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THE EFFECT OF INCOME INEQUALITY AND SOCIAL DEMOCRACY ON HOMICIDE

A Cross-National Comparison

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BRADY (1975, p. 76) expressed extreme confidence in the existence within the criminological research community of a consensus over the efficacy of reducing inequality as a solution to crime when he said: ". . . poverty, discrimination, and human exploitation. Nearly all brands of criminologists will now argue that these conditions are the underlying causes of crime." While all criminologists are familiar with many of the arguments which have been advanced to support the contention that a more equal society would be a society in which there would be less crime, Brady is mistaken to assume that most criminologists accept them. Indeed there is still dispute as to whether inequality is a correlate of crime, let alone a cause.

In a previous work Braithwaite (1979) has reviewed the theory and empirical evidence bearing upon the question of whether a more equal society might be a society in which there was less crime. One of the several levels of analysis in attempting to reach an answer to that question was the international comparison. Homicide data on only 20 nations for a one-year period were analysed in that work. The purpose of the present paper is to undertake a more elaborate cross-national comparison of inequality and crime on a larger sample of countries with data covering a longer time period. The larger sample will permit the introduction of more controls for extraneous variables.

As was argued in the previous work, homicide is the only crime category for which there is an acceptable level of uniformity among nations. Cross-national comparisons such as those by Krohn (1976) and McDonald (1976) which compare nations on levels of property crime from police statistics are sure to provide misleading conclusions. Homicide, in contrast, has higher levels of reportability, seriousness, and uniformity of interpretation than any other crime category.

The Homicide Measure

There are considerable risks in adopting an official homicide rate for one year as an estimate of true homicide rate. To enhance the reliability of the present data, homicide rates were averaged over a 20-year period from 1955 to 1974 inclusive. The source of the data was Interpol's *International Crime Statistics*. Nations were only included in the analysis if data were available for at least half the years within the time period, or if a complete data set were available from the time the nation was formed as an independent entity. For the 31 countries included in the final analysis reported in this paper homicide data were available for an average of 16 years. These 31 countries are listed in Appendix A.

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Several countries which met the overall requirements of data availability were excluded from the investigation because of inexplicably wild variations in homicide rates. To take the most extreme example, Spain showed rates of 0·32 and 0·41 per 100,000 in 1955 and 1956 respectively, which jumped to 80·01 in 1959 and 78·69 in 1960. The two most likely sources of gross error are charges in the policy regarding the inclusion of unlawful killing through the use of a motor vehicle and the inclusion of deaths resulting from warfare, either civil or external. While it is hoped that data incorporating these sources of error have been excluded, it is clearly impossible to have sufficient familiarity with each nation's crime statistics to be absolutely confident of this in every case.

Inequality Measures

Correlations between a number of readily available indices of income inequality and homicide were calculated. These were Lydall's (1968) three indices of the ratios of the fifth, tenth, and seventy-fifth percentiles to the fiftieth percentile of the earnings distribution (P_5, P_{10} and P_{75}). P_5 and P_{10} are measures of the gap between the rich and the average income earner, P_{75} a measure of the gap between the poor and the average income earner. Another Lydall index is the bricklayers' differential, which is the hourly wage rate in 1964 for adult labourers in building expressed as a percentage of rates for bricklayers. Clearly the latter is an index of inequality within the bottom tail of the income distribution only.

The next two indices are based on Taylor and Hudson's (1972) examination of intersectoral income inequality. These measures are concerned with inequality among approximate average levels of income in eight different sectors of industry—agriculture, forestry, hunting and fishery; mining and quarrying; manufacturing; construction; electricity, gas, water, and sanitary services; commerce (wholesale and retail trade, banking, insurance and real estate); and transportation, storage, and communication and services. The first Taylor and Hudson index is the Gini coefficient of intersectoral income inequality—an overall index of how equally income is dispersed among the eight sectors. Such an index clearly understates the level of inequality since inequality within industry sectors is ignored. Similarly with Taylor and Hudson's second intersectoral index—the size of the smallest sectors of the population with half of the total income. Clearly, however, a society in which a very small proportion of the population receives half of the total national income would be an unequal society.

Wages and salaries are not the only sources of inequality of wealth. Social security expenditure is explicitly intended to have a redistributive effect. Hence, the United States Social Security Administration's (1965) index of percentage of the gross national product spent on social security was included as an inequality measure. Land is another important basis of inequality, especially in less developed countries. The two indices used were Taylor and Hudson's (1972) Gini index of inequality in the distribution of land and smallest number of farms with half the total acreage.

TABLE 1

Correlation of various indices of inequality with average homicide rates 1955–1974

	r	Number of countries on which correlation is based
P_5 (Ratio of 5th to 50th percentile)	0·774*	17
P_{10} (Ratio of 10th to 50th percentile)	0·774*	17
P_{75} (Ratio of 75th to 50th percentile)	−0·505*	15
Bricklayers' differential	−0·210	14
Gini for intersectoral income inequality	0·623*	31
Size of smallest sectors with half total income	−0·547*	31
Per cent. of GNP on social security	−0·480*	28
Gini for land	−0·100	29
Smallest number of farms with half acreage	−0·016	25

* Significant at 0·05 level.

It can be seen that most of the variables in Table 1 have strong and statistically significant correlations with homicide. All of the correlations except Gini for land are in the direction of greater inequality being associated with higher homicide rates. Clearly inequality in the distribution of land is not a good predictor of homicide levels. The strongest correlations are with Lydall's two indices of the earnings gap between the rich and the average income earner (P_5 and P_{10}). The next best correlate is Gini for intersectoral income inequality. Because adequate data on both intersectoral income inequality and homicide are available for 31 countries, this variable, rather than P_5 or P_{10}, has been chosen as the focus for further investigation.

Correlation of Intersectoral Income Inequality with Other Inequality Measures

Before proceeding to examine the effect of intersectoral income inequality on homicide after controlling for important extraneous variables it is necessary to test the validity of the variable as a measure of inequality. In Table 2 the correlations of intersectoral inequality with other inequality measures are listed.

TABLE 2

Correlation of intersectoral income inequality with alternative measures inequality

	r	Number of countries on which correlation is based
P_5 (Ratio of 5th to 50th percentile)	0·776*	15
P_{10} (Ratio of 10th to 50th percentile)	0·769*	15
P_{75} (Ratio of 75th to 50th percentile)	−0·444*	14
Bricklayers' differential	−0·394	12
Size of smallest sectors with half total income	−0·989*	31
% of GNP on social security	−0·529*	23
Gini for land	0·170	24
Smallest number of farms with half acreage	−0·110	20

* Significant at 0·05 level.

All correlations in Table 2 are in the direction necessary for the validation of intersectoral income inequality, although the correlations with the two indices of inequality in the distribution of land are very low indeed. The strong correlation with the earnings based indices gives some confidence that intersectoral income inequality might be a valid index of overall earnings inequality even though it neglects intra-sector dispersion.

The Meaninglessness of Statistical Significance

The correlation of 0.623 between intersectoral income inequality and homicide is statistically significant at the 0.001 level. In the context of the present research, however, statistical significance is a meaningless concept. Significance tests assume a random sample of an infinite population. Here we have a systematically non-random sample of a finite population. Thirty-one of the approximately 200 countries in the world are included in this study. It would be dishonest to say that we are dealing with a population rather than a sample—the population of all countries for which both adequate homicide and income inequality data are available. To make such a claim would be to play semantic games. Whatever the group of 31 countries is called, the correlations are best treated as descriptive rather than inferential statistics. Similarly with the multiple regression analyses reported in the next section. The total variance explained by the regression equation is meaningful as a description of the exact amount of variance which can be explained by the predictors in the 31 countries of the world from which accurate statistical records can be obtained. Significance tests for each predictor are provided. While only the statistically naive reader would pay attention to these F-tests, they are included lest some critic chooses to castigate us for concealing the non-significance of some of our findings.

The Income Inequality Regressions

The most difficult question to answer for researchers operating at a cross-national level of analysis is whether or not the correlation they have established is spurious. It might be, for example, that developed countries have lower levels of both inequality and homicide than developing countries, and that this is why there appears to be a relationship between income inequality and homicide. Multiple regression is the technique which has been used to handle this problem. The first regression model includes as predictors extraneous variables which it is suspected might show the correlation between inequality and homicide to be spurious. Inequality is then added to this group of predictors (the control variables) so that it can be ascertained whether inequality explains any variance in homicide rates over and above that explained by the control variables.

Unfortunately, on so small a number of cases as 31 the entry of too large a number of predictors into the regression results in an abuse of the assumptions of the multiple regression model. The number of predictors for any one regression in the present analysis was limited to four. The task is then to select those few variables which are most likely to explain away the relationship between inequality and homicide. Since there is little by way of theory

to guide such a choice, the decision was made on empirical grounds. A number of variables from a variety of sources were thrown into a correlation matrix with intersectoral income inequality and homicide. The variables included protein grams *per capita* (Taylor and Hudson, 1972), the Freedom House political freedom index, an ethnic fractionalisation index (Taylor and Hudson, 1972), Gross Domestic Product *per capita*, Gross National Product *per capita*, Gross National Product growth between 1950 and 1965, concentration of population (an urbanisation measure), type of political system, and a freedom of the press index. The first three of the above variables showed the strongest correlations with homicide and so were chosen to be entered as control variables in the regression model.

The first problem for the regression analysis is that the plot of homicide rate against income inequality is not quite linear. Homicide rate is a positively accelerated function of income inequality. While a curvilinear regression might have explained somewhat more variance, it was decided to opt for the simplicity of a linear model.

There is a high degree of multicollinearity among the three predictors and intersectoral income inequality. Countries with few protein grams *per capita* have both high homicide rates and high income inequality, the correlation between the latter and protein grams *per capita* being —0.686. Nations which rate poorly on the 100-point political freedom index are high on both homicide and inequality, the inequality-freedom correlation being —0.621. The multicollinearity problem is not so severe with ethmic fractionalisation, which correlates only 0.148 with income inequality. Multicollinearity among predictors has two consequences. First, it results in the size of the regression coefficients being arbitrary. This is of little concern for the purposes of this analysis, since there is no intrinsic interest in either the size of regression coefficients or in the form of the regression equation. Secondly, the high correlations of income inequality with the control variables mean that a highly conservative test has been undertaken of whether income inequality can explain homicide rates. For example, to partial out the large amount of variance shared between income inequality and political freedom is to assume implicitly that it is lack of political freedom which causes both high homicide rates and high levels of income inequality. While that might be partly true, it might also be true that part of the shared variance is explicable in terms of income inequality causing both high homicide rates and lack of political freedom. The model, erring on the side of under-estimating the effect of income inequality, explicitly excludes the latter possibility.

It can be seen from Table 3 that the four predictors explain the extremely high proportion of 68·7 per cent. of the variance in homicide rates. With intersectoral income inequality forced to be entered last into the step-wise model, it explains only 1·3 per cent. of additional variance over and above that explained by the control variables. This is perhaps not surprising given that a rather massive 67·4 per cent. of the variance had already been partialled out by the other three predictors, leaving only a relatively small proportion of the variance available for explanation.

TABLE 3

Summary table for step-wise multiple regression to predict homicide rate in 31 countries with intersectoral income inequality entered last

	Beta	R^2	R^2 change	F
Protein grams per capita	−0·259	0·505	0·505	1·952
Political freedom	−0·377	0·619	0·114	5·483*
Ethnic fractionalisation	0·274	0·674	0·055	4·414*
Intersectoral income inequality	0·170	0·687	0·013	0·922

* F significant at 0·05 level.

The emergence of protein grams *per capita* as the best predictor of homicide is most interesting in the context of the present analysis. A low level of protein grams *per capita* could be interpreted as indicative of a wide gulf between the poor and the remainder of the population—that is, of income inequality. It is the existence of extremely poor people living in conditions of hunger which drag down the average level of protein grams *per capita*, and such extremes of privation are most likely to occur in nations with wide disparities of wealth. Consistent with such an hypothesis, protein grams *per capita* has a higher correlation with intersectoral income inequality (−0·686) than with either of the other two predictors. Moreover, its correlation with Gross Domestic Product *per capita* is slightly lower (−0·637) than its correlation with income inequality. Protein grams *per capita* might be just as much (or more) a measure of inequality of wealth as of aggregate level of wealth. It was therefore decided to repeat the regression analysis replacing protein grams *per capita* with a predictor which is unequivocally a measure of aggregate wealth rather than inequality of wealth—GDP *per capita*. Gross Domestic Product *per capita* was in fact the next strongest correlate of homicide after the three control variables included in the regression above.

TABLE 4

Summary table for second step-wise multiple regression to predict homicide rate in 31 countries with intersectoral income inequality entered last

	Beta	R^2	R^2 Change	F
Political freedom	−0·576	0·494	0·494	9·429*
Ethnic fractionalisation	0·323	0·605	0·111	6·832*
GDP per capita	0·239	0·609	0·004	1·618
Intersectoral income inequality	0·370	0·683	0·074	5·126*

* F significant at 0·05 level.

It can be seen from Table 4 that replacing protein grams *per capita* with GDP *per capita* produces virtually no change in the total amount of variance explained by the model (68·3 per cent.), but increases substantially the residual variance explained by income inequality. Income inequality explains a respectable 7·4 per cent. of the variance in homicide rates even after more than 60 per cent. of the variance has been partialled out by the control variables. Given that two of the control variables correlate −0·621

and −0·637 with income inequality, it is via a very conservative test that this regression provides confirmation of the potency of income inequality as a predictor of homicide rates for these 31 countries.

Social Democracy and Homicide Rates

If earnings equality is associated with low homicide rates, then a central question becomes whether countries with strong parliamentary representation of social democratic parties which are committed to equalising wealth have low homicide rates. If inequality causes crime, then parties committed to reducing inequality should reduce crime. Some confidence in such an hypothesis is generated by Hewitt's (1977) finding that the " average post-war legislative strength of Socialist parties 1945–65 " was strongly positively associated with the equality of the class system in 25 countries. Hewitt's legislative strength of socialist parties variable, based on average percentage of the vote obtained by socialist parties in elections, has been taken over into the present analysis. The variable does not in fact measure the strength of " socialist " parties, but rather social democratic parties. China, Cuba, and the Soviet block countries are not included because of the absence of elections with more than one party. To be counted as a socialist party, it had to be in a list provided by the General Secretary of the Socialist International. This list included some very moderately radical egalitarian parties such as the Labour Parties of Britain, Australia and New Zealand, but excluded all of the major parties in the United States and Canada.

For the 19 countries for which both data on the average post-war strength of socialist parties and intersectoral income inequality were available the correlation between the two was −0·416. The correlation between average post-war strength of socialist parties and homicide rate was −0·365 for the 20 nations on which the data were adequate. The latter coefficient is significant at the 0·05 level but not at the 0·01 level. Tables 5 and 6 summarise the results of the application to legislative strength of socialist parties of the same regression models which were applied to income inequality.

On the smaller sample of 20 nations in the legislative strength of socialist parties' regressions, protein grams *per capita* emerges as a much stronger correlate of homicide rate than any other variable and GDP *per capita*

TABLE 5

Summary table for step-wise multiple regression to predict homicide rate in 20 countries with average post-war legislative strength of socialist parties 1945–1965 entered last

	Beta	R^2	R^2 Change	F
Protein grams per capita	−0·618	0·318	0·318	13·217*
Ethnic fractionalisation	0·522	0·602	0·284	8·892*
Political freedom	−0·233	0·648	0·046	1·979
Legislative strength of socialist parties	−0·167	0·673	0·025	0·969

* F significant at 0·05 level.

TABLE 6

Summary table for second step-wise multiple regression to predict homicide rate in 20 countries with average post-war legislative strength of socialist parties 1945–1965 entered last

	Beta	R^2	R^2 Change	
Ethnic fractionalisation	0·459	0·146	0·146	3·296
GDP per capita	−0·254	0·271	0·125	0·932
Political freedom	−0·269	0·323	0·052	1·228
Legislative strength of socialist parties	−0·262	0·384	0·061	1·295

becomes only a very weak correlate of homicide (−0·158). Consequently, when GDP *per capita* replaces protein grams *per capita* in the second regression the total variance explained drops from 67·3 per cent. to 38·4 per cent. After partialling out the variance explained by the control variables, legislative strength of socialist parties explains 2·5 per cent. of the variance in the first analysis and 6·1 per cent. in the second.

Summary

Multiple regression analysis has been used as a descriptive statistic to test the hypothesis that inequality is a correlate of homicide rates cross-nationally. First-order correlations between homicide and a number of inequality indices, except inequality in the distribution of land, were strong. Even after simultaneously controlling for the effects of the strongest available correlates of international homicide rates, intersectoral income inequality still explained notable amounts of variance in homicide levels for 31 countries.

It was also hypothesised that the legislative strength of social democratic parties would be a correlate of cross-national homicide rates. This was supported, although the correlation was not as strong as with income inequality. The legislative strength of social democratic parties data was also not as compelling as that for income inequality because it was based on only 20 countries, and because, even though as much as 6·1 per cent. of the variance in a step-wise procedure could be explained by the legislative strength of social democrats, this was after only 33·3 per cent. of the variance had been partialled out by the control variables.

On their own data of this kind do not constitute a convincing case for the proposition that a more equal society would be a society in which there would be less homicide. Intersectoral income inequality, even though it has been partially validated in this article, is a crude index which ignores inequities in the distribution of wealth within industry sectors. Moreover, the homicide data, even though the best available for the time period, are fraught with many sources of error. What is true of homicide might not be true of the other types of crime which are unmeasurable at the cross-national level of analysis.

Nevertheless, this study does not stand on its own. Its findings are consistent with those of Krohn (1976), McDonald (1976) and Braithwaite

(1979) that with respect to cross-national comparisons of homicide rates inequality and crime are associated. More importantly, international comparisons form the least explored and most difficult fragment of the vast body of evidence on the relationship between inequality of wealth and crime which has been reviewed by Braithwaite (1979). Increasingly, this corpus of empirical findings is suggestively pointing to the conclusion that a more equal society might be one in which there is less homicide.

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Appendix

List of 31 Nations Included in Intersectoral Income Analyses in Tables 3 and 4

Australia	Japan
Austria	Jordan
Canada	Republic of Korea
Cyprus	Luxembourg
Denmark	Netherlands
England and Wales	Norway
Finland	Peru
France	Phillipines
Federal Republic of Germany	Scotland
India	Thailand
Iraq	Trinidad and Tobago
Eire	Turkey
Israel	United Arab Republic (Egypt)
Italy	Venezuela
Jamaica	United States