Structural and Direct Violence*

A Note on Operationalization

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In comparing these two types of violence only *one* aspect of structural violence will be discussed here: that which kills, although slowly, and undramatically from the point of view of direct violence. It should be kept in mind that there are *very* many other *very* different types of structural violence.

In order to compare violence that kills slowly and violence that kills quickly, violence that is anonymous and violence that has an author, there has to be a common *unit*. Direct violence is usually measured in number of deaths. One could approach structural violence in the same way, looking at e.g. the number of avoidable deaths that occur because medical and sanitary resources are concentrated in the upper classes. One problem of deaths, however, is that they occur at different ages, and we feel that the loss involved is greater in the death of a child than in that of an adult. A more appropriate measure would therefore be the *number of years lost*, which we shall use to measure both direct and structural violence.

In evaluating the amount of direct or structural violence we compare the real world not with an ideal world in an abstract sense, but with a potential world. Death as such is unavoidable, but we would consider *all* war-deaths as potentially avoidable, and a great number of deaths from illnesses and accidents as caused by the existing distribution of wealth and power. In most countries, that is, the average level of health could be raised through a redistribution of present resources. There is an avoidable deprivation of life, measured in lost man-years.

If a society has the resources – medical, organizational, financial – to give an *average* life expectancy of *c* years to its members, then the question is whether the average life expectancy of social groups *is* correlated with social position, so that the lower the social position, the lower the life expectancy. In other words, we assume that life expectancy, L, is a function of social position, S, the latter defined as ranging from 0 to 1:

$$L = L(S)$$

In general it would increase with S, and for simplicity we assume that this is true in every point between 0 and 1.

Under optimal conditions this function would not depend on S:

$$L^* = L^*(S) = c^*$$

where c^* would be the common life expectancy of all social groups. We have chosen L^* as a constant because we see this as a goal. The determination of L^* could have been stated more generally: with a given distribution of births

$$B = B(S)$$

find a function $L^*(S)$ so that society's average life expectancy at birth

$$\int_0^1 L^*(S) \cdot B(S)\, dS$$

is maximized, through the reallocation of our total resources. This would, however, imply a willingness to distribute the years of life among men through control of their social conditions. We work with optimality, not as an abstract term, but as something to be *realized*, and cannot accept the type of comparison and domination implicit in the more general formulation. This is a question of *concrete* politics.

The loss due to this particular aspect of structural violence, here defined as the avoidable difference, AD, is

$$AD = L^*(S) - L(S) = c^* - L(S)$$

At the social level S, AD is the average number of years of life lost by a person because of the existing distribution of socio-medical resources. To compute this average for society as a whole we must integrate over the distribution of births

$$\text{structural violence} = \int_0^1 [c^* - L(S)] \cdot B(S)\, dS$$

This may also be written

$$\int_0^1 c^* B(S)\, dS - \int_0^1 L(S)B(S)\, dS = c^* - a$$

In other words, structural violence is the difference between the optimal life expectancy and the actual life expectancy, a

The situation is most clearly seen from Fig. 1.

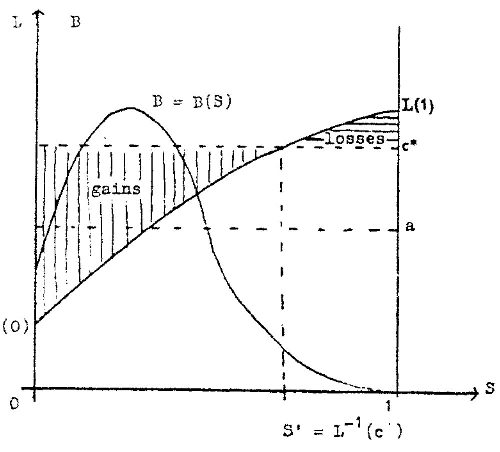

Fig. 1.

Here we have assumed that c* is located above a, the present average, and below the highest existing level, L(1). This seems a reasonable condition. If a given social surplus is used so that health is evenly distributed, equalizing the hygienic environment in a broad sense, then there would probably be some who would have their average life expectancy shortened (no longer access to extremely well equipped and well financed private clinics, private doctors, health travels abroad, and so on). Obviously, these losses may be made to disappear by fixing c at the L(1) level, e.g. by stipulating that the level of health that prevails at the highest social group shall be extended to the society at large. If the level is attainable for the highest social group, then it should also be attainable for the whole society (social darwinists would deny this, saying that more than distribution of social resources is involved, there is also a positive selection into the highest social group). There is also the argument that a less distorted society would release resources that could bring the average life expectancy far above this level. But we have made a more modest assumption.

Obviously, the steeper L is, the more there is, in general, to *gain*. And the *losses* can be said to be less serious since they are weighted with a low population proportion in the highest social category where a small group is able to convert social position into prolonged life.

c* divides society into two parts, *low* from 0 to S′ with life expectancies under the potential c*, and *high* from S′ to 1 with life expectancies above c*. Now, the amount of structural violence is at the same time what society can gain from a redistribution. Since the *low* part stands to gain and the *high* part stands to lose, society's total gain, c* − a, is composed of a gain and a loss:

total gain = gain of *low* − loss of *high*

Mathematically, it can be shown that[1]

$$c^* - a = p_{low}(c^* - a_{low}) - p_{high}(a_{high} - c^*)$$

where p_{low} and p_{high} are the proportions of births in *low* and *high*, and a_{low} and a_{high} are their respective life expectancies.

As computed above, the amount of structural violence refers to a static society, i.e. a society with constant birth numbers and given life expectancies a and c*. In a changing world we have to define it at a given time, say the year 1970. Various possibilities are then open. The reference population could be

1) those born in 1970 (population size n, say) – the one we have discussed so far
2) those living in 1970 (population size N)

The life expectancies could, in either case, be

1) based on present rates of mortality, e.g. in the years 1965—70
2) based on projected rates of mortality, i.e. the estimated future rates that the reference population will experience.

To simplify calculations we shall use the number of births in a year combined with present mortality rates. The number of man-years lost *in a given year* would thus be computed as

$$n(c^* - a)$$

We can now compare structural with direct violence in terms of man-years lost. Let q be the fraction of the total population dead by direct violence in a given year. (The number of dead is qN.) The population P is distributed both by age, A, and social position, S:

$$P = P(A, S) \qquad \int P(A, S)\, dAdS = 1$$

The deaths, D, are also distributed over the same variables:

$$D = D(A, S) \qquad \int D(A, S)\, dAdS = 1$$

When a person in the cell (A, S) dies, the number of man-years lost is of course not life expectancy at birth, but the number of additional years he could expect to live from age A, L(A, S). Or,

$$L = L(A, S) \qquad \text{where } L(0, S) = L(S)$$

Integrating L(A, S) over the population we get society's average *remaining life expectancy*, e.

$$e = \int L(A, S) \cdot P(A, S)\, dAdS$$

When persons die by direct violence, their L values are forcibly reduced to zero, and e falls to a lower value, e^-, say. This means that the reference population N gets its remaining life expectancy reduced from e to e^-, in other words that a total of

$$N(e - e^-)$$

man-years is lost. The comparison for a single year is thus as shown in Figure 2.

Amount of violence in man-years lost

direct	structural violence
$N(e - e^-)$	$n(c^* - a)$

Fig. 2.

Mathematically, we can write

$$e^- = \int L(A, S) \cdot [P(A, S) - q \cdot D(A, S)]\, dAdS =$$
$$e - q \cdot \int L(A, S)\, D(A, S)\, dAdS = e - q \cdot e_{dead}$$

As mentioned before, q is the fraction of the population killed by direct violence in a year while e_{dead} is the average remaining life expectancy of the 'population of dead'. Thus the amount of direct violence is also,

$$N(e - e^-) = Nq \cdot e_{dead}$$

or the number of dead multiplied by their (former) life expectancy.

Empirical work should now be started to get meaningful estimates of the loss of man-years due to direct and structural violence, respectively. What is lost in the slums of Latin America relative to the battlefields of Europe – during one year of WW II? Or, more meaningfully, what was lost due to direct violence in the Cuban revolution relative to what was gained by changing the life expectancy? In comparable time periods?

For this type of work a number of assumptions will probably have to be introduced. Imagine we have a linear indicator for S, and introduce a linear approximation for $L(S)$; $L(S) = kS + b$ If we now introduce various types of standard population and various levels of attainable S-invariant life expectancies, c^*, the number of man-years lost can be calculated for a number of different values of k and b, producing tables that can be used for approximate estimates when some data about an empirical population are known (e.g., B(S) in general terms and a_{high} and a_{low} as the two points needed to estimate k and b).

NOTES

* This note can be identified as PRIO-publication no. 23–12 from the International Peace Research Institute, Oslo. It should be viewed as a companion piece and comment to Johan Galtung: 'Violence, Peace, and Peace Research', (JPR 1969, pp. 167–191; PRIO-publication no. 23–9).

[1]) By definition,

$$p_{low} = \int_0^{S'} P(S)\, dS, \quad p_{high} = \int_{S'}^{1} P(S)\, dS;$$

$$a_{low} = \int_0^{S'} L(S)\, [P(S)/p_{low}]\, dS,$$

$$a_{high} = \int_{S'}^{1} L(S)\, [P(S)/p_{high}]\, dS.$$

It follows that

$$c^* - a = \int_0^{S'} [c^* - L(S)]P(S)\, dS + \int_{S'}^{1} [c^* - L(S)]P(S)\, dS =$$

$$c^* \cdot p_{low} - a_{low} \cdot p_{low} + c^* \cdot p_{high} - a_{high} \cdot p_{high} =$$

$$p_{low}\,(c^* - a_{low}) - p_{high}\,(a_{high} - c^*)$$