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POSTFISC INEQUALITY: A COMPARISON OF THE UNITED STATES AND WEST GERMANY

Eugene Smolensky, Werner Pommerehne,
and Robert Dalrymple

UNIVERSITY OF WISCONSIN - MADISON

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ABSTRACT

The major contribution of this paper is that comparable measures of inequality for two countries have been presented. It is rare in cross country comparisons for the income recipient unit, the definitions of income, the stage of the business cycle and the computational procedures to be as similar as in this instance.

Inequality in factor income is found to be significantly less in West Germany than in the U.S., because wage income is significantly and substantially less unequal. Broadening the definition of income to take into account the benefits and burdens of taxes and public expenditures does not materially affect the comparison. This cross-section result parallels a similar time series result for the U.S. in the period since 1950 (Reynolds and Smolensky, 1977). Cross-section insensitivity to including the fisc in the income definition is found in this instance not to be useful in evaluating the hypothesis that federal democratic republics may no longer be able to alter the distribution of income through the fisc.

Postfisc Inequality: A Comparison of the U.S. and West Germany

1. INTRODUCTION

A recent study of the size distribution of income for the United States in the years 1950, 1961, and 1970, yielded three important results (Reynolds and Smolensky, 1977):

1. Across the time span the dispersion of total income did not change significantly.
2. Within a particular year the overall effect of adding government expenditures and subtracting from household income taxes is to significantly reduce measured inequality in the distribution of income.
3. In each year expenditures tend to reduce inequality by more than taxes. (Trends are consistent with this finding. Over time the equalizing effect of taxes decline, while the equalizing effect of expenditures grow.)

When the benefits of all government expenditures were added to the labor and capital incomes of U.S. households and the burden of all taxes was subtracted, the overall distribution of income had not changed significantly between 1950 and 1970. To be sure, the distribution of income that included the effects of government budgets was significantly closer to equality than the distribution of income made up of just labor and capital incomes, but no significant trend in the degree of inequality could be detected.

One inference that these findings suggest is that federal democratic republics cannot now change the distribution of income.[1] Such governments

have lost effective control, it could be argued, because of the interaction of certain technical and political considerations.

In the U.S. and most developed democratic countries, the two redistributional programs large enough to have a significant impact upon income inequality are the income tax and the Social Security systems. These programs have grown to be very large indeed, both by raising their receipts and/or expenditures per affected household and by enlarging the proportion of the population directly affected. Growth through the latter route inevitably reduces their redistributive consequences since over time the income tax reaches further down into the income distribution while Social Security benefits reach further up into the income distribution.[2] As the income tax and the retirement system grow, their impact upon behavior also grows. Some of these behavioral effects increase income inequality, as the following examples show:

1. There is some labor supply withdrawal, particularly at the low end of the distribution (i.e., by aged and secondary workers).
2. Private savings decline, particularly among those relatively low income households for whom Social Security benefits will appear to be relatively large.
3. Households dissolve. The aged and the young form separate households, which increases inequality as conventionally measured.

These behavioral responses have political repercussions in turn. Since measured inequality does not decline by much, outcomes are not as expected. The costs for small gains come to be perceived as high: For example, real costs associated with administration of the programs, labor force withdrawal, and tax evasion become apparent. Even more evident are the high costs and

low benefits accruing to the median voter. Political support for redistribution therefore weakens, and the long standing hostility to redistribution and large federal governments in the U.S. is rekindled. Furthermore, voters perceive that since populations are mobile among state and local jurisdictions, redistribution through local fiscs is highly circumscribed, and their preference for state and local over federal expenditures is reinforced. As this preference results in a rising share of total spending by local jurisdictions, redistribution through the entire fisc becomes, in fact, more difficult to achieve.

This whole line of explanation may be relevant only for the United States or only for federal democratic republics, if it is relevant at all. Consequently, our ultimate objective is to replicate the U.S. study for other economically developed federal democratic republics: In this paper we make a small beginning. Specifically, we undertake a comparison of the factor and final distributions of income in the U.S. and West Germany in 1970 and 1969 respectively. We also make some comparisons with Canada (1970), but the data for Canada are neither as complete nor as consistent. If similar qualitative results are obtained, then country specific explanations (e.g., hostility to socialism) would appear to be inappropriate. Direct research on how federal democratic processes in any mixed economy affect the income distribution through the fisc would seem to be the next step. If dissimilar qualitative results obtain, then pursuit of country specific explanations becomes plausible.

A Caveat

Comparing income distributions across countries is full of traps. One can only be appalled, therefore, at the cavalier way in which comparisons are often made from a grab bag of country specific studies, even by distinguished scholars (see Tinbergen, 1975, for example). The wide range of results that have been reported for the same country in the same year is illustrated in Table 1. The range is 73 Gini points (17% of the mean). These differences arise from differences in the definition of income, the unit of observation, the way the data were collected, and the procedure by which the Gini coefficient was calculated. However, even in two sources for which the only major difference is the sample (the Current Population Survey and the Survey of Consumer Finances), Gini coefficients differ by 7%.

In this study a concerted effort was made to make the income definitions, the reporting unit, and the computational procedures comparable. The two countries were also in roughly the same stage of the business cycle.[3] Nevertheless, incomparabilities undoubtedly remain, especially among the final distributions; sampling and reporting error surely remains in the factor distribution. The possibility exists that all the differences we report between the two countries are in the sample data, but not in the universes.

2. INCOME INEQUALITY

Income inequality as measured by the Gini coefficient can be calculated for various income concepts. Our basic income concept is the

Table 1

Gini Concentration Ratios:

Various Sources, U.S. 1970

Basic Data Source	Gini Coefficient (x 1000)
Survey of Consumer Finances	380
Office of Business Economics	402
Current Population Survey	409
Reynolds & Smolensky	446
Internal Revenue Service	453

Source: Reynolds and Smolensky, 1977, p. 35.

distribution of factor income (employee compensation, proprietors income, dividends, etc., but not transfers or taxes) by households in West Germany in 1969 and the United States and Canada in 1970. The benefits of public expenditures less the burdens of public taxes, at all levels of government, are added to factor income under alternative incidence assumptions, grouped to produce a Regressive, Progressive, or "Normal" income distribution. Collectively, these various income concepts will be referred to as "final" income, which is simply a broader definition of income. Conceptually the measure presumes that all the behavioral adjustments to the fisc (for example, reduce work effort because of high marginal tax rates) that affect the size distribution are accounted for in the factor income distribution. Since the fisc affects both the factor distribution and the final distribution, the difference between inequality in the final and factor income distributions is not a measure of redistribution due to public budgets. The accounting system further assumes that recipients value the benefits of public expenditures at the cost to taxpayers and that total benefits equal expenditures. No distributional consequences are computed for any dedweight burdens in the system.

Incidence Assumptions

Four sets of incidence assumptions were used, and we present the resulting Gini coefficients for each case. The incidence assumptions underlying the Normal income concept are those conventionally made: Personal income taxes are assumed not to be shifted, estate and gift taxes fall entirely in the highest income class, the corporate income

tax is divided equally between dividend recipients and consumers, excise and sales taxes are borne entirely by consumers, employer as well as employee Social Security contributions are borne entirely by employees, and the residential property tax is paid by consumers of housing while consumers of general output pay commerical property taxes (the total property tax being shared equally by each). The incidence of expenditures is assumed to fall entirely on recipients rather directly identified, e.g., children under 18 for elementary and secondary school expenditures. The expenditures of government for which direct beneficiaries cannot be readily identified (called general expenditures) are distributed one-half by the distribution of households and one-half by the share of factor income. Because this incidence assumption about general expenditures is particularly hard to justify, the concept "Without General Expenditures," is also used: To obtain that distribution, general expenditures are distributed like factor income so as not to affect the Gini coefficient.

In our remaining two income concepts, incidence assumptions that are more regressive and more progressive respectively are employed. The Regressive assumptions are (1) general government expenditures are distributed via factor income; (2) corporate income taxes are entirely shifted forward to consumption; and (3) property taxes are slightly more regressively distributed. The Progressive assumptions are (1) general government expenditures are distributed according to households; and (2) the corporate income tax, sales and excise taxes, the Social Security tax, and the property tax are all slightly more progressively distributed than in the Normal income concept. Table 2 presents the Gini coefficients for factor income and the four final income concepts.

Accounting for Differences Between the Gini coefficients

Factor income inequality in West Germany is 85 Gini points less than in the United States (Table 2); final income differences between the two countries vary between 102 and 121 Gini points, depending on the incidence assumptions.[4] Thus the final income differences are fairly insensitive to the incidence assumptions. In general, however, adopting any of the final definitions of income increases the measured difference in inequality between the two countries by about 25%.

Final income consists of factor income plus the benefits of public expenditures less the cost of taxes. Of the 110 or so Gini point differences in final income inequality between West Germany and the U.S., 85 points are already present when factor incomes are compared. However, the significance of narrower factor income inequality in West Germany is even larger than that comparison implies because general government is usually distributed, all or in part, according to factor income. Thus by far the largest source of difference in final income inequality between the two countries is attributable to differences in factor income inequality.

Factor income is more equally distributed in West Germany than in the U.S. because wages are dramatically more equally distributed, having Gini coefficients of .293 and .452 respectfully.[6] In part, such a difference could be attributable to the fisc, specifically to the shifting of the Social Security tax. It has been pointed out, however, that the Social Security tax, which we assume to be fully borne by employees, is both larger and more regressive in West Germany. Wages net of Social Security taxes would therefore be more equally distributed, ceteris paribus, in the U.S. than in West Germany if the difference in the wage distribution

Table 2

Gini Coefficients for Selected Definitions of Income: West Germany, 1969; United States, 1970

Income Concept	Gini Coefficient (x 1000)	
	West Germany	United States
Factor Income	361	446
Final		
Normal	237	339
Without General Expenditures	267	375
Regressive	278	384
Progressive	163	284

was due only to the backward shifting of the Social Security tax. Furthermore, what we have called wages is really employee compensation and includes the "employer share" of taxes paid. In our data, therefore, the backward shifting of the Social Security tax has but a small influence on the distribution of what we call wages.

Why wages are more equally distributed in West Germany we cannot say. Many hypotheses come readily to mind, but none has been tested.[7] That the difference is attributable to the fisc cannot be ruled out. One reason that the Gini coefficient on wages is so high in the U.S. is that the bottom 15 percentile of households receive almost no wage income. Money income for this group is largely transfer income. The relatively high transfer levels to nonaged, primarily female household heads in the U.S. may lead to both larger numbers of such family units and to low earnings, thereby producing the high Gini coefficients for the U.S. A bit of counter-evidence is that while transfers and female headship rates were growing rapidly in the U.S. between 1950 and 1970, the Gini coefficient on employee compensation increased by only 5 Gini points. Tentatively, it would seem that the major difference in inequality in earnings is <u>not</u> attributable to the fisc, and therefore that the major difference in inequality in final income between the two countries is also <u>not</u> attributable to the fisc.

Accounting for Sources of Change in the Gini Coefficient

The direct effect on the Gini coefficient (without implying any behavioral response) of including any particular tax or expenditure program in the definition of final income can be calculated. If all programs except the one of interest are distributed as is factor income,

and the program of interest is distributed by its normal incidence assumption, any difference between the Gini coefficients for factor income and final income can be attributed directly to this program. This procedure can be used to partition the total difference between the factor income and Normal income Gini coefficients into an exhaustive, additive set. (We must reemphasize that this algebraic exercise abstracts from the behavioral responses to the various programs and political factors that produced the factor income distribution.)

The results of partitioning the differences between factor and final income are listed in Table 3. Comparing the two columns shows the direct effect of total taxes to be very similar--i.e., slightly regressive--in the two countries. This similarity is due largely to the fact that while the personal income tax is more propoor in West Germany, Social Security contributions are more regressive. Two startling differences, however, are revealed on the expenditure side. First, Social Security benefits are far more equalizing in West Germany than in the United States. Even though other transfer payments are substantially more equalizing in the United States, the effect of the Social Security system in West Germany is so large that transfer payments as a whole have nearly one and one-half times the effect on the Gini coefficient. Second, state and local expenditures in the United States are substantially more redistributive than in West Germany. The larger equalizing effect of state and local expenditures in the U.S. is mainly attributable to primary and secondary school expenditures.[8]

Table 3

Accounting for Sources of Change in the Gini Coefficient: Normal Incidence--West Germany 1969; United States 1970

Income Concept	Gini Coefficient (x 1000) West Germany	U.S.
Factor Income	361	446
Normal	237	339
Difference	124	107
Percentage of Difference Attributable to		
General Expenditures	24.2%	33.6%
Taxes	-4.0[a]	-7.5[a]
Personal income	13.7	7.5
Social Security	-10.5[a]	-5.6[a]
All other[b]	-7.3[a]	-9.3[a]
All Transfer Payments	77.4	49.5
Social Security	70.2	31.8
All other[c]	7.3	18.7
Other Specific Expenditures	2.4	24.3
Federal[d]	2.4	8.4
State and local	0.0	15.9
education	0.0	11.2
other[e]	0.0	3.7

Note: Underlined items may not add to 100% due to rounding.

[a]A negative sign indicates that the item raises rather than lowers the Normal Gini coefficient relative to initial inequality.

[b]Sales, Excises and Customs, Estate and Gift Taxes, Property Taxes, Corporate Income Taxes, Other Taxes.

[c]Public Assistance, Other Welfare, Unemployment Compensation, and Other Transfers.

[d]Veterans' Benefits; Net Interest Paid; Agriculture; Elementary, Secondary, and Other Education; Higher Education; Highways; Labor; and Housing and Community Development.

[e]Veterans' Benefits, Net Interest Paid, Agriculture, Highways, and Labor.

Explaining the Sources of Change in the Gini Coefficient

The relative significance of Social Security and public education in the two countries may reflect politics at work. In the U.S., children are a one third larger proportion of the population than in West Germany (38.1 vs. 29.9% in 1970, under age 20; Institute of Developing Economies, 1976, pp. 182, 235). The proportion of the population over age 65, on the other hand, is about one-third larger in West Germany than in the U.S. (10.1 vs. 13.5%). Perhaps for these reasons per child expenditure on education in the U.S. is approximately 2.7 times that of West Germany (using the September 1969 exchange rate; FRB, 1970, p. A89), while in West Germany Social Security benefits (as measured by the transfer ratio) is 2.5 times the expenditure in the U.S. (OECD, 1976, p. 22). Relatively large groups may be able to secure relatively larger per capita benefits.

Wilensky (1975) concluded that demographics were more important than ideology in determing welfare expenditures. "If there is one source of welfare spending," he asserts, "that is most powerful--a single proximate cause--it is the proportion of old people in the population" (p. 47).[9] The proportion of the aged population is growing in the U.S. If the aged use their growing political influence to move the Social Security system of the U.S. toward a replacement rate similar to that in West Germany, then the distributional impact of the fisc will be increased. If the current U.S. "transfer ratio" was the same as in West Germany in 1970, assuming a similar level of taxes with the current incidence, the Gini coefficient would have been 45 points lower.[10] During the next two decades, therefore, the U.S. will provide a reasonable test as to

whether federal democratic republics can alter the final distribution of income.[11]

3. CONCLUSION

Comparing inequality in West Germany with inequality in the U.S. has not answered the primary question that motivated this undertaking. We are no closer to rejecting the hypothesis that federal democratic republics cannot now change the distribution of income. Doubt would have been cast on the hypothesis if, associated with the same Gini coefficients for final income that we have computed, we had found that inequality in factor income was somewhat more unequal in West Germany than in the U.S. Our tentative interpretation would have been as follows:

1. Since less inequality of final income in West Germany would not have been attributable to less inequality in factor income, we would have attributed it to the fisc.

2. Somewhat greater inequality in West Germany is consistent with more backward shifting of a more redistributive fisc. If the fisc is redistributive toward equality, backward shifting would move factor income toward greater inequality.

3. The similar technologies and factor proportions of these two developed economies dominate demographic differences so that in the absence of the fisc, factor income inequality would be roughly similar.[12] Our findings do not permit such direct inferences because both factor and final income inequality are significantly lower in West Germany than in the U.S. The most direct inference is that less final income inequality in West Germany is due to less factor income inequality.[13]

Differences in final income inequality between West Germany and the U.S. are determined, proximately, by differences in factor income. If one could be certain that the fisc had a relatively small impact on factor income inequality, or if the impacts were roughly the same in both countries, then we could agree that the data support our hypothesis. We are reluctant to make such arguments, but we can certainly argue that the data give no particular support to the hypothesis that the fisc is responsible for the more equal distribution of final income in West Germany. Support for that hypothesis requires the fisc to have a larger impact in West Germany than the U.S. There is no reason to believe this to be so.

The difference in inequality in final income between the U.S. and West Germany is large, but the difference is not attributable, at least in any obvious way, to the role of the State, or at least to the role of the State as manifested by the fisc. Attention is clearly directed to country specific market factors rather than general factors associated with democratic processes in federal republics. (A potential political role was discovered, however, in the analysis of the different relative impacts upon inequality of Social Security and education expenditures in the two countries.) The country specific factor, which calls for further analysis, relates to the labor markets of the two countries. Further examination of those markets may reveal that government is responsible for the significant difference. For the moment all we can say is that although inequality is substantially different in the two developed federal democratic republics examined here, the conjecture, based on the U.S. experience, that such nations cannot now change the distribution of final income remains worthy of further study.

Postscript: Canada

As Table 4 reveals, Canada stands in a similar relation to the U.S. as West Germany. The difference in inequality in final income between the U.S. and Canada is also large and, once again, attributable to differences between factor income distributions. Unlike the case for West Germany, however, the lesser inequality in factor income in Canada is not attributable to a single kind of functional income. Wage income is more equally distributed in Canada than in the U.S. (414 vs. 452), but the differences are not nearly so dramatic. Our general conclusion is sustained: Federal democratic republics cannot now change the distribution of final income.

Table 4

Gini Coefficients for Selected Definitions of Income: Canada, 1970; United States, 1970

Income Concept	Gini Coefficient (x 1000)	
	Canada	United States
Factor Income	391	446
Final		
Normal	291	339

Appendix Table A

Background Data: West Germany 1969, United States 1970

	West Germany	U.S.
Income Concept		
Factor Income (NNP, millions)	541250 DM	$886542
Final Income (millions)	539566 DM	$899650
Difference[a] (millions)	-1684 DM	$ 13108
Percentage of Factor Income		
General Expenditures	16.7%	16.4%
Taxes	44.3	33.9
Personal income	8.5	11.2
federal	3.0	10.0
state and local	5.5	1.3
Social Security	11.7	6.5
All other[b]	24.1	16.2
All Transfer Payments	18.3	7.3
Social Security	15.5	4.7
All other[c]	2.8	2.7
Other Specific Expenditures	9.0	11.7
Federal[d]	3.6	3.5
State and local	5.3	8.1
education	3.9	6.1
other[e]	1.4	2.0

Note: Subtotal of underlined items may not add to totals for underlined items due to rounding. Total expenditures do not equal total taxes because of government surpluses or deficits.

[a] A negative difference indicates a government surplus.

[b] Sales, Excises and Customs, Estate and Gift Taxes, Property Taxes, Corporate Income Taxes, Other Taxes.

[c] Public Assistance, Other Welfare, Unemployment Compensation, and Other Transfers.

[d] Veterans' Benefits; Net Interest Paid; Agriculture; Elementary, Secondary, and Other Education; Higher Education; Highways; Labor; and Housing and Community Development.

[e] Veterans' Benefits, Net Interest Paid, Agriculture, Highways, and Labor.

U.S. Data Source

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NOTES

[1]It can be inferred that at one time the fisc did affect the trend of inequality in the U.S. We know that in any year since 1950 the effect of the fisc is large. It also appears to be quite certain that the effect of the fisc on inequality would have been small at the turn of the century when taxes and government expenditures were small relative to national income. Therefore, somewhere between 1900 and 1950 government must have altered the trend in the distribution of income in the U.S. through the fisc.

[2]Of course this effect could be offset by making the Social Security benefit schedule more propoor while making tax rates more progressive. It is precisely such changes that the interaction of technical and political considerations come to preclude.

[3]Both countries are near cyclical peaks, but the U.S. is on the downside while West Germany is on the upside (see OEC, 1973, p. 15, and NBER, 1973, p. 15).

[4]Several factors account for the Progressive income concept having a much larger difference than the other final income concepts. Eliminating factor income as a distributor for general expenditures makes the net effect more progressive in the U.S. since factor income is more unequally distributed in the U.S. The change in incidence assumptions for two of the tax categories (Social Security Taxes and Excise, Customs, Sales, and Other Taxes) offsets the general expenditure effect and accounts for almost all of the relatively larger difference. Both of these tax categories are

approximately twice as large a share of factor income in West Germany as in the U.S. Although these taxes are more regressively distributed in West Germany in both the normal and progressive cases than in the U.S., the Gini coefficient for these taxes rises substantially more for West Germany than for the U.S. where progressive assumptions are used. A larger effect on the distributors combines with a larger share of these taxes in total taxes to produce the observed result.

[5]The Lorenz curves for the factor distributions cross at several points, but the curve for West Germany lies within that for the U.S. over the long interval from roughly the eighth to the ninety-sixth percentile. Some of the crossing is due to the small number of income classes. The Lorenz curves for West Germany lie almost entirely within that for the U.S. under the Normal incidence assumptions and the picture is only very slightly altered when general expenditures are neutrally distributed. On the whole, therefore, the Gini coefficients are reasonable descriptive statistics.

[6]These data are not shown. They refer to the distribution of wage income across income classes formed on the basis of total household money income.

[7]One possibility is that German wage data is biased toward equality. The data are from a consumer expenditure survey, and as in most such surveys all income is underreported and biased toward equality. However, the U.S. data are also from a household survey.

A careful attempt to compensate for underreporting of income and the attendant biases by the University of Frankfurt, SPES Project,

raised total factor income inequality by 16%. (A separate correction for wage income is not now available to us.) The same order of magnitude difference exists in the U.S. between inequality as measured by the CPS and in Budd's reworking of these data (Budd, 1970, and Budd, Radner and Henrichs, 1973).

[8]Remember that benefits for education were distributed according to the number of children under age 18 in each income class. It has been alleged, sometimes, that education expenditures per student are lower for poor children in the U.S.

[9]Wilensky did not look at education expenditures per se and therefore missed the apparently powerful influence of parents.

[10]The transfer ratio is the product of the ratio of Social Security benefits per recipient and the reciprocal of the participation rate in the program (OECD, 1976, pp. 19-21).

[11]On the other hand, if the growing young population of West Germany received the educational benefits that American children receive, the effect would not be dramatic because the distribution of children across income classes is too like the distribution of factor income in West Germany.

[12]Note that this explanation does not make use of the arithmetic difference between factor and final income per se. As we have emphasized before, that difference is <u>not</u> a suitable measure of the impact of the fisc.

[13]Results mildly supportive of the hypothesis could also have been obtained. Roughly equal Gini coefficients for both factor and final income in the two countries would have been evidence consistent with the hypothesis.

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