negative effects, suggesting there can be multiple market equilibria depending on the existence and type of externality. The three examples most relevant as causes of jobs problems include:

- **Spillovers** – which occur when some of the benefits or costs of production are not fully reflected in market demand or supply prices. The benefits or costs of a good or action spill over to a third party. For instance:
 - *Positive spillovers* can occur to R&D, and from innovative rather than rent-seeking behavior. The expected return to an investment in R&D increases with the stock of ideas in the public domain, so that if R&D findings become common knowledge, this may raise the incentive for more R&D⁷⁶. Innovators can drive more innovation and can drive out rent seeking if competition allows. However, if *rent-seekers* are tolerated or allowed to tax innovators, a lower level equilibrium of innovation will result in lower productivity gains and lower employment creation.
 - *Negative spillovers* can occur in labor markets where workers spend time and money seeking jobs whilst employers must spend money seeking suitable workers. If employers spend less on posting vacancies, then workers have a lower probability of finding work and so may be less inclined to search. (Labor market matching projects are much more likely to be needed in MICs, where waged employment is the norm).
 - *Training and innovation* provide good practical examples where high or low productivity equilibria can ensue. Within any single firm, training and innovation may pay off only if a sufficiently large fraction of the population of firms and workers trains and innovates⁷⁷. Otherwise the innovating and training firm may lose capital when their trained worker takes a job with someone else (this was identified as a common problem in Tanzania’s tourism sector under the Let’s Work program).
- **Coordination failures** occur when profitable investments go unfunded because they depend upon the simultaneous actions of others. This type of market failure has been recognized in economics since the 1940s. Rodrik (2004) provides a good example⁷⁸. “An individual producer contemplating whether to invest in a greenhouse needs to know that there is an electrical grid he can access nearby, irrigation is available, the logistics and transport networks are in place, quarantine and other public health measures have been taken to protect his plants from his neighbors’ pests, and his country has been marketed abroad as a dependable supplier of high quality orchids. All of these services have high fixed costs and are unlikely to be provided by private entities unless they have an assurance that there will be enough greenhouses to demand their services in the first place”. (The [Zambia Jobs Diagnostic](#) and Let’s Work Program discussions revealed likely coordination failures constraining commercial farm investments in tropical fruit and vegetable production in Northern Zambia).
- **‘Jobs externalities’**: In low income countries (LICs) accumulation, innovation, and productivity growth take place in the “modern sector”⁷⁹. The “traditional sector” is stagnant and technologically backward. In models of structural dualism, economy-wide

⁷⁶ Romer, P. (1986), "Increasing Returns and Long-Run Growth." *Journal of Political Economy* 94 (October): 1002-37.

⁷⁷ Paul Rosenstein-Rodan (1943). "Problems of Industrialization of Eastern and Southeastern Europe." *Economic Journal* 53 (210-11).

⁷⁸ Rodrik, Dani. 2004. *Industrial Policy for the Twenty-First Century*. Working Paper. October. Harvard University.

⁷⁹ Lewis (1954 and 1974) op cit

growth depends on the rate at which labor migrates from the traditional to the modern sector. Empirical evidence in LICs suggests that there are large pay-offs to helping labor mobility into “better” higher productivity jobs, and yet it doesn’t always happen or happen fast enough. (The [Uganda Jobs Diagnostic and Strategy](#) identify stalled economic transformation and persistent economic dualism). One reason it doesn’t happen fast enough is **market failure**⁸⁰. Whereas the opportunity cost (marginal product) of an under-employed worker in the low-productivity traditional sector may be zero or close to zero, firms need to pay the market wage to hire that worker. That the market may demand a sub-optimal level of “better jobs” in the modern sector in LICs is even more problematic if “better” jobs create externalities. For example, waged jobs could empower women and that could lead to lower fertility rates and higher investments in the human capital of their children. Helping young men stay occupied in rewarding work can lower crime and violence, especially in FCVs (the Lebanon National Jobs Program identified this).

Welfare-maximizing reallocations in this situation are often forgone because of the transaction costs involved in bargaining. If all businesses could communicate with all other businesses and with all possible workers simultaneously, without information asymmetry, the factory might be able to offer the worker on the farm a wage sufficient to attract them to work in the factory on different terms or for less than the prevailing urban market wage.

Market vs Government failures: In a Pigouvian view of the world government should adopt policies that reign in the spillovers among entrepreneurs, paving the way for the ‘good’ socially optimal equilibrium. Government responses to market failure include legislation, direct provision of merit goods and public goods, taxation, subsidies, tradable permits, extension of property rights, advertising, and international cooperation among governments.

However, public sector failure is also endemic in LICs⁸¹. Even where there is a market failure, public sector interventions may not always be the optimal solution⁸². The history of practical policy

⁸⁰ The Growth Report (2008) offered insights on this. *“Perhaps the greatest analyst of a labor-surplus economy was Sir Arthur Lewis. In his models, the fields were so overmanned that the “marginal product” of agricultural labor was close to zero. In other words, if one field hand left the farm to work in an export factory, the farm would lose nothing. By the same token, if the worker were to add even one cent to the economy in his or her new factory job, society would gain. The problem is that an export factory cannot tempt workers from the fields for one cent. They have to pay more than this. Therefore, the cost to the factory of hiring workers from the fields is greater than the opportunity cost of their labor. As a result, the social return to factory employment can be higher than the private return for a period of time. This period persists until the surplus labor is absorbed and the wages in the export sector converge to the opportunity cost in the traditional sector. This is one justification for the industrial policies, including the exchange rate policies, described in a subsequent section. They make investment in the export sector more profitable, bringing the private returns more into line with the social benefits.”*

⁸¹ Anne O. Krueger, *“The Political Economy of the Rent-Seeking Society,”* American Economic Review 64.3 (1974)

⁸² Ronald Coase (1960) *“The Problem of Social Cost”* suggested in contrast to Arthur Pigou (1932) *“The Economics of Welfare”* that the existence of an externality doesn’t necessitate state intervention if the parties involved can enter into a costless transaction between each other to address the externality. James M. Buchanan (1983). *“The Achievement and the Limits of Public Choice in Diagnosing Government Failure and in Offering Bases for*

interventions designed to address market failures and coordination gaps in developing countries is littered with failures, demanding caution. “Big push” strategies for industrialization arising from the work of Rosenstein-Rodan (1943), Hirschman (1958) and Lewis (1954) to break the underdevelopment equilibria in LICs led many developing countries in the 1960s and 1960s (Hoff, 2000).

Constructive Reform” discusses Government failures. His and Anne Krueger’s theories of public choice were influential in the early thinking behind the *Washington Consensus*. Rodrik and Sabel (2019), op cit

ANNEX IV: JOBS STRATEGIES, CONSTRAINTS AND SYNDROMES IN PRACTICE

This annex is a work in progress. To support countries with Jobs Strategies, more work is needed to define Jobs Constraints and Syndromes from the analysis of symptoms. Examples are emerging from Jobs Diagnostics, from Randomized Control trials in the context of research for solutions, and in case studies. As the Jobs Group completes work on the Global Jobs Indicators database, new data with disaggregated indicators will be available from which to gather relationships between symptoms from data, to check for common patterns of association between symptoms.

Viable Jobs Strategies for a country take account of the desirable economic transformation for a country and the knowledge, skills, abilities and employment patterns of the existing workforce. In low income countries where most people work in agriculture in rural areas, pathways to better jobs require policies and investments that; (a) nurture productivity gains and commercial developments in agriculture, (b) support the generation of off-farm jobs in agri-business and agro-processing value chains, (c) nurture jobs in support services in secondary towns, and (d) support migration to urban centers for labor-intensive manufacturing and service jobs. In other words, in jobs strategies, policy makers must not just supply public goods and correct for constraints arising from market failures, they should also aim to accelerate jobs-rich economic transformation and facilitate the movement of workers to better jobs in a growing economy.

From first principles and jobs diagnostic in practice, we can identify some tentative jobs constraints and syndromes from symptoms. If jobs constraints and syndromes are defined in relation to public policy failure or market failures, solutions to them will involve prescriptions either for greater coverage of public goods, reforms to taxes, public policy or regulations, or interventions to encourage private actors to find market solutions to market failures. Some typical scenarios are:

The under-investing state: The public sector under-invests in public goods. A government that is unable (or unwilling) to fund basic public goods across all regions of the economy may be under-investing in physical and human capital. The symptoms of an under-investing state might include:

- A slow pace of economic transformation
- Persistent wage gaps between regions and districts in the country
- Wide dispersion of prices (high margins) due to transport costs
- Labor Force Participation and Employment patterns reflect spatial connectivity
 - Low Participation in areas outside of the capital or line of transport corridors through the capital;
 - High unpaid family work outside of the capital and in lagging regions
- Slow growth in waged employment outside of the capital
- Low education quality as determined by PISA scores
- Low levels of public investment as a share of GDP and as a share of total spending;
- Bias in the allocation of spending towards the capital city and away from secondary towns, or away from opposition regions;

- Poor fiscal policies or public subsidies may reflect in high recurrent spending on energy, fuel or input subsidies or in interest payments on domestic debt.

The under-investing state is not specific to an income level nor country type. Common examples might include:

- **Lagging regions:** the jobs symptoms are:
 - Most jobs – especially in the lagging regions are in agriculture, where there would be a large subsistence sector.
 - Economic transformation of workers out of agriculture and into secondary towns is slow, especially in poorer rural areas;
 - Few new firms locate outside of the established capital and main towns despite market and agro-potential (market accessibility, good topography, reliable rainfall, good soils and vegetation indices)
 - An example would be [Zambia](#).
- **Urban congestion:** inadequate infrastructure in urban areas would most likely cause the following symptoms:
 - Slow the rate of economic transformation
 - Labor productivity in *urban areas* stagnates.
 - Businesses may be concentrated in urban areas, but costly transportation, poor access to electricity and water may reduce the competitiveness of larger private investments in manufacturing.
 - Employment is concentrated in small enterprises and those which require limited access to transport and energy, and do not employ a large workforce that needs to commute in heavy traffic.
 - Urbanization may be slow or else if occurring, may not be associated with high gains in productivity from the reallocation of labor.
 - An example would be [Bangladesh](#).
- **Skills gaps:** Symptoms may include:
 - High and rising returns to tertiary and technical vocational education.
 - Private firms import skilled labor (applications for work permits rising for skills groups).
 - Due to spillovers, private sector firms complain about skills gaps but are not training their staff.
 - Public sector vocational training colleges under-funded,
 - Graduation is low relative to private sector demand for trainees,
 - Public colleges lack external efficiency
 - Low public spending shares on education
 - Poor PISA scores
 - South Africa shows elements of this type of jobs constraint.

Over-regulating state: The over-regulating state intervenes in product and labor markets beyond what is needed to correct for market failures. Often this is done for social protection or some desire to support infant industries.

Common examples are:

- **Over-regulated labor market:** the symptoms of which include:

- Stringent labor regulations (more generous than benchmark countries) on payroll deductions, pensions, health insurance severance pay, overtime payments, minimum wages, and maternity leave.
 - Low share of formal work within waged work (as firms stop giving contract of work and take temporary workers).
 - Slow growth in waged employment (as expanding firms either substitute labor for capital, subcontract services including from small informal firms).
 - productivity and wage differentials which persist.
 - many informal firms and SMEs coinciding with a small number of large formal firms in activities (ISIC defined).
 - Firms clustered around threshold sizes for regulatory compliance.
 - Examples include: Central America ([Honduras Jobs Diagnostic](#)), LAC countries more generally, and some Indian States⁸³
- **Over-regulated business environment:** the symptoms of which include:
- high compliance costs with overlapping product or safety standards that increase the costs of doing business and can reward rent-seeking behavior.
 - Reporting requirements for private firms increase administrative costs and reduce profitability.
 - Onerous procedures e.g. for land title and construction permits create incentive for rent-seeking behavior.
 - low and slow growing formal employment relative to self-employment and informal waged employment.
 - Low share of formal firms compared to informal firms,
 - low entry rates for new formal firms.
 - Examples would be [Jordan](#) and [Moldova](#)

Under-regulating state: The under-regulating state fails to correct market failures arising from unfair competition in product markets, asymmetric information, or spillovers. Government fails to correct unfair competition, or to protect innovation or copyright to reward innovators for R&D expenditures. Monopolies dominate pricing in strategic input sector or raw materials, making investment in some manufacturing industries non-competitive with imports. Import licenses are granted openly without adequate inspections, and customs inspection allow for smuggling, and so imports compress the ability of local firms' supply response to increased domestic demand. Symptoms depend upon the type of market failure that is not corrected for, but could include:

- Formal firms complain that informal non-taxpaying firms steal their markets.
- A large share of firms in wholesale and retail trade activities (shares of sales and employment),
- Net trade deficits in products widen despite the availability of producers of these products domestically to supply that demand.
- Activities in business census data are highly concentrated at both 2 and 3-digit ISIC.

⁸³ Kanbur, R (2009) "Conceptualizing Informality: Regulation and Enforcement", Indian Journal of Labor Economics. See also Hsieh and Olken (2014) "The Missing Missing Middle" , NBER Working Paper

- Monopolistic firms don't hire and don't have the incentive to reduce costs to enhance productivity.
 - Low shares of waged and formal employment
 - In doing business and ICA reports, firms complain about compliance and unfair competition.
 - An example would be [Paraguay](#). Elements were also observed in [Uganda](#).
- **Bad finance:** A subset of the under-regulated State. Poor regulations or a lack of banking supervision can lead to failures in financial intermediation. Symptoms could include:
- Unfair competition in the banking system manifests itself in high interest rate spreads on lending versus deposits, excessive collateral requirements, short-term lending horizons (short maturity on loans), high fees and charges on banking transactions, including on foreign exchange transactions.
 - Borrowers may be unable to 'shop around' for lack of a credit reference rating.
 - The banking system may provide only a limited number of lending products for customers (e.g. there may be no movable collateral lending, no leasing credit, and trade financing may be tight).
 - There may be no innovative banking practices (few electronic transfers, no mobile banking);
 - Banks in tiers 1 and 2 may be unwilling to take the risks of lending to tiers 3 and 4.
 - Businesses complain that finance is a constraint to business expansion,
 - A relatively high share of businesses that report that they applied for a loan in Enterprise Surveys do not have received one, regardless of firm size.
 - High turnover and exit levels for new firms which are unable to absorb short-term losses,
 - Low shares of growing firms because growth requires financing new investments.
 - Most firms are small,
 - Most workers are self-employed.
 - The business sector may respond rapidly to the availability of private sector lending when credit is available.
- **Labor market mismatch:** Negative spillovers in labor markets mean workers spend a lot of time and money seeking jobs, whilst employers spend money seeking suitable workers. Symptoms can include:
- persistent wage gaps across occupations, skills types and locations
 - firms complain about the lack of skilled workers in ICAs, but do not provide training in-house for their staff.
 - Workers face long periods of frictional unemployment,
 - Youth take a long time to transition from school to work and panel data may show few transitions from unemployment to employment and from self- to waged employment.
 - Businesses may apply for work permits for foreign workers despite the existence of unemployed or under-employed people with the requisite skills in the economy.

Over-generous state: Public sector employment and wages, or social insurance payments are high relative to private sector wages and employment.

- **Over-generous public-sector remuneration:** Symptoms include:
- The public-sector crowds-in skilled workers.
 - The private sector faces shortages for qualified workers.

- High share of wages and salaries in total recurrent public spending and as a share of GDP compared to other countries,
 - Public sector earnings exceed those in the private sector for a given level of education and adjusting for characteristics (wage regressions in the jobs diagnostic).
 - Returns to education may be higher for public than private workers.
 - Bimodal distribution for waged employment.
 - Longer school-to-work transitions for tertiary-educated youth than secondary educated school leavers (and the children of wealthier families).
 - Private sector wages may rise out of line with labor productivity, slowing employment creation in the private sector.
- **Over-generous social insurance:** The public sector either creates a higher reservation wage by providing generous pensions (encouraging early retirement, e.g. [Moldova](#)), pays relatively high social transfers (South Africa), or else collects high payroll taxes for health insurance. Symptoms could include:
 - Low labor force participation rates for all socio-economic groups but especially for elderly and low-skilled relative to other countries.
 - Formal waged employment in private businesses may be slow growing or else not growing in line with sales or total employment.
 - Private firms may hire a disproportionate share of workers without contracts.

Predatory state: - In a predatory state, there is a preponderance of inspection laws, licenses and regulations that necessitate plant visits with the aim of rent-seeking or discrimination. Symptoms would be more evident in business data, and could include:

- Poor ICA scores for dealing with tax authorities and compliance costs. S
- Low firm entry,
- Large firms who have adapted to the feed the predatory state would likely be older and enjoy market dominance in their sectors.
- There would be evasion – reflected in a large informal sector – a preponderance of small-scale producers operating ‘below the radar’ remaining too small for the predatory state to extract from them; but possibly providing most of the waged jobs in the economy.
- Investment and innovation would be stymied, and profitability may be lower.
- Poor correlations between firm size (employment) and productivity.
- A smaller proportion of employment would in medium-sized firms.
- Low shares of waged work,
- Even lower shares of formal waged, as firms try to avoid registering workers for taxes.
- (In an agrarian society) smaller share of cash crop producers,
- smaller share of waged employment on commercial farms,
- higher share of unpaid family workers and subsistence self-employed producers in the agriculture sector⁸⁴.

⁸⁴ Murphy, Shleifer, and Vishny (1993) “Why is Rent-seeking So Costly to Growth?” American Economic Review 83(2) May: 409-414

- Economic transformation would be slow, and if it is happening, it would likely be characterized by large numbers of micro service firms and self-employed manufacturing.
- An Example would be [Moldova](#)

Jobs externalities: To create positive jobs externalities and encourage a faster reallocation of workers from the traditional to the modern sector in LICs with surplus labor, Governments may need to reduce the costs, or increase the attractiveness of hiring workers in the modern waged sector. Where jobs externalities exist, the law of one price does not hold. Symptoms include:

- Wage gaps persist between rural and urban areas.
- Most workers are either unpaid family workers in rural areas or else are self-employed in low productivity farm work or service work.
- Workers may be underemployed, working just a few hours each day or a few days each week.
- Inequality in earnings would reflect in inequalities of consumption and therefore in a high Gini coefficient in household consumption surveys.
- Wages and earnings per hour are significantly lower than in the modern sector of the economy and yet a low probability of finding work prevents people from moving to urban areas in search of work.
- There may simultaneously be high urban unemployment.
- Formal waged employment in formal firms may be low relative to other employment types.
- This syndrome would typically apply in labor abundant LICs. An example would be [Uganda](#).

There is no discernible “constraint” that creates jobs externalities. To reap positive jobs externalities, Jobs Strategies should create jobs in labor intensive sectors for the underemployed poor, whilst permitting viable returns to industry, and must not inflame the minority of fortunate workers already employed in good jobs in the formal sector⁸⁵. These can include special economic zones that operate under some form of concession for labor intensive activities. Competitive exchange rate policies can also make investment in modern export sectors more profitable, bringing private returns more into line with the social benefits of job creation in the modern sector.

Dutch disease: constrained growth in jobs in tradeable sectors. In commodity, or aid-dependent or remittance-dependent economies, inflows of foreign exchange can lead to an expansion in the demand for non-traded goods. Symptoms include:

- Increased relative price of non-tradeable goods and services relative to traded
- Increases in real wages in the economy relative to other countries.
- Decline in the competitiveness of traded goods in the economy.
- where a large share of workers is in self-employment or waged employment in agriculture, an appreciation of the real exchange rate which reduces export competitiveness can have serious negative effects on employment and earnings in agriculture;
- slower growth in productivity in traded goods
- slower economic transformation.

⁸⁵ Growth Commission (2008) “The Growth Report, Strategies for Sustained Growth and Inclusive Development”



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