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1. Gustav F. Papanek
2.
3.

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The current crisis provides renewed evidence for the importance of a time series that tracks the income of the poor on a continuing and timely basis. Accurate knowledge about the sharp declines in income that were taking place during the crisis could have helped to predict social unrest. The urgency of social safety net programs could have been foreseen early on. Areas of greatest need could have been identified. If changes in the income of the poor could have been accurately tracked, judgments could have been made about the effectiveness of social safety net measures and the benefits to the poor resulting from the later turn-around in the economy. Expenditure data are a more reliable and more detailed indication of the economic well being of the poor than wage data. However expenditure data will always be too expensive to collect and will take too long to process to be very useful as the basis for an early warning system and for tracking short- and medium-term changes in economic strategy or circumstances. Wage data are likely to remain indispensable as a tool for tracking the economic fate of the poor. The usefulness of the data could be further improved at reasonable cost.

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THE IMPACT OF CRISES AND POLICIES ON THE POOR: AN EARLY WARNING SYSTEM BASED ON WAGES

GUSTAV F. PAPANEK

BIDE/PEG
PARTNERSHIP FOR ECONOMIC GROWTH (PEG)[1]
BOSTON INSTITUTE FOR DEVELOPING ECONOMIES
November 1999

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SUMMARY

THE IMPACT OF CRISES AND POLICIES ON THE POOR: AN EARLY WARNING SYSTEM BASED ON WAGES

GUSTAV F. PAPANEK
BIDE/PEG
PARTNERSHIP FOR ECONOMIC GROWTH
BOSTON INSTITUTE FOR DEVELOPING ECONOMIES

The current crisis provides renewed evidence for the importance of a time series that tracks the income of the poor on a continuing and timely basis. Accurate knowledge about the sharp declines in income that were taking place during the crisis could have helped to predict social unrest. The urgency of social safety net programs could have been foreseen early on. Areas of greatest need could have been identified. If changes in the income of the poor could have been accurately tracked, judgments could have been made about the effectiveness of social safety net measures and the benefits to the poor resulting from the later turn-around in the economy.

Key economic policy decision-makers should receive every month a measure of the income of the poor in the immediate past. The most effective indicators are wage data already being collected. These data are the only timely measures of the impact on the poor of economic crises, rapid growth and major policy changes. Changes in the income of the poor are most clearly reflected in changes in the wage rates of unskilled workers. These wage data are available with a delay of only 3 months for agricultural workers and of 7-9 months for industrial workers. The usefulness of the data could be further improved at reasonable cost [in rough order of priority]:

- every month provide information on changes in real agricultural wages and rural inflation to key decision-makers with only a 2 month [now 3 months] delay;
- for the same agricultural wage and price series compile the data for the 9 Provinces for which they are now collected but not processed;
- if sufficient observations exist, compile the data separately for men and women;
- reduce to 3 months the delay in providing industrial wage data, probably by integrating the collection of wage and quarterly industrial survey data;
- improve the agricultural wage data by eliciting information on the number of hours worked to receive a “daily” wage;
- systematize the collection of construction workers’ wages.

Expenditure data are a more reliable and more detailed indication of the economic well being of the poor than wage data. However expenditure data will always be too expensive to collect and will take too long to process to be very useful as the basis for an early warning system and for tracking short- and medium-term changes in economic strategy or circumstances. Wage data are likely to remain indispensable as a tool for tracking the economic fate of the poor.

THE IMPACT OF CRISES AND POLICIES ON THE POOR: AN EARLY WARNING SYSTEM BASED ON WAGES

The recent crisis spawned a great deal of concern and an active controversy on the extent of its impact on the poor. It provides renewed evidence for the importance of a time series that tracks the income of the poor on a continuing and timely basis. Accurate knowledge about the sharp declines in income that were taking place during the crisis could have helped to predict social unrest. The urgency of social safety net programs could have been foreseen early on. Areas of greatest need could have been identified. If changes in the income of the poor could have been accurately tracked, judgments could have been made about the effectiveness of social safety net measures and the benefits to the poor resulting from the later turn-around in the economy. In the 1970s there had been considerable disagreement among economists on the benefits to the poor of the rapid growth that characterized the Indonesian economy for some 30 years after 1967. Did rapid growth primarily benefit the wealthy and well connected or did "a rising tide lifts all the boats"?

Once household expenditure surveys became available in 1978 [SUSENAS data] there was massive evidence on longer-term changes in the income of the poor, but generally only at 3-year intervals. These surveys shed little light on the impact of major changes in strategy [e.g. the devaluation and reforms of 1986/87] or outside shocks [e.g., oil booms or price busts]. Because the surveys were carried out only periodically and provided no information on the intervening period, and because they took as much as a year to process SUSENAS data were not very useful in determining the impact of economic crises, short-term booms or major policy changes.

The current crisis provided renewed evidence on the importance of a time series that tracks the income of the poor on a continuing and up-to-date basis. Key economic policy decision makers should receive every month a timely measure of the income of the poor, just as they receive monthly reports on the rate of inflation, foreign exchange reserves and trade data.

1. How wage data can be used to track the impact on the poor of economic changes

Wage data already being collected are the most effective, indeed the only data on the impact on the poor of economic crises, rapid growth and major policy changes. Changes in the wage rates of unskilled workers reflect, albeit imperfectly, changes in the income of the poor. Data on wages are available with a delay of only 3 months on average for agricultural workers and of 7-9 months for industrial workers. That delay can and should be shortened if they are to serve as an early warning system and as base for policy formulation [discussed further below]. The data now available are sufficiently reliable to serve as a base for decisions [see another paper in the series[1]].

[1] See the companion memorandum: Papanek, Gustav F. and Budiono Sri Handoko "How Reliable are Agricultural and Industrial Wage Data?" PEG [Partnership for Economic Growth], BIDE [Boston Institute For Developing Economies], Gadjah Mada University – SIAGA Project [unpublished]

An analysis of factors affecting changes in wage rates can provide a basis for forecasting likely changes in future wages. In the short term the rate of inflation has the most pronounced effect on real wages—that is, on their purchasing power[2]. Since forecasts of inflation rates are frequently made one can roughly forecast wage rates once the statistical relationship between wages and prices is established. Another factor that affects real wages is the change in demand for unskilled labor. The growth rate of the economy has a powerful influence on labor demand and is another variable that is frequently forecast. Using forecasts of inflation and growth rates one can indicate the likely orders of magnitude of changes in wages. Such forecasts will be quite rough, with a substantial margin of error, since the regressions on which these forecasts would be based are not very robust. But it will be possible to indicate the directions in which wages are likely to move and whether the movement will be large or small.

Wage data can also be used to break down by region, industry and, to some extent, gender the impact on the poor of growth, crises or major changes in economic strategy. Disaggregation by region is good and differences can be quite clearly seen. So are differences in the movement of agricultural and industrial wages. Reliable wage series do not exist for activities other than agriculture and large/medium industry. Within manufacturing some broad disaggregation is possible. Since some manufacturing industries employ primarily women and others primarily men, it is possible to see whether wages by gender in manufacturing move together or not. Agricultural wages are also supposed to be reported separately for men and women, but at the moment gender specific data are not reliably reported nor are they compiled. Again, however, it is possible to distinguish changes in male wages from changes for females since hoeing is done exclusively by males while transplanting is primarily a female occupation.

2. Improving the usefulness of wage data

In short, wage data quickly provide important and reasonably reliable information on how the poor are faring in Indonesia, as well as by region, occupation and, to some extent, by gender. The usefulness of the data can be further improved quite readily and at reasonable cost. The **recommended order of priority for steps to improve the usefulness of the wage data for policy formulation** is roughly as follows:

a. Reduce the delay in the availability of agricultural wage and price data from 3 to 2 months and provide the information on changes in real wages and rural inflation to key decision-makers on a regular monthly basis. This can be done quite readily since data on "Farmers Terms of Trade" [NTP] are reported to BPS within two weeks of collection and are available within BPS about one month later. Publication takes

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[2] Papanek, Gustav F. and Budiono Sri Handoko "The Impact on the Poor of Growth and Crisis: Evidence From Real Wage Data." Presented at the Conference on "The Economic Issues Facing The New Government" August 18 – August 19, 1999, Boston Institute for Developing Economies [SIAGA Project/BIDE], Gadjah Mada University [SIAGA Project] [unpublished]

another month. By slightly augmenting the computing resources of the relevant section and distributing data to selected users in unpublished form, data can quickly be made available: January data should be on key desks by early March. Officials concerned with inflation, poverty and labor costs thus could have available with great speed information on the rate of rural inflation, while now they learn only about urban prices. They would also know about changes in the well being of farm workers. Both sets of data would be available by Province, not just for the country as a whole.

b. For the same data [NTP – Farmers' Terms of Trade] compile the data for the Provinces for which it is now collected but not compiled. For 9 Provinces data on wages and prices have been collected since 1991 [or 1993 in some cases] but have neither been compiled nor published. To have complete coverage of Indonesia by compiling these data as well[3] would make the series more valuable in tracking the impact of changes in the economy on the poor. To make compilation possible seems to require primarily an additional computer – a relatively minor cost for a substantial gain in coverage.

   At the same time it may be possible to compile the data separately for men and women if sufficient numbers of observations exist to do so. It is not clear whether enough of the Statistical Officers report wages by gender for farming operations carried out by both sexes. If not enough data exist for statistically valid results, then this step would need to be given lower priority. It would then be necessary to issue new instructions to obtain gender specific wage reporting.

c. Next in order of priority would be to speed the availability of the other major data source, the wages of industrial workers. These are now available only with a lag of nine months or more, too long to be useful in quickly monitoring the impact on the poor of various developments. It takes this long to achieve the coverage which BPS considers necessary for reliability. A major effort is under way to speed the availability of the quarterly industrial survey. This does not cover wages, however. Data on wages are collected by a different part of BPS. But it is justified to give wage data the same high priority as industrial production data. By integrating the two surveys it should be possible to reduce to 3 months the delay in making industrial wage data available.

d. Change the questionnaire for the NTP ["Farmers' Terms of Trade"] by adding at least one question. The questionnaire now asks for the "daily wage" which is defined as the cash wage for 5 hours of work. But in fact what is reported is the daily wage as defined in the particular village, which can range from less than 3 to more than 6 hours. Obviously these "daily" wages are not comparable over different areas. It would therefore be better to ask for the "customary daily wage" in that village and to add a question of something like: "How many hours are worked to earn this wage". This would make it possible to standardize first to the hourly wage and then to an identical daily wage across the country.

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[3] For obvious reasons no agricultural wage and price data are collected for the Province/city of Jakarta.

More important and more difficult would be to capture any payments in kind. To include payments in kind would, however, make the data significantly more reliable. As part of the effort, supported by USAID, to strengthen statistics and make them more useful it would therefore be desirable to experiment with collecting data on payments in kind.

e. The final step short-term improvement in wage data would be to systematize the collection of construction workers' wages. Construction wages are especially useful for analyzing the effect of economic changes on the poor, since unskilled, low wage workers can quite readily be identified in that industry. And most of the unskilled workers are casual employees, among the lowest paid. Their wages would therefore be especially useful in indicating what has happened to the income of the urban poor. The Public Works Department, in the course of collecting data on the cost of construction, now collects information on a quarterly basis for construction workers' wages by occupations, both unskilled and skilled, for every major urban area in the country. The reported level of wages is likely to have an upward bias because higher labor costs justify a more generous budget. However data on construction wages should be reasonably reliable for changes over time, especially for the larger cities. The main step needed is to arrange for data to be systematically provided by the Public Works Department to the agency tracking the impact of economic changes on the poor.

   BPS has also started to collect wages for the construction industry on a quarterly basis. However, the series was started just when the construction industry collapsed in the crisis of 1997/98. Very few questionnaires were therefore returned and the data are currently not usable. As the economy revives a major effort would be warranted to collect construction workers' wages. After BPS has data for something like 2 years the BPS and Public Works wages could be compared and analyzed and a decision made whether one or the other series is clearly more reliable and useful. If so, the less reliable series could be abandoned for poverty tracking purposes.

These 5 steps would make the data more timely and reliable. However it is clear that even the data now available are quite adequate for quickly tracking what has happened to the poor as a result of the recent crisis and earlier rapid growth. The basic paper in this series shows what can be done with existing data[4].

3. Why wage rather than household expenditure data?

But why rely on wage data as in indicator on how the poor are affected by the economic situation? As a proxy, or indication, of the income or purchasing power of the poor they suffer from several defects:

a. Wage rates per day or week do not provide information on the number of days the person is able to work at this rate.
b. Nor do they indicate the number of wage or income earners per family.

[4] Papanek and Handoko "The Impact on the Poor …", op. cit.

c. Moreover they cover only wage earners, not the self employed.

These are serious flaws. Yet wage data provide the most useful information for an early warning system of the impact of events and policies on the poor.

Ideally data tracking the impact on the poor should have three characteristics:

- to provide information monthly or at least quarterly,
- be available with a minimum of delay, and
- provide a reliable gauge of what is happening to the poor in aggregate and to particular subgroups.

Unfortunately neither of the two principal indicators available in Indonesia satisfies all three requirements. Wage data are available very quickly and monthly or quarterly, but as already discussed, they are an imperfect measure of the impact on the poor of economic developments and policies. Conversely household income or expenditure surveys can provide a more reliable and detailed picture but they have been collected only once every 3 year and been made available only with considerable delay. Obviously it makes sense to combine both data sources. But principal reliance will need to be put on wage data in most years, since expenditure information is usually available only after a crisis has passed.

a. Strengths and weaknesses of household data

The major Household income and expenditure survey in Indonesia, the SUSENAS survey, has been collected every 3 year. Processing usually takes 9 months or more. It is therefore 9 to 48 months before these household surveys produce usable data on what happened. By that time the crisis may well be over. Remedial measures obviously can not wait that long if they are to prevent massive suffering.

There are exceptions to the processing delay of comprehensive household surveys. The Indonesian Family Life Survey number 2 plus [IFLS 2+][5] achieved a remarkably quick turn around. It did so by limiting the sample to 7 out of 24 Provinces and to about 2,000 households. With a limited sample combined with hard work that effort took less than a half-year from the beginning of interviews to the availability of initial results. But this feat was achieved in response to the urgency created by Indonesia's most severe economic crisis in 30 years by an organization that had just finished carrying out a larger survey on a more normal timetable and was therefore unusually effective. But that survey also had serious limits. Above all, it was not possible to calculate national poverty incidence, or determine in which Provinces the impact of the crisis was concentrated, since the survey covered only 7 of the 24 Provinces.

The Central Bureau of Statistics [BPS – Badan Pusat Statistik], in response to the same crisis also achieved a remarkably fast turnaround. By using additional funds and making a huge special effort it completed, in December 1998, a survey of 10,000 households – the normal sample is 65,000 households – and provided preliminary results just 6 months later, in July 1999. But even if such smaller surveys are done every year – and it is

[5] See Thomas, Duncan, Elizabeth Frankenberg, Kathleen Beegle, Graciela Teruel "Household budgets, household composition and the crisis in Indonesia: Evidence from longitudinal household survey data" RAND corporation and UCLA, March 1999/ June 1999 [unpublished]

uncertain whether the resources will be available for such a large effort – the results will be delayed from 6 to 18 months[6].

If BPS reverts to a schedule of surveys every 3 years the problem is more serious. This can be seen from recent experience. For nearly 2 years after the crisis began in August 1997 the only comprehensive household survey data available were for 1996. These data shed no light on the substantial growth in income and decline in poverty that took place from early 1996 to mid-1997 and, of course, they shed no light on the drastic deterioration that had taken place from August 1997 to December 1998. By the time the 1998 data were available in July 1999 the economy had been improving for almost a year.[7]

Another, less serious, weakness of the household survey data is the under-enumeration of the very poor. Generally the household data are collected from those with a fixed residence. In Indonesia construction workers often do not live with their families but on the construction site. They are usually missed by household surveys. So are recent migrants, those in cities [especially Jakarta] illegally, or those living in various forms of temporary shelter. To the extent they are wage earners, as construction workers are, their income will be recorded in wage data, but not in household survey data.

Finally the household data collected are for expenditures, not income. This is both weakness and strength. Ideally one would want to have both income and expenditure data. In good years, expenditures understate the long-term gains of the poor, to the extent that they do not spend all their income but also accumulate assets. Conversely expenditures understate the impact of a crisis on the long term well being of the poor since the crisis not only forces them to reduce expenditures but also to draw down assets. On the other hand, expenditures are a better measure than income of the short-term impact of both growth and crisis, of the extent to which current consumption of the poor benefits or suffers. The true suffering in the first months of a crisis is mitigated by the ability to draw down assets.[8]

The principal weakness of the household survey data, the delay in their availability, needs to be weighed against their principal strength: their reliability and comprehensiveness. The SUSENAS survey, the principal instrument for data on poverty and income distribution, covers all expenditures of the household. It therefore is a true measure of poverty, unlike wage data that only provide information on the **rate** at which labor is compensated. And expenditure surveys provide information on all members of the households, not just on wage earners. So one can distinguish, for instance, how the crisis has affected poor families that derive their income primarily from agricultural labor from those poor families whose income stems primarily from a tiny piece of land producing

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[6] For instance, if another small sample survey is done in December 1999, with data available in July 2000 then in June 2000 no information will be available on what happened since January 1999 – just after the previous small sample survey, until June 2000, essentially an 18 months gap.

[7] See Papanek, Gustav F. and Budiono Sri Handoko "The Impact …" op.cit.

[8] Even very poor households usually have some rice or other food that is not needed on the same day, which they can be consumed when there is little or no income.

rice. These in turn can be distinguished from those growing cassava or sugarcane or coffee. One can also track the income of the petty traders in urban areas whose income comes from buying packs of cigarettes and selling individual cigarettes. In short, SUSENAS provides an incredibly rich snap-shot at one point in time, but these surveys are neither timely nor continuous.

b. Strengths and weaknesses of wage data

In contrast, as already noted, wage data can provide a continuous monthly or quarterly series, currently with a delay of some 3 months for agricultural and 9 months for industrial wages. The timeliness of both could be increased with a rather modest effort. Moreover wage series are available for a very long time period, which makes it possible to do econometric and other statistical analyses of the factors that affect real wages.

The problems which bedevil wage data, noted at the beginning of this section, are often less serious than might appear from superficial examination. It is true that these data do not indicate the number of hours or days worked per week. Theoretically wage rate data could therefore provide misleading information. If hours of work available increase while wage rates decline then data showing declining real wages [rates] might actually be accompanied by increasing real incomes. But for this to occur the labor market would have to be very strange. For instance, if demand for labor increases, in Indonesia's normal labor market it usually means that real wages per day will increase and that the number of hours or days worked per week or month will also increase. Many studies have shown that a substantial proportion of workers can find only part-time work or are forced into the informal labor market at lower incomes because there is not enough wage labor available. As a result the labor market adjusts to increased demand by raising the wage and providing more hours of work.[9] Conversely, if there is an increase in the supply of labor, but stagnant demand, then real wage rates per day or week are likely to decline while at the same time the number of hours or days of work available to wage workers declines as well. As long as the labor market works by adjusting both wage rates and employment in the same direction, data on wage rates will not be misleading but will correctly indicate whether wage earners income is moving up or down[10]. However, unlike household expenditure data, wage rates do not give only an approximation of changes in workers' incomes.

A similar argument can be made with respect to the number of persons in a household who earn an income. This is really just another facet of the number of hours worked,

[9] For a more detailed discussion of the model of the labor market underlying these conclusions see Papanek, Gustav F. Development Strategy, Growth, Equity and the Political Process in Southern Asia, Pakistan Institute of Development Economics 1986, Lecture III and "Planning Against Poverty: Wage Data As a Tool", Economic Bulletin for Asia and the Pacific, Vol. XXXII, No. 2, December 1981.

[10] This is usually true even when there is a backward bending supply curve of labor. For extremely poor workers it is possible that when wage rates fall they will seek additional sources of income in order to survive and may, as a result work additional hours. However, normally the additional hours worked will only partially mitigate the decline in wages. It is unlikely that the additional work will more than make up for the decline in the wage rate and will actually result in higher total income. A declining wage rate therefore still indicates declining incomes.

except that the adjustment to increased or decreased labor demand involves additional work by another family member, not by the principal wage earner. Here again, when demand for labor rises the wage rate increases and additional family members are likely to be drawn into wage work. Wage rate changes therefore correctly reflect whether labor income is rising or falling, but not by how much.

Similarly, changes in wage rates also reflect the direction of change in the income of the self-employed. It is well known in Indonesia that many workers move from wage work in agriculture to self-employed petty trading in the cities and vice versa in response to changes in compensation. They also move between urban wage work and rural and urban self-employment. For instance during the recent crisis, when workers lost their jobs in urban construction or industry many returned to the rural areas from which they originally migrated to go into petty trading or service occupations[11]. There are barriers to entry in particular labor markets, but these are not insurmountable[12] and movement takes place when the differences in compensation become large.

In short, there is a single, but segmented, labor market in Indonesia. Because it is segmented with barriers to entry and movement, wages can differ substantially in different areas of the country and different occupations in the same area. But wages move together because when the differences in compensation become too large workers overcome the barriers and move from lower paid to higher paid occupations and areas. For formal wages the correlation among wages can be demonstrated. When real wages declined in agriculture between the summer of 1997 and the summer of 1998 they also declined in industry and by comparable orders of magnitude. They also declined in all Provinces, although the decline varied from about 28% to about 43%. Conversely when agricultural wages rose again between the summer of 1998 and that of 1999 they rose in all Provinces. To the extent one can tell with the preliminary data available for industrial wages they also increased in manufacturing.

There are no time series available for compensation in self-employment. So it is not possible to prove that such compensation moves in tandem with wages. But it seems logical that it would do so. Some forms of self-employment require little or no capital, including work on family owned land. It is therefore logical that individuals will move into such self-employment when it is more lucrative than the wage employment they can find. As more workers are available for self-employment the compensation per worker will be driven down, and wages and self-employment compensation will move up and down together. Anecdotal evidence supports this conclusion.

To the extent that wages in different occupations move together and also reflect changes in self-employment compensation, the agricultural wage series provide a good index of changes in the income of all wage workers and those self-employed who have little or no

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[11] Interviews with statistical officers.

[12] See Papanek and Dorojatun Kontjorojakti "The Poor of Jakarta" Economic Development and Cultural Change October 1975 and the references given there.

capital. While wage data are not as reliable an indication of the income of the self-employment as data provided by the SUSENAS household expenditure surveys, they do provide useful information on the direction and extent of income movements in the many months for which SUSENAS data are not available. Hence the earlier conclusion that wage data are the most useful source of current information on the income of the poor and the best basis for developing an early warning system of the impact of growth and crisis on the poor.

It will soon be possible to check the wage data against three household expenditure surveys carried out in 1998 and 1999. By comparing changes over time and regional differences in the two series it will be possible to see whether the more timely wage data track to more accurate household expenditure data. If they track reasonably closely that will increase confidence in the use of the wage data for guiding policy. But even if the wage series diverge to a significant degree from the expenditure series there is likely to be little choice in choosing a series to use to track the situation of the poor. Expenditure data will always be expensive to collect and will take too long to process to be very useful as the basis for an early warning system. Wage data are likely to remain indispensable as a tool for tracking the economic fate of the poor for the immediate future.