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INCOME INEQUALITY DECOMPOSITION BY INCOME SOURCE AND THE BREAKDOWN OF INEQUALITY DIFFERENCES BETWEEN TWO POPULATION SUBGROUPS

by

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Section 1: Introduction

Several attempts have been made in the past to analyze the impact of various income sources on total income inequality (e.g., Fei, Ranis and Kuo, 1979; Lerman and Yitzhaki, 1985; Silber, 1989; Silber, forthcoming). Most of these studies, though adapting different methodologies, were based on the use of the Gini Index because such a choice allows one to stress the role played respectively by the share in total income of the various income sources, the inequality of the distribution of each income source among the individuals and the differences which exist between the ranking of these various individuals when they are classified by their total income or by the importance for them of the various income sources.

Other studies tried to decompose total income inequality by population subgroups and here also different methodologies have been proposed (*see* Fei, Ranes and Kuo, 1979; Lerman and Yitzhaki, 1985; Silber, 1989). However, to the best of our knowledge no attempt has been made to connect these two types of analyses and to determine the impact of the various income sources on the difference which exists between the degree of income inequality which is observed in two population subgroups.

One of the purposes of this paper is precisely to suggest a simple methodology, based on an approach widely used in the index numbers literature, allowing to determine the precise role played respectively by differences between the two population subgroups in the shares of the various income sources, in the inequality of the distribution of these sources and in the correlation between the ranking of the individuals according to total income and to specific income sources.

The second goal of this paper is to apply this methodology to Swiss data and provide the readers with what seems to be a first attempt to determine the impact of various income sources on overall income inequality in Switzerland. The two population subgroups which have been distinguished are the male- and female-headed families.

The paper is organized as follows. Section 2 gives a quick survey of previous studies of income inequality in Switzerland. Section 3 recalls briefly the methodology used to decompose income inequality by income source. Section 4 applies this approach to Swiss data, analyzing separately income inequality among male- and female-headed families. Section 5 describes then the methodology used to provide a breakdown by income source of the difference observed in the overall income inequality among these two population subgroups. Section 6 gives the results obtained when this approach is applied to Swiss data while Section 7 summarizes the main findings of this study.

Section 2: Income Inequality in Switzerland

As in many other countries, the analysis of income distribution in Switzerland is marred by the scarcity of useful sources as well as by the statistical deficiencies of existing data. For this reason, only a few empirical studies on this subject have been carried out for Switzerland. In fact, we are not aware of any research dealing with the impact of various income sources on the overall income inequality.

At this stage, it might be worthwhile to briefly summarize the main conclusions drawn by one study (Leu and others, 1986), which used data collected from tax files for a nationwide sample of the Swiss population in 1980. The usual inequality measures were computed for the entire sample and for selected subgroups of the population, such as the self-employed, wage earners, and farmers. For the whole population, the authors found that the Gini coefficient, measured at the level of disposable income, was 0.337. Looking at different subgroups of the population, it appeared that disposable income was distributed much more unequally in 1982 for Swiss citizens (0.344) than for the foreign population with permanent status (0.271). Moreover, the inequality was much larger among the self-employed (0.396) than among wage earners (0.245). Finally, the working population faced a less unequal income distribution (0.302) than the retired (0.402).

Another interesting aspect of the study by Leu and others concerns the distributional effect of public policies. On the basis of gross household income, the Gini coefficient was as high as 0.490. By taking into account private and public transfers, income distribution inequality seemed to decline sharply (0.370). The Gini index dropped even more (to 0.337) when all taxes on income and wealth were deducted. In an earlier paper published in 1985, Leu and others (1985) found out, using the same data basis, that in Switzerland, government expenditures contribute more to income redistribution than direct taxes. It was also shown that social welfare programs have by far the largest redistributive impacts of all budgetary public policy measures, including the social security system. Finally, their analysis highlighted that the net effect of direct and indirect taxes (which has the expected regressive impact on income distribution) in Switzerland was to reduce income inequality slightly.

Another recent paper by Flückiger and Zarin-Nejadan (forthcoming) has tried to analyze the influence of macroeconomic variables on the income distribution in Switzerland. The results of this analysis show that productivity gains tend to improve the relative income share of the poor; it proves that in Switzerland, as in other countries, the composition of family income is related to its level, that is, low-income families receive a greater proportion of their income from wages. It also appears that inflation acts like a progressive tax in Switzerland, as seems to be the case in most of the developed countries. Finally, this study emphasizes that macroeconomic downswings decrease income inequality in Switzerland. This somewhat troublesome conclusion can be explained by the very selective and restrictive Swiss immigration policy. During periods of economic growth, this policy has reduced wage pressure on low-skilled labor, while the wages for highly qualified workers has increased rapidly, exacerbating income inequality in Switzerland.

Section 3: The Decomposition of Income Inequality by Income Source: The Methodology

Let X_{ij} denote the value of income i to individual j and let $X_{.i}$ and $X_{j.}$ be respectively defined as

$$X_{.i} = \sum_{j=1}^{n} X_{ji} \quad \textbf{(1)}$$

and

$$X_{j.} = \sum_{i=1}^{I} X_{ji} \quad \textbf{(2)}$$

where I represents the total number of income sources and n the number of individuals.

Let also S_{ji}, $S_{.i}$ and $S_{.j}$ be defined as

$$S_{ji} = X_{ji}/X \quad \textbf{(3)}$$

$$S_{.i} = X_{.i}/X \quad \textbf{(4)}$$

$$S_{j.} = X_{j.}/X \quad \textbf{(5)}$$

where X represents the total income of the population (all sources combined). $S_{.i}$ represents therefore the weight of income source i in the total income X while $S_{j.}$ denotes the share of individual j in the total income.

Following Silber's (1989) analysis of the decomposition of income inequality, it is possible to define the Gini Index I_G of overall income inequality as:

where $e)$ is a 1 by n row vector of population shares, each equal to $(1/n)$

$$I_G = e)Gs \quad \textbf{(6)}$$

s is the n by 1 column vector of the income shares $S_{j.}$ and G is a n by n square matrix whose typical element g_{hk} is equal to 0 if $h = k$, to &1 if $h < k$ and to %1 if $h > k$. Notice that in (6) the income shares $S_{j.}$ are ranked by decreasing value of the total income (all sources combined) of the various individuals.

Since the share $S_{j.}$ of individual j may also be written as

$$S_{j.} = \sum_{i=1}^{I} S_{ji} \qquad \textbf{(7)}$$

expression (6) may also be written as

$$I_G = e)G[S_{j1} \% S_{j2} \% S_{j3} \% ..... \% S_{ji} \% ..... \% S_{jI}] \; . \qquad \textbf{(8)}$$

Note that in (8) the terms S_{ji} on the R.H.S. of the G-matrix represent, in fact, column vectors whose typical element is equal to S_{ji}. In other words, (8) may be written as

$$I_G = e)G\left[\sum_{i=1}^{I} (S_{ji})\right] \qquad \textbf{(9)}$$

where (S_{ji}) is the column vector for individual j giving the shares (X_{ji}/X) of the various income sources in the total income X.

Let now V_{ji} represent the share $(X_{ji}/X_{.i})$ of individual j in the total value of income source i in the population. Expression (9) may then be written as:

$$I_G = e)G\left[\sum_{i=1}^{I} S_{.i}(V_{ji})\right] \qquad \textbf{(10)}$$

$$I_G = \sum_{i=1}^{I} (S_{.i})e)G[(V_{ji})] \qquad \textbf{(11)}$$

where (V_{ji}) represents the n by 1 vector of the shares V_{ji}. Remember, however, that in the vector (V_{ji}) the shares V_{ji} are ranked not by decreasing value of the shares $(X_{ji}/X_{.i})$ but by decreasing values of the share $S_{j.} = (X_{j.}/X)$. The shares V_{ji} may therefore not be monotonically decreasing so that the product $e)G[(V_{ji})]$ is known as the Pseudo-Gini of income source i. Let (y_{ji}) represent the vector of the shares $(X_{ji}/X_{.i})$ when the latter are ranked by decreasing values. The product $e)G[(y_{ji})]$ represents then the Gini Index of inequality of income source i among the various individuals. Following Silber (forthcoming) and using (11), we may then define the index I_G of overall income inequality as:

$$I_G = \sum_{i=1}^{I} (S_i)[e) G(y_{ji})] + \sum_{i=1}^{I} (S_i)[e) G(V_{ji} \& y_{ji})] \; . \qquad \textbf{(12)}$$

The first term on the R.H.S. of (12) is the weighted sum of the values of the Gini index for the various income sources, the weights (S_i) being equal to the share of income source i in the total income in the population. The second term on the R.H.S. of (12) is a permutation component which is equal to the weighted sum of the difference between the values of the Pseudo-Gini and the actual Gini index for the various income sources. This permutation component is therefore a consequence of the fact that the ranking of the different individuals may vary from one income source to the other.

Section 4 will give an illustration of these various concepts using Swiss data.

Section 4: The Decomposition of Income Inequality by Income Source: The Case of Switzerland

Our empirical analysis is based on the first nationwide representative Income and Wealth Survey conducted in 1980 by Leu et al. (1985). This survey contains detailed information on income, wealth, taxes paid and transfers received, for a nationwide sample of 6,000 Swiss citizens and roughly 900 foreigners with a permanent resident status. Even though these data may seem very old this is, unfortunately, the only data basis that can be used to analyze the impact of various income sources on the overall income inequality in Switzerland. Such an analysis would not be possible using, for instance, the more recent data from the Swiss Labor Force Survey (SLFS) as this survey does not contain enough precise information on the different income sources.

Our empirical estimation of the impact of the various income sources on the overall income distribution has been made separately for those families for which the head is a man and a woman. Table 1 reports the results of the decomposition procedure described in section 2 for those families for

which the head was a man. As may be observed, the Gini Index of overall income inequality is equal to 0.4. Column (6) of table 1 indicates that mainly four income sources play a significant role in determining the overall income inequality. Their contribution to this overall inequality is respectively equal to 0.238 (wages and salaries), 0.078 (non-farm self-employed income), 0.052 (non-cash property income) and 0.040 (cash property income). The very significant role played by wages and salaries in determining the overall income inequality reflects, in fact, the impact of the share of this income source (0.665) in total income rather than that of the inequality of the distribution of this income source: the Gini Index of wages and salaries (0.358) is, in fact, the lowest of all income sources! On the contrary, the three other sources mentioned play a role, firstly because their Gini Index is quite high (0.598 for cash property income; 0.665 for non-cash property income and 0.899 for non-farm self-employed income) but also because their share in total income is relatively important, though much less than that of wages and salaries (6.9% for cash property income; 8.0% for non-cash property income and 9.2% for non-farm self-employed income). Notice, finally, that for each of these four income sources, the difference between the value of the Pseudo-Gini and that of the true Gini Index is small, which implies a very high degree of correlation between the ranking of the overall income and the ranking of each of these income sources.

Such an observation is evidently not true for all the income sources. Table 1 indicates, for example, that several income sources have a negative impact on overall income inequality (see column (6)) which means that there is a negative correlation between the ranking of these sources and that of overall income. Although in most cases the "redistributing effect" of these sources is relatively small, either because their share in overall income is small or because their Gini Index is small, we should mention the "equalizing" impact of the following sources: social retirements whose contribution to the overall Gini is equal to -0.014 and disability pay (contribution of -0.003). Notice that unemployment pay, cash benefits for needy people and war related benefits have a redistributing effect (a negative contribution

to overall inequality) but this impact is, not surprisingly, extremely small, given their very low share in overall income, in the year during which these data were collected.

This interpretation of the impact of various income sources on overall income inequality has been recently criticized by Podder (1993). Following earlier work by Lerman and Yitzhaki (1985), Podder (1993) suggests using (1) to derive the following expressions:

$$\sum_{i=1}^{I} (S_{.i}) [e) G [(V_{ji})] \& I_G] = 0 . \qquad \textbf{(13)}$$

In other words the sign of the expression $e) G [(V_{ji})] \& I_G$ will tell us whether the ith income source has a positive or negative effect on total inequality. The value of the expression $S_{.i} [e) G [(V_{ji})] \& I_G]$ has been computed for each income source i and its value is given in Table 1, column (7), under the heading "Effect on Total Inequality". It appears that the impact of social retirement (source 7) and wages and salaries (source 1), together although to a lesser extent, with disability pay (source 6) and private pensions (source 12), is to lower the overall income inequality among male-headed families while non-farm self-employed income (source 3), cash property income (source 4) and non-cash property income (source 5) tend to increase overall income inequality.

Most of these sources were previously mentioned but while columns (2) to (6) in Table 1 allow one to understand why a given income source significantly affects the level of overall income inequality, column (7) indicates what the final impact is. The difference in interpretation is clear when columns (6) and (7) are compared. Wages and salaries have, according to column (6), a positive and, according to column (7), a negative effect on overall income inequality. This apparent contradiction is resolved once it is observed that the positive sign in (6) implies that there is no negative correlation between the ranking of the individuals according to this income source and according to their overall income. The negative sign in (7) shows that despite the absence of such a negative correlation, the overall impact of wages and salaries is negative because the Pseudo-Gini of this source is smaller than the Gini Index of

total income. Conversely, private pensions (source (2)) and other cash income (source (3)) have according to column (6) a positive (although extremely small) impact on overall inequality while according to column (7) this effect is negative (and small). Again, this tells us that these two sources are positively correlated with overall income but their Pseudo-Gini being smaller than the Gini Index of Total Income, the impact of these sources is registered as being negative in column (7).

We now turn to the analysis of the data for families headed by women. The sources of income which play the most important role in determining overall income inequality are the same as in the case of families headed by males but here wages and salaries play, in relative as well as in absolute terms, an even greater role (a contribution of 0.262 for an overall inequality Index equal to 0.383). The second role is played by cash property income (contribution of 0.054) followed by non-cash property income (contribution of 0.044) and non-farm self-employed income (contribution of 0.035). Notice that wages and salaries represent a smaller share of overall income (0.568 instead of 0.665 for male-headed families) but the inequality of this income source is higher (0.471 rather than 0.358 for male-headed families). One may also observe that the second most important income source for female-headed families is social retirement (13.3%) while the third most important source is cash property income (10.4%). Social retirement, however, has a small impact on overall inequality (a negative one which implies an equalizing effect) because the value of its Gini Index is small (0.331). It is, in fact, the most equally distributed income source while for these female-headed families the most unequally distributed income sources are, respectively, farm self-employed income (0.983), realized lump-sum income (0.981), unemployment pay (0.961) and non-farm self-employed income (0.948). Some of these sources have, evidently, a small impact on overall inequality because their share in total income is small (e.g., farm self-employed income with a share of 0.04% or even realized lump-sum income or unemployment pay whose share is each equal to 0.1%). Concerning the redistributing effect of some

income sources, notice the equalizing effect of social retirement (contribution of -0.004 to overall inequality).

Here again we have computed the difference between the Pseudo-Gini $e^{)}G[(V_{ji})]$ of each income source i and the overall Gini Index I_G, and multiplied this difference by the share $S_{.i}$ of income source i. The result is labelled "Effect on Total Inequality" in column (7) of Table 2. It appears that four income sources have an important positive effect on overall income inequality: wages and salaries (source 1), non-farm self-employed income (source 3), cash property income (source 4) and non-cash property income (source 5). Only one income source has an important negative effect on total inequality: social retirement (source 7). These results are somehow different from those observed earlier in Table 1 for male-headed families since there wages and salaries had a negative effect on total income inequality. But this difference is not so surprising. It simply indicates that in many female-headed families there is no wage (or salary) because the woman does not work (although she has other sources of income) so that wages and salaries are more unequally distributed than the overall income of these families. Here again it may be interesting to compare the results we derived earlier on the basis of column (6) and those which may be observed when looking at column (7). Sources 10 (other social insurance), 12 (private persons) and 13 (other cash income) which are positively correlated with overall income (see the value of their Pseudo-Gini in column (2)) still have a negative impact on overall inequality (see column (7)) because these Pseudo-Ginis are smaller than the Overall Gini Index. Podder's remarks are therefore a useful complement to the more traditional analyses (e.g., Fei et al., 1980, or Silber, 1989) of the impact of various income sources on overall income inequality.

As a whole it appears therefore that there are some significant differences in the impact of the various income sources on overall income inequality, when families headed by men are compared with those headed by women. The methodology described in Section 3 allowed us to notice these differences as well as to pin-point the role played by each income source and mostly the reason for such

a role. A more detailed analysis of the factors explaining the difference in overall income inequality between male- and female-headed families is presented in the next section.

Section 5: The Breakdown of the Difference in Income Inequality between Male- and Female-Headed Families: Methodology

Using the notations of Section 3, let us call, respectively, PG_i and AG_i the Pseudo-Gini and actual Gini Index for source i where, using (11) and (12),

$$PG_i = e)G[(V_{ji})] \quad \textbf{(14)}$$

$$AG_i = e)G[(y_{ji})] \; . \quad \textbf{(15)}$$

Let M and F be additional subscripts referring, respectively, to the male- and female-headed families and for simplicity let S_i (instead of $S_{.i}$) represent the share of income source i in total income.

Using (12) we then derive:

$$I_{G,M} = \sum_i S_{i,M}[AG_{i,M} + (PG_{i,M} - AG_{i,M})] \quad \textbf{(16)}$$

$$I_{G,F} = \sum_i S_{i,F}[AG_{i,F} + (PG_{i,F} - AG_{i,F})] \; . \quad \textbf{(17)}$$

Combining (15) and (16) we may write, after some algebraic manipulation, that

$$\begin{aligned} I_{G,M} - I_{G,F} = {} & \sum_i [((S_{i,M} + S_{i,F})/2)\,(PG_{i,M} - PG_{i,F})] \\ & + \sum_i [((PG_{i,M} + PG_{i,F})/2)\,(S_{i,M} - S_{i,F})] \; . \end{aligned} \quad \textbf{(18)}$$

Calling, respectively $\delta_{i,M}$ and $\delta_{i,F}$ the differences $(PG_{i,M} - AG_{i,M})$ and $(PG_{i,F} - AG_{i,F})$, we derive that

$$PG_{i,M} - PG_{i,F} = (AG_{i,M} - AG_{i,F}) + (\delta_{i,M} - \delta_{i,F}) \; . \quad \textbf{(19)}$$

Combining (17) and (18), we conclude, after some additional algebraic manipulations, that

$$I_{G,M} - I_{G,F} = \alpha + \beta + \gamma \qquad \textbf{(20)}$$

where

$$\alpha = \sum_i [((PG_{i,M} + PG_{i,F})/2)\ (S_{i,M} - S_{i,F})] \qquad \textbf{(21)}$$

$$\beta = \sum_i [((S_{i,M} + S_{i,F})/2)\ (AG_{i,M} - AG_{i,F})] \qquad \textbf{(22)}$$

$$\gamma = \sum_i [((S_{i,M} + S_{i,F})/2)\ (\rho_{i,M} - \rho_{i,F})] \ . \qquad \textbf{(23)}$$

It may be observed that α, β and γ in equations (19) to (22) give, respectively, the contribution of differences between male- and female-headed families in the shares of the various income sources in the inequality within each income source and in the correlation between the Pseudo-Gini and the actual Gini Index of the various income sources.

Section 6: The Breakdown of the Difference in Income Inequality between Male- and Female-Headed Families: The Case of Switzerland

The decomposition procedure which has been derived in Section 5 has been applied to the Swiss data which were described earlier (see Section 4) and the results of this analysis are given in Table 3. It appears that the greater income inequality observed among male-headed families is due to the differences which exist between male- and female-headed families in the shares of the various income sources. Differences between these two types of families in the within income sources inequality would have, on the contrary, led to higher inequality among female-headed families. The contribution of the correlation between the Pseudo- and the actual Gini Index is very small.

In Table 4 we have computed the contribution of each income source i to the value taken by α, β and γ, as these were defined in equations (20) to (22). We have then summed for each income source i these three contributions and have, evidently, obtained as sum the difference between the contribution

of source i to the total income inequality of male- and female-headed families. The following observations may be made:

- The income source (1), "wages and salaries", would per se have led to a higher inequality among female-headed families only because it is more unequally distributed among the latter. This source has, in fact, a higher share in total income among male-headed families.
- The income source (3), "non-farm self-employed income", would per se have led to a higher inequality among male-headed families only because its share in total income is much higher among the latter.
- The income source (4), "cash property income", would per se have led to a higher income inequality among female-headed families because its share in total income is higher among the latter.
- The income source (12), "private pensions", would per se have led to a higher income inequality among female-headed families not only because its share in total income is higher among the latter but also because a higher inequality of this income source is observed among female-headed families. Even the "correlation component" is stronger among the latter.

The other income sources play a much smaller role (less than 0.01 in absolute value) in explaining difference between male- and female-headed families in the contribution of the income source to total inequality and hence will not be mentioned.

Section 7: Conclusions

In this paper we have first recalled that the Gini index for the overall income distribution may be decomposed into two components, the first one being a weighted average of the Gini index for each different source of income, the second one representing a permutation term which is due to the fact that the ranking of each individual may change according to the income sources considered. Applying this methodology to the Swiss data, we have been able to show that wages and salaries have a very

significant impact on overall income inequality and this particular income source plays even a greater role among families headed by women. This very significant impact of labor income on total inequality is mainly a consequence of the fact that the share of wages and salaries in total income is very large compared to other sources (the Gini index of wages and salaries is, in fact, the lowest of all income sources). Other income sources, on the contrary, play a role mainly because their Gini index is quite high (particularly for non-farm self-employed income). We have also proven that several income sources have a negative impact on overall inequality which means that they have a redistributing effect. However, their equalizing influence is relatively small due to the fact that usually their share in total income is rather small. The income transfers which have the strongest redistributing effect among families headed by either men or women are social retirements and this result confirms the conclusion already highlighted by Leu et al. in their earlier work.

When the income inequality among male- headed families was compared with that among female-headed families, our study showed that the higher inequality observed in the former case is mainly a consequence of differences between the two groups in the share of the various income sources. Differences between these groups in the inequality of the distributions of the various income sources would have led to a higher degree of income inequality among female-headed families. The third factor (correlation between the Pseudo- and actual Gini) did not explain much of the difference between the Income Inequality among male- and female-headed families.

Table 1

Breakdown of Income Inequality by Income Sources Among Male-Headed Families

(1) Income Source	(2) Share of Source	(3) Within Income Source Pseudo-Gini	(4) Within Income Source Gini Index	(5) Permutation Component (3) - (4)	(6) Total Contribution of Source i	(7) Effect on Total Inequality*
1.	0.665	0.358	0.358	0.000	0.238	-0.0279
2.	0.017	0.521	0.614	-0.093	0.009	0.0021
3.	0.092	0.845	0.855	-0.010	0.078	0.0409
4.	0.069	0.573	0.598	-0.025	0.040	0.0119
5.	0.080	0.654	0.665	-0.011	0.052	0.0203
6.	0.010	-0.280	0.502	-0.782	-0.003	-0.0068
7.	0.046	-0.304	0.427	-0.731	-0.014	-0.0324
8.	0.001	-0.288	0.777	-1.065	-0.00026	-0.0007
9.	0.0002	-0.414	0.972	-1.386	-0.00007	-0.0002
10.	0	-	-	-	0	0
11.	0.001	-0.666	0.864	-1.530	-0.001	-0.0011
12.	0.016	0.045	0.361	-0.316	0.001	-0.0057
13.	0.002	0.322	0.736	-0.414	0.001	-0.0002
14.	0.0001	-0.382	0.969	-1.351	-0.0001	-0.0001
Contribution to Total Inequality		0.400	0.455	-0.055	0.400	0

* This effect, as indicated in (13), is computed for each income source i as: $S_{.i}\,[e^{)}\,G\,[(V_{ji})]\,\&\,I_G]$.

Table 2
Breakdown of Income Inequality by Income Sources Among Female-Headed Families

(1) Income Source	(2) Share of Source	(3) Within Income Source Pseudo-Gini	(4) Within Income Source Gini Index	(5) Permutation Component (3) - (4)	(6) Total Contribution of Source *i*	(7) Effect on Total Inequality*
1.	0.568	0.461	0.471	0.010	0.262	0.0443
2.	0.0004	-0.0002	0.983	-0.9832	0.000	-0.0002
3.	0.039	0.893	0.948	-0.055	0.035	0.0199
4.	0.104	0.515	0.570	-0.055	0.054	0.0137
5.	0.067	0.649	0.715	-0.066	0.044	0.0178
6.	0.005	-0.342	0.843	-1.185	-0.002	-0.0036
7.	0.133	-0.172	0.331	-0.503	-0.023	-0.0738
8.	0.001	-0.031	0.961	-0.992	-0.00002	-0.0004
9.	0	-	-	-	0	0
10.	0.025	0.162	0.572	-0.410	0.004	-0.0055
11.	0.008	-0.498	0.774	-1.272	-0.004	-0.0070
12.	0.042	0.272	0.486	-0.214	0.011	-0.0047
13.	0.008	0.190	0.728	-0.538	0.001	-0.0015
14.	0.001	0.676	0.981	-0.305	0.0004	0.0003
Contribution to Total Inequality		0.383	0.509	-0.126	0.383	0

* See the note in Table 1.

Table 3

Decomposition of Difference in Income Inequality
between Male- and Female-headed Families

Gini Index of Income Inequality	
- Among Male-headed Families:	0.400
- Among Female-headed Families:	0.383
Difference between the two Indices:	0.017
- Contribution to Difference of	
- Difference in shares of various income sources	0.095
- Difference in within income sources inequality	-0.085
- Difference in ranking of inequality of various income sources	0.007

Table 4

Contribution of Various Income Sources to
Difference in Income Inequality between Male- and Female-headed Families

(1) Income source	(2) Contribution of Difference in Share of Various Income Sources	(3) Contribution of Difference in Within Income Sources Inequality	(4) Contribution of Correlation between Pseudo- and Actual Gini Index of Various Income Sources	Total* (2) + (3) + (4)
1.	0.0397	-0.0697	0.0062	-0.0238
2.	0.0043	-0.0032	0.0077	0.0088
3.	0.0461	-0.0061	0.0029	0.0429
4.	-0.0190	0.0024	0.0026	-0.0140
5.	0.0085	-0.0037	0.0040	0.0088
6.	-0.0016	-0.0026	0.0030	-0.0012
7.	0.0207	0.0086	-0.0204	0.0089
8.	0	-0.0002	-0.0001	-0.0003
9.	0	0.001	-0.0001	0
10.	-0.0020	-0.0072	0.0051	-0.0041
11.	0.0041	0.0004	-0.0012	0.0033
12.	-0.0041	-0.0036	-0.0030	-0.0107
13.	-0.0015	0	0.0006	-0.0009
14.	-0.0001	0	-0.0006	-0.0007
Total	a = 0.0951	ß = -0.0848	? = 0.0067	0.0170

* For each income source *i* , the total is equal to the difference between the contribution of source *i* to the total income inequality of male- and female-headed families (see column (6) in Tables 1 and 2).

Appendix: Definition of the Income Sources

Source 1 : Wages and salaries

Source 2 : Farm self-employed income

Source 3 : Non-farm self-employed income

Source 4 : Cash property income

Source 5 : Non-cash property income

Source 6 : Disability pay

Source 7 : Social retirement

Source 8 : Unemployment pay

Source 9 : Military veteran or war related benefits

Source 10: Other social insurance

Source 11: Cash benefits for needy people and families

Source 12: Private pensions

Source 13: Other cash income

Source 14: Realized lump sum income

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