Staff Paper P93-19 **August 1993**

STAFF PAPER SERIES

THE DISTRIBUTION OF FULL INCOME VERSUS MONEY INCOME IN THE UNITED STATES

by

Saji Thomas and Ben Senauer

DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS

COLLEGE OF AGRICULTURE

UNIVERSITY OF MINNESOTA

The Distribution of Full Income

Versus Money Income in the United States

ABSTRACT

This paper compares the distribution of money income and full income across households in the United States. The concept of full income was introduced in Becker's household model and provides a framework for estimating the economic value of productive non-market activities and leisure. If the allocation of time is voluntary, full income may be a better measure of economic welfare than money income. Non-parametric Lorenz curves and Gini coefficients are used to compare the two distributions. The data are from the Census Bureau's Survey of Income and Program Participation for 1984-86. Full income is more equally distributed than money income. However, the distribution remains very unequal. The income distributions are also compared for specific types of households.

Classification Number: D6, also D1 and D3.

The Distribution of Full Income

Versus Money Income in the United States

The relative distribution of income in the United States remained remarkably stable, with a slight trend toward greater equality, from the end of World War II until the mid-1970s. However, the evidence is now clear that since then, this country has experienced a period during which income inequality has increased substantially (Danziger and Gottschalk, 1993). The rise in inequality has been even more problematic because average real earnings and incomes have grown very little during this period. The news media has had numerous pieces that chronicle the economic hardships of a large portion of the population, the expanding gap between the living standards of the rich and the poor, and the decline in the number of middle class families. Economists are giving renewed attention to the study of the distribution of income and to conceptual and empirical issues concerning the analysis of economic inequality (Basmann, et. al., 1990; Blackburn, 1987 and 1989; Blackburn and Bloom, 1991; Congressional Budget Office, 1988; Duncan, 1984; Levy, 1987; Danziger and Gottschalk, 1993; Levy and Murnane, 1992).

In his classic monograph, *Equality and Efficiency: The Big Tradeoff*, Arthur Okun (1975), suggested several shortcomings of focusing on family or household income in the analysis of economic inequality. The first related to different consumption needs to achieve the same standard of living among heterogeneous households. The second concerned differences in wealth and the ability to supplement current income by drawing on assets or borrowing against future income. Third, some people sacrifice aspects of their economic welfare that are not accounted for to achieve higher incomes. Fourth, there are nonpecuniary returns which do not appear in money income, such as the status or satisfaction from some jobs.

This study focuses on Okun's third reason. Some households have higher incomes because more of their members are in the labor force and/or they are willing to work longer hours. Other families give up some money income to have more time for household and other non-market activities or leisure.

The concept of "full income" was introduced in the original household model of Gary Becker, which he presented in "A Theory of the Allocation of Time" (1965). Full income allows an economic value to be attached to leisure and non-market activities. People engage in an array of productive non-market activities, that largely take place in the household, for which no monetary compensation is received and which are not officially counted as economic activity. Based on several studies (Gronau, 1976), the value of household production is estimated at about one-third of the total Gross National Product (GNP) in the United States. If one family, for example, hires a maid to clean their home and another does it themselves, both may produce the same result, but the former is counted in GNP and the latter is not.

If households are free to choose how the time of their members is allocated between market activities, productive non-market activities, and leisure, money income which results largely from work in the labor market will not accurately portray differences in economic welfare. Okun (1975, p. 71) gave the following example of two families whose money income would differ, but economic welfare could be similar. Both families have two school-age children and the husbands have similar jobs earning the same incomes, but one wife chooses to be a full-time homemaker while the other chooses to work part-time. However, if being unemployed or working only part-time is involuntary, then full income is, in turn, a distorted measure of economic welfare, since households can not achieve the desired allocation of their time.

This study compares economic inequality across households in the United States using money income and full income. Data for 1984-86 from the Census Bureau's Survey of Income and Program Participation (SIPP) are used to calculate both the households' money and full income. A non-parametric form of the Lorenz curve, which is less restrictive than the parametric forms, and the Gini coefficients are utilized to measure income inequality. To calculate full income the Heckman procedure, which corrects for possible sample selection bias, was used to estimate a market wage rate for women, since a substantial number were not in the labor force. In addition to the analysis for all households the inequality of money and full income is analyzed for specific demographic groups or household types.

ANALYTICAL FRAMEWORK

Household Model and Full Income

Becker's (1965 and 1981) model of the household is well-known and has been widely applied. The household model provides a theoretically based approach for determining an economic value for leisure and productive non-market activities (Gronau, 1977). In its basic specification, the household maximizes utility, which is a function of the vector of commodities consumed that are produced in the household (Z) and the total leisure time of household members (L), subject to the constraints of the production functions, the total time available, and the budget:

$$U = U\,(Z, L) \tag{1}$$

The production functions are of the form:

$$Z_i = f_i\,(X_i, H_i) \tag{2}$$

with i = 1, ..., m commodities where X_i is a vector of market goods and services and H_i represents the household time inputs needed to produce the i^{th} household commodity.

The traditional budget constraint and time constraint can be combined to yield the household's full income constraint:

$$S = V + \sum_{j=1}^{n} w_j T_j = \sum_{j=1}^{n} w_j L_j + \sum_{j=1}^{n} w_j \sum_{i=1}^{m} H_{ji} + PX \tag{3}$$

where S is the household's full income which is equal to any non-labor income (V) plus the total time allotment of each household member (T_j) valued at his or her opportunity cost of time, which is measured by the market wage rate or estimated wage for that person (w_j), and summed across the j=1, ..., n household members. The household's full income is allocated to leisure (L_j), household production (non-market) activities (H_{ji}), summed across the i=1, ..., m household commodities, and via the budget constraint to total expenditures (PX) where P is the vector of prices and X the vector of market goods and services purchased.

Full income represents the total economic resources of the household in terms of its members' time, their human capital, and income from the assets owned. This full income is spent directly on market goods or indirectly through foregoing the money income and allocating the time to productive non-market activities and leisure. Full income is an alternative measure of economic welfare to money income, and it might be argued a preferable one if the decision on the allocation of time is voluntary, in particular if unemployment is not involuntary. For the involuntarily unemployed, the allocation of time to the labor force and the money income earned are constrained below the preferred levels, and thus economic welfare is reduced.

To determine a household's full income the value of time (market wage rate) of all working-age individuals is needed, irregardless of whether they are in the labor force or not. Only a small number of men in the sample were not in the labor force. However, for women the proportion was larger and the Heckman procedure was used to estimate their market wages (Heckman, 1974 and 1979). The Heckman model corrects for possible sample selection bias, resulting from using a non-randomly selected sample to estimate behavioral relationships. Sample bias may be due to self-selection by the individuals being investigated. In this case, people choose whether to be in the labor force. It is assumed that the time equilibrium is characterized by marginal equality conditions, i.e., the marginal utility of labor (time) is equal in all activities. The assumption is also made that the cost of working, i.e., commuting and transportation costs, are zero. This is mainly because of the lack of data on these factors.

The Heckman procedure for correcting the sample selection bias in the estimation of wages involves two stages. In the first stage the inverse Mill's ratio is estimated using a probit model. The dependent variable is specified as one if the person works in the labor force and zero otherwise. In the second stage the estimated Mill's ratios are used as an additional variable in the ordinary least squares (OLS) estimation of the market wage equation for the truncated sample of individuals who work. The parameters from this wage regression are then utilized to predict wages for individuals.

Equivalence Scale

Incomes can be measured on a per capita rather than a household basis. Although this approach will remove differences based on household size, there are economies of scale that come from people residing together and sharing living costs. In particular, using per-capita income to adjust for differences in needs assumes implicitly that it costs twice as much for two people living together to maintain the same level of well-being as for one person living alone. Because economies of scale exist, this approach understates the well-being of larger families, thus overcompensating for differences in family size.

An equivalence scale can be used to make incomes comparable for families of different sizes. The purpose of such an equivalence scale is to take account of the differing needs of families of different sizes. While needs rise with family size, the increase in needs caused by an additional member is less for larger families than for smaller ones. Although economists disagree over which equivalence scale should be used for this purpose, one readily available candidate is the scale implicit in the official federal poverty thresholds. A number of recent studies have used this approach (Karoly, 1993). This scale assumes, for example, that a family of four needs about twice as much income as a single person to maintain an equivalent standard of living (see Table 1). Although the scale implicit in the poverty thresholds may not be a completely accurate indicator of the disparate needs of families of different sizes, it probably yields a better assessment of relative well-being than either unadjusted or per-capita measures.

Lorenz Curve and Gini Coefficient

The Lorenz curve is the most frequently used graphical technique to depict and analyze the size distribution of income (Gastwirth, 1972; Jenkins, 1990). It is the relationship between the cumulative proportion of income units and the cumulative proportion of income received when the units are arranged in ascending order of their income. The 45-degree line is called the "egalitarian" line. If a country had an equal income distribution, the Lorenz curve would be the "egalitarian" line. That is, any 10% of the households would get 10% of the income; and 20% would get 20% of the income; and so on. The greater the concavity of the Lorenz curve, the greater the inequality.

The empirical Lorenz curve L(z), is a real valued function defined on z. The cumulative distribution function, F(x), which corresponds to the probability density function, f(x), and random variable x is defined as:

$$z = F(X) = f\ (X) = \int_0^x f(t)dt \qquad (4)$$

Consider the number X to be a sample drawn from F(x) which represents the percentage share of the income units with income less than or equal to x, where

$$z = F(X) = \int_0^x f(x)dx \qquad \text{where } 0 \le z \le 1 \qquad (5)$$

and dz/dx = f(x). Here F(x) can be interpreted as the proportion of individuals having an income less than or equal to x; F(X) obviously varies from 0 to 1. The Lorenz curve is obtained by plotting z against L(z).

The shape of the Lorenz curve depends on the underlying statistical distribution function F(x). While a number of hypothetical forms have been specified as the distribution function F(x), none serves as a good approximation over the entire range of income data (McDonald and Ransom, 1979; McDonald, 1984; Slottje, et. al., 1989). Therefore, the non-parametric specification suggested by Basmann et. al. (1990) is used as the estimation equation. Let L(z) be a non-negative real-valued function of the real variable z, defined and possessing second derivatives of every point of the domain $0 \leq z \leq 1$. Now consider a general maintained hypothesis (H_m) of the Lorenz curve, L(z), to characterize inequality:

$$H_m: \quad L(z) = z^{az+b} e^{-g(1-z^2) - h(1-z) + \mu} \tag{6}$$

In equation (6), a, b, g and h are parameters to be estimated and μ is a random disturbance term that is assumed iid $N(0, \sigma^2)$.

Taking a logarithmic transformation of L(z) we obtain:

$$\log L(z) = az \log z + b \log z - g(1-z^2) - h(1-z) + \mu \tag{7}$$

where if z is the income share, for example, received by the i^{th} quintile and the poorest 20% of the population had 3% of the income, then L(z) would be log (0.03) and z would be 0.2. The data in this analysis were arranged in increasing (non-decreasing) order of money income or full income, and divided into 25 income classes. This allowed for enough observations in each cell for reasonable estimation and for empirical Lorenz curves which are reasonable approximations to the hypothetical forms introduced above.

The Gini index (1912) is the most widely used measure to analyze the size distributions of income and wealth. The Gini coefficient is the ratio of the difference between the line of absolute equality (the diagonal) and the Lorenz curve to the triangular region underneath the diagonal. The Gini index lies in the range of zero to unity. It can be shown that the Gini index is equal to one minus twice the area under the Lorenz curve. Therefore, Gini coefficients were calculated for money and full income of the households, as follows:

$$G = 1 - 2\int_0^1 L(z)dz \tag{8}$$

The Kolmogorov-Smirnov (K-S) test can be used to compare two distributions (here money and full income)

(Kendall and Stuart, 1990). The K-S test is a more powerful and sensitive test for the fit of a distribution than the Chi-square test.

DATA AND EMPIRICAL RESULTS

Data

This study was carried out using the SIPP (Survey of Income and Program Participation) data set released by the U.S. Bureau of Census. SIPP is a series of panel surveys conducted by the Census Bureau during 1984-1986. The survey monitors short-term changes in the economic situation of persons and households in the United States. A two percent representative sub-sample, which consisted of 332 households in 1985, was extracted by the Census Bureau to create a micro-computer version of the database. It is called the PC-SIPPTEST and was used in this analysis. The major empirical results presented here are for 1985, although the analysis was also conducted with the data for 1984 and 1986.

The dataset is designed to be used with INGRES, a relational database management system which operates the same way on mainframe and personal computers. The empirical analysis was carried out using LIMDEP (an econometric software). It contains the sub-routines to calculate Heckman's sample selection model to estimate the shadow wage rate of people who do not participate in the labor force.

Wage Rate Estimates and Income

In the data for 1985, 140 of the 478 women age 16-65 did not report any market wage. There were only 13 out of 555 men age 16-65 where wage rates were missing, so in those cases the mean wage rate was used. Tables 2 and 3 present the labor force participation and market wage equations for 1985 for women. Table 2 gives the estimated coefficients of the probit equation, which represents the probability that a person enters the labor force. As expected from a reading of the literature, the woman's age, the presence of children less than age six, a higher wage rate of a spouse and more assets reduce the probability that a woman works in the labor force (as indicated by the negative sign of the probit coefficients). On the other hand, a woman with a higher education (measured in years of school) is more likely to work. Three of the variables included in the probit model are significant at the 5% level as indicated by the t-ratios.

Following the Heckman methodology, the estimate of the inverse Mill's ratio from the probit model is used as a regressor along with education and labor market experience in the wage regression in Table 3. Experience reflects the number of years the person had been employed for at least six months of the year. The wage equation was estimated with two different specifications, a linear and a quadratic form; the quadratic function gave a better fit. The dependent variable was specified as the logarithm of the person's wage rate, which is conventional. The R-square value in the quadratic wage model was .44, compared to .30 in a linear wage model. The model also has a high prediction percentage of 74%, which implies that in 74 out of 100 cases the model is correctly predicted.

The coefficient for the Mill's ratio is positive and significant at the 5% level, which suggests that to estimate the wage rate without this correction would result in selectivity bias. Education-squared and experience are statistically significant, but education and experience-squared are not. Labor force participation and wage equations for women were also estimated for 1984 and 1986 and similar results to those shown for 1985 were obtained. From these wage equations, wage rates were estimated for all women (even if they reported a market wage) for consistency, which is a standard procedure.

Money income reflects the earnings and non-labor income of all individuals in a household. Labor income included wages and salaries, plus self-employment income. Non-labor income covered payments from Social Security, pensions, welfare programs, including food stamps, unemployment insurance, and current income from assets, including dividend, interest, and rental payments. Based on equation (3), full income was calculated as the wage rate times the total time available for each individual age 16-65 in a household plus non-labor income. The total time available in hours per year was assumed to be equivalent to 24 hours/day x 30 days/month x 12 months/year. The mean wage for men in 1985 was $6.40/hour and the mean estimated wage for women was $3.90. Table 4 gives the mean and median for money and full income for 1984-86. Table 5 gives the same figures after adjusting for household size using the equivalence scales.

Results for All Households

The non-parametric Lorenz curves were estimated for money and full income after adjusting for household size using equivalence scales for the three years 1984-1986. The Lorenz curves for 1985 are shown in

Figure 1. Only the curves for 1985 are given here since the results were similar for the three years. The estimates of the Gini coefficients based on the Lorenz curves for the years 1984-86 are given in Table 6. For all three years, the Lorenz curve based on full income lies above the one based on money income, indicating that full income is more evenly distributed than money income. The Kolmogorov-Smirnov (K-S) test, to test the null hypothesis that there is no difference between the two Lorenz curves, indicates that the two Lorenz curves (for money and full income) are significantly different at a 5% level of significance in each year, as shown in Table 6. (The critical K-S value for a 5% significance level is .027.)

One would expect full income to be more equally distributed than money income, since the latter reflects differences in employment, both voluntary and involuntary, whereas full income does not. Labor income is the product of two components -- the hourly wage rate and the number of hours worked. Even if everyone had the same wage, money income would be less equal than full income unless everyone had the same pattern of employment (hours of work), assuming no non-labor income. In Figure 1, the shapes of the two Lorenz curves indicate that lower income households receive a smaller share of money than full income.

On the other hand, even though full income is more equally distributed than money income, its distribution is still very unequal. This suggests that addressing income inequality and underlying poverty problems is not just an issue of creating jobs and reducing involuntary unemployment, but also of human capital which is reflected in wage rates. This finding supports the argument for investing in education and job training to improve the distribution of human capital. In addition, asset income is distributed extremely unequally, as shown in Table 7, which also affects the distribution of full income, as well as money income.

Results for Specific Household Types

The empirical analysis also examined specific demographic groups or types of households in which the patterns of employment and investments in human capital are more homogeneous. Eight household types were identified, based on the information provided for the head of the household. Obviously, all the groups are not mutually exclusive of each other. The eight categories are households:

(1) with a head age 65 or over,

(2) with at least one child under age 18,

(3) headed by a female with at least one child,

(4) whose head is employed,

(5) whose head is unemployed,

(6) whose head has a high school education,

(7) a post-secondary education,

(8) a college education.

Table 8 presents the Gini coefficients based on the non-parametric Lorenz curves for money and full income for these household types using the data for 1985. For seven of the groups, money income was more unequally distributed than full income, as was the case for all households in Table 6. However, the Kolmogorov-Smirnov value used to test the difference between the two Lorenz curves was not statistically significant for households whose head was unemployed.

One of the major factors creating greater inequality in the distribution of money than full income are varying rates of employment (hours of work) of household heads, who would typically be the household member with the highest wage rate. In terms of households with heads who are unemployed, the hours of work are constant (at zero), and the distribution of money income is no more unequal than full income. Furthermore, both money and full income, as reflected in the smaller Gini coefficients, are more evenly distributed for households whose heads have a post-secondary or college education than for other household types in Table 8 or for all households in Table 6. More education not only increases incomes, but reduces the inequality among those at a similar level of schooling.

CONCLUSIONS

Many American households have increased their money income by shifting members' time to the market work force from non-market activities and leisure. The labor force participation of women rose from 33.1% in 1950 to 57.3% by 1991 (U.S. Bureau of the Census, 1965 and 1992). However, the resulting increases in money income overstate the gains in economic welfare if the declines in non-market work and leisure are unaccounted for.

Likewise, comparisons of the distribution of money income across households can give a distorted picture of the distribution of economic welfare. Some households increase their income by having more members working in the labor force or by a willingness to work longer hours. In others, people work below their capacity to save time for leisure and productive non-market activities. If decisions about the allocation of time between the labor force, leisure, and non-market activities are voluntary, a full income approach could be a better metric for economic welfare than a household's money income. This proposition obviously does not hold when people are involuntarily unemployed or underemployed and can not achieve the desired allocation of time and level of money income earned.

The concept of full income was used here to place an economic value on non-market activities and leisure, as well as market work and asset income. This study utilized the SIPP data for 1984-86 and non-parametric Lorenz curves and Gini coefficients to compare the distribution of money and full income in the United States. The distribution of full income was found to be more equal than that of money income among all households, but is also very unequally distributed. In terms of specific types of households, there was not a statistically significant difference between the two distributions for households whose head was unemployed. This category reflects households that are more homogeneous with regard to the pattern of employment, since the heads were not working.

Finally, job creation and reductions in the unemployment rate would reduce the inequality of money income since those at the lower end of the distribution are more likely to be involuntarily unemployed, but would not affect full income. The distribution of full income could be most directly improved by focusing on education and job training programs for those with lower levels of human capital.

REFERENCES

Basmann, R. L., K. J. Hayes, D. J. Slottje, and J. D. Johnson, "A General Functional Form for Approximating the Lorenz Curve," *Journal of Econometrics*, 43(1990), 77-90.

Becker, G. S., "A Theory of Allocation of Time," *The Economic Journal*, 23(Sept. 1965), 493-517.

Becker, G. S., *A Treatise of the Family*, Harvard University Press, Cambridge, Massachusetts, 1981.

Blackburn, M. L., "Earnings and Income Inequality in the United States," *Population and Development Review*, 13:4(1987), 243-261.

Blackburn, M. L., "Interpreting the Magnitude of Changes in Measures of Income Inequality," *Journal of Econometrics*, 42(1989), 21-25.

Blackburn, M. L. and D. E. Bloom, "The Distribution of Family Income: Measuring and Explaining Changes in the 1980s for Canada and the United States," Discussion Paper Series No. 515, Department of Economics, Yale University, 1991.

Congressional Budget Office, "Trends in Family Income: 1970-86," Congressional Budget Office, Congress of the United States, Washington, D.C., February 1988, 120p.

Danziger, S. and P. Gottschalk (editors), *Uneven Tides: Rising Inequality in America*, Russell Sage Foundation, New York, 1993.

Duncan, G. J., *Years of Poverty, Years of Plenty*, Institute for Social Research, University of Michigan, Ann Arbor, 1984.

Gastwirth, J., "The Estimation of the Lorenz Curve and Gini Coefficient," *The Review of Economics and Statistics*, 54(1972), 306-316.

Gini, C., *Variability e Mutabilita*, Bologna, 1912.

Gronau, R., "Leisure, Home Production, and Work--The Theory of the Allocation of Time Revisited," *Journal of Political Economy*, 85:6(1977).

Heckman, J., "Shadow Prices, Market Wages, Labor Supply," *Econometrica*, 42(July 1974), 679-694.

Heckman, J., "Sample Selection Bias as Specification Error," *Econometrica*, 47(Jan. 1979), 153-162.

Jenkins, S., "The Measurement of Economic Inequality," *Readings on Economic Inequality*, Lars Osberg (Ed.), Sharpe, Armonk, New York, 1990.

Karoly, L. A., "The Trend in Inequality Among Families, Individuals, and Workers in the United States: A Twenty-Five Year Perspective," (pp. 19-98) in Sheldon Danziger and Peter Gottschalk (editors), *Uneven Tides: Rising Inequality in America*, Russell Sage Foundation, New York, 1993.

Kendall, M. G. and A. Stuart, *Advanced Theory of Statistics*, Vol 2, Griffin, London, 1990.

Levy, F., *Dollars and Dreams: The Changing American Income Distribution*, Russel Sage Foundation, New York, 1987.

Levy, F. and R. J. Murnane, "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations," *Journal of Economic Literature* 30:3(Sept. 1993), 1333-1381.

McDonald, J. B. and M. Ransom, "Functional Forms and Distribution of Income," *Econometrica*, 42(1979), 1508-1515.

McDonald, J. B., "Some General Functions for the Size Distribution of Income," *Econometrica*, 52(1984), 647-664.

Okun, A. *Equality and Efficiency*, The Brookings Institution, Washington, D.C., 1975.

Slottje, D. J., R. L. Basmann, and M. Nieswiadomy, "On the Empirical Relationship between Several Well Known Inequality Measures," *Journal of Econometrics*, 42(1989), 49-66.

U.S. Bureau of Census, *Statistical Abstract of the United States*, Washington, D.C., 1965, 1986, and 1992.

Table 1. Family size equivalence scales implicit in official poverty thresholds.

Family Size (persons)	Equivalence Value
1	1.00
2	1.28
3	1.57
4	2.01
5	2.38
6	2.69
7	3.05
8	3.38
9 or more	4.04

Source: U. S. Census Bureau, 1986.

Table 2. The Probit equation for labor force participation for women (1985).

Variable	Coefficient	T-ratio
Constant	0.63	5.49*
Age	–0.08	–5.83*
Education	0.02	1.95
Assets	–0.03	–2.68*
Spouse's wage	–0.19	4.89*
No. of children	–0.45	–0.62

*significant at 5% level.

R-Square = 0.29

Table 3. The market wage equation for women (1985).

Variable	Coefficient	T-ratio
Education	–0.11	–0.89
Educ-square	0.23	2.81*
Experience	0.11	3.31*
Exp-Square	–0.05	–1.55
Inverse Mills Ratio	4.16	10.96*

*significant at 5% level.

Prediction percentage = 73%; R-Square = 0.44.

Table 4. Mean and median incomes (money and full) for all households.*

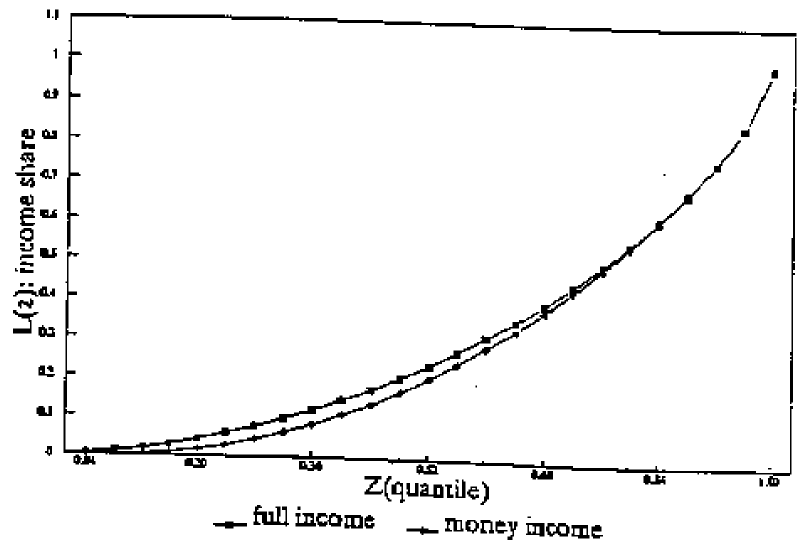
Year	Money Income		Full Income	
	Mean	Median	Mean	Median
1984	26,000	24,080	77,200	76,150
1985	26,500	25,200	79,570	79,200
1986	27,100	25,390	81,000	87,090

*Based on own calculations.

Table 5. Mean and median incomes (money and full) for all households (adjusting for household size using equivalence scales).

Year	Money Income		Full Income	
	Mean	Median	Mean	Median
1984	17,300	15,600	48,496	48,100
1985	17,660	15,870	49,731	49,040
1986	18,060	15,878	50,265	52,929

Figure 1. Lorenz curves for all households for 1985.



25

Table 6. Gini coefficients based on the non-parametric Lorenz curves for money and full income for all households.

Year	Gini Coefficients		
	Money Income	Full Income	K-S value
1984	0.38	0.37	0.036*
1985	0.39	0.37	0.036*
1986	0.39	0.38	0.038*

The Kolmogorov-Smirnov (K-S) value is used to test whether the two Lorenz curves are statistically different from each other.

*Indicates that the K-S test value based on the maximum vertical difference between the two Lorenz curves is significant at a 5% level of significance.

Table 7. Gini coefficients based on asset income only for all households.

Year	Gini Coefficient
1984	0.47
1985	0.48
1986	0.47

Table 8. Gini coefficients based on the non-parametric Lorenz curves for money and full income for specific household types for 1985.

Households with:	Sample Size	Gini Coefficients		K-S Value
		Money Income	Full Income	
Head 65 or over	47	.44	.39	.21*
Children	127	.42	.39	.08*
Female Head & Children	58	.44	.39	.21*
Head employed	278	.43	.39	.05*
Head unemployed	83	.39	.38	.02
High school education	155	.40	.38	.03*
Post-secondary education	129	.34	.33	.03*
College education	77	.35	.34	.03*

The Kolmogorov-Smirnov (K-S) value is used to test whether the two Lorenz curves are statistically different from each other.

*Indicates that the K-S test value based on the maximum vertical difference between the two Lorenz curves is significant at the 5% level.