ON THE MEASUREMENT OF INHERITED WEALTH

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INTRODUCTION

The question of quantifying the importance of inheritance in the creation of personal fortunes has for long been of interest to economists concerned with the causes of economic growth and with the treatment of wealth for tax purposes. Half a century ago Rignano[1] raised the possibility of taxing wealth differentially according to whether it was inherited or not. Currently discussions of the reform of capital taxation in the U.K. and other countries has given the subject renewed interest.[2]

The object of this paper is to compare two possible measures of inheritance.

One is computed by relating the size of estates left by wealth leavers in a particular year with the size of estates of their fathers. Two of the present authors have used this measure in an attempt to throw some light on the importance of inheritance for a sample of "top" wealth leavers dying in the 1950s and 1960s in the U.K.[3]

The second measure presented in this paper introduces time into the comparison. Hence an attempt is made to incorporate the time-span between the death of a father and the death of his son. This is achieved by calculating compound interest growth rates. The rate of interest is that sufficient to raise the father's estate to the size of the son's estate over the period of the intergeneration span. The hypothesis proposed is that the criterion for determining that a man is "self-made" should be that he achieved a high growth rate, irrespective of the size of his inheritance. The results based on this new criterion are compared with those based on the first measure, which simply relates the size of fathers' estates with those of their sons.

In part I we describe the sample data, and the results of the previous research, part II compares the growth rate criterion with the results of the previous research, and in part III we discuss the results.

[1]See E. Rignano and J. C. Stamp, *The Social Significance of Death Duties*, Norman Dent, London, 1926.

[2]The Royal Commission on the Distribution of Income and Wealth, Report No. 1, Cmnd. 6171, July 1975, paragraph 338.

[3]C. D. Harbury and P. C. McMahon, "Inheritance and the Characteristics of Top Wealth Leavers in Britain," *Economic Journal*, Vol. 83, No. 331, 1973, pp. 810–833.

I

The method used to collect data on inheritance is described in detail in an earlier article by Harbury.[4] Basically, two samples of deceased males leaving more than £100,000 were drawn from probate calendars at Somerset House for the years 1956/57 and 1965. The names of the fathers of these deceased males are traced through their birth certificates, and each father's gross estate valuation is again traced from the probate calendars.

Such data on inheritance are deficient for a number of reasons. The size of the father's estate does not represent the share inherited by the son. Nor does it include gifts received *inter vivos* or legacies received from other sources. Further, a number of other important characteristics may be inherited; these are virtually unquantifiable and include education, life-styles, contacts and other advantages both genetic and environmental which favour the "high-born".

TABLE 1
FATHER'S ESTATES FOR SONS LEAVING £100,000 AND OVER
(1956/57 Constant Prices)

Father's Estate Size										
Cumulative Percentages										
Over £1,000,000	Over £500,000	Over £250,000	Over £100,000	Over £50,000	Over £25,000	Over £10,000	Over £5,000	Over £1,000	All	Sample Size
9	19	33	51	62	69	76	79	85	100	622

Table 1 reproduces the results of the previous research. It shows the cumulative percentage of sons having fathers who left estates of varying sizes valued in constant 1956/57 prices. Reading across the table it can be seen that 69 percent of sons had fathers leaving more than £25,000. Taking this as an arbitrary definition of having a rich father, one comes to the conclusion that about two-thirds of the generation of wealthy individuals who died in recent years were assisted by inheritance and that one-third were on this criterion self-made. Alternative definitions for rich fathers could of course be assumed and would yield different results; these were considered in the papers referred to. There is, however, another potentially important source of bias of a totally different nature, which it is the purpose of this paper to consider.

This is simply that the decision to call a rich man "self-made" because his father's estate was less than £x ignores the time span between the date of death of his father and his own. The following alternative hypothesis is therefore proposed: a man should be considered self-made if the rate of growth of his estate between

[4]C. D. Harbury, "Inheritance and the Distribution of Personal Wealth in Britain," *Economic Journal*, Vol. 72, No. 228, 1962, pp. 845–868.

the two deaths is greater than y percent. The reason for taking this view can be illustrated by a simple example. Suppose two sons die in 1975 leaving £100 thousand and each had a father leaving £50 thousand. Son A however, died just two years after his father; son B survived his father by 50 years. By the earlier definition of inheritance both sons would be classified as those who had inherited their wealth. But the new criterion would suggest that son B had inherited, but son A who had doubled his fortune in a mere two years might have exhibited such entrepreneurial skill that he would be better included in the self-made category. The difference between the two families could be brought out if one were to use an indicator of the growth rate between the estates of father and son as the criterion for assessing the importance of inheritance. This is the method that has been adopted in the present paper. The growth rates calculated have been the compound interest rates based on the standard formula:

$$P = pa^t$$

where:

P is the son's estate
p the father's estate, and
t the inter-generation span.

II

Growth rates were calculated for the 622 estates on which the previous research was based, to ascertain whether the new definition of inheritance would substantially alter the conclusions referred to earlier. It may be added that the entire exercise seemed particularly worthwhile because the range of inter-generation spans in the samples was rather wide (see Table 2). Although the median span is rather less than 40 years, it can be seen from the table that the range spreads from less than 10 years to more than 80 years.

TABLE 2
DISTRIBUTION OF INTERGENERATIONAL SPANS

Inter-generation Spans (years)	Nos.
Up to 10	17
11 to 20	53
21 to 30	106
31 to 40	137
41 to 50	144
51 to 60	74
61 to 70	51
71 to 80	26
80 and over	9
unknown	5
Total	622

Note: Inter-generation span is the number of years elapsing between the death of father and son.

Table 3 shows the cumulative distribution of growth rates between fathers and sons estates. It can be seen, for example, that in the case of 5 percent of sons in the sample the growth rate between their estates and those of their fathers was 25 percent or over. Similarly 31 percent of sons had growth rates of 6 percent or more.

TABLE 3

GROWTH RATES OF SONS' ESTATES, FROM FATHER'S ESTATE
(1956/57 Constant Prices)
(Cumulative percentages)

Growth Rate Greater than %	25	15	10	9	8	7	6	5	4	3	2	1	0	0 & less	N
Percent of Sample	5	13	20	23	25	27	31	33	38	44	48	57	64	100	621

Mean growth rate = 4.97 percent.

The question arises as to which rate of growth is appropriate to divide the self-made from the inheritors. This is to some extent an arbitrary decision. It is useful to begin by asking first the question of what rate of growth would divide the sample in the same proportions of "inheritors" to "self-made" as in Table 1, using the alternative criterion of the earlier papers.

It can be seen that 31 percent of sons had a growth rate of 6 percent or more, which is the same number of sons whose fathers' left less than £25,000. It remains to decide whether a real rate of return of 6% is an appropriate one at which a son dying in recent years might have been able to accumulate from his inheritance without any particular entrepreneurial skills. If this were so we could take this figure of 6 percent as a watershed above which sons could be classified as self-made and below which as inheritors. It is a matter of judgment to decide this issue. If one assumes that sons did not spend any income from inherited assets and paid tax at current standard rates then there is fortunately a useful series to refer to. Merrett and Sykes[5] have published the real rates of return on equities and fixed interest securities over the period 1919–66 and show that a single lump sum investment would have grown, net of tax, at compound rates of 8 percent for equities and 0.0 percent for fixed interest securities over the span of 47 years.

There would appear therefore to be no overwhelming reason for believing that a watershed of 6 percent is significantly different from the rate of return on a portfolio comprising only a small proportion of fixed interest stocks. Indeed if one takes account of the fact that the marginal tax rate on investment income for the top wealth leavers in the sample data must have been higher than the standard rate in the majority of cases, then 6 percent may be considered a satisfactory division if one must be chosen. In the light of this it would appear that the use of the first measure is appropriate. Since the figure of £25,000 or over for fathers estates was arbitrarily selected in the first place, we could select as our definition of self-made in this analysis growth rates of 8 percent or higher. This would imply that 25

[5] A. J. Merrett and A. Sykes, "Return on Equities and Fixed Interest Securities, 1919–1966," *District Bank Review*, June 1966.

percent of the sample of sons were self-made and would correspond in the earlier analysis to describing sons as inheritors if their fathers left a minimum of £10,000. However, we would submit that the niceties of such precision are hardly warranted in view of the data.

Given that the introduction of the time period between fathers and sons deaths and the calculation of growth rates does not appear to alter significantly the results obtained from comparing the absolute size of estates of the two generations, a final question of interest arises. It is simply whether the same individuals previously classified as inheritors or as self-made remain in the same categories on the growth rate criterion. Table 4 throws light on this matter. It shows growth rates achieved for sons whose fathers left estates of varying size. It can be seen that a number of estates above £25,000 which were defined as rich on the old criterion achieved a growth rate of greater than 6 percent. On the other hand there were a number of estates of less than £25,000 which achieved growth rates of rather less than 6 percent. In fact it suggests that a further 6 percent of estates formerly designated "inheritors" might now be classified as self-made. Amongst these are, for example, approximately a fifth of those sons whose fathers left estates of between £50,000 and £100,000. Although for the purpose of estimating the overall importance of inheritance there appears to be little to choose between the two criteria discussed in this paper, it seems to us worth emphasis that the growth rates of a number of substantial inheritors using that criterion is high. This suggests to us that the second measure employed here is the more realistic of the two.

TABLE 4
GROWTH RATES OF SONS' ESTATES BY FATHER'S ESTATE SIZE
(1956/57 Constant Prices)
(Cumulative Percentages)

Combined Sample	Father's Estate (£ thousands)									
Growth Rate greater than %	Less than 1	1–	5–	10–	25–	50–	100–	250–	500–	1,000 and over
0 and less	—	—	—	—	—	—	100	100	100	100
0	—	—	—	—	—	100	64	13	1	2
1	—	—	—	—	100	94	36	6	0	0
2	100	—	—	100	95	60	15	2	0	0
3	100	—	—	96	79	49	6	2	0	0
4	99	100	100	87	54	28	3	0	0	0
5	99	97	95	58	31	24	1	0	0	0
6	98	92	86	45	26	20	0	0	0	0
7	98	79	73	36	18	13	0	0	0	0
8	96	77	55	27	16	10	0	0	0	0
9	93	69	36	18	16	7	0	0	0	0
10	90	56	32	11	13	6	0	0	0	0
15	63	31	14	4	3	4	0	0	0	0
25	21	18	5	2	0	1	0	0	0	0
N	92	39	22	45	39	72	113	86	60	53

III

Before considering conclusions which can be drawn from this paper we shall briefly consider the problems of the growth rate concept. Apart from the data problems discussed earlier in the paper, the major shortcomings include the lack of allowance in the analysis for family size, the use of gross probate valuation of estates, the omission of certain trusts and gifts *inter vivos* which may under-record the valuation of both the fathers' and sons' estates in some cases. Moreover, it should be recognised that the definition of self-made men using the growth rate criterion will include some whose accumulations resulted from saving out of earned income or pure luck. Additionally the use of inter-generation spans in the calculation of compound interest growth rates is only justified if the economic behaviour of individuals persists over the whole of this period. Some self-made men may have made fortunes in much shorter periods, but have been classed as inheritors if there were long inter-generation spans. Finally, there are two aspects of the comparison of the internally generated growth rate of 6 percent with the evidence of portfolio yield in the U.K. economy which must be borne in mind. One is that we cannot obtain information on the asset composition of any estates in the sample, and therefore cannot estimate expected growth rates of individual estates. The second is that, since investment yields have varied widely over the past half century, different rates of return would be expected for sons whose fathers died in different years.[6]

Conclusions

Growth rates as a measure of inheritance are appealing because they allow for the possibility that though an individual may receive a substantial inheritance it is still possible for his entrepreneurial exertions to be measured. The measure also suggests that the definition of an inheritor as one whose father left over £25,000 used in earlier papers is consistent with such sons having internally generated rates of accumulation of 6 percent or less, and that 6 percent is not an unrealistic watershed. The growth rate is however to be preferred in so far as certain individuals are differently and more realistically categorized as self-made.

[6]Our view is that this exercise will not alter the results significantly. However work is in progress to test this.