

# Performing Labor Market Diagnostics for Developing Countries

## I. BACKGROUND

### 1.1. Why this guide?

The poor in developing countries depend on labor income. Consequently, understanding conditions and developments in labor markets is critical to understanding poverty dynamics. However, awareness of these links has been limited by two factors: (i) lack of relevant indicators for developing country conditions, notably measures of job quality, and (ii) lack of an analytical framework for analyzing the role of labor markets as transmission channels from growth to poverty. The present guide focuses on how to deal with the indicator gap. An accompanying guide, Guide to Growth, Employment and Productivity analysis, provides an analytical framework for growth and labor market links, and a third guide, Guide to Employment, Low Pay, and Poverty Dynamics, deals with the links between poverty and labor market changes.

This guide introduces a set of labor market diagnostics that provide key information on labor markets and poverty in developing countries. It draws heavily World Bank, 2007. Standard and quantity focused labor market indicators are complemented by less commonly used indicators which better capture labor market conditions in terms of quality of jobs.<sup>1</sup> All definitions of terms and notations are provided in the guide entitled Introduction to Employment Lab Guides, which also provides the context of the guides in the World Bank's overall work on shared growth and employment. A more comprehensive overview is given in World Bank (2007).

The guide highlights indicators that are essential for analysts to answer three principal questions:

- What are the conditions in the labor market?
- Which groups among the population are relatively disadvantaged, as measured by job attributes?
- To what extent does poor job quality overlap with poverty at the household level?

For each of these questions it is possible to get a static picture (of current conditions) and a dynamic picture (of how conditions have changed over time), provided that data are available.

In addition to labor market statistics, a good understanding of labor markets requires a good understanding of its specific institutional features. Thus, the analysis must also include an assessment of:

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<sup>1</sup> The set of indicators have been developed jointly by the HDNSP, HDNED and PREMPR.

- The wage setting mechanisms (indexing, role of public employment and wages if a relevant factor, minimum wage(s))
- The framework that regulates employment relationships (work standards, minimum wages, unions)

## **1.2. Data requirements and software**

Labor market diagnostics for developing countries requires a minimum of information on both total labor income and non-labor income and consumption at the household level. Information on labor income encompasses: wages and hours worked for employees; earnings and hours worked of the self-employed with no employees; and earnings and hours work of the self-employed with either hired employees or family workers. Information on non-labor income and consumption is important for drawing links between labor markets and poverty (which is estimated using consumption).

The ADePT (Automated Economic Analysis) STATA software Platform, developed by the World Bank enables the automatic production of tables and graphs using labor market indicators.<sup>2</sup> It is a time saving tool which speeds up the production of basic results, reduces the number of errors implicit in labor market diagnostics, allows for the rapid repeat of all tables when any of the underlying data changes, and provides comparable results across countries and years.

ADePT LABOR can be used to produce three specific types of tables in line with the three analytical questions outlined above. The first set thus assesses the evolution of labor markets. The second set disaggregates the main indicators (e.g. unemployment, employment, median earnings) by various individual characteristics (e.g. age, gender, level of education). The third set displays the links between poverty and labor markets. The following section displays examples of data tables that provide key information and that can be retrieved from ADePT, within each diagnostic set.

## **II. THREE SETS OF DIAGNOSTICS**

### **2.1. What are the current conditions in the labor market and how have they changed over time?**

This set of tables set out to describe the labor market context: how many individuals in the population have access to a job, and what kind of job do they have access to? What is the demographic structure, including dependency rates which impact the earnings responsibilities for adults? What is the share of low earners and how is poverty related to low earnings? What

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<sup>2</sup> See <http://www.worldbank.org/adept>

has happened to unemployment, employment and earnings over time and are these developments related?

Table 1 provides a static **hierarchical decomposition of the labor market structures** in Albania and Rwanda, including the incidence of child and elderly employment, the size of the group not working compared to those who are, and the different types of employment available in the economy. The simple overview shows, among other things, the relative youth of the Rwandan population, and that child labor is no longer an issue in Albania but unemployment is, while the reverse holds for Rwanda. The poorer country (Rwanda) has a higher share of active persons than the richer country (Albania), but Albania has a higher share of wage earners and a lower share of unpaid family workers than the poorer country. The table thus suggests that access to jobs is not a reliable measure of the general labor market situation: the structure of employment gives a better indication of the welfare level of a particular country compared to another.

**Table 1 Hierarchical decompositions of the working age population (%)**

	Albania	Rwanda	Hierarchical rates
A. Total population	100	100	
B. Population six years and above	92	81	
C. Child population (6-14 years)	18	30	C/B
C1. Child laborers	0	4	C1/C
D. Population 65+ years	10	4	D/B
D1. Employed	12	73	D1/D
E. Working age population (15-64 years)	73	66	E/B
E1. Active	56	79	E1/E
a. Employed	94	99.7	a/E1
a.i. Waged and Salaried	41	23	a.i/a
a.ii. Self-employed/employer	17	23	a.ii/a
a.iii. Household/Unpaid	42	55	a.iii/a
b. Unemployed	6	0.3	b/E1
E2. Inactive	44	21	E2/E
c. Discouraged	6	1	c/E2

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT.

Table 2 below provides a succinct **overview of the context of the labor market in terms of the quantity of jobs as well their quality**, as measured by earnings, using the cases of Nicaragua and Rwanda, and shows how these have changed over time. These key indicators provide important insights. In Nicaragua, access indicators improved (higher employment to population ratios, lower unemployment rates), while quality indicators worsened (median earnings stagnated overall and fell on an hourly basis and the low earnings rate increased). The case was the opposite for Rwanda. As the memorandum items show (not included in the ADePT output files), poverty fell slightly in Rwanda but stagnated in Nicaragua. The table thus makes two important points: 1, changes in the quality of jobs is the most important correlate of poverty changes and 2, again, standard and quantity focused labor market indicators like unemployment rates or

employment-to-population ratios are not enough to understand changes in poverty and can even be misleading.

**Table 2: Basic Indicators of the Labor Market and their Dynamics**

	Nicaragua			Rwanda		
	2001	2005	<i>Absolute change</i>	2000	2006	<i>Absolute change</i>
<b>A. Employment (quantity)</b>						
Unemployment rate 1/	3.5	3.4	-0.1	1.0	0.3	-0.7
Broad unemployment rate 2/	8.1	6.9	-1.2	1.3	0.4	-0.9
Employment-to-working-age-population ratio	62	63	1	85	79	-5
Working age population as a fraction of total population	56	59	3	52	53	2
Child labor rate	8.9	9.3	0.4	7.4	3.7	-3.7
<b>B. Earnings (quality)</b>						
Median earnings	100	105	5	100	116	16
Median hourly earnings	100	87	-13	100	128	28
Low earnings rate	26	27	1	90	87	-3
Poverty rates among low earners	58	50	-8	65	61	-4
<b>Memorandum items 3/</b>						
GDP (index)	100	114	14	100	144	44
Poverty headcount (% of pop)	46	46	0	60	57	-3

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT. Note: 1. Using ILO definition based on job 2. Includes discouraged workers. 3. Not included in ADePT output

Returning to the hierarchical decomposition, Table 3 below displays the shifts in occupational categories as well as broad sector dynamics, for Rwanda and Albania on the one hand, and Nicaragua on the other. The table shows that the first two countries experienced shifts towards jobs with higher earnings potential: out of unpaid work and into employer and, in particular, waged work, and from agricultural to nonagricultural jobs. In Nicaragua, no such dynamics took place, again consistent with the stagnation in poverty.

**Table 3 Occupational and sector shifts**

	Rwanda			Albania			Nicaragua		
	2000	2006	<i>Absolute Change</i>	2000	2006	<i>Absolute Change</i>	2000	2006	<i>Absolute Change</i>
Wage and Salaried	11	23	+11	35	41	+6	50	48	-1
Employer/ Self-employed	16	23	+7	13	17	+3	22	22	0
Household /Unpaid	73	55	-18	52	42	-9	28	30	+2
Agriculture	90	77	-13	56	47	-9	35	36	+1
Non agriculture	10	23	+13	44	53	+9	65	64	-1

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT.

**2.2. Which groups among the population are relatively disadvantaged, as measured by job attributes? And how has this changed over time?**

This set of tables aims at identifying the most vulnerable categories in the labor market, by evaluating both access/quantity indicators and quality indicators (earnings) for different groups. How do employment rates, unemployment and earnings differ across age groups, gender, regions, and other criteria? How have they changed?

Table 4 shows the median earnings (in 2005 PPP dollars) of Albania, for the entire economy as well as by gender, and by age group for the most recent year available. It is clear from the table that females earn significantly less than men, and that youth are particularly vulnerable in terms of earnings. The youth penalty is particularly important in Albania, and the gender pay gap is particularly large in Bangladesh.

**Table 4: Median earnings, in 2005 PPP dollars.**

Country	Albania	Bangladesh	Madagascar	Rwanda
Year	2005	2005	2005	2006
Total	2,307	1,020	545	300
As % of total median				
Male	119%	105%	113%	122%
Female	78%	53%	89%	86%
Age 15 - 24	47%	79%	79%	77%
Age 25 - 34	108%	113%	110%	117%
Age 35 - 44	117%	112%	122%	126%
Age 45 - 64	105%	104%	104%	100%

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT .

Table 5 in turn displays the low earnings rate for rural and urban areas respectively, and how these have changed over time in Albania and Rwanda. As seen, the low earnings rate remains considerably higher in rural than in urban areas.

**Table 5: Low earnings rates dynamics**

	Albania			Rwanda		
	2002	2005	Change (%)	2000	2006	Change (%)
Urban	57.5	45.2	-21%	68.5	67.3	-2%
Rural	89.4	77.5	-13%	93.5	90.7	-3%

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT .

### 2.3. To what extent do low earning jobs overlap with poverty at the household level?

Table 6 shows the poverty headcount rates by employment status in the labor markets. Building on the evidence in previous tables, this tables shows that poverty rates in Rwanda are in fact

significantly higher for the employed than for the unemployed. In the relatively wealthier Albania, unemployment is more closely related to poverty, however (though less than one in four unemployed are actually poor).

**Table 6: Poverty Headcount Rate by Employment Status**

	Rwanda, 2006	Albania, 2005
Employed	<b>54.8</b>	16.4
Unemployed	36.9	22.8
Inactive	49.8	14.5
Total working age	53.7	<b>15.8</b>
National poverty level	57.0	17.7

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT .

Table 7 shows the occupational category for the poor and the non poor in Rwanda and Albania. It emphasizes how households may escape poverty if their members can access jobs with higher earnings potentials. Only one in four poor Albanians is a waged worker, compared to 44 percent of the non poor. Almost two thirds of the poor work unpaid in some form of household enterprise, and seventy percent of them are working in the agricultural sector. Note that these tables can of course also be presented for consumption quintiles rather than by poverty status.

**Table 7: Occupational category and sector of employment by poverty status**

	Rwanda, 2006		Albania, 2005	
	Poor	Non-poor	Poor	Non-poor
<i>Occupational category (% of total employment)</i>				
Wage and Salaried worker	20	26	26	44
Employer/Individual self-employed worker	18	21	11	18
Household enterprise worker	62	45	64	38
<i>Sector (% of total employment)</i>				
Agriculture	86	65	72	42
Industry	5	6	16	20
Services	9	29	6	23

Source: Estimates based on the World Bank Labor Market Micro-Level Data-base (LMMD), using ADePT .

**Table II.8: The importance of labor income (% of total household income)**

	Madagascar				Rwanda				Nicaragua			
	Poorest quintile	Richest quintile	Poor	Non-Poor	Poorest quintile	Richest quintile	Poor	Non-Poor	Poorest quintile	Richest quintile	Poor	Non-Poor
<b>Labor income</b>	<b>96</b>	<b>95</b>	<b>97</b>	<b>95</b>	<b>91</b>	<b>88</b>	<b>92</b>	<b>90</b>	<b>76</b>	<b>65</b>	<b>75</b>	<b>69</b>
Agriculture	80	46	76	53	77	45	77	59	54	9	42	13
Non-Agriculture	16	49	21	43	14	42	16	31	22	56	33	56
<i>Wage</i>	7	28	10	24	8	31	8	20	15	34	22	35
<i>Other</i>	9	21	11	18	6	11	7	10	7	22	11	21
<b>Non-labor income</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>5</b>	<b>9</b>	<b>12</b>	<b>8</b>	<b>10</b>	<b>24</b>	<b>35</b>	<b>25</b>	<b>31</b>

Source: World Bank (2008a, 2008c), Cichello and Sienaert (2009)

The above tables are examples of the kind of data that can be extracted, analyzed and presented to further the understanding of the links between poverty and labor markets, and how labor market and poverty dynamics interact. They are illustrative but far from exhaustive and can be adapted to accommodate different contexts.

### III. DATA CONSTRAINTS AND HOW TO DEAL WITH THEM

Labor market diagnostics requires a minimum of information on both total labor income and non-labor income/consumption. But since some indicators are often lacking in a developing country context, alternative approaches may be possible, depending on the data limitations:

- **Information in income and hours worked is only available for the main activity**, it is possible to compare total consumption with reported labor income plus non labor income minus savings (if available) to estimate the extent of underestimation. If there are significant differences it might be better to use total consumption minus any reported non labor income as proxy for labor income.
- **If there is no information on non-labor income**, there are two alternatives, depending on the accuracy of information of savings i) construct total income as consumption minus savings and perform the analysis for labor income or ii) perform the analysis for consumption.
- **If there is no information on income**, the only alternative will be to work with consumption. In this case, however, the relevance of the results for the analysis of the role of labor income and labor in poverty reduction is of limited use. It is still useful as poverty profile.
- **If hours worked are not available (or the data is unreliable)**, it is only possible to calculate total labor earnings or consumption per employed household member as a

proxy for labor productivity. Results will need to be interpreted with care though as increases in labor productivity may reflect increases in the number of hours worked.

- **If the determination of labor force participation is difficult or impossible.** When comparing data over time, it is important that the definition of participation is comparable between surveys, and that what is considered as a participant in the labor market is as clear a concept as possible. Whether one is able to reliably construct labor participation or a proxy for it from the available data clearly depends on the questionnaire and data available. If determining labor participation is not possible, then the only labor market indicator available will be per capita labor earnings/consumption and per working age member labor earnings/consumption, which clearly has very little labor market content. It may still be possible however to know who is working and who is not, and join the unemployed and the inactive under a 'residual' category, so that the key variable becomes the employment rate (employed as share of total working age household members).
- **To do any labor market analysis, it is at least necessary to be able to determine who is working and who is not.** Countries whose data is unsuitable to determine who is working and who is not will be unlikely to do any meaningful labor market analysis.

## **Bibliography**

Cichello, P. and Sienaert, A., 2009: "Making Work Pay in Rwanda: Employment, Growth and Poverty Reduction", mimeo, Poverty Reduction and Economic Management Department, Washington, DC: World Bank.

World Bank, 2007: The Role of Labor Income for Shared Growth: what to look for and how, mimeo, PREM Jobs and Migration Group, mimeo.

World Bank, 2008a: *Making Work Pay in Bangladesh: Employment, Growth and Poverty Reduction*. Washington, DC: World Bank

World Bank, 2008c: *Making Work Pay in Nicaragua: Employment, Growth and Poverty Reduction*. Washington, DC: World Bank

## **Annex 1. List of potential ADePT LABOR output tables**

### **1. Labor market context**

Table 1-1: Main Indicators of the Labor Market

Table 1-2a: Hierarchical Decomposition of the Labor Force (Levels)

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Table 1-6b : Earnings Inequalities by Level of Education. Theil Index

Table 1-7 : Earnings Inequalities by Sector of Economic Activity

### **2. Labor markets and poverty**

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Table 2-1b : Poverty Headcount Rate of the Working Age Population by Employment Status of Household Head and Urban/Rural

Table 2-2a : Poverty Headcount Rates of the Working Age Population by Individual Employment Category and Urban/Rural

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Table 2-4b : Distribution of Working Age Population by Poverty and Employment Status of Household Head (shares of total employment)

Table 2-5a : Distribution of the Working Age Population by Poverty and Individual Sector of Employment (shares of total employment)

Table 2-5b : Distribution of the Working Age Population by Poverty and Employment Status of Household Head (shares of total employment)

Table 2-6a : Distribution of the Employed by Poverty and Individual Employment Category (shares of total employment)

Table 2-6b : Distribution of the Employed by Poverty and Employment Category of Household Head (shares of total employment)

### **3. Labor market characteristics disaggregated by groups (age, gender, location, education, etc.)**

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Table A2 : Employment Rates

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Table A5 : Low Earnings Rates

Table A6 : Share of Low Earners Who Have Low Earnings due to Short Hours

Table A7 : Share of Low Earners Who Work Full-time or More

Table A8 : Broad Unemployment Rate

Table A9 : Poverty Rate Among Unemployed

Table A10 : Poverty Rate Among Low Earners