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The Dominance of Producers Services in the US Economy

The rapid growth of US service sector employment and output has attracted the attention of a number of studies, most of which considered the effect to be detrimental to the well-being of Americans and often saw in it the need for the adoption of industrial strategies. The most recent and widely cited studies in this tradition have been by Bell, Shelp and Bluestone and Harrison, who did much to popularize the concepts "de-industrialization" and "post-industrial society" and related them to the growth of the service sector.

The ideas of these authors are surrounded by a model of historic determinism with wide appeal. This model, very popular during the 1930s, postulates the existence of development cycles which take countries from primary to secondary and tertiary stages. The second and third stages were initiated as productivity growth and consumer satiation in agriculture and manufacturing, respectively, pushed labour into the next highest sector. The chilling prospect for our age is where will the workers go after computers have raised productivity in the tertiary sector and consumer demand reached its limit? The model took on a seemingly special relevance as an explanation of the high unemployment rate during the recession of 1981-82 and the subsequent shrinkage of industries in the rust belt of the United States.

* The paper applies to US data and methodology which was developed in the context of a major research project dealing with the service industries in Canada. It was financed by the Government of Canada and administered by the Fraser Institute. Further elaboration of the ideas in this paper is found in HERBERT G. GRUMET and MICHAEL A. WACKER, The Canadian Service Industries, Vancouver: The Fraser Institute, 1989.


Blustone and Harrison also authored a study of the income distribution effects of the service sector growth and in it developed the concepts of "the vanishing middle class" and the "bimodal income distribution", again attributing much of the phenomenon to the growth of the service sector.

Throughout modern history, the service sector has been identified as the cause of economic troubles. Adam Smith considered it to involve the non-productive use of resources, an idea which was picked up by Marx and Lenin. It resulted in the exclusion of personal service industry output from the national income accounts of the Soviet Union and other socialist economies. As late as the 1960s a British Labour government imposed a special tax to discourage the growth of the industry.

The more recent work of Baumol and Pechter influenced the thinking of generations of economists with theorems about the low productivity growth of the sector, the resultant upward bias on prices generally and the cost of government in particular. Brown discussed the widespread notion that much of the service sector growth involves "taking in each other's laundry". According to this model, women entering the labour force reduce production in the traditional household and replace it with the same output produced in the market. This process involves an overstatement of economic growth because national income accounts record the increase in the market production but do not note the decrease in the output of households.

In all of these studies, the analysis has concentrated on services for consumers, bought in the market or supplied by government. The most memorable of the analysis by Smith deals with the work done by personal valets and actors. Baumol's widely cited model involves the unchanged productivity of quartets playing the same piece of music through the centuries. Bell, Bluestone and Harris draw heavily on the image of the modern fast food service restaurants. The government supply of education, health and welfare services for public consumption is documented and discussed in many studies, supporting the widely held belief in the importance of government services in the overall growth of the service sector.

Interest in producer services is a relatively new phenomenon and is found most notably in the recent studies by Ginsberg and Voight, Gerstey and Miles; and Riddle. In general, the relative importance of this service sector is inferred from the very rapid growth of the industries called Business Services. Momigliano and Siniscalco in a pioneering study evaluated the quantitative importance of all producer services in the output of the goods sector. Using input-output tables, they measured the direct and indirect input of producer services in the Italian economy and showed that they represented a very large and growing part of the entire service sector.

In this study we measure the level and growth of producer services in the US economy, using an innovative technique which avoids the use of complex input-output calculations. The technique permits us to overcome a basic problem of existing government statistics. These statistics only show the total production of financial, insurance, architect, computer, communication, transportation, restaurant and many other services which are purchased by both consumers and industry. Only that share of these services bought by industry can properly be considered to be producer services.

I. The definition and measurement of consumer, government and producer services

The national income accounts of the United States contain a long and consistent time series on the total size of the service producing sector of the economy, as measured by its value-added or GNP. This basic time series is shown as the top line in Figure 1. It has produced the 50 percent figure noted in the opening sentence and provoked much of the recent discussion in the literature.


In recent years national income accountants and scholars have been reflecting on the measurement principles and techniques which underlie these figures. However, progress on these matters is slow. The analysis thus far promises to result in marginal improvements only. As a result, revisions based on new data and concepts lack urgency and are not likely to be available for a long time, if ever. The data used here, therefore, are the best available.

Data on the purchase of consumer services are available from national spending surveys. These data are reliable and consistent since they serve as the raw data for the calculation of consumer price and expenditure statistics and contain very detailed records on hundreds of goods and services bought by consumers. They provide estimates of spending on such services as finance, insurance, communication, transportation, computers and restaurants.

These data cover expenditures and therefore include the goods components of the final price. Included in expenditures on restaurants, for example, is the cost of the food. To eliminate this goods component and make the series consistent with the GNP concept of

the overall service sector output, it is necessary to determine the value-added of these service industries. For this purpose we drew on data from a major study of the service industries in Canada, where we had estimated the ratio of value-added to gross output of these services industries to be .6. We assume that this figure is the same for US and Canadian service industries and that it has not changed during the period under study. The bias introduced by this assumption is unknown but unlikely to affect the main findings of this analysis.

To obtain information on government services it is necessary to divide government expenditure into its two main components, transfer payments and exhaustive spending. The former involves pensions, welfare and unemployment insurance payments. Exhaustive expenditures go for the provision of education, health, defence, justice and general government services, including the administration of the pension and welfare transfers, at all levels of government. The value-added of the government sector as published by the US government is used in this study to measure the value of national product devoted to the provision of government services of this type.

Producer service output is estimated by the subtraction of the consumer and government services from the total service sector output. Producer services therefore contain the output of the industries obviously producing intermediate inputs, like Business Services and Wholesale Services. Importantly, they also include as a residual the output of all those industries widely viewed as serving mainly consumers, like finance, restaurants, hotels and transportation. A large fraction of the output of these industries is used by business and government as input into the further production of goods and services.

It is important to note a likely downward bias in the estimation of producer services. Many of the services produced by government are used as inputs by business. The most obvious are the output of the Departments of Agriculture and Commerce, but most other government departments serve both consumers and business. Unfortunately, it is not possible to determine the relative magnitude of the two. By not allocating any of the government service output to the category of producer services, our procedure biases downward the estimate of the latter.
II. The size and growth of the types of service industries

In Figure 1 the size of the total service sector and its three components are shown as a percentage of GNP and in constant 1982 dollars, for the years 1954-1987. The top line shows the clear upward trend in the basic series. Small fluctuations around the trend are correlated with business cycles. Traditionally these cycles have resulted in greater swings in goods than in service industries' output, which explains why the 1981-82 recession shows the service industries' share at its postwar peak.

Figure 1 indicates that in 1954 consumer and government services each represented 15 percent of GNP while producer services held the smallest share at 12 percent. Since then, the share of government services has been on a rather steady downward trend to a 1987 level of slightly less than 10 percent. Producer and consumer services trended upward and by the end of the period had reached 18 and 19 percent, respectively.

For the purposes of the present analysis, greatest interest lies in rates of growth rather than levels of the types of services. Relative growth rates are brought out effectively in Figure 2, which uses the information contained in Figure 1 but expresses the share of GNP of each sector in 1954 as an index of 100 and traces the development of this share through time. According to this figure, government services during this period have dropped by one third, total services have risen by 17 percent and consumer services by 32 percent, all expressed as a share of GNP. The growth in the share of producer services by about 52 percent has been the most rapid by a large margin.

III. Causes and effects of changes in share by sector

What have been the causes and welfare effects of these trends in the share of the output of the three sectors?

Government services

The decline of the value-added by the government service sector appears to be inconsistent with the widely accepted view that the share of government in the economy has been growing rapidly, even during the administrations of President Reagan. The main explanation of the puzzle is found in the fact that transfer payments have increased very rapidly. This development is consistent with the modern theory of government spending associated with the publications of James Buchanan, the 1984 winner of the Nobel prize in economics. It is much easier to target transfer payments rather than exhaustive expenditures to benefit interest groups which repay politicians by voter loyalty and financial contributions. Moreover, transfer payments are determined by existing laws while much of the exhaustive expenditure requires new and politically difficult legislative initiatives.

We can only speculate on the welfare implications of this decline in exhaustive expenditures. On the one hand it may be seen to be desirable since the private sector is capable of supplying most of these services more efficiently than the government. On the other hand, it is also possible that the decline has reached an inefficiently low level, given the more than normal complaints from many users in recent years about the adverse consequences of reduced supplies of education, health, justice, police, patent administration, basic science, defense, airport safety and many others.
We cannot assess here the relative merit of the two views on the
decrease in the supply of government. A consensus on this issue has
not emerged even among well-informed economists. The main
reasons for this are inadequacies in factual knowledge, along with
differences in ideological perceptions of the role of government.

However, there are two relatively technical matters which
should enter into any debate over the supply of government services.
First, the decline in the supply of government services shown in the
graphs may be overstated by the way in which government services
are measured. By accounting convention it is assumed that output of
the sector is proportional to the amount of labour used. As a result,
the data do not account for changes in the productivity of this labour.
This means that if, for example, administrators of the social security
system have become more efficient in the issue of pension checks
through the use of computers, the volume of government services
supplied has increased more than the data show. There may well have
been productivity gains in defence and health care and other services,
which bias downward the estimate of supply. On the other hand,
reductions in the efficiency of government services production lower
the size of this bias. In spite of substantial efforts to quantify produc-
tivity in the government sector, no reliable and consistent data are
available to correct for the bias in the existing statistics.

Second, the contracting out of government services at all levels
has increased the efficiency of production. For example, it is well
documented that workers in privately owned garbage collection firms
remove about 94 percent more tons per crew person per hour than do
workers employed in the public sector. Generalizing from this
example suggests that the trend towards privatization generally biases
downward the estimate of the quantity of government services sup-
plied. Unfortunately, no estimates of the precise magnitude of this
bias are available. However, the public's assessment of the success
of privatization may well have an important influence on the future
growth of the government service sector employment and output as
measured traditionally.

See, for example, Michael A. Walker, editor, Privatization: Tactics and
Techniques, Vancouver: The Fraser Institute, 1986.

Consumer services

The demand for consumer services is influenced by two op-
posing forces. On the one hand, the demand for consumer services is
an increasing function of family incomes. The rich are spending larger
proportions of their incomes on entertainment, restaurant services,
recreation, education, health and similar services.

On the other hand, increases in average income through time
have not generated increases in demand for these services which
might have been expected from the cross-section evidence. One
reason for this is found in the so-called Baumol effect. According to
this model, many types of services by their nature require personal
contact and therefore productivity of supply cannot be increased
significantly by the use of technology. Important examples of such
services are entertainment, bus transportation and taxis, barbers and
private education and health care. The cost of these services has been
rising because the labour needed has to be paid wages that are
competitive with those paid in industries in which the application of
technology has increased productivity of labour and resulted in in-
creasing wage rates. The increases in the relative prices of these
services have a negative influence on demand. The development of
new products has made possible the consumption of substitutes for
these services. For example, TV and musical recordings have substi-
tuted for the services of live entertainers, vacuum cleaners and
washing machines have taken the place of domestic workers.

The relatively low growth rate of the share of consumer service
demand shown in the graphs represents the net of influences of the
growth in average incomes, the rise in relative prices of services and
the development of substitutes. However, in a recent study of the
demand for consumer services by Hammes et al., the female labour
force participation rate has been identified as an important influence
on the demand for these services. Econometric results suggest that
about 40 percent of the increase in the demand for consumer services
has been attributable to this change in behaviour, which in turn has
been driven by increases in educational attainment by women and
exogenous changes in social norms. The effects of the increases in the
female labour force participation rates on the service sector may be
seen from the finding by Scarf and Krantz\(^9\) that the demand for high
priced restaurants is functionally related to family incomes whereas
the demand for the output of fast food restaurants is a function of the
female labour force participation rate.

The future of the demand for consumer services will be determined
by developments which are difficult to predict, such as the introduction
of technological substitutes and changes in the female labour force
participation rates. However, if the past is any guide for the future, the
growth of the demand for consumer services will remain constrained.
We may be reasonably confident that its growth, and that of government
services, will not embrace an overwhelmingly large proportion of the
country's productive capacity. The US economy will not become de-
industrialized and face the problems which many have predicted to arise
in the wake of such a development.

Producer services

A large and most rapidly growing proportion of producer ser-
vice industries are sold by firms which employ persons with high skill levels,
such as finance, accounting, legal, advertising, science, engineering,
architecture, computer, communications and training of personnel.
There are also business services requiring low skills, like janitorial,
personnel, wholesale, retailing and personnel services. All of these
producer service industries draw on a growing stock of knowledge in
the natural, engineering, social and managerial sciences.

It is through the increased use of human and knowledge capital,
along with physical capital, that economic development and in-
creasing productivity are achieved. The overwhelming importance of
human and knowledge capital in this process has been discovered in
the 1960s by Solow, who was awarded the 1986 Nobel prize for this
work. The finding was confirmed and strengthened in recent work by
Jorgensen and Fraumeni\(^10\) who claim that as much as 80 percent
of US wealth consists of human and knowledge capital.

How are these forms of capital introduced into the production
process? Why has the accumulation of this capital not resulted simply
in an increase in the number of highly skilled workers by manufac-
turing firms, where they would be counted as working in the goods
producing sector? The answer to these questions may be found in the
ideas of Austrian school of economics. This school made much of the
proposition that increases in the quantity of physical capital per
worker are associated with increased specialization of the production
process, which they labelled increased roundaboutness. We now
postulate that this same process of specialization accompanies in-
creases in the stock of human and knowledge capital per worker.

Experts in finance, advertising, entertainment, law, science, engi-
neering and similar fields are becoming increasingly specialized.
Their expertise tends to be so specialized that it is not needed full
time by even the largest manufacturing concerns. However, they can
be employed fully by a firm catering to customers throughout a
region, country or even the world. Importantly also, there has been
the development of specialized firms with producer service expertise
which cater primarily to smaller firms in more localized markets
which previously have tended to do without them. It is clear that
such specialization has been encouraged by technological improve-
ments in communications and travel. The main point here is that the
human and knowledge capital deepening and the accompanying
patterns of specialization have resulted in a growth in the demand for
the services of such firms by the goods producing sector, governments
and other producers of services.

An understanding of the phenomenon of producer service growth
may be aided by considering the idea that these services end up
embodied in goods, where they constitute an ever increasing fraction
of the final price of a product. For example, Lee Iacocca\(^11\) has noted in
his biography that a larger part of a Chrysler car's cost now consists of
spending on medical services for workers than spending on steel. In
addition, of course, all of the material inputs used by automobile
manufacturers embody growing amounts of producer services, as for
example in the many electronic devices. The phenomenon is general.
Its manifestation in the extreme is found in the case of computer disks
which hold a sophisticated program. This product is counted as the
output of the goods industry but the value of services embodied in such
a disk may easily represent 90 percent of the market price of the good.
At the same extreme end of goods with high amounts of embodied
services we find modern medicines and complicated machinery like
typewriters, assembled in fully automated factories.

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IV. Summary and policy implications

In sum, the preceding consideration lead us to the following, central postulate. The growth in the share of producer services shown in the statistics above is due to the process of human and knowledge capital accumulation and increased specialization in the producer service industries. It has resulted in the phenomenon of ever increasing shares of embodied services in the market value of US goods and the output of government and other service industries.

The implications of this analysis are important for a number of public policy issues. First, the growth of the services sector does not imply the de-industrialization of America in the sense that goods production will cease or even decrease dramatically. The number of people employed by the goods producing sector may continue to fall, but there is no theoretical limit, short of 100 percent, of the proportion of market value of goods accounted for by the workers in the producer service sector. There will not be high unemployment levels because of productivity gains in the service sector and the saturation of consumer demand for services.

Second, while producer service industries typically do not show rapid increases in productivity, they are one of the main sources of productivity gains in the goods producing sector. Third, goods are an effective vehicle for international trade in embodied services. They will permit continued exploitation of the sources of comparative advantage among nations and there is no need to worry that US goods producers will be wiped out by competition from cheap labour in newly industrializing countries. Fourth, there will be no problem with a bimodal income distribution and the vanishing of the middle class. The future middle class is likely to be recruited from workers employed in producer service sector. It will grow more rapidly and offer jobs that are more highly paid and require higher technical skills than the consumer service sector.

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A Multilateral Payments Union for Eastern Europe? *

1. Introduction

Convertibility of East European currencies is presently one of the main topics on the agenda of economic reform. In this context, the model of a multilateral payments union (PU) between member countries of the Council for Mutual Economic Assistance (CMEA) is discussed as an intermediate solution facilitating the transfer to a full freedom in international transactions.

The paper starts with an analysis of the main functions of a multilateral payments union. It discusses a PU's advantages and disadvantages in comparison with bilateralism and identifies the rationale for maintaining bilateralism in relation to an outside group. It shows that a positive assessment of a PU crucially depends on the assumption of a balanced trade between member countries and a fundamental current account deficit vis-a-vis the rest of the world. The main analytical question is whether a payments union with restricted convertibility vis-a-vis outside countries is superior to a shock therapy of rapidly liberalizing foreign trade, services and financial transactions. To assess this issue, the paper compares the underlying economic conditions in the member countries of the European Payments Union (EPU) with the situation in a prospective East European Payments Union (EEPU). At the end of the paper a tentative proposal is developed which aims at a synthesis of the positive elements of a payments union with the advantages of complete liberalization.

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For reasons of simplicity, the paper addresses present CMEA countries under the heading of "East European" countries, although they also include countries in Central Europe.