DO-IT-YOURSELF AND GDP*

BY T. P. HILL

University of East Anglia, England

Do-it-yourself activities are, by definition, those for which a choice must exist between doing it oneself or hiring someone else. This means they typically involve the own account production of services, but whereas it is customary to include most goods produced on own account in GDP services are conventionally excluded. In principle, however, it is possible to envisage a comprehensive and unique measure of the total final output of all the goods and services produced within an economy whether for sale or own use. Such a measure would be better than GDP as an indicator of long term changes in economic welfare, being independent of any shifts in the ratio of market to non-market production. Moreover, it would be a homogeneous measure with clearly defined limits in contrast to improvised indices of welfare which mix economic and non-economic variables in arbitrary and subjective ways. However, the need for a measure of market output, or something very close to it such as GDP, is still as strong as ever as soon as attention is switched from measurement of long term growth to problems associated with market disequilibria, such as unemployment and inflation.

INTRODUCTION

"Do-it-yourself": the very phase implies that if you do not do it, someone else can do it for you. The implication is important because it enables a distinction to be drawn between activities which are productive in an economic sense and those which are not. Productive activities can be identified by certain intrinsic characteristics irrespectively of whether the output is destined for the market. Do-it-yourself, or DIY, activities are essentially a form of production on own account, and as such can be clearly distinguished from other activities such as eating, playing games or taking exercise which the individual cannot hire someone else to do for him. The basic contention of this paper is that by utilising this distinction it is possible to envisage a measure of the total final output of goods and services produced which is quite comprehensive and does not require any arbitrary conventions about the range of items to be included. The goods and services covered would be the same no matter what the social or political framework within which the production is organised. GDP as conventionally defined would be one component of such a measure, but not necessarily the major component.

Goods and Services

The first objective is to distinguish activities which produce goods and services from all other kinds of human activities: in other words, to distinguish productive from non-productive activities. No emotive overtones are to be attributed to the terms "productive" and "non-productive". For example, eating and sleeping may be non-productive but they are none the less vital for that. A productive activity is literally one which *produces goods and services*, so that the

*An earlier version of this paper was presented at the 15th General Conference of the International Association for Research in Income and Wealth, University of York, August 1977.

question becomes how to identify goods and services. This question has been considered at some length in a recent paper[1] and only the main points will be summarized here.

First, services have to be distinguished from goods. This is not a matter of adopting convenient definitions. The layman has no difficulty in distinguishing services from goods for the very good reason that they are generically different from each other, and it is economists who confuse things by treating services as if they were merely special kinds of goods. For this reason, it is necessary to go back to the older and more precise concept of a good as understood by classical economists—namely, a material object capable of appropriation and therefore capable of being exchanged between economic units. A service, on the other hand, is neither a material nor an immaterial object. It is a *change* in the condition of one economic unit which is capable of being realised by the activity of another economic unit. Just as a good does not actually have to be exchanged, so a service does not necessarily have to be produced by another economic unit. The important point in both cases is the *possibility* of a transaction between two different economic units, a producer and a consumer respectively. If this possibility does not exist, there can be no markets, no specialist producers, no industries, no division of labour, and whatever it is hoped to achieve by engaging in the particular activity in question it is not the production of goods and services.

The production of a service is a process by which the condition of the consumer, or the goods which he owns, is changed in some way which the consumer requests. It is precisely because a service is a change that it is difficult to record and quantify. It also explains why services cannot be put into stock, a stock of changes being a logical (and not merely a physical) impossibility. Because the only goods which cannot be put into stock are highly perishable ones, there is an unfortunate tendency to think of services as being ephemeral or transitory. The analogy with goods is highly misleading and inappropriate, however. Despite Adam Smith's assertion that services "perish in the instant of their performance" they do not. *The relevant question for a service is how long may the change which is produced be expected to persist, which is a totally different question from how long it takes to produce the change.* It is essential to distinguish the service itself from the production of the service. I do not, for example, expect the repairs to my car or the filling of my tooth to perish in the instant of their performance. Services can be permanent or transitory (just as goods can be durable or non-durable) depending on the nature of the service and the object or person on which it is performed.[2]

Services can be classified in various ways. First, a distinction may be drawn between services performed on persons and services performed on goods. The former consist of changes affecting the physical or mental conditions of human beings, such as surgery, hair dressing, passenger transportation, education or entertainment, while the latter consist of services such as repairs, decoration and goods transportation. Second, the services can be permanent or transitory: for

[1]T. P. Hill, "On Goods and Services" *Review of Income and Wealth*, Dec. 1977, pp. 315 to 338.

[2]In a perceptive passage J. S. Mill argued that he would prefer the distinction between productive and unproductive labour to "turn upon the permanence rather than upon the materiality of product": "*Principles of Political Economy*, Vol. 1, third ed. (J. W. Parker & Son, London, 1852), p. 57. However, transitory services are just as much "products" as non-durable goods are.

example, permanent services include surgery, education and repairs to durable goods, while transitory services include hair dressing, cleaning, and entertainment. Other distinctions may also be introduced, such as that between collective and individual services, or between reversible and irreversible services, but they are not very relevant in the present context. To conclude this brief discussion of services, the important point is that the change which is brought about either in the person of some economic unit or in the goods belonging to that unit must be capable of being effected by some other economic unit. The choice must exist to do it one's self or to get some one else to do it for one.

Although DIY as generally understood typically refers to the production of a service on own account, it is not necessarily restricted to services. It could, for example, cover building an extension to one's house, which is patently goods production in the form of construction on own account. However, gardening, or more precisely the own account production of agricultural goods, is not conventionally thought of as a DIY activity, although it must clearly be so treated in principle.

The Treatment of Production on Own Account in the SNA

The extent to which the value of production on own account is included in economic accounts has been arbitrarily settled by convention. In the SNA,[3] it seems that virtually all goods produced on own account can be included in GDP. It is specifically stated that all primary products, including agricultural products, produced by households on own account should be included, and also goods processed out of them, such as clothing. Similarly, all durable goods produced on own account, whether by enterprises or households, for purposes of fixed capital formation are included.[4] The values to be imputed to these flows of goods are based on current producers' prices. Thus, in the case of households, what might technically be described as a wide range of DIY activities are already included in GDP in principle. These cover not only the familiar case of growing one's own food, but also own account construction, which seems to be an important activity in developed as well as developing countries. Structural alterations and improvements to existing assets are treated as fixed capital formation in the SNA when they lengthen the expected lifetime of some asset or improve or extend it: thus, the replacement of an engine in a vehicle or the addition of a room to a house are given as examples of improvements which go beyond ordinary repairs and maintenance. As the SNA stands, therefore, if the householder carries out major improvements himself their imputed value should be included in GDP as own-account fixed capital formation: on the other hand if they are just ordinary repairs and maintenance, no imputation should be made.

The SNA maintains a stony silence on the general treatment of services produced on own account: certainly, no general principles are laid down, except perhaps the tacit instruction to ignore them. A possible exception is the inclusion of the rent on owner occupied housing in GDP, which could conceivably be

[3]United Nations, *A System of National Accounts*, Studies in Methods, Series F, No. 2, Rev. 3, (New York, 1968).

[4]See paragraphs 5.13 and 6.19 to 6.24 of the SNA.

regarded as an imputation for the own account services provided by landlords. The imputation for banking is another doubtful exception, because it is not clear that banks are engaged on the production of goods and services destined for sale anyway. Otherwise, there are no instructions about services produced on own account.

The treatment of the output of housewives has long provided the textbook joke in national accounting that national product, as conventionally defined, goes down when a housekeeper marries her employer. However, there is in fact no convention about housewives. The convention is that certain kinds of activities which are typically performed by housewives are not included as production on own account even though they do produce genuine services. The activities in question include house cleaning and maintenance; the training, supervision and education of children; tending to the sick, infirm and aged; the transportation of persons and goods; and so on. Not merely are all these activities performed by men as well as women, but all of them obviously have market counterparts. The outputs of these kinds of activities are mostly included in GDP when they are provided by one economic unit on behalf of another and invariably so when a charge is made.

When the housewife engages in the kind of own account production which it is conventional to include in GDP, such as growing vegetables or replacing the car's engine, her output is, of course, counted. This again illustrates that there is no discrimination against the housewife as such but against the kind of DIY actitivities typically performed by housewives. It should also be noticed that the household rather than the individual is the appropriate economic unit in this context so that services performed by one member of the household for another count as DIY or own account production.

The Boundary between Productive Activities and Non-Productive Activities

In order to arrive at an aggregate measure of the total goods and services produced which is convention free it is essential to be able to distinguish clearly between household production and other activities. Goods can be easily recognized in practice, and the problem is to have an operational criterion which enables the production of services to be distinguished from other activities around the house or elsewhere. The fact that a service must be capable of being performed by another economic unit than the consumer of the service provides that criterion.[5] It is inherent in the concept of a service that the opportunity must exist to hire another economic unit to perform it, just as a good must be capable of appropriation and exchange between economic units. Otherwise, as already observed, there can be no markets, no specialist producers, no industries and no market prices.

The nature of services performed on goods is fairly clear. For example, when a good is transported, repaired, cleaned or redecorated, the change in its condition

[5]In a recent paper "Towards a Definition of Non-Market Activities" in the *Review of Income and Wealth* May 1977, pp. 79 to 96, Oli Hawrylyshyn has proposed the use of the same criterion, which he calls the "third-person" criterion. Although Hawrylyshyn does not derive the criterion from the concept of a service itself in the way outlined here, he reaches very similar conclusions about the fundamental distinction between economic and other kinds of human activities.

is obvious. Because the production of services affecting goods actually involves a physical transformation of those goods which is distinguishable from the production of goods only in degree and not kind, they are appropriately included in the material sphere of production in the MPS.[6] It is worth noting in passing that a lot of the services performed by housewives also belong in the material sphere of production—for example, the cleaning and maintenance of houses and their contents, and the transportation of goods—although it is not customary to impute a value to such output in the MPS. Services affecting persons, on the other hand, are changes in the physical or mental conditions of human beings which can be realised by others. They cover medical treatments in the widest sense including the care of invalids, the instruction provided by educational institutions, entertainment, personal care such as hair dressing, beauty care, washing and so on. In each case, the condition of the consumer is changed in some way by the action of the producer. It may, at first, appear forced to include activities such as washing people, but while this is indeed typically DIY for adults, it is not so for children, babies and the physically incapacitated for whom washing is an important service activity for which a charge may be made.

The non-service activities are clearly those such as eating, drinking, sleeping, reading, studying, taking exercise or recreation which *an individual cannot pay someone else to do on his behalf no matter how valuable his own time is: in other words, no matter how large the immediate opportunity cost of these activities may be.* It is important to be clear about the distinction being drawn. For example, a mother can feed a baby (a service activity) but feeding is not eating, and it is no use the mother drinking the baby's milk for it if the baby refuses. Similarly, I can engage a professional to play a game of tennis or round of golf with me, but I cannot engage anyone to play my game for me. As for keeping fit, there is scarcely much point in paying someone else to diet, stop smoking and drinking and take regular exercise in order to improve my health.

All these kinds of activities are non-productive, however vital they may be to an individual's physical and mental well being. They embrace activities which are physiologically necessary and also activities which are undertaken for recreation. The distinction between activities which are undertaken out of necessity and those undertaken for pleasure is quite irrelevant to that between productive and unproductive activities. The amount of direct satisfaction which an individual derives from the production of a good or service, whether for the market or not, cannot affect the measurement of the good or service itself. Many employees or self-employed workers derive a great deal of personal satisfaction and sense of achievement out of the goods they create or services they provide for others: for example, craftsmen, teachers, doctors and many others. The satisfaction they derive is quite separate from the output they produce. Similarly, the fact that many DIY activities, including growing one's own vegetables and flowers, are undertaken as a form of recreation is irrelevant when it comes to the measurement of the goods and services produced. The distinction between activities undertaken for pleasure and those undertaken out of necessity cuts right across that between

[6]United Nations, *Basic Principles of the System of Balances of the National Economy*, Studies in Methods, Series F, No. 17 (New York). The MPS, or System of Material Product Balances, which is based on Marxist-Leninist principles, is widely used in Socialist countries.

productive and non-productive activities. It represents a completely different dimension of classification as productive and non-productive activities are equally capable of providing some or no direct satisfaction to the persons engaged in them.

Measures of Output and Measures of Welfare

It has long been recognized that any output measure, such as GDP, is inadequate as a measure of welfare. Changes in welfare may be loosely correlated with those in output, but the relationship is not very strong because so many other factors affect welfare. It is also becoming more widely appreciated that GDP is not even a complete measure of the total final output of goods and services because of the large amount of own account production, mainly of services, which is conventionally omitted. While DIY has always been important, in developed and developing countries alike, it may be becoming more significant for several reasons. First, it is a way of increasing real income and real consumption which is entirely at the discretion of the individual concerned. In practice, paid employees do not balance the marginal disutility of an extra hour's work against the income derived therefrom because they usually have no control over the precise number of hours they work. But they can certainly do so for DIY. Moreover, with shorter working weeks, longer holidays and earlier retirements (not to mention increasing unemployment), the scope for DIY is very considerably increased. A further major attraction, of course, is the fact that the income generated escapes direct taxation and the output produced escapes indirect taxation such as VAT. For these reasons, even professional workers have a strong incentive to engage in DIY manual work, especially if, like a certain well known British Prime Minister, they happen to find some manual work such as brick laying a form of recreation or good for their health. It would be interesting to know the extent to which high rates of taxation are responsible for a misallocation of resources in this way by causing highly skilled workers, both manual and non-manual, to engage in DIY activities for which they may have no particular aptitude or inclination.

It can only be surmised that the addition to GDP as conventionally defined of all the output produced on own account at present omitted would enlarge it considerably. Attempts at estimation have been made but these are generally unsatisfactory because they are little more than guesses based on estimates of time spent without any information on the amount of *output* actually produced. Of course, the inclusion of this omitted output would also be likely to affect the rate of growth of real output over time. While the inclusion of *all* own account production, whether goods or services, would represent a considerable addition to GDP, it would be a *finite* addition, given that for reasons advanced earlier in this paper a clear dividing line can be drawn between service activities and other kinds of activity.

Apart from output produced by DIY activities it can be argued that there exists another group of services (or disservices) which are omitted from GDP, namely externalities. These are changes in the conditions of economic units brought about accidentally, or at least unintentionally, as a result of the activities of other economic units. These externalities are, in effect, unsolicited services which may or may not be welcomed by the consumers affected. If values are to be imputed for non-market output produced on own account then values, positive or negative as the case may be, should be imputed for these unsolicited services or disservices. The practical problems of estimating both the prices and quantities are undoubtedly severe, but from a welfare point of view these services should presumably not be ignored.

If GDP were to be extended to cover all final goods and services produced, including DIY services and possibly externalities, it would be greatly improved as an indicator of changes in welfare. However, it would still remain a measure of goods and services as distinct from the welfare derived therefrom. Unfortunately, the elementary distinction between the two often gets blurred, but it is a matter of simple logic that an apple is not the same as the satisfaction derived from eating it. If a completely comprehensive measure of final output were available it could then stand in its own right as an alternative to GDP for many purposes. There would, however, be nothing to be gained by trying to graft onto such a measure odd bits of additional information in order to try to improve it still further as an indicator of welfare. For example, some economists have added on an estimate of the value of leisure time to a comprehensive measure of goods and services of the kind envisaged here, but leisure is neither a good nor a service. The resulting measure is in no sense an extended or more complete measure of output but a mongrel statistic without any clear coverage or conceptual base.

There are, moreover, dangers in trying to devise indicators of welfare as if they were just enlarged output measures to be built up by a process of further aggregation. For example, it is not really so obvious that leisure can be treated as contributing to welfare in the same way as goods and services, many of which are consumed during leisure activities anyway. It cannot be blandly assumed that leisure provides satisfaction while work does not. As already emphasized, satisfaction can be derived from several different kinds of activity, including productive as well as unproductive ones. Earlier retirement, for example, often leads to earlier demise if the individual feels he is no longer able to make a useful contribution to society and has no purpose in life. The degenerative effects of involuntary unemployment in young age groups are obvious. It does not necessarily follow, therefore, that increased leisure (which is not spent in productive DIY activities) necessarily increases welfare if it leads to boredom, frustration and sense of futility. Before adding on to a measure of final output a notional estimate of the value of leisure time, a non-economic variable, it would seem much more appropriate for economists to take account of two other factors which do affect welfare and which are closely linked to the production of goods and services. These are changes in the environment within which production is carried on—heating, lighting, noise, ventilation, safety, comfort etc.— and also the way in which the goods and services produced are distributed among the different members of the community. In these cases, the temptation to add something onto GDP is not nearly so strong. The distribution of income, for example, has always been recognized to be fundamentally important by economists for any analysis of welfare, but measures of aggregate output cannot be treated as defective or incomplete because they do not reflect the distribution of those goods and services. There is no point in attacking the mean of a set of observations because it is not the standard deviation, although one can attack the weights used in calculating the mean.

Conclusions

From a welfare point of view it would be useful to go beyond GDP to a measure of all the final goods and services produced by the community. Such a measure would include all goods and services produced on own account and not merely the ones that happen to be already included in GDP by convention. Moreover, a comprehensive measure of the kind envisaged here does not require any value judgements or conventions as to what to include or exclude because goods and services can always be distinguished by their intrinsic characteristics. The items to be included would be the same whether they are produced for sale or not and no matter how their production is organized. It is not being suggested, of course, that a unique value can be placed on the set of goods and covered, but merely that the set is well defined and finite. In principle, services (or disservices) provided without the permission of the consumers, namely externalities, should also be included, although the estimation of their quantities and prices present formidable practical problems. There are also considerable difficulties involved in estimating the quantities and prices of DIY services, and it may not be appropriate always to value them at the corresponding market prices.

While a comprehensive measure of the total final goods and services available for consumption or adding to wealth would presumably be superior to GDP as currently defined for welfare purposes, it is not actually being proposed here that GDP should be de-throned in this way. It must be remembered that GDP was not originally designed as an indicator of long term changes in welfare and this is only one out of many possible uses for economic aggregates of this kind. It is significant that official national accounts were first developed in the war years in the United Kingdom and United States as aids to economic policy making when the primary objective was to maximize production, even though, as Kuznets rather obviously pointed out, more tanks and bombers do not necessarily increase human happiness. More generally, national accounts and their principal aggregates are widely used for purposes of short and medium term policy making to deal with urgent conjunctural problems which are remote from the finer points of measuring welfare.

There are powerful reasons for omitting production on own account when considering disequilibrium situations. When the producer and consumer are one and the same economic unit, information, communication and co-ordination between them are perfect. It is difficult to see how excess supply or demand can ever occur, as a rational economic unit presumably does not proceed to produce more or less than he wishes to consume by refusing to comply with his own wishes. Moreover, money has no role to play in the case of own account production and this is the one case in which it is realistic to study real processes of production and consumption without reference to money. Involuntary unemployment is scarcely applicable to DIY, and a whole range of problems connected with disequilibrium simply disappear in a world in which output is consumed by its producer. These are presumably the kinds of reasons why large chunks of production on own account, especially services produced in the home, have always been conventionally omitted from multi-purposes measures such as GDP. If, for purposes of argument, all goods and services produced on own account were to be included in GDP it is likely that the first step most analysts would take would be to separate the market from the own account production and to discard the latter if the analysis were concerned with problems such as unemployment and inflation. Thus, it can be seen that GDP as conventionally defined is really the outcome of a compromise between the needs of conjunctural analysis related to market disequilibria and the measurement of long term growth and welfare, in which the latter has always taken second place. Of course, the ideal situation would be to measure all market and own account production of goods and services and let the analyst choose the particular aggregate which is most suited for his purposes, but not all users of statistics are that sophisticated. GDP is not likely to disappear quite so easily.