WIDENING URBAN-RURAL INCOME DIFFERENTIALS IN KOREA: A REEXAMINATION

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1. Introduction

The intersectoral income differentials between the urban and rural households have long been a standing issue in income distribution among the developing countries. The widening urban-rural income differential has been reemphasized in a number of recent studies in Korea.[1] This is essential since acceptance of this fact without critically examining both theoretical and empirical evidence may mislead researchers and policymakers in identifying the critical distributive issues.

The purpose of this paper is, by reexamining the issue of widening intersectoral income inequality, to caution those economists who have a tendency to dwell on the past and established concepts despite the rapid pace at which the national and world economies are changing. There are a few sufficient observations to support this caution. First, despite the growing list of literature in income distribution studies, economists have not yet reached a

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1. Bong Soon Kang and Pal Yong Moon, *An Analysis of Determinants of Farm Income* Korean Development Institute (KDI) Working Paper 77-09, 1977 (in Korean). Sung Hwan Ban, "*Determinants* of Farm Income and Its Distribution," Hakchung Choo, ed., *Income Distribution and Its Determinants in Korea*, Vol. I, Korean Development Institute (KDI), 1979, pp. 111-179 (in Korean). Dwight H. Perkins, et al, *Rural Development,* Studies in the Modernization of the Republic of Korea: 1945-75, Harvard University Press. 1980.

consensus on what is meant by 'income' in such studies.[2] Furthermore, the comparison of urban and rural income is based on either gross income or disposable income, which is an inadequate representation of the living standard and the level of welfare.

Second, though the conclusions of such a study may be far-reaching, little serious effort is being made to critically evaluate the limitations of the empirical bases used, let alone to improve them, especially for the developing countries.

Third, there is a question of priority in persistently attaching such importance to the issue of widening urban-rural income differentials when Korea's rural population has declined significantly in the past twenty years, from 56.3 percent in 1961 to 25.8 percent in 1981, and is expected to decrease further in view of its resource endowment and development strategy. The sin of omission here is that the growing urban poverty and the disparities within have been neglected.

This paper critically assesses the validity of both theoretical and empirical evidence of the widening intersectoral inequality and reexamines the evidence in the light of recent attempts at income adjustment. This reexamination begins with a review of both theoretical and empirical problems in comparing the incomes of urban and rural households and in the light of the shortcomings of conventional income concept and existing survey data.

Both gross and disposable incomes of the two types of households are then adjusted to present a realistic level of living, and are compared in time series and cross section analyses. Because of data constraints, the adjustments in this study represent a second best approximation, maintaining as much consistency as possible.

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2. The concept of income used in distributive studies has evolved from income before tax and disposable income to income allowing for the incidence of indirect taxes and government expenditures. Furthermore, such income needs to be standardized with respect to the differences in family size and cost-of-living. If one takes a non-conventional view of income, this conventionally adjusted income needs to be further adjusted to represent welfare (the measurement of economic welfare or net national welfare. Final adjustment would require allowing for capital gains and underground incomes. For details see Hakchung Choo, "The Concepts of Income in Distributive Studies," Hakchung Choo, ed., *Op. Cit.*, pp. 42-62.

2. Empirical Grounds for Growing Income Differentials

A. National Income Accounts Data

The most often cited empirical sources of growing income differentials in Korea are: first, comparison of the average household and per capita incomes in the agricultural and non-agricultural sectors derived from the national income accounts[3]; and second, the comparison of city wage earners' income and farm household income derived from the city and farm household income and expenditure surveys,[4] respectively. These comparisons are made constant prices.

Table 1 compares agricultural household and per capita incomes to that of non-agricultural household income in current and constant prices from 1965 to 1979 in Korea. Except for the fact that the income differentials in constant prices appear somewhat higher than current prices from 1965 to 1973 and somewhat lower from 1974 to 1979 because of the implicit bias of the deflator of 1975,[5] the income differentials in both current and constant prices show more or less similar trends from 1965 to 1979. The ratio of agricultural household income to non-agricultural household income in current and constant prices slightly deteriorated from 48.9 and 61.4 percent, respectively, in 1965, to 37.2 and 49.5 percent in 1968. Since 1968, except for some deviations due to harvest conditions, there has been an improving trend.

A comparison of per capita income in current and constant prices over these years shows similar patterns as those of the household income comparison. The differences between the two are accounted

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3. W.I. Abraham, "Observations on Korea's Income Distribution and the Adequacy of the Statistical Base," April 1976 (Mimeographed) Korean Development Institute (KDI), pp. 4-7.

4. B.S. Kang and P.Y. Moon, *Op. Cit.*, pp. 11-17.
S.H. Ban, *Op. Cit.*, p. 114.

5. The change in the base year from 1970 to 1975 results in the following differences in constant price farm household income as percentage of city wage earners' household income.

	1965	1970	1975
1970 Base Year	106.9	67.2	86.7
1975 Base Year	111.2	74.6	101.6
(A) – (B)	–4.3	–7.4	–14.9

Table 1 — Agricultural Household Income as Percentage of Non-agricultural Household Income, 1965-1979

Non-Agricultural Household Income=100.0

	Household Income		Per Capita Income		Percentage of Off-farm Income
	Current Price Income	1975 Constant Price Income	Current Price Income	1975 Constant Price Income	
1965	48.9	61.4	59.5	73.9	20.9
1966	45.4	63.7	53.1	75.4	22.1
1967	38.0	52.2	45.3	63.1	22.1
1968	37.2	49.5	44.1	57.6	23.5
1969	39.2	50.8	46.2	59.8	23.3
1970	45.5	54.0	49.6	59.5	24.2
1971	45.5	49.6	48.1	52.4	18.1
1972	45.8	49.2	51.2	54.5	17.7
1973	44.3	46.2	49.2	50.4	18.8
1974	52.0	53.3	54.5	55.8	19.6
1975	55.0	55.0	61.2	61.2	18.1
1976	56.3	56.8	60.9	61.7	20.3
1977	59.6	55.9	60.9	57.8	27.7
1978	61.9	51.3	63.7	52.5	28.1
1979	63.4	57.4	64.3	58.3	31.3

Source: Derived from the Bank of Korea, National Income in Korea, for respective years.

for by the changes of family sizes of the two household categories as shown later in Table 7.

This comparison between agricultural and non-agricultural household income derived from the national income accounts usually understates the agricultural household income, because calculation of this income excludes off-farm income, as is shown on the right hand column of Table 1. Furthermore, average non-agricultural household income is strongly influenced by a small number of extremely high household incomes. Thus, it is safe to say that a comparison of household incomes based on the national income accounts gives a rather distorted picture by exaggerating the income differentials.

B. Household Survey Data

Another empirical source of income comparison of the two types of households is the result of the household income and expenditure surveys, shown in Table 2. This table implicitly assumes the homogeneity of incomes of the households compared. The city wage earners' household income is primarily comprised of employment remunerations while farm income is composed of the imputed wage component of self-employed labor and of the returns on such capital investment as land and intermediate inputs. Thus, there remains a question as to whether or not it is appropriate to compare directly the incomes of these two different types of households. It would be more appropriate to compare the incomes of city proprietors and farm households, considering the nature of their income composition. This type of income comparison has merit in that such a comparison encompasses the two most numerous types of households in the economy.

The comparison of current incomes shown in Table 2 indicates a trend toward widening income differentials against the farm households in the late 1960s, rapid improvement in the early 1970s, and another period of deterioration in the late 1970s. The comparison of household incomes in constant prices shows a similar trend as that of current income, except for one notable difference. Because of the index problem,[6] farm household incomes in constant prices, before and after the base year 1975, are evaluated, respectively, somewhat higher and lower than current prices. Per capita income comparison

6. See Footnote 5.

Table 2 – Farm Income as Percentage of City Wage Earners' Income, 1965-1979

City Wage Earners' Income=100.0

	Household Income		Per Capita Income	
	Current Price Income	1975 Constant Price Income	Current Price Income	1975 Constant Price Income
1965	99.1	111.2	87.3	98.0
1966	80.2	89.6	70.6	78.8
1967	59.8	67.0	53.3	59.8
1968	62.6	67.1	56.5	60.7
1969	65.3	72.0	59.1	65.2
1970	67.2	74.6	60.6	67.3
1971	78.8	89.8	71.4	81.3
1972	83.0	95.3	76.6	88.0
1973	87.5	98.6	80.2	90.5
1974	104.5	105.7	96.2	97.3
1975	101.6	101.6	93.0	93.0
1976	100.3	97.9	91.5	89.2
1977	102.0	96.3	87.9	83.0
1978	98.3	89.7	85.5	78.0
1979	84.7	74.7	75.6	66.7

Sources: Derived from Economic Planning Board, *Annual Report on the Family Income and Expenditure Survey*, and Ministry of Agriculture and Fisheries *Report on the Results of Farm Household Economy Survey*, for respective years.

further accentuates the income differentials, mainly due to the difference in family sizes.

In interpreting these data, two subtle points must be considered. One implicit assumption in per capita income comparison is that equal weight is given to all the members of a household. This means that all data must be adjusted to the adult equivalent scale, the application of which reduces the income differential in favor of farm households. The second point to note is that the wage earners' income includes a component that accounts for the city and rural cost-of-living differentials. Neglecting two factors has a tendency to increase income differential against farm households.

C. *Comparison With Adjusted Farm Income*

Upon examination of the Korean farm household income data, W. I. Abraham asserts that the data include, as a significant component, undue capital gains from grain inventories.[7] Although this assertion is erroneous as shown below, a number of agricultural economists made farm household income adjustments,[8] the results of which are compared with city wage earners' household income and shown in Tables 3 and 4. In addition to adjusting for capital gains from inventories of grains and intermediate inputs, these adjustments are also corrected for the over-representation of farmers with relatively large land holding in the farm household survey. The adjustments by three representative studies shown in these tables vary in degree because of the differences in adjustment procedures. However, the adjustments are consistently downward, in marked contrast to the evidence presented in the earlier tables.

As shown in the tables, the adjusted series of Bong Soon Kang and Pal Yong Moon represent the least downward adjustments for the years after 1970, while the adjustments by Sung Hwan Ban were relatively less than those of Kang and Moon for the years before 1969 and greater after that year. The biggest adjustments of the three, after 1971, had been made by D. H. Perkins, et al. The magnitudes of downward adjustments also differ significantly depending on the year under consideration and the authors. Kang and Moon made the smallest downward adjustment, 3 percentage points for 1975, and the highest one, 13.1 percentage points, for 1974, while Ban's adjustments made the lowest 3.1 percentage points for 1966, and the highest, 13.9 percentage points, for 1973. In the case of Perkins, et al, the levels of adjustment were the most profound, from the lowest of 2.7 percentage points for 1965 to the highest of 30.9 percentage points for 1974. The adjusted per capita income comparisons show similar trends to those of adjusted household incomes, except that the differences of the two are explained by changes in average family sizes over time.

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7. W.I. Abraham, *Op. Cit.*, p. 4.
8. S.H. Ban, *Op. Cit.*, pp. 120-122. B.S. Kang and P.Y. Moon, *Op. Cit.*, pp. 27-31. D.H. Perkins, et. al, *Op. Cit.*, pp. 429-432.

Table 3 — Adjusted Farm Household Income as Percentage of City Wage Earners' Household Income, 1965-1977

City Wage Farmers' Income=100.0

	Current Price Income			1975 Constant Price Income		
	B.S. Kang & P.Y. Moon	Sung Hwan Ban	D. Perkins et al.	B.S. Kang & P.Y. Moon	Sung Hwan Ban	D. Perkins et al.
1965	93.8	94.7	97.4	102.8	103.6	106.6
1966	75.7	77.8	72.8	82.7	84.8	79.7
1967	56.1	56.6	55.8	62.7	63.3	62.3
1968	56.9	57.3	56.3	63.1	63.6	62.4
1969	59.8	60.2	56.0	65.2	65.6	61.0
1970	61.7	59.6	60.4	68.7	66.4	67.3
1971	74.0	73.9	70.1	82.7	82.7	78.6
1972	76.9	74.7	69.4	84.8	82.3	76.7
1973	79.0	75.3	77.6	82.3	78.6	80.9
1974	91.0	80.8	72.3	90.0	79.7	71.4
1975	98.5	88.2	84.1	98.6	88.2	84.2
1976	–	89.8	–	–	82.9	–
1977	–	91.8	–	–	79.7	–

Sources: Bong Soon Kang and Pal Yong Moon *An Analysis of Determinants of Farm Income,* Korean Development Institute (KDI), 1977, pp. 26-27.
Sung Hwan Ban, "Determinants of Farm Income and Its Distribution". *Income Distribution and Its Determinants in Korea,* Hakchung Choo, ed., Vol. I, Korean Development Institute (KDI), 1979, pp. 120-22.

Table 4 — Adjusted Farm Per Capita Income as Percentage of City Wage Earners' Per Capita Income, 1965-1977

City Wage Earners' Income=100.0

	Current Price Income			1975 Constant Price Income		
	B.S. Kang & P.Y. Moon	Sung Hwan Ban	D. Perlins et al.	B.S. Kang & P.Y. Moon	Sung Hwan Ban	D. Perkins et al.
1965	82.4	83.4	84.9	90.2	91.2	93.0
1966	66.2	68.6	64.2	72.5	74.6	70.0
1967	50.0	50.5	49.8	55.9	56.5	55.6
1968	51.4	51.8	50.8	57.0	57.5	56.4
1969	54.1	54.5	0.6	58.9	59.4	55.2
1970	55.7	53.8	54.5	61.9	59.9	60.7
1971	67.0	67.0	63.5	75.0	75.0	71.1
1972	71.1	68.9	64.2	78.3	76.0	70.8
1973	72.3	69.1	71.2	75.6	72.2	74.3
1974	83.7	74.4	66.5	82.6	73.4	65.7
1975	90.2	80.7	77.0	90.2	80.7	77.0
1976	–	81.8	–	–	75.6	–
1977	–	79.1	–	–	68.7	–

Source: Derived from the same sources, as in Table 3.

3. Problems in Comparing the Income of City and Farm Households

If the problems of the widening urban and rural income differentials constitute a distributive issue, then the concept of income needs to be theoretically and empirically expanded and modified to represent the level of living and welfare. In this section we will examine three major conceptual modifications necessary in comparing the incomes of the two sector households. Then, we will turn to a number of data problems pertinent to such a comparison in Korea.

A. Some Conceptual Problems

1) Burdens of Direct Taxes and Levies

Direct and indirect taxes as well as public expenditures are generally recognized as important means of facilitating income redistribution. However, the incidence studies of indirect taxes necessarily make many assumptions that limit the validity of conclusions.[9] Recent studies on the redistributive effects of government expenditures need much more extensive data than is generally available in the developing countries.[10] Therefore, we will confine our discussion here to the burdens of direct taxes and levies on the two categories of households under different direct tax and levy system.

In Korea, farm incomes are still exempted from income tax. However, farm income is subject to a local direct farm land tax. Both types of households pay various other duties and levies. As shown in Table 5, city wage earners' households pay consistently higher portions of their income in direct taxes and levies than do farm households on the average, though the ratios of these burdens vary over time. It is, therefore, clear from the table that the farm households would have more disposable income than their city counterparts for the same level of income.

The relatively wide variation in the direct tax and levy burden

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9. Luc Henry de Wulf, "Fiscal Incidence Studies in Developing Countries: A Survey and Critique," *International Monetary Fund (IMF) Staff Papers*, Vol. XXII, Mrach, 1975, p. 102.

10. Jocob, Meerman, *Public Expenditure in Malaysia: Who Benefits and Why*, Oxford University Press. 1979.

Table 5 – Ratio of Direct Taxes and Levies to Farm and City Wage Earners' Household Income, 1965-1979. (In Percent)

Year	Farm Household	City Wage Earners' Household
1965	2.73	3.31
1966	2.59	3.38
1967	1.75	4.70
1968	1.69	7.91
1969	1.98	7.24
1970	1.28	6.78
1971	1.16	7.05
1972	1.00	6.60
1973	1.33	6.99
1974	1.29	1.87
1975	1.45	2.85
1976	1.69	3.60
1977	1.87	3.04
1978	1.68	2.38
1979	2.10	2.12

Sources: Economic Planning Board, *Annual Report on the Family Income and Expenditure Survey*, for respective years. Ministry of Agriculture and Fisheries, *Report on the Results of Farm Household Economy Survey*, for respective years.

[illegible] of the two types of households stems from the fact that tax [illegible]emptions and tax rates on wages change annually, while the land [illegible] exemption and rates change once every several years. However, in [illegible]ditions of high inflation, the effective fixed land tax exemptions [illegible] rates over a few years rise significantly. The tax burden ratios of [illegible] earners are also affected by the imposed upper income ceiling [illegible] also changed only intermittently until 1976. The 1974 tax and [illegible] burden ratio of the city wage earners' households exemplifies [illegible] distortions caused by the imposition of a 2.4 million won per [illegible] Upper income ceiling adjusted from 2 million won in 1973, an [illegible] of 20 percent, when nominal per capita GNP increased by [illegible] percent, from 153.6 thousand won in 1973 to 211.4 thousand [illegible] in 1974. Despite these variations, the ratios of direct tax and [illegible] burden of farm households are generally lower than those on [illegible] wage earners' households which should be appropriately

accounted for in the income comparison of the two types of households.[11]

2) Cost of Living Differentials

In comparing the household income of farm and city dwellers, the differences in lifestyle and subsequent cost of living differentials should be properly recognized. These differences may be explained by three major factors: necessary expenditures of city dwellers on so-called "regretables", the difference in urban and rural purchasing power parity, and the difference in the quality of life between urban and rural living.

Including necessary expenditures for urban living in the conventional concept of income has been opposed by many who criticize the inadequacies of the national income concept[12]. For example, the expenditure on bus fares for commuting to work should be reimbursed as cities become more urbanized, although the time spent for commuting could not be compensated. Therefore, even if the income levels of the urban working population and farmers are the same, the farmers would enjoy a higher level of real income than the urban population to the extent equal to the portion of income expended on these "regretables". However, there remains the question as to whether or not one can equate the value of commuting to work by mass transportation by city workers with that of commuting to fields on foot by farmers, which is related with the qualitative aspect of living in this comparison.

The logic of allowing for the cost-of-living differentials among the countries in an international comparison of income[13] could also be applied to an urban-rural income comparison. Although there remain technical problems of gathering appropriate data and deriving convincing formulas for adjustment, even the prices of necessities differ substantially between the urban and rural areas. For the

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11. For details, see: Hakchung Choo, "Redistributive Effects of Agricultural Taxcum-Subsidies," *Korea Development Review,* Vol. I, No. 3, September 1979 (in Korean) pp. 43-68.

12. A.W. Sametz, "Production of Goods and Services: The Measurement of Economic Growth,"E.B. Sheldon and W.E. Moore, eds., *Indicators of Social Change,* Russel Sage Foundation, 1968. Economic Council of Japan, *Measuring Net National Welfare of Japan,* 1973.

13. Irving B. Kravis et. al, *A System of International Comparisons of Gross Product and Purchasing Power,* Johns Hopkins Press, 1975, Ch. II.

difference in the cost of living, expenditures such as dwelling, foodstuff and others, should be considered.

Table 6 provides a quantitative base allowing for the cost of living differentials between cities and rural areas for a few selected countries in 1973. According to this table, the cost of living is about 15 percent higher in the medium-size cities than in rural areas, and about 20 percent higher in large cities. In Korea, the cost-of-living in 1973 is estimated to have been 19.4 percent higher for urban workers. However, a portion of this is attributable to qualitative differences between urban and rural lifestyles. Since there is no established method of accounting for such qualitative differences in lifestyle, no attempt is made here to modify further the cost-of-living differentials, except to use most relevant existing data.

Table 6 – International Comparison of Urban and Rural Cost of Living Differentials, 1973. (Rural Cost of Living = 100.0)

	Rural Area	Small and Medium Cities	Large City
[illegible]	100.0	115.0	128.8
[illegible]	100.0	110.9	121.9
[illegible]	100.0	119.4	
[illegible]	100.0	117.1	

Source: Sand Mok Suh, et. al, *Patterns of Poverty and Anti-Poverty Programs in Korea*, Korean Development Institute (KDI), 1981, p. 98.

1) Adjusting for Family Size

The difference in average family size between city wage earners' and farm households (Table 7), could be a cause of a downward bias in the per capita income comparison of the two types of households. This bias, however, could theoretically be adjusted by using an adult equivalent scale.[14]

An attempt was made in Korea to derive an adult equivalent scale from the city household income and expenditure survey, but it did

14. Belvir Singh and A. L. Nagar, "Determination of Consumer Unit Scales," *Econometrica*, Vol XXXXI, No. 2, March 1973.

Table 7 – Average Family Size of City Wage Earners' Household and Farm Households in Korea, 1965-79

(Unit: person)

Year	Farm Household	City Wage Eaners' Households
1965	6.29	5.54
1966	6.22	5.47
1967	6.12	5.46
1968	6.02	5.44
1969	5.99	5.42
1970	5.92	5.34
1971	5.83	5.28
1972	5.71	5.27
1973	5.72	5.25
1974	5.66	5.21
1975	5.63	5.15
1976	5.54	5.05
1977	5.52	4.76
1978	5.38	4.68
1979	5.20	4.64

Source: Economic Planning Board, *Annual Report on the Family Income and Expenditure Survey.*

not yield a meaningful result.[15] However, in the case of the United States, for example, as shown in Table 8, the difference in adult equivalent scale between a two-member family and a four-member family is about 50 percent. Although this adult equivalent scale is derived from the poverty line cost-of-living data, and thus, may not accurately represent the true picture of a developing country, it is sufficient to support an argument that the per capita income concept in comparing income differentials of the two sectors gives an undue bias against large families.

Besides, the income comparison of the two sectors is made in terms of average of convenience. Although arithmetic mean is a widely used representative measure for mass observations, the question of how significant a mean is should not be overlooked.

15. Kwang Suk Kim and Dai Young Kim, *The Effects of Household Size Structure and Income on Expenditure Patterns,* Korean Development Institute (KDI) Working Paper 7510, May, 1975.

Table 8 – Standardized Cost of Living Scales of the U.S. Poverty Line, 1974

(Non-Farm 2-Person Household=100.0)

Size of Household	Non-Farm Household	Farm Household	Average
[illegible]	77.7	65.2	77.5
[illegible]	100.0	84.3	99.4
[illegible]	122.6	103.7	121.8
[illegible]	156.9	134.0	156.0
[illegible]	185.3	157.5	184.1
[illegible]	208.6	177.5	207.1
[illegible] Persons	257.0	218.6	254.3

Source: Derived from U.S. Bureau of Census, "Characteristics of the Population Below the Poverty Level: 1974" *Current Population Reports*, Series P-60, No. 102, Table A-2.

especially in distributive studies. For Korean farm households, the average income is more significant than for city households because of a low measure of inequality for farm households.[16]

Problems of Survey Data

Since the household income and other related data are derived from different survey sources, it is important to establish comparability of the data used for an income comparison of the two types of households. Of the many differences, the following three deserve careful notice: 1) inventory evaluation in the farm household survey, 2) imputation of dwelling ownership in the city household survey, and 3) price indices used for household income deflators in Korea.

1) Farm Inventory Evaluation

The most controversial issue in the income comparison of city and farm households in Korea has been the alleged inclusion in farm income of capital gains from inventory evaluation. W. I. Abraham argues that "the farm survey figures include capital gains in inventory

16. Hakchung Choo, "Economic Growth and Income Distribution," Chong Kee Park, ed., *Human Resources and Social Development in Korea*, Korean Development Institute, 1980, pp. 291-2.

accumulation and therefore do not measure current income (or saving out of current income) – the steeper the rise in grain prices, the bigger the capital gain portion which is included."[17] This observation by Abraham has been taken literally and many agricultural economists have attempted to adjust farm income accordingly, as shown in Tables 3 and 4. This plausible point is in fact a misundertanding by a consultant to a developing country, the implications of which were never critically examined by the followers of this contention.

Because of the importance of this adjustment in the attempt to conduct an income comparison in this paper, some clarifications on the accounting procedures for determining the farm income in Korea is in order. Accoring to Abraham, changes in inventories, $\triangle I$, result even when no actual change in the quantity of inventory occurs, since the value of inventory at the beginning of a given year, I_t-1, is value in the prices of the previous year, P_t-1, and that value at the end of that year is in the prices of that year, P_t. This change in nominal value due to price changes under rather high inflationary pressure and agricultural price support policy is considered capital gains by the proponent of this adjustment.

Table 9 compares the current official estimation survey procedures and Abraham's adjustment procedures. For simplicity, this table gives an illustration for estimating the total output as a basis for determining income by using hypothetical figures. It seems that Abraham conceived output to be the sum of self-consumption, sales, and change in inventories, without paying due attention to its identified relationship to production. The current survey procedure would yield the production total of 960 while Abraham's adjusted procedures would result in the allocative sum of 920, which is different from the production for that year. Therefore, Abraham's undue exclusion of capital gains lacks a logical basis.

Genuine capital gains could occur only when beginning inventories exceed annual dispositions and the inventories continue to accumulate to the following year. Considering the demand for farm products in Korea, however, continued increases in farm inventories are not conceivable. Even if such unlikely increases in farm inventories did occur, it would not present a problem to account for them as a part of current income from gains due to price changes as with

17. W. I. Abraham, *Op. Cit.*, p. 4.

Table 9 — Sample of Procedure for Determining Farm Output in Current Prices.

	Survey Procedures			Abraham's Adjusted Procedures		
	Quantity	Unit Price	Value	Quantity	Unit Price	Value
Beginning Inventory (I_b)	20	10	200	20	10	200
Current Output (Q)	80	12	960	80	12	960
Self-Consumption (C)	40	–	440	40	–	440
of Inventory (C_i)	(20)	(10)	(200)	(20)	(10)	(200)
of Current Output (C_o)	(20)	(12)	(240)	(20)	(12)	(240)
Sales (S)	35	12	420	35	12	420
Ending Inventory (I_e)	25	12	300	25	10	250
Change in Inventory (i)	–	–	100	5	10	50

business. The contention of Abraham is one of those casual observations often made by an outsider, the implications of which were not carefully assessed with respect to its applicability to a developing country by the followers.

2) Imputed Income From House Ownership

Despite many attempts to compare farm household incomes and the wage earners' household incomes, no one has yet pointed out the inclusion of imputed income from the house ownership for city dwellers and its exclusion in the calculation of farm income in Korea.[18] This inconsistency in treating imputed income from house ownership and rentals is an upward bias to the city household income.

An effort to adjust for this difference in the farm income would require an amount of estimation that is beyond the scope of this study. However, for the sake of making a comparison, one should recognize and allow for the imputed income from the house ownership and rentals included in the city wage earners' household income. As shown in Table 10, such imputed incomes are estimated to represent around 10 percent of household income. This percentage, of course, suggests an upper ceiling for such adjustment. Rural dwelling conditions in general are somewhat inferior to those in cities. If the imputed income from the ownership of farm housing is estimated, it would give a lower ceiling for adjustment. While recognizing these differences, no further attempt is made in this analyses except to compare income, excluding imputed income from house ownership and rentals.

3) Selecting Consumer Price Index as Deflator

It is conventional to compare city and farm household incomes over an extended period in real terms. The question of choosing an appropriate price index as a deflator has received little attention from analysts in the past, at least in Korea. In past studies, one of the three consumer price indices – city consumer prices, farm prices paid, and farm consumer prices – has been used as a deflator without due regard for its analytical implications and statistical problems.

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18. Office of Statistics, Ministry of Agriculture and Forestry, *Guidelines for Classifications in Farm Household Survey*, 1977, pp. 41-55. (in Korean).

Table 10 – Imputed Income from Housing Ownership and Rentals of City Wage Earners as Percentage of Household Income, 1963-79

Year	Household Income (1) (thousand won)	Imputed Income (2) (thousand won)	Imputed Income as Percentage of Household Income (2)/(1) (%)
1963	80.2	8.3	10.4
1964	97.2	9.4	9.7
1965	112.6	11.2	10.0
1966	161.5	20.5	12.7
1967	248.6	30.5	12.3
1968	286.0	30.7	10.7
1969	333.6	37.8	11.3
1970	381.2	43.1	11.3
1971	451.9	51.8	11.5
1972	517.4	60.5	11.7
1973	550.2	65.6	11.9
1974	644.5	71.2	11.1
1975	859.3	72.8	8.5
1976	1,151.8	92.5	8.0
1977	1,405.1	134.2	9.6
1978	1,916.3	182.2	9.5
1979	2,629.6	292.6	11.1

Source: Economic Planning Board, *Annual Report on the Family Income and Expenditure Survey*, 1980, pp. 34-50.

The use of the city consumer price index to derive the real income of the farm household implicitly assumes identical consumption patterns of city and rural dwellers. Such an assumption would result in compared real incomes of the two types of households being identical to the results of comparing current price incomes of the two. Therefore, this practice is not only insignificant for comparative purposes, but also distorts the real incomes of the farm households. What is more startling is the use of the consumer price index of Seoul as the deflator for the farm household income in some publications.[19] Farm income in real terms derived in such a manner would inevitably further deviate from reality.

19. For example, see: Economic Planning Board, *Handbook of Korean Economy*, 1979, p. 182.

The index of farm prices paid is compiled in a country to determine the agricultural price parity. This index includes, in addition to the prices paid for farm household goods and services, the prices of farm supplies and intermediate inputs, including wages, rentals and fees. The relative weights for these major components do vary according to places and time. As shown in Table 11, the weights of 562.7/1,000; 353.7/1,000; and 83.6/1,000, are assigned to household goods and services; farm supplies and intermediate inputs; and, farm wages, rentals and fees, respectively. This deflator is somewhat inadequate because of the inclusion of items other than household consumption goods and services. It is particularly inappropriate in the Korean context since the prices of nonconsumption farm goods and services increased at relatively rapid rates during the period of 1962 to 1979 as observed in Table 11.

The most appropriate deflator is undoubtedly the farm household consumption price index. However, this price series compiled by the Korea Federation of Agricultural Cooperatives is not statistically compatible with the city consumer price index compiled by the National Bureau of Statistics at the Economic Planning Board for at least two reasons.

First, the coverage of commodity items in the farm consumer price index is quite limited to the extent that it is neither representative of nor compatible with the city consumer price index. As shown in Table 12, the farm consumer price index in 1979 is derived from the prices of 94 items while the city consumer price index is derived from the prices of 349 items. Of major expenditure categories, only the electricity and heating category seems to be more or less compatible in terms of the number of items surveyed and the relative weights assigned. Thus, the farm consumer price index lacks representativeness as compared with the city consumer price index and is more vulnerable to sampling errors.

Second, it is inevitable that due to the differences in the patterns of consumption and living, the same expenditure items will have different weights. However, the relative weights given to such expenditure items as food, clothing, and miscellaneous expenses show such extensive differences that the question of compatibility of the two indices arises. As shown in Table 12, the weight of miscellaneous expenses on 24 items in the farm consumer price index accounts for almost half total weight. Thus, fluctuation would be

Table 11 – Rates of Increase of Korean Farm Prices Paid by Major Categories, 1962-79 (In Percent)

Year	Farm Prices Paid (1,000.0)	Farm Input Supplies (353.7)	Farm Consumer Goods (562.7)	Farm Input Services (83.6)
[illegible]	10.8	14.4	9.9	11.1
[illegible]	11.3	– 0.7	11.1	26.3
[illegible]	27.0	16.7	29.4	34.7
[illegible]	33.5	62.3	18.4	13.2
[illegible]	12.0	10.6	12.3	14.3
[illegible]	7.8	3.5	10.2	17.6
[illegible]	11.9	4.9	15.5	22.2
[illegible]	14.5	21.7	9.4	21.7
[illegible]	13.7	8.9	15.4	24.0
[illegible]	12.9	15.7	10.6	19.9
[illegible]	13.3	15.7	10.8	17.5
[illegible]	9.2	15.1	5.0	10.6
[illegible]	31.0	22.0	38.7	30.6
[illegible]	23.9	17.8	26.7	28.7
[illegible]	24.9	35.3	18.1	26.3
[illegible]	17.1	19.7	14.0	24.3
[illegible]	30.0	43.1	18.3	41.3
[illegible]	13.7	– 4.2	22.4	50.8
[illegible] Rates of Increases:				
[illegible]66	18.9	20.7	16.2	19.9
[illegible]71	12.2	10.9	12.2	21.1
[illegible]76	20.5	21.2	19.9	22.4
[illegible]79	20.3	19.5	18.2	38.8
[illegible]79	17.1	17.9	16.5	24.2

[illegible] Ministry of Agriculture and Fisheries, *Yearbook of Agriculture and Forestry Statistics*, 1980.

[illegible] sensitive to the representativeness of selected items and their [illegible].

These problems in the price indices seem to have been responsible for the divergence in the movements of the two price indices in [illegible] years. During the period of 1970 to 1973, the rate of increase [illegible] the farm consumer price index was slightly lower than that in the [illegible] consumer price index as noted in Table 13. However, the farm

Table 12 — Assignment of Relative Weights of Major Expenditure Items of City and Farm Consumer Price Indices

	City Consumer Price Index		Farm Consumer Price Index	
	Number of Commodity Items Surveyed	Weight	Number of Commodity Items Surveyed	Weight
Food	131	458.0	32	225.4 (126.8)
Housing	60	110.1	18	98.1 (55.2)
Electricity and Heating	7	56.0	6	46.0 (25.9)
Clothing	57	92.5	14	175.4 (98.0)
Miscellaneous	94	283.4	24	455.1 (256.1)
Total	349	1,000.0	94	1,000.00 (562.7)

Source: Economic Planning Board, *Annual Report on the Price Survey*, 1979 Ministry of Agriculture and Fisheries, *Yearbook of Agriculture and Forestry Statistics*, 1980.

Note: Figures in parentheses indicate the original weights given in the index of farm prices paid.

consumer price index increased by about 4 percentage points faster than the city consumer price index during the period of 1974 to 78. This recent divergence in the two price indices can be attributed largely to relatively rapid increases in the prices of miscellaneous items and clothing expenditures of farm households. Doubts may be raised about this divergence in the rates of increases in the price series in view of the lack of compatibility of the two price series. If such a suspicion is warranted, then it would also affect the income comparison of the two types of households in constant prices, significantly against farm households in the later period.

Table 13 – Comparison of City and Farm Consumer Price Increases by Major Expenditure Categories, 1970-73 and 1974-78 (In Percent)

	Annual Average of 1970-73			Annual Average of 1974-78		
	City	Farm	Difference	City	Farm	Difference
All Commodities	5.0	4.2	0.8	15.4	19.2	−3.8
Food and Beverage	5.5	5.5	0.0	17.8	21.2	3.4
Clothing	5.5	4.0	1.5	13.2	20.0	−6.8
Housing	4.6	4.6	−0.1	11.3	14.3	−3.0
Light and Heating	4.3	4.1	0.2	17.0	13.6	3.4
Miscellaneous	4.3	4.5	−0.2	13.1	20.1	−7.0

Source: Derived from Economic Planning Board, *Annual Report on the Price Survey*, and Ministry of Agriculture and Fisheries, *Yearbook of Agriculture and Forestry Statistics*, 1980.

4. Effective Level of Living Incomes Estimated and Compared

The preceding examination of the theoretical and empirical problems of a conventional income comparison of the city wage earners' and farm households underscores a need to make appropriate adjustments with regard to data constraints. Therefore, we will first present the estimation procedures of adjusted income called the effective level of living income. This adjusted income will be compared both in time series and in cross section analyses.

A. Adjustment Procedures

Because of the lack of theoretical consensus and data limitat it is practically impossible to fully adjust the income of both wage earners' and farm households. One alternative is to d second-best approximations. The effective level of living inco defined as gross income adjusted for cost of living differen differences in number of household members, and direct tax and burdens between the two types of households as the first approx tion. (We will call this series Estimation I.) Another alter estimation of the effective level of living income is to have a fur adjustment by excluding from the city household incom imputed incomes from the housing ownership and rentals so a make the city household income more consistent with the household income. This will be referred to as Estimation II.

In adjusting the differences in urban and rural costs of and the sizes of households, it is inevitable to use the equivalent scales of the 1974 U.S. poverty study shown in Tabl since no such data for Korea are available. There remains, of cou an empirical question as to whether or not data of an adva country for a particular reference group can be applied to an ana of the total population of a developing country. This adjust factor, however, seems to be consistent with the contention of paper for two reasons.

First, the adjustment factor is derived not from the nat average, but from the lowest income class of the United St Second, as indicated by Table 6, the urban-rural cost-of-li differential for the U.S. is slightly smaller than that for Korea. T the use of this factor seems to provide a rather conserva second-best adjustment.

A cross-section comparison of the effective level of living in is also attempted here in order to assess the effect on intrasec inequalities of the two types of households being compared. reference year for the cross-section analysis is 1976, a benchm year for distribution of income analysis in Korea.[20] Because impu incomes from house ownership and rentals by city wage earn households by income class were not readily available, this c

20. Hakchung Choo, "An Estimation and Analysis of Size Distribut Income in Korea: Over Time and By Sector," *Korea Development Review*, V I, No. 1, pp. 22-43, (in Korean).

tion comparison is limited to the effective level of living income and is compatible to Estimation II of the time-series analysis.

B. Time-Series Comparison

The results of the adjusted income comparison in terms of effective level of living incomes for the two types of households are summarized in Tables 14 and 15. As these tables indicate, standardization by the adult equivalent scale does not seem to significantly affect the comparison of nominal gross and disposable household incomes in contrast to that by the per capita current income comparison shown in Table 2. By adjusting for the cost-of-living differentials, the ratio of effective level of farm living income to that of city wage earners' households increases by about 3 percentage points in the early 1960s, by about 16 percentage points in the late 1960s, and by about 10 percentage points in the early 1970s. Further adjustment, allowing for differences in direct tax and levy burdens, improves the ratio of income comparison in favor of farm households by about 1 to 3 percentage points.

Estimation II gives an even better comparative picture of farm households against city wage earners' households, as shown in Table 13. The difference between Estimations I and II is explained by the ratio of imputed incomes from the house ownership and rentals shown in Table 10.

In either case, it is safe to say that there is no evidence of widening income differentials between the two types of households, but the contrary. The income disparity against farm households may have posed a problem during the period of around 1967 to 1970, but it seems to have been resolved with, among others, the agricultural price support policy, the increase in agricultural productivity due to improved seeds, increased use of fertilizer and pesticides, and the shift in agricultural labor to non-agricultural sector.

A final observation concerning these time-series comparisons concerns the seemingly wide fluctuations in the ratios of compared incomes over time. These fluctuations are attributable primarily to harvest conditions and the upper income ceiling that were imposed on the city household income and expenditure survey until 1976 and changed intermittently during the period of this analysis. For example, the steep declines in the ratio of urban to rural income in 1967 and 1968 were due to the bad harvests in these years, coupled

Table 14 – Farm Household Effective Level of Living Income as Percentage of City Wage Earners' Household Income, 1963-79
(Estimation I)

	Adult Equivalent Income			Effective Level of Living Income			Disposable Adult Equivalent Income			Disposable Effective Level of Living Income		
	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)
1963	93.2	80.2	116.2	95.5	80.2	119.1	91.2	77.5	117.7	93.5	77.5	120.7
1964	125.7	97.2	129.3	127.5	97.2	131.2	122.9	94.7	129.8	124.7	94.7	131.7
1965	112.2	112.6	99.6	117.3	112.6	104.2	109.1	109.6	99.5	114.1	109.6	104.1
1966	130.2	161.5	80.6	137.1	161.5	84.9	126.8	157.3	80.6	133.5	157.3	84.9
1967	149.5	248.6	60.1	160.5	248.6	64.6	146.9	240.1	61.2	157.7	240.1	65.7
1968	179.0	286.0	62.6	196.1	286.0	68.6	175.9	269.2	65.3	192.8	269.2	71.6
1969	217.9	333.6	65.3	239.7	333.6	71.9	213.6	315.4	67.7	234.9	315.4	74.5
1970	255.8	381.2	67.1	280.9	381.2	73.7	252.5	361.4	69.9	277.3	361.4	76.7
1971	356.4	451.9	78.9	393.1	451.9	87.0	352.2	427.4	82.4	388.5	427.4	90.9
1972	429.4	517.4	83.0	479.2	517.4	92.6	425.1	491.3	86.5	474.4	491.3	96.6
1973	480.7	550.2	87.4	534.1	550.2	97.1	474.3	520.3	91.2	527.0	520.3	101.3
1974	674.5	644.6	104.6	751.3	644.6	116.6	665.7	634.8	104.9	741.6	634.8	116.8
1975	872.9	859.3	101.6	972.4	859.3	113.2	860.2	838.8	102.6	958.3	838.8	114.3
1976	1,156.3	1,151.8	100.4	1,282.3	1,151.8	111.3	1,136.7	1,116.4	101.8	1,260.6	1,116.4	112.9
1977	1,432.8	1,405.1	102.0	1,523.1	1,405.1	108.4	1,406.1	1,369.0	102.7	1,494.7	1,369.0	109.2
1978	1,884.2	1,916.3	98.3	2,012.3	1,916.3	105.0	1,852.6	1,870.7	99.0	1,980.7	1,870.7	105.9
1979	2,227.5	2,629.6	84.7	2,416.8	2,629.9	91.9	2,180.6	2,573.8	84.7	2,369.9	2,573.8	92.1

Table 15 – Farm Household Effective Level of Living Income as Percentage of City Wage Earners' Household Income, 1963-79
(Estimation II)

	Adult Equivalent Income			Effective Level of Living Income			Disposable Adult Equivalent Income			Disposable Effective Level of Living Income		
	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City= 100.0)
1963	93.2	71.9	129.6	95.5	71.9	132.8	91.2	69.3	131.6	93.5	69.3	134.9
1964	125.7	87.8	143.2	127.5	87.8	145.2	122.9	85.3	144.1	124.7	85.3	146.2
1965	112.2	101.4	110.7	117.3	101.4	115.7	109.1	98.4	110.9	114.1	98.4	116.0
1966	130.2	141.0	92.3	137.1	141.0	97.2	126.8	136.8	92.7	133.5	136.8	97.6
1967	149.5	218.2	68.5	160.5	218.2	73.6	146.9	209.7	70.1	157.7	209.7	75.2
1968	179.0	255.2	70.1	196.1	255.2	76.8	175.9	238.4	73.8	192.8	238.4	80.9
1969	217.9	295.8	73.7	239.7	295.8	81.0	213.6	277.6	77.0	234.9	277.6	84.5
1970	255.8	338.2	75.6	280.9	338.2	83.1	252.5	318.4	79.3	277.3	318.4	87.1
1971	356.4	400.1	89.1	393.1	400.1	98.3	352.2	375.6	93.7	388.5	375.6	103.4
1972	429.4	457.0	94.0	479.2	457.0	104.9	425.1	430.8	98.7	474.4	430.8	110.1
1973	480.7	484.6	99.2	534.1	484.6	110.2	474.3	454.7	104.3	527.0	454.7	115.9
1974	674.5	573.5	117.6	751.3	573.5	131.0	665.7	563.8	118.1	741.6	563.8	131.5
1975	872.9	786.5	111.0	972.4	786.5	123.6	860.2	766.0	112.3	958.3	766.0	125.1
1976	1,156.3	1,059.2	109.2	1,282.3	1,059.2	121.1	1,136.7	1,023.8	111.0	1,260.6	1,023.8	123.1
1977	1,432.8	1,270.9	112.7	1,523.1	1,270.9	119.8	1,406.1	1,244.1	113.0	1,494.7	1,244.1	120.1
1978	1,884.2	1,734.1	108.9	2,012.3	1,734.1	116.0	1,852.6	1,699.7	109.0	1,980.7	1,699.7	116.5
1979	2,227.5	2,337.0	95.3	2,416.8	2,337.0	103.4	2,180.6	2,286.3	95.0	2,369.9	2,296.3	103.2

with the adjustment of the upper income ceiling in the city household income and expenditure survey from 500 thousand won to 1.5 million won in 1967. Because of the income ceiling adjustment, the 1967 and 1968 city household incomes are evaluated higher than the previous years when farm incomes were lower than usual. More gradual upper income ceiling adjustments were made in 1969, 1973, and 1975, before the ceiling was eliminated in 1977. If the distorting effects of these factors are taken into account, the disparity ratios of the effective level of living income of the two types of households should not deviate as much as shown in Tables 14 and 15.

C. Cross-Section Analysis

In order to assess the effects of adjusted effective level of living income on the urban-rural income differential by income classes, a cross-section analysis for 1976 is attempted and the resulting comparison is presented in Table 16. The year 1976 was chosen for this analysis because it is one of the years least affected by distortions caused by the upper income ceiling and the most recent of the three benchmark years mentioned earlier. This cross-section comparison is comparable to Estimation II of the time series analysis.

According to the result, adjustment from the nominal adult equivalent income to the disposable adult equivalent income seems to somewhat adversely affect the size distribution of farm income. Farm households with an annual income of less than 800 thousand won pay more or less the same amount of direct taxes and levies as city households. However, farm households with an annual income of more than 800 thousand won pay relatively less than city households as their income increases. Hence, the level of income parity of farm households compared against city households increases as the level of income increases.

The comparison of effective level of living income by income class shows more encouraging results than that of income adjusted by difference in family size and direct tax burdens. In terms of effective level of living income, the lower the farm household income is the higher the income parity compared with the city household becomes. The only exception is the highest farm income class that shows a slight decline by such adjustments.

Another noteworthy fact is that the percentage distribution of farm income is more symmetrical than that of city income as shown

Annual Income of:	Adult Equivalent Income			Effective Level of Living Income		
	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City=100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City=100.0)
ess than 500,000 Won	360.4	409.1	88.1	468.5	409.1	114.5
00,000 to less than 800,000 Won	664.0	717:3	92.6	746.3	717.3	104.0
00,000 to less than 1,100,000 Won	949.8	1,021.3	93.0	1,045.7	1,021.3	102.4
100,000 to less than 1,400,000 Won	1,248.1	1,329.9	93.9	1,382.9	1,329.9	104.0
400,000 to less than 1,700,000 Won	1,545.2	1,653.1	93.5	1,687.4	1,653.1	102.1
700,000 Won or more	2,437.3	2,756.2	88.4	2,359.3	2,756.2	85.6

Annual Income of:	Disposable Adult Equivalent Income			Disposable Effective Level of Living Income			Percentage of Households	
	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City=100.0)	Farm Household (1,000 won)	City Household (1,000 won)	Parity Ratio (City=100.0)	Farm Household	City Household
ess than 500,000 Won	358.6	406.6	88.2	466.7	406.6	114.8	12.6	14.2
00,000 to less than 800,000 Won	658.0	711.2	92.5	740.3	711.2	104.1	24.4	30.1
00,000 to less than 1,100,000 Won	939.6	1,006.4	93.4	1,035.5	1,006.4	102.9	22.5	22.7
,100,000 to less than 1,400,000 Won	1,231.8	1,300.8	94.7	1,366.6	1,300.8	105.1	14.5	13.3
,400,000 to less than 1,700,000 Won	1,517.5	1,593.7	95.2	1,659.7	1,593.7	104.1	8.9	6.8
,700,000 Won or more	2,374.4	2,586.8	91.8	2,296.4	2,586.8	88.8	17.1	12.9

in the table. For example, the percentage of relatively low income farm households with an annual income of less than 800 thousand won is 37 percent while the same ratio of the city households is 4 percent in 1976. Assuming that the rapid pace of industrialization and urbanization will be sustained, the percentage of city households to all households will increase, and a high portion of households would be concentrated in the lower income brackets. For this reason the crux of the income distribution problem lies not in inter-sectoral inequality, e.e., widening urban-rural income differentials, but in intra-sectoral inequality, i.e, worsening income distribution among urban households.

5. Summary and Conclusion

The long-prevailing notion of widening urban-rural income differentials in Korea seems to be based on evidence that has a number of conceptual and empirical problems. However, without carefully examining the comparability of the surveyed incomes of the city wage earners' and farm households, the farm household income was further adjusted downward, allowing for the sample bias and the capital gains from farm inventories. Such adjustments have resulted in further evidence of accentuated urban-rural income differentials during the past two decades of rapid growth.

If the concept of income is used in distributive studies as a proxy to represent the level of living and welfare, a direct comparison of the income before tax is quite inadequate. It needs to be adjusted for the urban-rural differences in cost-of-living, in family size, and in the direct tax and levy burdens. In adjusting for the difference in family size, an adult equivalent scale, rather than the conventional equal weight, should be employed.

The income and price data used for this purpose lack comparativeness in a number of ways. The farm household survey sample is somewhat upward biased because of the exclusion of the agricultural laborer households and farm households with very small land holdings, and because of the over-representation of farm households with large landholdings. On the other hand, the city wage earners' household survey is somewhat downward biased due to the imposition of a maximum income ceiling which was intermittently adjusted until 1976.

However, little notice is given to the fact that the city household survey has upward bias due to a higher representation of high-paying

categories and lower proportions of unemployed and underemployed.[21] Adjusting for the sample bias of the farm household survey without doing the same for the city household survey is inconsistent. The adjustment on capital gains from farm inventories is found to be an oversight by a foreign observer, which was accepted indiscriminately by the domestic followers without rigorous examination of its implications. Another omission of the farm household survey is imputed income from house ownership and rentals, which is included in the city wage earners' income. The use of a deflator in deriving farm incomes in constant prices also requires scrutiny to determine its validity in terms of the relative weights given to expenditure categories, and the number of items surveyed.

Because of these theoretical and empirical problems involved in the conventional comparison of the city wage earners' and farm household income, these two types of incomes were reexamined in terms of effective level of living. The adjustments were made for cost-of-living differentials, family size, the direct tax and levy burdens and the omission of income from house ownership. Due to the lack of theoretical consensus on the adjustment procedures and existing data constraints, the adjusted effective level of living incomes are not the best, but second-best approximations were adequate to bring the income concept closer to what was intended at the outset.

In terms of disposable effective level of living income, there seems to be no visible trends of widening income differentials between the two types of households, except for noticeable income gaps during the period 1967 to 1970. Some of the erratic fluctuations in the income ratios of the two are attributable primarily to harvest conditions and intermittent changes in the income ceiling imposed. Contrary to the evidence presented by a number of agricultural economists, farm households enjoyed higher levels of disposable effective level of living incomes than the city households throughout the 1970s.

What is more significant is that in the reference year 1976, the effective level of living incomes of relatively lower income classes

21. Hakchung Choo, "Some Sources of Relative Equity in Korean Income Distribution: A Historical Perspective," *Income Distribution, Employment and Economic Development in Southeast and East Asia,* Vol. I, Japan Economic Research Center and the Council for Asian Manpower Studies, July, 1975, pp. 173.

among farm households increased much more than higher farm household income brackets as well as the corresponding income classes among city households. In addition, a higher proportion of farm households is concentrated in the middle income brackets than their city counterparts. In the light of these evidences, the arguments for widening urban-rural income differentials in Korea is found untenable.

Finally, two implications from this study deserve mentioning. First, the core of the distributive problems is not inter-sectoral, but intra-sectoral inequality. The inter-sectoral income comparison by average defies the notion of dispersion or distribution. In a rapidly industrializing country like Korea, the center of gravity of the economy shifts to the non-agricultural sector as rapidly as its pace of industrialization. The growing inequalities within urban households and among the self-employed must be recognized as a higher priority policy issue than the inequality between city and farm households in a nation, considering that only about a quarter of the population is in the agricultural sector and this percentage is expected to decrease even further in the near future.

Second, there is an unfortunate tendency among analysts to be careless with the data and statistics used for given analytical purposes, especially in developing countries. Without meticulous evaluation of the available basic data and statistics, the inherent biases and limitation can distort the positivism of the empirical analysis. Irresponsible use of existing imperfect and biased statistics should be cautioned against and should in no way be excused by shifting responsibility to the producers of statistics. Analysts must account for imperfect statistics when drawing their conclusions.

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