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THE PHILIPPINE LABOR INDEX

...measuring the country's progress in decent work

(Second of a Two-Part Series)

In the Philippines, while the generation of macro-indicators on labor and employment statistics is relatively organized, mostly compliant with existing international standards, and done on a regular basis, the employment situation is traditionally described using a limited range of indicators, usually labor force participation rate, levels and rates of employment, underemployment and unemployment. These indicators sometimes send mixed signals, such that it can not be said with certainty if the situation has improved or not. A case in point is low unemployment rate but high underemployment rate or part-time employment. On the other hand, expanding the set of indicators may give rise to segmented analysis of the situation or different interpretations depending on the choice of variables. There is thus an absence of a measurement framework consisting of a parsimonious list of indicators which can be used for analyzing the labor and employment situation of the country.

In the light of these considerations, the Philippine Labor Index or PLI has been developed to serve as a summary measure for monitoring the country's progress in achieving the goals of decent work.

Specifically, the PLI provides a balanced and objective assessment of the collective efforts to attain the country's goals in achieving decent work. It is not intended merely to provide useful data for researchers but more importantly to generate awareness and advocacy for policy makers, program planners and other stakeholders to focus on labor and employment areas which need to be strengthened. Moreover, the PLI is seen as a complementary tool when related with other development indicators, such as growth in Gross Domestic Product (GDP) and Human Development Index (HDI) in monitoring the social and economic progress of the country particularly of its working population.

This second issue focuses on the methodology used in the generation of the PLI and its dimension indices. In November of this year, the methodology for the generation of the PLI was approved by the National Statistical Coordination Board. As such the PLI data joins the official roster of Philippine statistics.

The Development of the Philippine Labor Index

The development process for the PLI was long and careful. It underwent consultations with the tripartite constituents and other partners, technical discussions and presentations to ensure that the index will consist of indicators that can best describe the Philippine labor and employment situation with acceptable degree of consistency and accuracy.

In March 2005, the National Tripartite Advisory Committee on Decent Work (NTAC), chaired by the Department of Labor and Employment (DOLE), expressed support for the development of the Philippine Labor Index as it could be a basis for gauging the impact or validating the success of the National Plan of Action for Decent Work. One Committee member said that the development of the PLI

highlights the comparative advantage of the Philippines in its statistical capacity to generate such data with other countries and that it is an important contribution not only to the ASEAN but also to other Asian countries.

The Philippines is one of the eight countries covered by the ILO Decent Work Pilot Programme together with Bahrain, Bangladesh, Denmark, Ghana, Kazakhstan, Morocco and Panama.

The PLI was presented to the Inter-Agency Committee on Labor, Income and Productivity Statistics in June this year where it was reviewed and approved for endorsement to the Board of the National Statistical Coordination Board, the policy making and coordinating body on statistical matters in the country.

Last November, the NSCB Board approved the methodology for the generation of the PLI. As such, the Philippine Labor Index is now part of the official roster of Philippine statistics.

Highlights of the PLI Development

The following is a chronicle of the PLI development:

2001 DOLE Secretary Patricia Sto. Tomas expressed the need to come up with one indicator she called Philippine Labor Index

2002 TUCP Deputy Secretary General Cedric Bagtas suggested the decent framework of ILO as guide in designing the measurement framework

2003 ILO approved the project ”Development of a Philippine Labor Index based on the Decent Work Framework”; UNDP provided funding assistance thru ILO

- Measurement framework on decent work developed

2004 PLI component indicators determined, index methodology developed and indices constructed

2003-2006 Conduct of series of consultations, briefings, presentations with tripartite constituents, data producers and stakeholders and technical evaluation sessions

2005 National Tripartite Advisory Committee on Decent Work expressed support for the PLI development

2006 Inter-Agency Committee on Labor, Income and Productivity Statistics reviewed and approved the PLI methodology for endorsement to the Board of NSCB

- NSCB Board approved the methodology for the generation of the PLI

The PLI Project Team is composed of technical staff from the Bureau of Labor and Employment Statistics and the Institute for Labor Studies. The measurement framework on decent work (Phase 1 of the Project) was developed under the guidance of former NSO Deputy Administrator Nelia Marquez while the construction of the indices (Phase 2) was undertaken by Dr. Ana Maria Tabunda of the UP School of Statistics.

Measurement Framework of Decent Work

Phase 1 of the PLI project focused on the development of the measurement framework . It included the conduct of an inventory of possible statistical indicators on decent work and assessment of the proposed indicators and organization of a series of consultations with tripartite constituents and stakeholders.

Starting with the 30 suggested indicators in the ILO working paper classified along 11 groups of statistical

indicators, the inventory was expanded to contain 89 indicators deemed applicable to local conditions. After the series of consultations and evaluation workshops, the selected 64 indicators were categorized into the 6 dimensions of decent work. In reality, the indicators number more than this as most of the indicators have sub-categories, e.g., percent share of workers covered by social security schemes: total, private, public sector, but was only counted as one indicator.

Eventually, 17 indicators were identified to comprise the PLI and 47 were considered as non-core or support variables to validate or sharpen the analysis of the core indicators.

The ILO conceptual framework of decent work focuses on the poorest and most vulnerable, thus its measurement is biased in monitoring the behavior of negative indicators rather than the positive ones. Since one of the objectives of the Project is to construct a summary measure on the collective efforts/achievements of the Philippines in decent work across time, then the movements of the positive indicators in monitoring the status of decent work are equally important and have to be considered as well.

Thus, the indicators in each dimension were grouped into positive indicators (to reflect progress in decent work) and negative indicators (to show deficits).

In the selection of indicators on decent work, the Team took into consideration the following qualities of a good indicator which were recommended by one paper presenter during the series of consultation workshops. These are:

Relevance - must be responsive and relevant to the area of interest or for the purpose by which it is used to monitor existing objectives;

Sensitivity - must be able to reflect actual changes in absolute levels or trends related to the aspects of conditions implicit in the goals or areas of concern;

Objectivity - must not be biased. The indicator should be capable of measuring a specific attribute or characteristic for purposes of determining the extent to which an objective has been attained. It should also be easily verifiable, factual, accurate and valid;

Comprehensiveness - must capture a wide range of interrelated socio-economic-demographic factors;

Measurability - must be capable of being expressed in quantifiable form using prevailing standard unit so that it could be duplicated;

Data availability - must be readily available and there is continuity of series particularly if generation of annual index is required;

Simplicity - must be easy to understand and interpret. There should be no room for misinterpretation or misunderstanding what the indicator intends to portray; and

Acceptability - must have the common consent of the stakeholders.

The Team was also guided by some pointers of one of the authors of the ILO working paper during his country mission in 2003 to assist in the elaboration of the labor index. These are: i) consider a limited number of indicators, one or at most two per group; ii) restrict measurement to outcomes rather than inputs and processes. This means that conventions, legislation, and institutional arrangements need not be considered. Inputs and process evaluations may be left to the Decent Work Status Report; iii) measure change as opposed to level. This makes the results less vulnerable to the choice of indicators. This will be less vulnerable also to possible controversies surrounding particular concepts and definitions. But more importantly, it provides a sound basis for interpretation of the results; and iv) rely on a single source of information for index

calculation, preferably the Labor Force Survey (LFS) of the National Statistics Office (NSO), and for evaluation, from multiple sources.

Construction of the Indices

The second phase of the PLI Project focused on delimiting the identified core indicators, come up with indices for each of the six conceptual dimensions of decent work and an overall index on Philippine labor, and validating these indices. For these, quarterly data for the 16 regions of the country were used as validation of the indices will be facilitated by comparing the regions on the indicators. However, the reorganization of the administrative regions in Mindanao that resulted in the regrouping of the areas in Regions X, XI, XII and Autonomous Region of Muslim Mindanao necessitated the use of data only for the years 2001 and 2002 for comparability considerations. There were thus 128 data points for each of the indicators in the data set. The outputs of the study though were national level indices and cover the period 1998 to 2002. At the time of the index construction, data estimates from the LFS have been adjusted based on the 1995 Census-based population projections and the revised statistics were available only as far back as 1998.

In determining the indicators to retain for a given dimension of decent work, the study first used factor analysis (FA) on all indicators for the dimension **(instead of just the core indicators identified in Phase 1)** in order to identify the indicators that are so highly correlated that they may be considered to represent an underlying factor. *(For example, unemployment to working age population, unemployment rate and youth unemployment rate constitute the unemployment factor.)* Only those indicators with loadings or coefficients exceeding 0.5 in absolute value were considered for retention. Principal components analysis (PCA) was then performed on the reduced set of indicators to determine which indicators contribute the most to explaining variation in work conditions among the regions (only those with loadings exceeding 0.3 in absolute value were candidates for retention). Running PCA on the whole set of core and non-core indicators also serve to identify indicators which may be important to explaining total variation but not common variation as FA does. These tests were done as the presence of too many indicators will weaken the sensitivity of the indices to the aspects of the labor situation being measured aside from the difficulty entailed in monitoring many indicators.

Technical sessions were also conducted by the Project Team where measurement issues and availability of data were taken into consideration in the choice of component indicators for the PLI. A case in point is frequency rate of occupational injuries. While it could be an indicator under the Security at Work dimension, annual data is not available from surveys and administrative data, though available annually, has limited coverage. Likewise, statistics on balancing work and family life are not regularly produced though there may be studies on this area.

In general, indicators with low coefficient of variation (CV) were chosen. However, in the case of the Representation at Work dimension, the indicators were retained despite the high CVs for lack of other less variable indicators.

There were 66 indicators considered in the series of statistical tests taking into account correlations among the variables. Based on these tests and team evaluation, the number was reduced to **18 indicators for index construction**.

The PLI Indicators

The 18 component indicators across the six conceptual dimensions of decent work used for the construction of the indices are:

Opportunities for Work
- Unemployment to working age population ratio
- Percentage of employees to total employed
- Percentage of part-time workers to total employed

Freedom of Choice of Employment
- Economic activity rate of children 10-14 years old
- School attendance rate of children 10-14 years old

Productive Work
- Percentage of employed working 40-48 hours a week to total employed
- Visible underemployment rate
- Percentage of low paid employees to total employees

Equity in Work
- Female-male ratio in non-agricultural wage employment
- Industry-agriculture hourly basic pay ratio
- Female-male hourly basic pay ratio for clerical, sales and service occupations

Security at Work
- Percentage of permanently employed to total employed
- Percentage of workers covered by social security schemes to total self-employed and employees
- Permanently displaced workers due to economic reasons per 1,000 employees in private establishments

Representation at Work
- Union density rate in private and government establishments
- Collective bargaining coverage rate in private establishments
- Workdays not worked due to strikes and lockouts per worker
- Percentage of worker association membership to total employed

The Index Methodology

The gap or shortfall approach, also used in the computation of the HDI, was chosen as the index methodology because it is simple, flexible and appropriate.

For this purpose, benchmarks were established for each component indicator of the PLI. The minimum and maximum values specified for each component indicator are the lowest and highest values that an indicator can possibly attain. These benchmarks were determined based on existing theoretical considerations, acceptable norms and value judgment including the analysis of historical data.

The plus (+) or minus (-) signs refer to the orientation of the indicator. A positive sign means that increasing values of the indicator indicate improvement. On the other hand, a negative sign means that increasing values of the indicator reflect deterioration. The figures in bold italics in Table 1 are the desired targets or goalposts.

TABLE 1 - Benchmarks of the PLI Component Indicators

Orientation	Dimension and Indicator	Minimum	Maximum
Opportunities for Work			
-	Unemployment to working age population ratio	***5***	95
+	Percentage of employees to total employed	20	***80***
-	Percentage of part-time workers to total employed	***20***	80
Freedom of Choice of Employment			
-	Economic activity rate of children 10-14 years old	***1***	99
+	School attendance rate of children 10-14 years old	0	***100***
Productive Work			
+	Percentage of employed working 40-48 hours a week to total employed	20	***80***
-	Visible underemployment rate	***5***	95
-	Percentage of low paid employees to total employees	***0***	45
Security at Work			
+	Percentage of permanently employed to total employed	10	***90***
+	Percentage of workers covered by social security schemes to total self-employed and employees	0	***100***
-	Permanently displaced workers due to economic reasons per 1,000 employees in private establishments	***5***	95
Representation at Work			
+	Union density rate for employees in private and government establishments	0	***20***
+	Collective bargaining coverage rate for employees in private establishments	0	***20***
-	Workdays not worked due to strikes/lockouts per worker	***1***	26
+	Percentage of workers association membership to total employed	0	***5***

The benchmarks for the component indicators for Equity in Work dimension are presented separately. These are not the minima or maxima but the absolute difference from the benchmark of one. Ratios above or below this reference value indicate inequity in work.

Orientation	Dimension and Indicator	Reference	Max|actual value-1|
Equity in Work			
+/-	Female-male ratio in non-agricultural wage employment	1	1
+/-	Industry-agriculture hourly basic pay ratio	1	2
+/-	Female-male hourly basic pay ratio for clerical, sales and service occupations	1	1

The Formulation of the Indices

The derivation of the index of the component indicator in a conceptual dimension is shown below.

$$\begin{aligned}\text{Component Index} &= 100 - \text{Shortfall} \\ &= 100 - \left[100 \times \left(\frac{\text{maximum - actual value}}{\text{maximum - minimum}}\right)\right] \\ &= 100 \times \left(1 - \frac{\text{maximum - actual value}}{\text{maximum - minimum}}\right) \\ &= 100 \times \left(\frac{\text{maximum - minimum - maximum + actual value}}{\text{maximum - minimum}}\right) \\ &= 100 \times \left(\frac{\text{actual value - minimum}}{\text{maximum - minimum}}\right)\end{aligned}$$

The shortfall is the distance that the actual value of the observation has traveled towards the maximum value relative to the total distance it has to go to achieve the ideal situation of 100. To put it another way, the index is the distance that the value of the observation has gone from its minimum value relative to the total distance.

This formulation, however, has to be modified for indicators that do not have a positive orientation, meaning that increasing values for such indicator would mean deterioration in the aspect it intends to measure, e.g., proportion of low paid employees. In this instance, the indicator has to be translated such that all indicators would have conformable scales or uniformly positive orientation with larger values indicating more favorable outcomes. The translated value is the actual value subtracted from 100 (or an appropriate goalpost). The component index is then,

$$\text{Component Index} = 100 \times \left(\frac{\text{translated value - minimum}}{\text{maximum - minimum}}\right)$$

For indicators expressed as ratios as in the case of indicators in the dimension Equity in Work, a slightly different approach is used which nevertheless follows the shortfall or gap principle. The ideal or reference value of the indicator is one (1) such that ratios above or below this indicate inequity in work. The indicator index takes the form,

$$\text{Component Index} = 100 - \text{Shortfall}$$ *where the Shortfall is,*

$$100 \times \frac{|\text{actual value} - 1|}{\text{maximum } |\text{actual value} - 1|}$$

Each dimension index of decent work in the shortfall approach is computed simply by taking the average of the index values of its component indicators.

$$\text{Dimension Index} = \frac{\sum_{i=1}^{n} \text{Component Index}_i}{n}$$

where n is the number of indicators in the dimension

After deriving the index for each dimension using the shortfall approach, the overall labor index or PLI is computed as the sum of the weighted average of the dimension indices. The average of the indices on Opportunities for Work and Freedom of Choice of Employment is given a weight of 0.5 while the average across the four other dimensions indices also has a weight of 0.5. This simple weighing scheme is based on the argument that quantity and quality aspects are equally important in achieving decent work.

$$PLI = 0.5\left(\frac{\sum_{D=1}^{2} Dimension\ Index_D}{2}\right) + 0.5\left(\frac{\sum_{D=3}^{6} Dimension\ Index_D}{4}\right)$$

where,

D_1 = Opportunities for Work
D_2 = Freedom of Choice of Employment
D_3 = Productive Work
D_4 = Equity in Work
D_5 = Security at Work
D_6 = Representation at Work

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