URBAN-RURAL DIFFERENCES IN COSTS OF LIVING AND THEIR IMPACT ON POVERTY MEASURES

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This note demonstrates empirically the importance of urban-rural price differences and inflation figures in poverty analysis. Using data from the National Socio-Economic Survey (Survei Sosial Ekonomi Nasional, widely known as Susenas), it shows that the urban-rural food price differential during the period 1987–1996 was 13–16%, not 28–52% as implied by the 'official' food poverty lines. The urban-rural poverty comparisons and the components of change in simulated poverty estimates presented here therefore differ from those based on the 'official' figures. They indicate that migration to urban areas between 1987 and 1996 accounts for a significant part of the observed decline in poverty. The paper concludes that it is essential to use accurate urban-rural cost of living differences in deriving aggregate, urban and rural poverty estimates.

INTRODUCTION

Studies of welfare in Indonesia have been hindered by a lack of appropriate price indices. For example, to investigate real income changes among different groups, estimates of price increases experienced by each group are required. Similarly, to compare the standards of living of people in different localities, appropriate price ratios among localities are needed. However, sufficient data (of reasonable quality) are not yet available. This has generated research conclusions that are either tentative or misleading as a basis for policy decisions.

The importance of having a proper price index for comparisons of costs of living between urban and rural areas has been underlined by Ravallion (1992) and Booth (1993).[1] Ravallion examined the problems encountered in comparing urban and rural poverty using the urban and rural poverty lines developed by Biro (now Badan) Pusat Statistik (BPS, the Central Statistics Agency). He argued that the urban-rural differential of about 70% in these poverty lines for 1984–1987 was far above actual urban-rural cost of living differences. This meant that migration of someone previously living above the poverty line in a rural area to an urban area where he or she enjoyed a higher actual standard of living that

was nevertheless below the official urban poverty line would result in an increase in recorded aggregate poverty. In addition, urban-rural poverty comparisons would not reveal the true situation. This led Ravallion to question the methodology used by BPS in calculating its poverty lines. Likewise, Booth (1993) and Asra and Virola (1992) argued that the use of a cost of calories method (a variant of the food-energy-intake method that is heavily dependent upon the unit price of calories) in deriving the BPS poverty lines until 1993 generated non-comparable urban and rural poverty lines.

It is important that data on the geographic distribution of poverty should not be distorted by an unrealistic relationship between urban and rural poverty lines. Perceived regional differences in poverty can have a significant influence on policy in areas such as migration. Most obviously, Indonesia's transmigration program has been based on the notion that poverty can be reduced by shifting people from poor areas to better off—or potentially better off—regions. Conversely, to the extent that spontaneous rural-urban migration is wrongly believed to be associated with increasing poverty, there are likely to be attempts to prevent or restrict it, such as refusal by urban authorities to issue population identity cards to migrants from rural areas. In turn, this will prevent individuals from moving to areas where they judge that they will have better income earning opportunities, thus harming rather than helping poverty alleviation.

OVERALL POVERTY AND FOOD POVERTY

In its first publication of poverty figures, BPS (1984) defined two poverty lines: *batas miskin* ('poor line', henceforth referred to as the 'overall poverty line' OPL) and *batas sangat miskin* (the 'very poor line'). The latter in fact refers to the level of income needed to cover expenditure on the food component of the expenditure basket reflected in the OPL, and will be referred to henceforth as the 'food poverty line' (FPL). Note that since 1984 BPS has not reported figures for 'food poverty incidence', although in some of its publications 'food poverty lines' (meaning the food components of the overall poverty lines) are presented. Thus the term 'official food poverty line' as used here refers to the food component of the BPS overall poverty line, and 'official food poverty incidence' refers to food poverty incidence measures derived from these BPS 'food poverty lines'.

The 1998 poverty lines were derived using a much smaller sample survey (10,000 households) than the usual Susenas, whose sample size is around 65,000

households. Thus, in contrast with the 1996 poverty data, the 1998 survey does not allow the computation of poverty lines by province. This small survey was conducted to meet the urgent demand for poverty monitoring of the social impact of the recent financial crisis. The standard Susenas survey was conducted in early 1999, and estimates of poverty incidence based on the results of this survey will probably be published by the end of 1999.

The 1998 poverty lines developed by BPS result in a ratio of urban to rural overall poverty lines of 1.33 and of the urban to rural food poverty lines of 1.25. The food bundle method used to derive the poverty lines allows for different food consumption patterns (i.e. consumption of different quantities of food items) in urban and rural areas (BPS 1999), whereas the methodology used until 1993 allowed for different calorie consumption patterns. The reason for using different sets of quantity weights for urban and rural areas is to reflect the specific characteristics of each area, so that the poverty line is 'location specific'.

Whether focused on food or calorie consumption, however, the approach used by BPS results in a loss of comparability across areas: that is, spatial consistency is lost (Asra 1998: 22), as the independently derived urban and rural poverty lines reflect different food consumption patterns.[2] In other words, there is a trade-off between specificity and consistency. As Ravallion and Bidani (1994: 77) suggest the measurement choice rests ultimately on the purpose of the 'poverty profile' being constructed.

Differences in urban and rural food poverty lines that far exceed actual urban-rural cost of living (COL) differences will provide a misleading picture of the distributional impact of development, which usually involves urban sector expansion. In a dualistic economy, one of the ways the poor benefit from development is through expansion of job opportunities in the modern—predominantly urban—sector, in addition to increases in productivity in the traditional—predominantly rural—sector (Fields 1980). In defining poverty lines for urban and rural areas, therefore, one should ensure that they take into account differences in the COL across these areas. This suggests the need for properly determined ratios of urban to rural prices.

Price data have been collected in Indonesia since well before the 1960s (Sastrosumarto 1995). For urban areas before 1979, prices of only 62 items were

recorded from several markets in Jakarta. Now, the number of items has reached about 353, with coverage of 44 cities (27 provincial capital cities and 17 other large cities). This urban consumer price survey is the basis for deriving the widely used Consumer Price Index (CPI). In rural areas, a consumer price survey that includes more than 500 rural markets in 26 provinces (with retail traders as respondents) is carried out. It covers 138 food items and food materials and 163 non-food items.[3] Together with the results of the rural producer price survey, where farmers are the respondents, the results of the rural consumer price survey are used to derive the farmers' terms of trade (the ratio of the index of prices received by farmers to the index of prices paid by farmers). Data from these surveys, in addition to those from the Susenas and BPS's COL surveys, could be used to compute urban and rural price indices (and the corresponding urban and rural inflation rates) if desired.

Recent studies show that estimates of poverty level are heavily dependent upon the inflation rates used (Sigit and Sudarti 1999: 25–6, and Frankenberg, Thomas and Beegle 1999: 15). This note presents ratios of urban to rural food prices, and urban and rural food price indices, using data from the 1987, 1993 and 1996 Susenas tapes. It also gives empirical examples of how urban-rural poverty comparisons, aggregate poverty estimates and the sectoral decomposition of poverty changes would have been altered if appropriate food price indices had been employed to derive urban and rural poverty lines. It is hoped that the note may encourage the data users, in particular those responsible for analyzing poverty statistics, to understand fully how poverty lines and incidences are constructed before using them in poverty analysis. In addition, it is expected that this exercise will lead to greater awareness of the urgent need for additional and more appropriate price indices.

DATA

The data used in this exercise are food items, so the price indices derived are food price indices; the share of food in total expenditure was about 48 percent in urban areas and about 63 percent in rural areas in 1996. Susenas records the value of expenditure on non-food items but not their quantity, so their implicit prices cannot be derived. In principle, with additional effort to find appropriate prices for these items—for example, by using the prices from BPS's urban and rural consumer price surveys—an overall price index might be produced, but

unfortunately these surveys do not cover all the Susenas non-food items. In the future, as the importance of using better and more appropriate price indices becomes more widely appreciated, this shortcoming should be overcome. In any case, given the lack of overall price indices that include food and non-food items, it can be argued that using food price indices for poverty analysis remains a valid approach, on the grounds that food is the most essential consumption item.

On average, about 160 food items are used here in deriving the price indices; some food items that were not consumed in both urban and rural areas in the years being compared are not used. Susenas records the value of expenditure and quantity consumed for each food item, allowing the derivation of implicit prices. The quantities consumed and the implicit prices are then used to calculate both urban and rural food price indices.

For the purpose of comparison, urban and rural non-food price indices based on a limited number of non-food items were also calculated, using data from BPS's rural and urban consumer price surveys. Of the 50 non-food items processed in the rural consumer price survey, 32 items are also covered in the urban consumer price survey.[4] Thirty-one non-food items were included in the computation.[5]

In deriving the alternative sets of food poverty lines presented below, 'official food poverty line' estimates are used. The percentage distribution of population by monthly per capita expenditure class, estimated separately for urban and rural areas and published in the Susenas, is employed to estimate food poverty incidence figures based on the 'official' and derived food poverty lines. The alternative estimates of food poverty lines and food poverty incidence presented here are not offered as the only 'correct' figures, but merely as illustralive of a methodological issue.

METHODOLOGY

There are two ways of deriving the implicit price of each food item from the Susenas data. The first is by dividing the value of expenditure on a particular food item by its total quantity. The second is by doing this at the household level and then taking the average of implicit prices paid by all households consuming the item. Statistically, the second procedure is superior, but for the sake of

practicality the first procedure is used. In calculating the price indices, Laspeyres' formula was used.[6]

The formula used to show changes in food prices over time is:

$$I = \frac{\sum p_t^j q_o^j}{\sum p_o^j q_o^j} = \sum \frac{p_t^j}{p_o^j} W_o^j$$

where: p^j is price and q^j is quantity for food item j; t and o denote time t and the base year, respectively; and W_o^j is the share of food item j in total food expenditure in the base year.

The ratios of urban to rural food prices (food price indices) were also derived using a Laspeyres' formula:

$$I = \frac{\sum_j p_u^j . q_r^j}{\sum_j p_r^j . q_r^j},$$

where P^j is price and Q^j is quantity for food item *j;* and *u* and *r* denote urban and rural, respectively. This is the ratio of the cost of the rural food consumption basket valued at urban prices to its value at rural prices.[7] It can be re-expressed as

$$I = \sum_j \frac{p_u^j}{p_r^j} . w_r^j,$$

where w_r^j is the share of expenditure on food item *j* in total rural food expenditure.

The impact of differences in food prices and food price inflation on urban-rural poverty comparisons, aggregate poverty, and the sectoral decomposition of changes in poverty is highlighted by the re-estimation of the poverty incidence figures. First, new sets of food poverty lines are derived using the 'official' food poverty line estimates and the urban-rural food price ratios. Then the poverty incidence figures are obtained using the POVCAL program (Chen, Datt and Ravallion, undated), which estimates (among other things) the Lorenz curve, the Gini index, poverty incidence and other indices as suggested by Foster, Greer

and Thorbecke (1984). The Lorenz curve plots the cumulative expenditure or income of individuals or households accruing to the cumulative percentage of individuals or households. The deviation of the curve from the 45° diagonal line (showing perfect equality) indicates the extent of inequality: the closer it is to the diagonal line the lower the inequality. The Gini index is a summary measure of the inequality level of an income or expenditure distribution; it ranges between zero and one, indicating perfect equality and perfect inequality respectively. it can be calculated from the Lorenz curve or using various formulae (see Kakwani 1980, for instance). Two alternative specifications of the Lorenz curve are used—the General Quadratic and the Kakwani Beta model—and the program determines which specification fits the data better by comparing the sum of squared errors over the part of Lorenz curve bounded by the headcount index of poverty. The preferred estimates of poverty incidence are chosen depending on which specification of the Lorenz curve fits better.

Following Ravallion and Huppi (1991), the change in aggregate poverty can be decomposed into the intrasectoral effect (changes in urban and rural poverty at the initial population shares), the intersectoral effect (changes in poverty arising from population shifts from rural to urban areas), and the interaction between these two. The decomposition is conducted using the formula introduced by Ravallion and Huppi (1991), as follows:

$$P^1 - P^0 = (P_u^1 - P_u^0)n_u^0 + (P_r^1 - P_r^0)n_r^0 + \sum_{i=u}^{r}(n_i^1 - n_i^0)P_i^0 + \sum_{i=u}^{r}(P_i^1 - P_i^0)(n_i^1 - n_i^0)$$

where P is poverty measures and n is population shares for each of two dates (0, (0,1), and two areas or sectors ($i = u$ for urban and r for rural).

The first two terms on the right comprise the intersectoral effects of the changes in urban and rural poverty at the initial population shares. The third term is the intersectoral effect (change in poverty arising from population shift), and the last term is the effect of interaction between sectoral changes and population shifts.

A similar but superior analysis is conducted later by employing both urban-rural price ratios and food price inflation rates simultaneously. Although

the other poverty indices as suggested by Foster, Greer and Thorbecke (1984) were computed[8], only estimates of poverty incidence are presented here.

RESULTS

Ratios of Urban to Rural Prices

Ratios of urban to rural food prices and (unweighted) non-food prices are given in table 1,[9] together with the ratios of BPS's urban and rural poverty lines (both overall and food), for comparison. It is interesting to note that the poverty line ratios declined during 1987–96, bringing them closer to the ratios of urban to rural (food and non-food) prices. The previously mentioned change in BPS methodology for deriving poverty lines from focusing on food consumption, is partly responsible for the decline in the ratios of the urban-rural poverty lines.

Table 1 *Ratios of Urban to Rural Prices and Urban to Rural Poverty Lines, 1987–1996*

Year	Food	Non-Food[a]	Ratio of BPS's urban to rural poverty lines	
			Overall[b]	Food[c]
1987	1.13	1.26	1.69	1.52
1993	1.16	1.19	1.58 (1.53)	1.40 (1.50)
1996	1.16	1.12	(1.39)	(1.28)

[a] Unweighted.

[b] Taken from Asra (1998). Figures in brackets are based on BPS's new (food bundle) methodology for deriving its poverty lines (BPS 1994). The 1998 figure is 1.33 (BPS 1999).

[c]Taken from Asra (1995). Figures for 1987 are calculated from Asra (1997, table 4). Figures in brackets are based on the new BPS methodology. The 1998 figure is 1.25 (BPS, 1999).

Between 1987 and 1996, the overall food price differential between urban and rural areas, as indicated by the ratios in table 1, ranged from 13 to 16%. These differentials were substantially smaller than those implied by the ratios of the 'official' urban to rural food poverty lines.[10] For instance, in 1987 food prices in urban areas were 13% higher than in rural areas, whereas the ratio of the urban to rural food poverty lines implied a differential of 52%. The urban to rural overall poverty line ratio implied an even higher differential of 69%. The non-

food price differentials were also lower than the ratios of urban to rural food and overall poverty lines in each of the years shown. In short, the urban-rural differentials in the BPS poverty lines and, in particular, the food poverty lines, were considerably in excess of the price differentials for both food and non-food commodities between these areas.

Poverty Measurement and Analysis Using Spatially Consistent Food Price Ratios

This section analyses the impact on urban-rural poverty comparisons of using the urban-rural food price ratios shown in the first column of table 1. The aim of this exercise is to estimate urban and rural poverty incidence using the appropriate comparable food price indices, to compare these derived results with those based on the 'official' food poverty levels, and recalculate the aggregate poverty level.

The derived food poverty lines are computed using the ratios of urban and rural food prices given in table 1. The exercise is done for two cases: case I uses the 'official' *rural* food poverty lines as a basis, while case II uses the 'official' *urban* food poverty lines:

- case I derives an urban poverty line by multiplying the 'official' rural poverty line by the urban-rural price ratio from table 1; e.g. for 1987 case I multiplies Rp9,710 (the 'official' rural poverty line) by 1.13 (the urban-rural price ratio) to derive an urban poverty line of Rp10,972;

- case II derives a rural poverty line by dividing the 'official' urban poverty line by the urban-rural price ration; e.g. for 1987 case II divides Rp14,760 (the 'official' urban poverty line) by 1.13 (the urban-rural price ratio) to derive a rural poverty line of Rp13,062.

Table 2 shows the comparison between the 'official' and the derived food poverty lines. As expected, in case I, the urban food poverty lines are lower than the corresponding 'official' poverty lines, while in case II, the rural food poverty lines are higher than the corresponding 'official' food poverty lines.

Table 2 *Official and Derived Food Poverty Lines*
(Rp per capita per month)

Year	Urban		Rural	
	Official	Derived Case I	Official	Derived Case II
1987	14,760	10,972	9,710	13,602
1993	23,303	18,068	15,576	20,089
1996	29,681	26,908	23,197	25,587

Sources: The 1993 and 1996 figures are taken from BPS (1994: 21) and BPS (1999: 5), while the 1987 figures are recalculated from Asra and Virola (1992: table 3). The 1993 figures are based on the new methodology described in the text.

Alternative sets of poverty incidence figures based on 'official' food poverty lines and derived poverty lines were obtained using the POVCAL program (table 3). As they are based on food poverty lines rather than overall poverty lines (in which non-food living costs are also taken into consideration), the poverty incidence measures derived here reflect the 'very poor line' referred to earlier, rather than the more usual 'poor line', which measures overall poverty incidence based on consumption of both food and non-food items.

Table 3 shows that in 1987, the rural poverty incidence based on the 'official' *food* poverty line was higher than poverty in urban areas. The figures based on the official *overall* poverty line show the reverse (Asra 1998: 5). Both 'official' and derived estimates show that in 1987-96 food poverty was higher in rural than in urban areas, but the derived estimates show a much greater difference. All estimates show a decline in food poverty incidence during this period. Case II suggests a sharper trend, however—especially for rural areas, where food poverty incidence fell from around 35% in 1987 to about 9% in 1996.

Aggregate poverty estimates for 1987, 1993 and 1996 are also presented in table 3. Case I, based on the derived urban food poverty lines, yields food poverty incidence figures a little lower than those based on the 'official' food poverty lines. But case II, based on the derived rural food poverty lines, results in far higher estimates of food poverty incidence in the earlier years, and a far more rapidly declining trend. This illustrates clearly the sensitivity of poverty measures to urban–rural price differences.

Table 3 *Poverty Incidence Based on Official and Derived Food Poverty Lines, 1987–96*
(%)

Year	Urban		Rural	
	Official	Derived Case I	Official	Derived Case II
1987	13.0	3.5	14.3	34.5
1993	6.7	1.6	6.7	19.9
1996	3.0	1.5	4.9	8.9

Year	Aggregate Poverty		
	Official	Derived Case I	Derived Case II
1987	13.9	11.3	28.5
1993	6.7	5.0	15.4
1996	4.2	3.6	6.7

What is the impact on the sectoral decomposition of food poverty change of using the urban-rural food price indices to derive aggregate food poverty incidence? The results of decomposition analyses using 'official' and derived food poverty incidence figures are presented in table 4. Using the 'official' food poverty incidence figures, decomposition results show that the intrasectoral effect made the highest contribution to the observed aggregate food poverty reduction during 1987–96, with rural food poverty reduction accounting for nearly 70%. Somewhat surprisingly, population shift from rural to urban areas (the intersectoral effect) had an insignificant impact, whereas it might have been expected that migration from lower to higher income areas would have accounted for a considerable part of aggregate food poverty reduction.

Table 4 *Sectoral Decomposition of Poverty Change Based on Official and Derived Food Poverty Lines, Using Ratios of Urban to Rural Food Prices, 1987-96*
(% of reduction in aggregate food poverty)

Poverty line	Intrasectoral		Intersectoral	Interaction effect
	Urban	Rural		
Official	28.8	69.4	1.3	0.5
Derived				
Case I	7.3	87.8	13.0	-8.1
Case II	12.8	84.6	8.9	-6.3

By contrast, the decomposition results based on the derived food poverty incidence figures show that while the intrasectoral effect still made the highest contribution, the role of rural food poverty reduction in aggregate food poverty decline was much more significant than in the decomposition based on the 'official' figures. The contribution of urban food poverty reduction, on the other hand, was markedly lower. Unlike the results based on the 'official' food poverty incidence figures, the decomposition results using the derived food poverty incidence figures show that intersectoral effect of rural to urban migration accounted for a considerable part of aggregate food poverty reduction (13.0% and 8.9% in case I and case II, respectively).[11] On the other hand, this was offset to a large extent by the negative effect (-8.1% in case I and –6.3% in case II) of interaction between intrasectoral poverty changes and the effects of intersectoral population shifts.

Changes in Food Prices over Time

In the previous section we took the 'official' rural (urban) food poverty line for each selected year as given, and then analysed the impact of calculating a corrected urban (rural) food poverty line based on urban-rural food price differentials derived from Susenas. But this begs the question as to whether the changes in the 'official' food poverty lines over time reflect actual changes in food prices in each area.

Table 5 provides separate urban and rural food price indices derived from the Susenas (using Laspeyres' formula) for the period 1987-96. The non-food price indices based on price surveys, are also presented for comparison. As expected, urban areas experienced slightly more rapid food price increases than rural areas between 1987 and 1996.

Table 5 *Urban and Rural Price Indices and Poverty Line Ratios, 1987–96*

Year	Food Price Index	FPL Ratio (%)	Non-food Price Index[a]	OPL Ratio (%)
1993 (1987=100)				
Urban	166.3	157.9	170.4	163.8
Rural	159.4	160.4	163.2	174.9
1996 (1987=100)				
Urban	254.7	201.1	201.4	220.0
Rural	249.1	238.9	206.5	266.3
1996 (1993=100)				
Urban	149.2 (137.5)[b]	127.4	125.3	137.1
Rural	153.8	148.9	126.4	150.3

[a] Unweighted.

[b] The figure in parentheses is the ratio of the 1996 to the 1993 food CPI (which is based on food prices in a large number of cities). This is lower than the urban food price index derived here (149.2), which supports the view that outdated weighting diagrams for the CPI could result in underestimates of the inflation rate (Mulijanto 1988 and Ravallion and Huppi 1991). Note, however, that the ratio of the official food poverty lines implies even lower inflation.

Table 5 also shows the percentage increase in the 'official' food and overall poverty lines (FPLs and OPLs) during particular periods; this is done by presenting the ratios of the 'official' FPL and OPL in 1993 and 1996 to the corresponding figure in selected base years. (The FPL ratio of 160.4 for rural areas in 1993 relative to base year 1987, for instance, means that the rural food poverty line increased by 60.4% between 1987 and 1993.) The figures in table 5 indicate that, in urban areas, the increase in food prices in the period 1987-96 has always been higher than the inflation rates implied by the 'official' food poverty lines. A similar pattern was observed for rural areas, although there was negligible difference between 1987 and 1993. This suggests that the decline in poverty over the years 1987-96 might not be as rapid as implied by the 'official' poverty lines.

During the whole period, food prices increased faster than non-food prices, although the reverse was true during the earlier sub-period 1987–93. The

non-food price increase for 1987–96 was smaller than the increase in both the 'official' FPL and OPL, except for the FPL in urban areas.

Improved Poverty Measurement and Analysis Using Observed Ratios of Urban to Rural Prices and Inflation

The figures in tables 1 and 5 may be used to derive food poverty lines (and thus food poverty incidence figures) that are consistent across regions and over time.

Table 6 presents the estimated food poverty incidence figures using the 'official' and the derived food poverty lines together with the price indices in table 5 and the urban-rural price ratios in table 1. As before, the exercise is undertaken for two cases. In case I, the 1987 'official' *rural* food poverty line is used as the base, and the corresponding figures for 1993 and 1996 are derived using the rural food price indices in table 5. The urban food poverty lines for each year are then calculated by multiplying these figures by the urban-rural price ratios in table 1.[12] In case II, the 1987 'official' *urban* food poverty line is used as the base, and the corresponding figures for 1993 and 1996 are derived using the urban food price indices in table 5. The rural food poverty lines for each year are then calculated by dividing these figures by the urban-rural price ratios in table 1.

Table 6 *Food Poverty Incidence Based on Official and Derived Food Poverty Lines Adjusted for Both Observed Inflation Rates and Ratios of Urban to Rural Food Prices, 1987–1996*
(%)

Year	Official		Case I		Case II	
	Urban	Rural	Urban	Rural	Urban	Rural
1987	13.0	14.3	3.5	14.3	13.0	38.0
1993	6.7	6.7	1.5	6.5	8.6	23.5
1996	3.0	4.9	1.8	5.9	9.1	20.2

	Aggregate	Aggregate	Aggregate
1987	13.9	11.3	31.0
1993	6.7	4.8	18.4
1996	4.2	4.4	16.1

As expected, in case I the food poverty incidence figures tend to be lower than those based on the 'official' FPLs, except for rural areas and the aggregate in 1996, while in case II all they are generally higher than the 'official' estimates.

Again, the two cases show that throughout the period, food poverty incidence has been significantly higher in rural than in urban areas, in stark contrast with the 'official' figures. Moreover, both cases indicate a slight increase in urban food poverty incidence during 1993–96, in contrast with the 'official' figures. This is because food inflation rates in urban areas during this period, as indicated by Susenas results (and also by the 1993 and 1996 food CPI), were significantly higher than those implied by the 'official' FPLs (table 5). This indicates that the apparent decline in urban food poverty during 1993–96 shown by the 'official' figures might be questionable.

In case I, the derived figures for aggregate food poverty incidence are lower than the 'official' estimates, except for 1996, and indicate that the declining trend was not as rapid as shown by the 'official' estimates. Case II shows far higher levels of aggregate food poverty incidence than the 'official' estimates; with a rapid decline between 1987 and 1993.

What is the impact of using both food price inflation rates and urban-rural price ratios on the sectoral decomposition of aggregate food poverty change? Table 7 provides decomposition estimates based on the 'official' and derived food poverty incidence figures. As we saw in table 4, the decomposition results based on the 'official' figures in table 7 also indicate that during the period 1987–96 the intrasectoral effect made the highest contribution to poverty reduction; rural poverty reduction made a much higher positive contribution than urban poverty reduction; and rural to urban migration had an unexpectedly insignificant impact on food poverty reduction.

Table 7 *Sectoral Decomposition of Poverty Change Based on Official and Derived Food Poverty Lines, Using Both Ratios of Urban to Rural Food Prices and Observed Inflation Rates, 1987-96*
(% of reduction in aggregate food poverty)

Poverty lines	Intrasectoral		Intersectoral	Interaction effect
	Urban	Rural		
Official	28.8	69.4	1.3	0.5
Derived:				
Case I	6.9	87.5	14.6	-9.0
Case II	7.3	85.3	15.5	-8.1

The derived figures (case I and II) indicate that between 1987 and 1996 the intrasectoral effect was indeed considerable and the contribution of rural food poverty reduction to aggregate food poverty reduction was much more significant than that of urban food poverty reduction. As we saw in the exercise reported in Table 4, the decomposition results using the derived food poverty incidence figures strongly suggest that population shift accounts for a significant part of food poverty reduction, even though this intersectoral effect was to some extent offset by the negative effect of the interaction between the intrasectoral and intersectoral changes. These results confirm the findings of Ravallion and Huppi (1991),[13] that rural-urban migration was significantly associated with poverty alleviation, and is in accordance with the commonsense view that spontaneous migration occurs in response to a perception on the part of the individuals concerned that this will make them better off.

CONCLUDING REMARKS

This paper re-emphasises the fact that, in estimating a country's aggregate poverty incidence through urban and rural poverty lines and poverty incidence figures, researchers should take into consideration both appropriate inflation rates and cost of living differences between urban and rural areas. Failure to account properly for cost of living differences may lead to regionally inconsistent poverty lines, which in turn may result in misleading poverty figures and suggest unwarranted policy interventions. The exercises undertaken here indicate that, the food poverty decline during the period 1993-96 might not have been as rapid as the 'official' estimates suggest. More importantly, they show

that migration from rural to urban areas between 1987 and 1996 accounts for a significant part of the observed decline in food poverty.

These results underline the importance of looking more closely at the issue of comparability of urban and rural poverty lines when deriving estimates of urban, rural and aggregate poverty. Booth (1993:80) suggests four requirements for poverty measurement and analysis in Indonesia, which are closely related to the issues discussed in this paper: appropriate urban and rural poverty lines, indices of regional price disparities by province for urban and rural areas; inflation rates by province; and studies of poverty mobility. As the importance of comparing poverty incidence and standards of living across areas and provinces is likely to increase in the near future, in line with demands for greater emphasis on regional development and autonomy, appropriate spatial and inter-temporal price indices need to be produced. The Susenas data, which have not yet been exploited to their full potential, can be utilised for such purposes.[14]

NOTES:

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[1] The first estimates of regional price differentials in Indonesia were the work of Arndt and Sundrum (1975).

[2] The spatial and inter-temporal consistency of the Philippines official poverty lines is also questioned by Balisacan (1999: 6) who argues that by construction they imply that people on the poverty line, but in different areas or at different points in time, enjoy different standards of living.

[3] Only 37 of the 138 food and food materials items and 50 of 163 non-food items are published. Although consumer price data in rural areas have been collected, BPS never announces an official inflation rate for rural areas. This could readily be estimated, however, as an increase either in prices paid by farmers or in prices of the nine 'essential commodities' (rice, salted fish, palm oil, sugar, salt, kerosene, soap, textiles and *batik*) in rural areas.

[4] These include household needs (bricks, cement, wood, kerosene, petrol, firewood, pillows, charcoal, plates, glasses, slippers, block soap, detergent and cream-soap), clothing (trousers, shorts, long-sleeved shirts, short-sleeved shirts, sarongs, shirt fabric, trouser fabric, shoes, tailoring charges), and miscellaneous items (doctors' fees, pain killers, soap, hair-cream, facial powder, pencils, writing pads, cassettes and bicycles).

[5] As there are no data for the 'trousers' item in rural areas, only 31 items are used in the computation of non-food price index.

[6] See Ravallion and Van de Walle (1989) for a more sophisticated method for deriving cost of living differences between urban and rural areas.

[7] Alternatively, ratios of rural to urban food prices (rural–urban food price indices) can be calculated using urban food weights.

[8] Interested readers may contact the author at (aasra@adb.org) for the estimates of other poverty indices, and the corresponding analysis. The author carried out a

similar analysis using food price indices and the 'official' (overall) poverty lines as the basis instead of using food price indices and the 'official' food poverty lines, as presented in this note. The results were broadly similar.

[9] These indices do not take into account the quality difference of food consumed in both urban and rural areas.

[10] As the food component of the poverty line is high (ranging from 78 to 86% in urban areas and 84 to 97% in rural areas during 1981–96), the urban-rural food poverty line ratios are more or less comparable with the ratios of the urban and rural overall poverty lines. In this note the term 'official figures' refer to BPS figures.

[11] A similar computation was undertaken using the official *overall* poverty lines, rather than using the 'official' *food* poverty lines as presented here. The results also led to the conclusion that population shift was positively associated with poverty reduction.

[12] For example, in case I, to derive the urban food poverty line for 1993, the rural food poverty line in 1993 is first derived by inflating the 1987 'official' rural food poverty line (of Rp9,710 per capita per month) by 1.594 (from table 5). This figure is then multiplied by 1.16 (from table 1, which is the ratio of urban-rural food prices in 1993) to obtain the urban food poverty line for 1993.

[13] Ravallion and Huppi used an urban-rural price differential of 10%. Following Ravallion and Huppi (1991), Asra (1998: 22-23), using an urban (overall) poverty line 10% higher than the official rural (overall) poverty line obtains similar results. The present finding differs from the results of a decomposition analysis based on the official poverty lines (Asra 1998: 10).

[14] Another possible improvement would be to compute different price indices for different income groups. In Malaysia, for example, in addition to the standard CPI, a 'Second Consumer Price Index' showing price increases experienced by the lower income group is produced (Ministry of Finance 1997: 159). In Hong Kong, three different CPIs reflecting consumer price movements affecting households from three different expenditure ranges are published (Census and Statistics Department 1999).

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