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Studies in Economics by

Ronald Burgess

Public Finance

Ronald Burgess practised as an economist for more than fifty years. His aim was to offer practical advice to government based upon study, research, instruction and public speaking.

The editors have drawn upon a collection of manuscripts and recordings to prepare four volumes of his work on public finance supplemented by notes, commentary and references:

VOLUME 1

Economics Now 1979-1980. Ten seminars setting out an approach to macroeconomics with particular reference to government policy.

VOLUME 2

Ten Public Talks 1980-1983. A series of public lectures on topical issues such as monetarism, inflation, unemployment and taxation.

VOLUME 3

Spatial Economics (ten lectures) and **Normative Economics** (six lectures) 1983-1984. Original work on the relationship between the spatial aspects of macroeconomics and the role of the polity.

VOLUME 4

Further Work 1971-1994. A collection of essays and public talks on such topics as privatisation, local government finance, and the economic position of Greece within the European Union.

In 1993, with the support of the Economic Study Association, Ronald Burgess completed and published his book *Public Revenue Without Taxation*. The editors hope that these four volumes will provide a fuller picture of his work and assist the general reader with an interest in public finance.

Volume 3

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Preface

This book contains the transcripts of two series of lectures that were given by Ronald Burgess between September 1983 and June 1984. They have been prepared for this volume by members of the Economic Study Association in London of which Burgess was the Director from its formation in 1965 until 1992.

The scope of these lectures covers two main themes. The first is spatial economics. In a series of ten lectures, Burgess describes the main aspects of location theory and regional analysis as they stood at that time, with some additional and original insights of his own.

The second series of six lectures then deals with a very different topic, which Burgess describes as normative economics. It focuses on the relationship between the individual and the state, or polity; the role of the state as a provider of public goods and services; and the methods by which the costs of public expenditure are met.

Taken together, these two lines of enquiry provide an alternative approach to the most fundamental questions of public finance and suggest the possibility of a 'normalisation' of the trading economy.

Footnotes and references have been added throughout. There is also an appendix with additional notes on topics which may be less familiar to the general reader. Selected bibliographies are included for each of the main sections, and also for the appendix.

Many people have contributed to the preparation of this timely publication. For clarity of presentation it has been found necessary to reconstruct the illustrations which accompanied the lectures, and this has been carried out with as much accuracy as possible.

The editors are also grateful to their colleagues in New Zealand for their helpful suggestions and careful proof-reading of the final draft. Any remaining errors or oversights remain the responsibility of the editors.

SPATIAL ECONOMICS

1

Location Theory and Regional Analysis

27th September 1983

A fundamental weakness of general economic analysis is that it is spaceless. A firm is a point, a market is a point, an economy as a whole is a point. A point is a location in space of no dimension. Admittedly, economic models based on spaceless analysis can take into account inputs and outputs, imports and exports. For example, aggregate demand is usually taken as: $D = C + I + G + E - M$.[1] But do we see that an open economy, as represented by the equation, is just as much a spaceless economy as a closed economy?

I am doing no more than pointing out a weakness of general economic analysis. It remains a useful tool; nonetheless, it is based on an unrealistic assumption. In reality, all economic activity takes place at a particular location in space and that particular location stands in a unique relationship to all other locations at which other connected and unconnected economic activities take place.

In theory the reality of space can be ignored, or assumed away, but when it comes to applying theory then one is working in both the time and space dimensions. Space dimensions are of particular importance when it comes to formulating public economic policy.

What normally happens is that the policy is formulated from spaceless theory and implemented as if space were of no account. The result is a lot more problems, and further policies designed to counteract the results of not taking space into account in the first place.

We hear much of regional imbalance, inner city decay, and so on. The facts are that most of these problems are the results of

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1   The formula stands for: Aggregate Demand = Consumption + Investment + Government + Exports − Imports, where each term is a part of demand.

pursuing policies which do not take spatial dimensions into account.

However, when the disaster becomes apparent, the original policies are not abandoned; other policies are introduced in an effort to counteract the inevitable results, and so even more problems arise.

Perhaps the greatest barrier to the advance of economic science is that the general public – and from this, both politicians and governments – the general public are not concerned with the causes of evil, but with the results of evil. People do not want to know that 'doing that, caused that, which you do not like'. What they want is for the results of evil to be treated cosmetically.

But let us not be diverted in an attempt to shift the blame. General economic analysis is spaceless and this lack is the cause of numerous difficulties – the evidence is all about us.

On the other hand attempts to deal with space in isolation are no better; the disastrous results of the town and country planners also abound. What economics needs is a coherent theory – general economic analysis with a spatial dimension – but it does not at present exist, and I am unable to provide you with an outline.

What I hope to do in these seminars is to introduce the basic concepts of space, so that to your knife of general economic analysis there will be added a fork, and by using both tools in unison then at least you may be able to avoid cutting your tongue too frequently.

First of all, the terms – location theory, and regional analysis; the relationship between the two is similar to the relationship between micro-economics and macro-economics.

Location theory provides the basic building blocks. It also attempts to provide the firm with the answer as to where it should locate.

Regional analysis, like macro-economics, looks at things more from a government point of view. A region is not used in the sense of a province but in the sense of a distinct economic region.

Wales may be taken as a region, although I would argue that economically it can be considered as a region only in so far as it is an area peripheral to England. To my mind the very geography of Wales divides the principality into three economic regions, and apart from myths and legends, it has never attained politically any independent stable unity.

The United Kingdom may be taken as a region, and the main reason for this would be political, rather than economic. The United Kingdom constitutes offshore islands but, perhaps more importantly, it is a stable political entity. Again for the purposes of regional analysis the whole of Western Europe could be taken as a region, or just that part which is within the European Economic Community.

As I say, regional analysis is similar to macro-economics and as with an economy as a whole what is taken as constituting a region may be determined as much, if not more, by political as economic factors.

What brought home to me the need for a spatial dimension in economic theory was the 19th century works of Ricardo and Henry George – George in particular. Those of you who attended the Summer Talks will recall that George begins his savannah story with a first immigrant who, as he writes, settles 'somewhere, anywhere'.[2]

This is the first problem for location theory. In the terms of location jargon, George is stating that the location of the first settler was indeterminate – not quite so indeterminate as the case he makes, as we will consider next week, but nonetheless, there was assumed to be a choice of a number of locations all equally attractive and available.

But the decision made by the first immigrant is the factor determining the most advantageous locations for the following

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2   The quotation is from Henry George's *Progress and Poverty*, Book IV, Chapter II – *The Effect of Increase of Population upon the Distribution of Wealth:* 'Tired out with the search for one place that is better than another, he stops – somewhere, anywhere – and starts to make himself a home.'

settlers. Further, the pattern of settlement of these self-sufficient farmers, determined by the first settler, determines the most advantageous location for the first specialist, and the location of the first specialist is a factor determining the most advantageous location for the following specialists.

Thus from indeterminacy one leaps into the pre-determined. As a side issue one may perhaps argue that since it was the decision of the first immigrant that determined which sites yielded what Henry George calls 'rent', why should not the first settler find himself on the collecting end of a great house with fine furnishings? But this is not our concern.

This kind of development happens all around you all the time. Where Woolworths or Marks & Spencer locate on a high street may be indeterminate initially, but once their location is settled, a lot follows which is determined. The same is valid in respect of the location of a railway station or an airport.

Yet it does not always happen; mistakes can be made. What follows is not inevitable. For example, Gatwick was developed as the second London airport to Croydon in the 1930s. Why then when, after the war, Croydon became unsuitable, was not Gatwick developed as the first London airport in preference to Fairey's experimental airfield at Heathrow?[3]

One reason was that given the navigational aids then available, Gatwick was not, at that time, a suitable location for regular air services. Gatwick was in a sense never an alternative to Croydon; it was from the outset a mistake.

Technological advances are changing, but now there are also the advantages of concentration at Heathrow. There is also the matter of prestige, in that an airline does not have to offer a Rolls Royce free of charge to and from Heathrow in order to attract first class passengers.

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3   The site of Heathrow Airport was obtained by the Civil Aviation Authority from its owners Fairey Aviation Ltd, who had developed the site privately, under its wartime emergency powers of compulsory purchase in May 1944.

However, at this stage sufficient to note that the location of a particular firm is very much more complex than George allows.

Another issue that brought home to me the need for a spatial dimension is the classical, or Ricardian, theory of rent. Rent is the excess product yielded at a particular site over that yielded at the marginal site given the same application of capital and labour. Now this theory is worked out in real terms, for the 19th-century economists assumed money to be a veil behind which real forces worked themselves out as if there were no money.

It follows, unless one first establishes a standard measure of value, then the theory applies only to a one-product model. This must be so for one can compare the quantity of one product only against the quantity of the same product of the same quality – it makes no matter whether in theory one calls that one product 'corn', 'wealth', or, as did the late Professor Joan Robinson, 'leets' – steel written backwards.[4] To do otherwise one must have some standard measure, and this is one of the main reasons why Ricardo attempted to establish a labour theory of value.

Further, when as in a trading community the output is produced for sale, what matters is the net added-claim[5] received, or the purchasing power of that net added-claim. To make these figures comparable one must decide on standard terms, say, either ex-mill prices or delivered prices. But in a competitive economy a factor determining price will be economic distance – the location of the site in question relative to the marginal site. Thus, a spatial variable has to be included in the model for full specification.

The alternative approach, which does not require a spatial variable, is the law of diminishing returns approach.[6] In this case one adds doses of capital and labour to a particular site. The margin is determined by that dose of capital and labour which yields a net added-claim just sufficient to cover take-home pay, tax

4   Joan Robinson had died in August 1983, shortly before this talk was given.
5   The term 'net added-claim' is equivalent to a measure of the net value added.
6   The theory that increasing inputs will lead to smaller increments of output.

and a minimum margin of profit. The excess net added-claim yielded by earlier doses of capital and labour is referred to as rent.

This alternative approach may be valid but its acceptance requires the rejection certainly of George's theory of rent. It seems to me that the theory of rent determines the upper limit of the price of a freehold whilst opportunity cost determines the bottom limit for that freehold. However this approach gets round the difficulty of differences arising from location by accepting them as given data rather than by offering an explanation for their existence. As with general economic analysis, the diminishing returns approach is spaceless analysis.

As most of you are well versed in the theory of rent I have raised these points at the outset so we may get them out of the way. You will be treading the wrong path if you translate the matters of the following weeks into terms consistent with the so-called primary division of wealth between rent and wages.[7]

A concept of classical economics which is staging a come-back today comes from Adam Smith's notion of the invisible hand – the idea that market forces will, if left to themselves, provide the best solution. That this notion is now making a come-back is largely a reaction from the decades of planning.

The introduction of a spatial dimension leads to the conclusion that both notions have a rightful place, but either may be wrong when held to the exclusion of the other.

As a preliminary let us take the simple case of an isolated linear market[8] – for example, a sandy West Country bay. It has length but no significant width, being bounded on one side by the sea, and on the other by the cliffs and promenade. We may represent it by a straight line.

We will assume the holidaymakers to be spread out evenly, throughout this whole length. Let us then assume also, that this

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7   The concept is drawn from the work of authors such as Ricardo, and George.

8   Based upon the classic analysis of H. Hotelling in *Stability in Competition*, published in the Economic Journal in 1929. See also the brief summary of the same example in Colin Clark's *Regional and Urban Location*, p. 40.

particular beach is of a size that will provide a living for two ice cream stalls.

Now the local authority decide to offer the monopoly to an ice cream firm on the condition they open two stalls. Where would they locate in order to maximise turnover? Would not the two stalls be spaced apart, as shown in Figure 1?

Cliffs

Beach

A   **B**
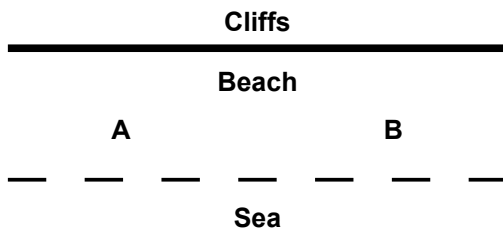
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Sea

Figure 1: Monopoly

What happens if the local authority abolishes the monopoly, and one has two independent firms? Assuming they start by locating at the same spots, how can the one on the left increase business without price competition? Will he not eat into the competitor's market area by moving to the right? How can the one on the right retaliate without price competition? Must he not move to the left?

Is not the end result likely to be both stalls located at the centre, back to back, as shown in Figure 2?

Is this likely to be the best of all solutions?

Cliffs

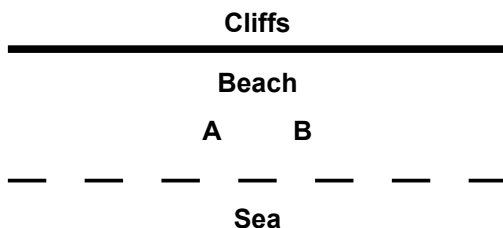**Beach**

A   **B**

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Sea

Figure 2: Competition

Given this central dispensing point are not those wishing for ice cream likely to concentrate? With this concentration two things are likely to happen. First, some customers are likely to be put off by the concentration and seek other beaches. Second, other customers will decide to forgo ice cream for the sake of less crush.

The result is that business declines leading to price competition and one firm is eliminated; the situation ends up with a monopoly. This is a simple illustration requiring no great tests of mathematics for a solution. It is however a realistic case although in practice the vast majority of cases are far more complex. It shows that:

a) Locational decisions cannot always be left to the free play of market forces to produce optimal solutions.

b) In some cases a planning decision is advantageous and in these cases location theory and regional analysis can assist.

c) For Georgists to note, the 'collection of rent' is not sufficient to ensure an optimal solution.

In the case illustrated possibly the best solution would be for the local authority to decide on the optimal locations and then put those locations out to tender to independent traders. The only means of competition would be on service, quality and price. Note, however, that if the beach could support three or more dispensing points, then in certain conditions the free play of market forces would make for dispersion, rather than concentration.[9]

Have we now a notion of the scope and limitations of location theory and regional analysis?

Concentration is not always the optimum solution. Consider, for example, the development of Milton Keynes, as shown in Figure 3.

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9   In the 1980s, government policy resulted in the introduction of competition for the operation of public telephone kiosks in the UK. These had initially been introduced in the 1920s, and had been widely used to provide a public telephone service in rural areas. Shortly after the introduction of competition into a declining market, many telephone kiosks in rural areas were removed, whilst the competing kiosks of several different companies appeared outside railway stations and shopping centres. The majority of these were, however, not found to be commercially viable, and were also removed in due course.

Milton Keynes is the location for a new city, most likely to be in itself successful, but it reinforces the trend towards macro-concentration. It intensifies the difficulties of the peripheral areas.

This results in many local authorities having demands on their resources growing faster than their available resources. This in turn leads to debt, inadequate infrastructure, and more distortion.[10]
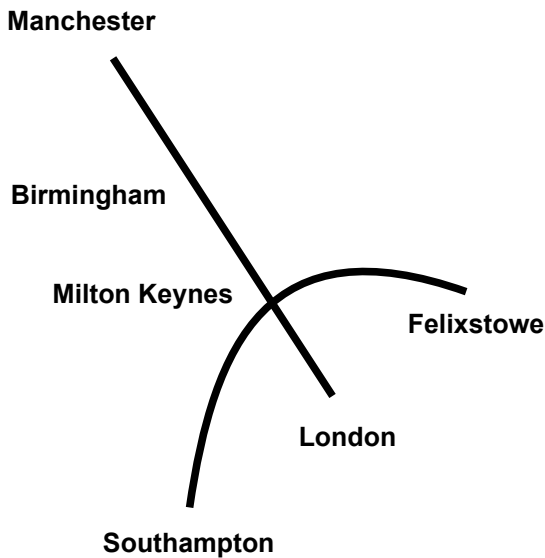

Figure 3: Macro-concentration

10 Milton Keynes was designated as the site for a New Town in 1967. Its main shopping centre opened in 1973, and a new Milton Keynes Central railway station followed in May 1982. The project was declared to be complete ten years later, in 1992. The new town was not initially able to provide the mix of housing and economically viable local employment originally envisaged. It has also been criticised for its rectangular grid road layout, designed by a Californian architect. The rectangular layout does not compare favourably with alternative, more traditional patterns of organic development.

2

Location of an Economic Activity

4th October 1983

Henry George's first immigrant had to settle 'somewhere', but 'anywhere' is a descriptive term – allowed by storyteller's licence, but not coming within the rigorous application of the scientific method. One or more of a variety of constraints usually rule out vast areas of any region for any particular activity.

For the analysis of locational patterns the natural starting point is to ask first where a particular economic activity will be located when the locations of all other activities are given. This is the question of *locational choice*.

The next step is to reduce the scope of the question by ruling out the impossible areas so that one is left with the *feasible* locations.

For example, if you earn your living by means of a regular office job in London, then up-state New York is not a feasible location for your residence. Nonetheless technological advances have today made the area of locational choice relatively large.

Considering only the time constraint, then if your office is handy for Kings Cross, York is now as much a feasible location to town as the Sussex coast. If the office is handy for Paddington, then Wiltshire, Gloucestershire and Somerset are as much feasible locations as the Sussex coast. If we include the financial restraint then this extensive area of choice is limited to top executives.

Again it is technically possible for, say, Marks & Spencer to open a store almost anywhere in the United Kingdom but in fact their *feasible* locations are restricted to the High Streets and main shopping centres in a limited number of towns. This is so, since Marks & Spencer, like all retailers, requires a critical volume of custom.

When some particular requirement dominates all the others for a given activity, then that activity is said to be orientated towards that requirement. Retailing is *consumer orientated*; mining is *raw material orientated*; agriculture is *soil and climate orientated*; and so on.

For the purposes of economic geography it is usually sufficient to simply list all the natural resources but location theory requires additional considerations in order to explain why some particular resources are utilised whilst others are not.

Not all mineral resources are actually mined, and not all soils capable of agricultural production are actually cultivated. Why?

Note that 'withholding land from use'[11] is useful only if you wish to have a political stick for beating so-called landlords. It lacks the degree of objectivity required of a scientific discipline. In any event, it does not provide a general explanation. The Texan freeholder exploits his oil resources much more extensively and intensively than we exploit our publicly owned oil resources in Dorset, where the freeholder has no interest and cannot withhold from use.

To answer this question, location theory develops the basic threefold division common to general economic analysis. Macro-economics has a threefold division of *households* – aggregate final demand; *firms* – the aggregate supply; and *government* – which determines the conditions in which households and firms interact.

In location theory we have *consumption* activity, corresponding to households; *production* activity, corresponding to firms; and *government* activity, corresponding to government.

Among all the feasible locations for any economic activity there will be some – possibly only one – which is *optimal*.

Optimality for a consumption activity means that *utility* is maximised – utility being used in the usual economic sense of a measure of personal preferences. For example, residential choice may depend on a preference for isolation and privacy as against

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11 An explanation of the evidence, as traditionally offered by Georgist analysis.

human contacts and cultural facilities; or two hours on the train to work, read, take part in the bonhomie of the buffet bar, as against being within walking distance of work and two hours extra in bed or watching television.

Optimality for a production activity means that *profit* is maximised. Optimality for government activity means that *social welfare* is maximised. Government activity includes such activities as public utilities, administrative offices, and so on.

At this stage let us note carefully something that is not always noted and very rarely emphasised in standard textbooks. In any economy where government income is derived largely from taxation then only that part of production activity which is subject to competitive market forces will be driven towards an optimal location – in this case, by the threat of elimination.

In these conditions the 'carrot' of profit maximisation is in fact a 'stick', and ultimately an axe, for all firms subject to competitive market forces, since in order for them not to be eliminated by their competitors they must be able to sustain themselves on a minimum margin of profit, and they can meet this requirement only at an optimal location.

When government income is derived largely from taxation then monopoly *production* activities, *consumption* activities, and also *government* activities have no stick driving them towards an optimal location, but only a carrot.

A price has to be paid for locating sub-optimally but this price is, as it were, reflected only in the relative size of the carrot. For example, it would be better if the sewage works was located at A rather than B; it would be better if the social security office was located at C rather than D; but there are no effective economic forces working to bring about this change of location.

Again having chosen a particular location for residence one may well realise that it would have been better to have chosen some other feasible location. One has to suffer the inconvenience but generally there is no positive economic force driving one to re-

locate. Mind you eventually the consequences of some monopoly production activity may cause you to jump, through a significant threat to your standard of living – as when commuter fares are sharply increased.

I have emphasised this particular condition, for it is the condition which exists in this country today, in October 1983, and therefore the condition with which we are immediately concerned. There may be alternatives but they are not our immediate concern.

I am considering the possibility of extending the Normative Economics seminars in the spring of 1984 to take into account the different locational forces in the normal and sub-normal conditions, but for now it is sufficient to note well that, in the economy as a whole, only a part of *production* activity is driven towards optimal locations. However this part is important for it sets the scene for the rest and it is with this part we shall be largely concerned.

The majority of textbooks accept as a working hypothesis that economic activities in general and locational choice in particular are governed by the desire to maximise profits, or utility, or social welfare, but in present conditions this hypothesis is valid in the sense of the existence of an external active force only for that part of production activities subject to competitive market activities.

Predictions from the accepted working hypothesis may be instructive providing one remembers that it is not so much the theory that is wrong, but that the theory implicitly assumes *normal* conditions, whereas the existing conditions are in fact *sub-normal*.

Economic forces are difficult to change but the conditions are, in general, as we make them.

Back to our main theme. Certain production activities are tied to a *raw material* or *consumption* location. Thus, minerals must be extracted where found, crops harvested where grown, buildings constructed, or assembled, at points of consumption, and so on; but most production activities are not so tied, and have a relatively wide locational choice.

Let us first consider the objectives of firms seeking an *optimal* location in those special cases where the transportation costs of both inputs and outputs are negligible, as shown in Figure 1.

Input prices: Uniform	Input prices: Uniform
Output prices: Uniform	Output prices: Variable
No preference	*Maximum revenue*

Input prices: Variable	Input prices: Variable
Output prices: Uniform	Output prices: Variable
Minimum cost	*Maximum added value*

Figure 1: Location objectives of firms

Given negligible transportation costs, uniform input prices are possible throughout a region only when no special resources are used and those resources required have the same opportunity cost everywhere. This is an altogether unlikely event.

Given negligible transportation costs, uniform output prices are possible only when close substitutes have uniform prices because their transportation costs are also negligible.

It follows that it is most unlikely that location will not matter to a firm, as one requirement for the top left-hand corner, uniform input prices, is unlikely.

Now move over to the top right-hand corner. Given negligible transportation costs, and where input price is uniform but output prices vary, the optimal location will be that offering maximum revenue.

Locations offering maximum revenue will be, in general, those locations close to consuming industries or households and away from other plants in the same industry. Thus the need to maximise revenue will tend to disperse the plants of an industry. However, this case is unlikely since, as I have said, uniform input prices are

unlikely. Further, even when input prices are uniform, as in the linear market case we considered last week, there are exceptions to the tendency for plants to disperse.

Now let us turn to the lower left-hand corner. Given negligible transportation costs, and a uniform output price, but varying input prices, then the optimal location will be that offering minimum cost.

Now costs may operate in two different ways. If inputs are locally *dispersed,* the plants will have to locate away from each other to secure cheap sources of supply. Concentration will lead to a bidding up of input prices of the locally available supplies. For example it is rare, collusion apart, to find more than one auctioneer operating in any one weekly market town. The competitive element is provided by the possibility that for many of the farmers the difference in transportation costs as between two or more local markets is negligible.

If inputs are *localised* all plants will be attracted to one or more of the few locations offering the most favourable cost conditions. This is invariably true if the industry uses special resources, but it may happen in other cases when no special resources are used. For example, a labour intensive industry that uses no special resources may be attracted to locations of unemployed, abandoned, and cheap labour. This kind of inducement has attracted some industry to the former coal mining valleys of South Wales. Historically such labour reservoirs have occurred in remote mountain valleys settled by an immobile population. Toys, musical instruments, etc., have been produced there often under the 'putting-out' system. Again where heavy industry is located there is often readily available cheap female labour. It is argued that an important factor locating the 'cut, make and trim' in Leeds was just this; in former days Leeds essentially concentrated upon heavy industry and machinery for the Yorkshire woollen industry.

Moving now to the last case in the lower right-hand corner, in which, given negligible transportation costs, neither output prices

nor input prices are sufficiently uniform to cause the minimum cost or the maximum revenue motive to dominate, then the optimal location requires the maximising of output prices relative to input prices or the minimising of input prices relative to output prices.

Further, there is often a significant difference depending upon the time period in view, especially when government grants and subsidies are involved.

Let us now consider the case of a production activity dominated by one transportable input which is processed into a transportable output, but with non-negligible transportation costs.

First, where the input is *localised*, and the process significantly reduces the weight or bulk, then the optimal location is likely to be close to the input source. For example, coal burning electric power stations are today located as close as possible to coal fields. An exception is when the minimum efficient size for the plant requires supplies from several localised sources, such as in the case of oil refining.

On the other hand, if the production process increases the weight or bulk then the optimal location is likely to be close to the market, or the centre of a consumption area. This may also be the case when the efficient size of the operation can supply only one market, as was so in the early days of electric power.

Second, where the input must be collected from an *extensive* area; this is usually the case with the processing of agricultural commodities, such as sugar beet. In this case, plants will seek locations of maximum supply area and tend to be dispersed.

The classic case for a productive activity is one which requires several scattered localised inputs, and for each input the transport costs are significant. The locational choice is said to be *transport orientated*, and the *optimal* location is that where the transport costs are minimised. Iron and steel production is the standard textbook example.

An important factor when calculating transport costs is that they are rarely proportional to the distance as a result of the costs of

loading and unloading, and possibly empty returns. Most of the more competitive iron and steel works are located at one or other of their localised inputs, i.e. at coal deposits or at ore deposits. An important factor here is the expected life of the deposit.

An alternative solution for a transport orientated production activity may be found at Port Talbot. Once a bulk carrier is loaded it makes little difference to the costs whether the journey is 1,000 or 5,000 miles. By locating alongside a deep water quay not only are transportation costs kept to a minimum, but the choice of a number of deposits is kept wide.

By this time you will appreciate that most locational problems require the use of complex mathematics for their solution. In this introductory series of seminars I do not intend to deal with the mathematics. Firstly, it would only baffle those of you weak on mathematics; secondly, those of you who wish to take the study further will need to do a lot more work, and the mathematics is fully covered in most of the standard textbooks; and thirdly, to appreciate the policy implications of the spatial economic dimension it is not necessary to be a master of the mathematical techniques. This part may be left to the professionals.

What I hope you have appreciated from tonight is that in a competitive market economy a production activity is driven to an optimal location under the threat of elimination.

Further, what constitutes an optimal location for any particular production activity or industry is determined by many factors other than its markets or concentrations of population.

The optimal location, the best site for any particular activity, may be at the periphery, or within a peripheral area, just as often as at the 'centre of exchanges',[12] a central site. For policy purposes it is more important to appreciate these general matters than to have mastered details and techniques.

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12 A further reference to George's *Progress and Poverty*, Book IV, Chapter II.

3

The Allocation of Land

11th October 1983

Last week we were concerned primarily with the issue of locational choice – where to locate a particular activity when the location of all other activities is given. Amongst a large number of *feasible* locations there would be only a few *optimal* locations – perhaps only one.

From this micro-economic viewpoint there emerged no universal factor tending to cause activities to concentrate or to disperse. The optimal location for a particular activity might be at a relatively isolated peripheral site, or it might be at a central site, or somewhere in between.

The dominant factor determining what constitutes an optimal location for any particular activity varies from activity to activity; it varies also with the state of technology, and may be strongly influenced by political factors.

Further, in an economy such as the United Kingdom, there are no significant economic forces tending to drive a *government* activity towards an optimal location; this is so also for *monopoly production* activities. In both these cases any price that will have to be paid for sub-optimality can be passed on, although there may be political pressures.

In the case of *consumption* activities the price that has to be paid for sub-optimality is usually negative – in the sense of, say, some additional inconvenience. In the short-run there may be a positive force as for example, when commuter fares are sharply increased. However, in the longer run there is some evidence which suggests these are passed on.

Only in the case of *production* activities subject to competitive market forces is there a persistent positive economic force driving

firms towards an *optimal* location, and in this case it takes the form of the threat of elimination – analogous to the nuclear deterrent.

Yet whilst all this may be so there do exist locational patterns and this suggests that in addition to all the variety of micro-forces there must exist also some more general forces.

For example, the area north of the Chilterns through to where the Cotswolds become the Edge Hills and the Northamptonshire Heights is agriculturally a predominantly fat-stock area. This arose historically because not only is it good grass land but also it is well sited to fattening store cattle from the North, from Wales and from Ireland before they are sold on to feed London and, prior to the industrial revolution, the old industrial areas such as Sussex.

Today, if we take an area bounded by Aylesbury, Thame, Oxford, Banbury, across to Northampton and back to Aylesbury, there still exist important weekly fat-stock markets, spaced equidistantly at around twenty miles apart; Banbury remains the most important UK market for the sale of Irish store cattle. This today provides reasonable supply areas for weekly fat-stock markets.

Look more closely with an Ordnance Survey map and you will find former weekly market towns, now often no more than villages, at regular intervals of about 8 miles. History apart, this raises a number of questions that location theory seeks to answer.

So tonight, we consider von Thünen's theory. Von Thünen was born on 24th July 1783 and died on 22nd September 1850. In 1799 he served a two-year apprenticeship in practical farming, and then enrolled at an Agricultural College at Hamburg. In the autumn of the year 1803, he enrolled as an undergraduate at the University of Gottingen where he read Natural History, Chemistry, Economics, and Politics. He thus received a very good formal training for the application of the scientific method.

In 1810 he took possession of an estate at Tellow and from this flowed his major economic work based on his practical experience as a farmer. In 1826 he published the first part of his *The Isolated State*, and the second part followed in the late 1840s.

The second part, with which we shall not be concerned, is *In Relation to Wages and Interest*. An English translation is included in a Jesuit study, which is called *The Frontier Wage*. This part of von Thünen's work has not been incorporated into the mainstream of economic theory, although Alfred Marshall makes a number of references to it, and had obviously read the work in its original German.

The first part of *The Isolated State* has been incorporated into established location theory, but to the best of my knowledge there is no complete English translation.

The analytical device by which von Thünen established his reputation in location theory was sketched out at the age of 20 whilst he was at the Agricultural College in Hamburg. In a paper called *Description of the Agriculture of the Village of Gross-Flottbeck* he wrote: 'If one assumes that a large city lies in the centre of a country forty miles in diameter and that this country can sell its products only in this city, and that agriculture in this state stands at the highest condition of development, then one can also assume that the agricultural systems around this city will be divided into four types.'[13]

The opening paragraph of *The Isolated State*, published 23 years later reads: 'Assumptions. One may conceive of a very large city placed in the centre of a productive plain through which there flows no navigable stream or canal. The plain itself consists throughout of land of the same quality which is throughout suitable for cultivation. At a great distance from the city the plain ends in an uncultivated wilderness, by which this country is wholly cut off from the rest of the world. The plain contains no smaller cities, only the one large city; and the city must supply all the products of its crafts for the countryside, just as it is provided with its means of subsistence from the surrounding plain. We conceive

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13 The four types of activity appear as a series of rings around the central city. From the centre outwards they are normally described as dairy and intensive farming, forestry, field crops, and the herding of cattle, as explained below.

of the mines and salt deposits by which the need for metals and salt for the whole country is supplied as being situated close to the central city which, because it is the only one, we shall from now on call simply the city.' These assumptions are shown in Figure 1.
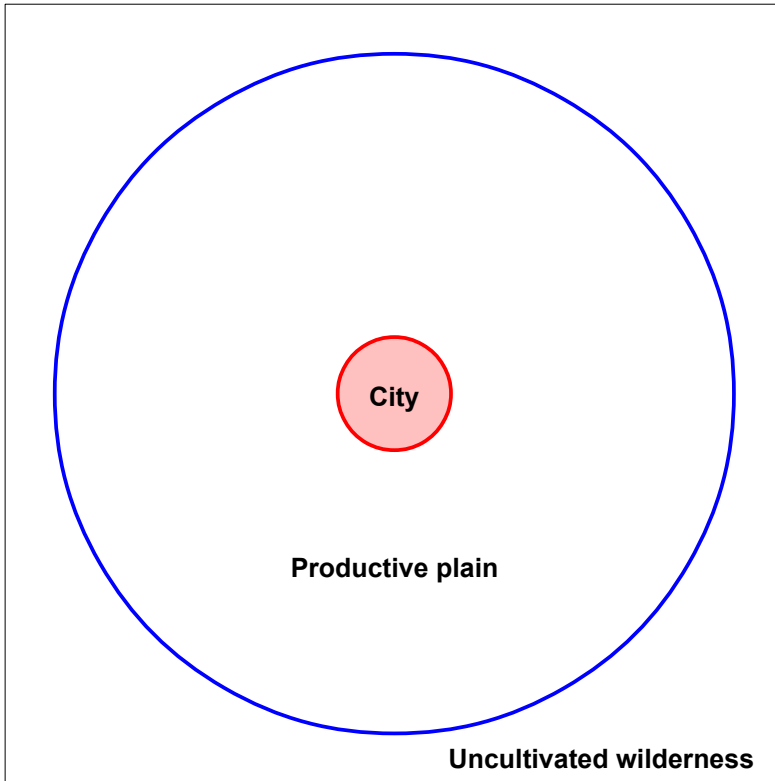

Figure 1: The von Thünen plain

Now from these assumptions it follows of necessity that the city can be supplied with its means of subsistence from the countryside and the countryside can be supplied with the necessary products from the city only by means of a horse and cart. There are no empty returns, and von Thünen also assumes that the transport carries its own means of subsistence. A modern analogy would be

transport by rocket. We can analyse the situation as follows:

Let:

   c = the capacity of the vehicle, and

   k = the rate of feed consumption per unit distance (round trip).

To cover a distance, r, and return therefore takes up an amount kr of the available capacity, c. The useful payload is therefore $c - kr$.

The transport cost per weight (or other measurement unit) carried to distance r is then:

$$\frac{kr}{(c - kr)}$$

This can also be expressed as: $1 / ((c / kr) - 1)$.

The maximal distance, H, can be calculated as $H = c / k$.

   Transportation costs increase sharply near this critical distance, so that for the given transportation technology the supply area and hence the city's size are rigidly limited.
   The question now is: How, under these given circumstances, will agriculture be developed, and how will the distance from the city affect agricultural methods when these are chosen in the optimal manner?
   The bird's eye view is a circle with a point at its centre, but we may better describe the solution graphically, as shown in Figure 2.
   The horizontal axis measures the radial distance from the city. The vertical axis measures the net revenue per acre. Net revenue is price times quantity less wages, transportation and other costs. In other words, von Thünen's net revenue is very similar to Ricardo's net revenue or his rent plus profit or, in Henry George's terms, rent plus interest.
   As one moves away from the city, the net revenue per acre for any particular product will decrease at the rate of the transportation cost for the acre-product (i.e. the cost for the product of one acre).

The net revenue for any product may be shown as a line sloping downwards to the right and the slope will equal the transportation costs per acre-product per unit distance, as shown below.
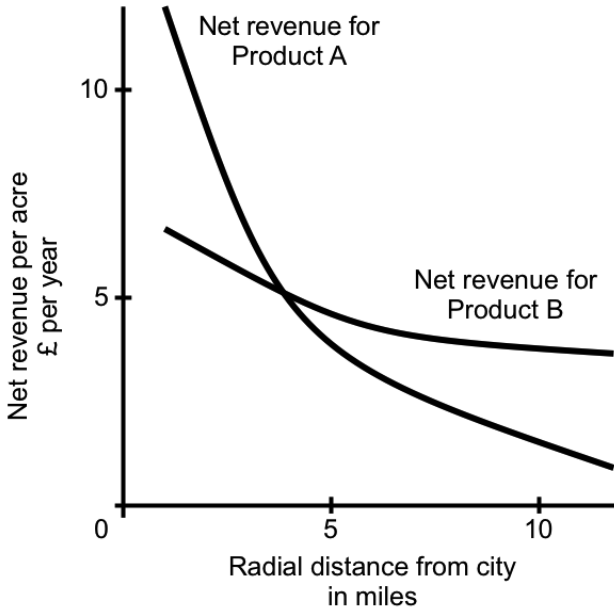

Figure 2: Net revenue in relation to distance

Any farmer a certain distance from the city will maximise his profits by concentrating on that product which, at that distance, yields the maximum net revenue. Von Thünen in 1800 was well acquainted with the advances in England, and concentration must be understood as a rotation.

As a diversion we may note that, contemporary with Ricardo, the analysis of von Thünen offers an explanation of 'corn rent' without any reference to variations in fertility. He also offers an explanation in terms of a multi-product model. More, 55 years before Henry George, we have a scientific explanation for what George called 'rent', using *economic distance* as the independent

variable.

To return to location theory, von Thünen's independent variable – the *economic distance* – is to be understood not just as a function of mileage, or of bulk, or weight, but is to include such factors as deterioration. There is nothing so stale as yesterday's news.
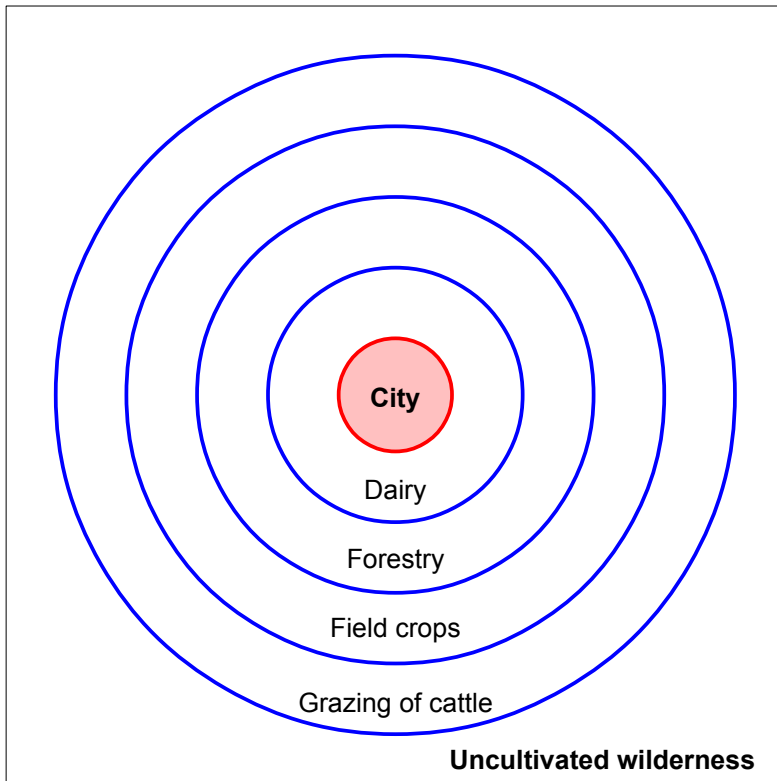

Figure 3: Von Thünen rings

In a given state of technology and infrastructure there will arise a certain order and sequence of products, as is shown in Figure 3.

The concept is known as von Thünen rings, but note that the rings arise from the explicit assumptions. Drop the assumptions, and the predicted shape changes.

The fat-stock area that I mentioned earlier may be explained in terms of von Thünen's theory. More, the average of eight miles between the medieval market towns was determined by medieval technology. In those days a round trip of about eight miles was the most that could be made in one day, throughout the year, and still leave enough time for the wheeling and dealing. As travel became easier the distances increased, and we are now left with weekly markets at the towns which during medieval times were important for their market once or twice a year and on each occasion lasting a number of days.

When we allow for canal, railway, and road networks there is a further change, for transportation becomes cheaper along some routes. In the terms of the jargon *economic distance* is reduced, but whilst there are no longer circles, there are predictable patterns.

The lines joining equal economic distances or transportation costs are known as *isotims*.[14] Let us assume a city located at the crossing of two major roads. If the transportation cost ratio along these roads is less than half, then the isotims are star shaped, as in Figure 4. If this is not so then they eventually get back to a circle.

To sum up, whilst von Thünen formulated his theory in terms of agriculture, it is capable of development so that it may be applied to a number of locational issues, such as, for example, to predict the locational effects of technological advances reducing *economic distance*; in particular, improvements to transportation networks.

Another application is the predicting of trade flows and market areas. In general products for which the optimum location is an outer ring are exported competitively to inner rings, but although products for which the optimum location is an inner ring may be exported competitively to outer rings, it is possible also for them to be competitively produced in outer rings for local consumption. It is not possible, however, in general, to export such products from

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14 Isotims are lines representing points of equal transport cost, measured either from one source of a raw material, or as in this case, to one specific market. The concept of the isotim line was developed by Alfred Weber (1868–1958) in his *Theory of the Location of Industries*, first published in 1909.

the outer rings to the inner rings which are the optimum location for that product.

This type of case is often seen as a productivity issue – 'If only the productivity of the British worker was equal to the West German then we would be able to compete'. The application of von Thünen's theory may show that what appears as a productivity issue is in fact the result of something far more fundamental.

Later when we come to consider economic potentials we shall see that this concept too may be viewed as a complex development from von Thünen's rings applying in particular to manufacturing industry of the so-called *footloose* type.
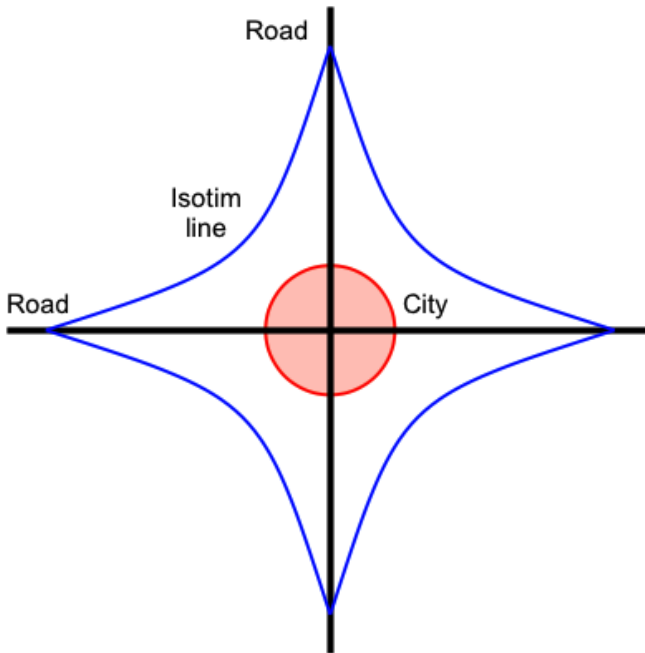

Figure 4: Isotim lines for a city at a road junction

4

Central Place Theory

18th October 1983

Last week I described how the von Thünen theory helped to explain – in an agricultural setting – a pattern of production in a certain region, and how this tended to develop a pattern of market towns dispersed throughout a region.

Tonight, I wish to describe how this may affect manufacturing locations and how, over a period of time, the location of a manufacturing plant may jump from the indeterminate to the determinate.

Let us assume that in each of two adjacent market towns A and B, joined by a road, there is, say, a smithy shoeing horses, and that each of them has sufficient business to operate at an efficient scale. These assumptions are shown in Figure 1.
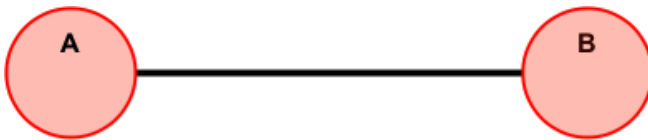

Figure 1: Two smithies located at towns A and B

Next, there is invented a new process of producing horseshoes cheaper than the smithy can do it for himself, but the minimum efficient size for the process needs two smithies as customers.

Where will the plant locate?

Assuming that transport costs are proportionate, more or less anywhere between the two; to minimise transport costs as between the two smithies, half way would be ideal. But since transport costs are very rarely proportionate, for example due to loading and

unloading costs, there is likely to be an advantage to the new plant in locating at either A or B. More, by locating at either A or B not only will the plant make certain of the business arising from that smithy, but the probable road network will provide a number of alternative markets for the balance of output. Let us say the new shoe-making plant locates at A.

What follows? The smithy at A has now a cost advantage over smithies in all the adjacent market towns. Even if the supplying plant enforces a fixed delivered price this still holds, for the smithy at A will be able to work on lower stocks.

Given this cost advantage, it is then open for the smithy at A to extend its market area, and so increase its turnover. Looked at the other way round, town A becomes more attractive, and this in turn will increase the smithy's turnover even more.

As the smithy's business grows, in all probability, town A will attract, say, a plant making nails for shoeing, and so on. Thus there arises a concentration at a *central place*, A, as shown in Figure 2.
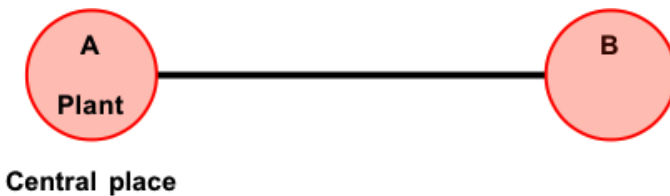

Figure 2: Concentration at a central place (town A)

The original decision of the horseshoe-maker may have been sub-optimal. Maybe he could have done better locating at B. But a time has now arrived when A is the optimal location, not only for a smithy, but also for a whole host of plants supplying that industry and probably plants supplying the industries that supply the smithy industry, and so on.

This example is not far-fetched; it is a very common example. In the UK, the West Midlands is an optimal location for setting up a production line to turn out popular cars today because it is there,

it has built up a work-force, and it has attracted all the required supply industries; no matter that some other location in the country may have better natural advantages.

In stating this I am not arguing that for a multinational such as Ford then Dagenham is an optimal location. When we come to consider economic potential, it may be found that we should place an automobile production line as verging on the *footloose*, and most certainly we will class many of its suppliers of inputs as *market orientated*, but at the micro-level we have to take note of this all-powerful self-generating force, which all too frequently determines an optimum location.

It may be true that reduced capital costs, lower labour costs, government grants and subsidies, etc., make a depressed area in Scotland an attractive location for a production line. Yet, in the longer run, unless that plant is of sufficient size to attract its necessary suppliers of inputs, it will always be operating at a disadvantage – it will be located sub-optimally.

Let us now return to our von Thünen plain, but in this case it is not cut off by a wilderness – it is surrounded on three sides by mountains and on the fourth by the sea. It is not a closed economy, but an open economy, with a single port through which all its imports and exports must flow. Given this endowment there must be at least two levels of settlements – the rural ones dispersed throughout, probably in village clusters, and the port, which can fulfil its function only to the extent that it engages in trade with the rural settlements. These assumptions are shown in Figure 3.

At a primitive stage the port may do no more than collect agricultural products for export and exchange them for imported goods, yet even at this stage there will be a concentration of flows and the port will be the economic capital and most probably the administrative capital.

Let us however consider more contemporary conditions, where one has a variety of manufacturing and service industries.

Now, the concentration of flows and the associated relative

concentration of population will tend to make the port area attractive for many activities. Henry George observes this fact in his savannah story,[15] but it is far more complex.

For example, a tube station has much in common with our port, and the adjacent sites are attractive locations for many kinds of shops and services. However, behavioural studies show that people are just as likely to stop and make immediate purchases at a place local to their home as at the station; what they are less likely to do is to stop off somewhere in between.

Thus whilst there are forces making for concentration there are equally forces making for dispersion. What is important from the locational aspect is that the potential is usually greatest at one end or the other and only rarely in between.

Now this 'end aspect' is of growing importance today with the shift to 'roll-on roll-off'[16] and container transportation. This kind of transportation technology tends to greatly strengthen the forces making for dispersion and weaken those making for concentration. Given good and well organised harbour facilities and a reasonable transportation network the importance of the port area is reduced to little more than a short-stay parking lot.

On the first evening I mentioned the concepts of macro-concentration and micro-dispersion.

The so-called London–Birmingham–Manchester axis is an example of macro-concentration, but within that large area there are factories and warehouses all over the place – micro-dispersion. From the locational aspect this development is largely the result of technological advance, but in my book, in this case locational theory deals with results, or if you prefer, proximate causes. The primal cause is fiscal policy, which we will deal with later.

For the moment let us return to our model, shown in Figure 3, and consider the locational forces.

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15 A further reference to George's *Progress and Poverty*, Book IV, Chapter II.

16 The ability to drive road vehicles onto a ship, and to drive them off at their destination, rather than loading or unloading cargo by crane at the dockside. The introduction of the Penny Post in 1840 reflected similar considerations.
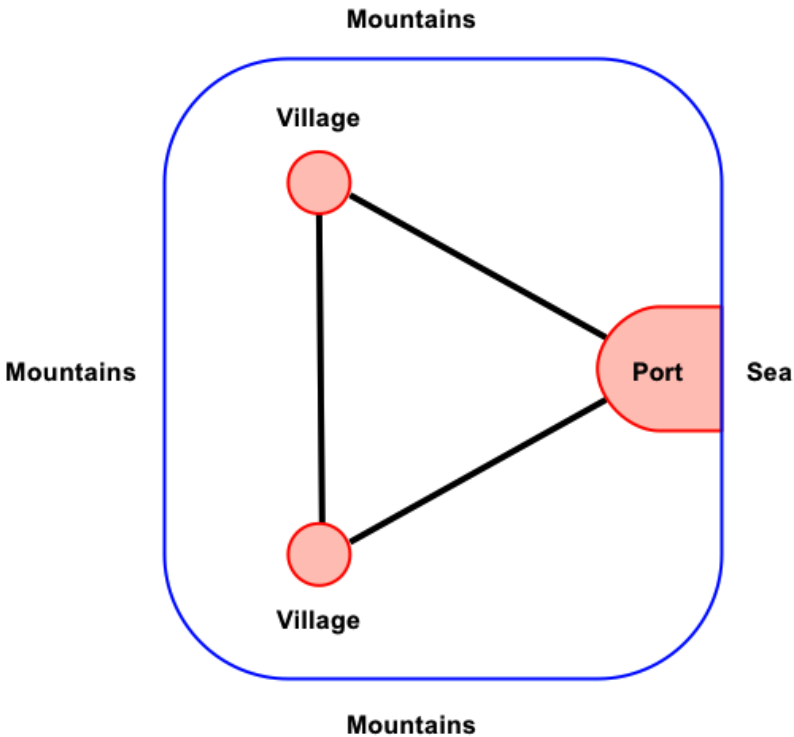
Figure 3: An open economy bounded by mountains and sea

First, if the most efficient size for the production activity requires a market close to, or greater than, the home market then the optimal location will be within the port area. There are two exceptions. These are when the process is localised resource orientated, and therefore has to be located at or close to the localised resource; or again, where the transportational costs of either the inputs or the outputs more than offset the gains from an efficient size; then, you may find less efficient plants operating successfully to supply a local market area. These are issues of what are known as *economies of scale*, but never forget that the determining factor is not always that of efficient production.

Second, where the processing of imports significantly reduces the onward transportation costs, or the processing of exports significantly increases the onward transportation costs, then the optimal location for these activities will tend to be *concentrated* within the port area.

Third, the opposite case; where the processing of imports significantly increases onward transportation costs, and the processing of exports reduces them, then many if not all the optimal locations will be *dispersed* outside of the port area. The extent of the dispersion will depend in part on economies of scale and in part on the required supply area for processing exports and the required market area for the processing of imports. This class of locational constraints will give rise to a number of centres of secondary importance to the port, or economic capital.

What I have been outlining is a development of von Thünen's analysis known as the central place system.

For simplicity, I assumed only a single port or economic capital; one gets into complex permutations when there are a number of ports, entrepôt places,[17] and where the economic capital is not the administrative capital. Nonetheless, it remains basically the same system, and it does enable one to delineate the feasible locations within which there will be one or more optimal locations for any particular production activity. Always, there are forces working towards *concentration*, and forces working towards *dispersion*; also, never forget that technological advances may substantially change the pattern over a period of time.

In spite of all the provisos and limitations the analytical system does enable us to draw up a general list of potential flows which will determine the rings or locational pattern, as shown in Table 1 below. This is only a very general list, but nonetheless it is useful as a starting point when tackling a locational problem.

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17 An entrepôt site is an intermediate trading post where goods may be stored whilst awaiting further shipment. This economic function may then of itself give rise to the development of a large port or city around the entrepôt site.

Exports from higher to lower centres

(a) Produced in the economic capital or port area
 – Importation of finished goods
 – Transport cost reducing processing of imported inputs
 – All activities requiring maximum scale
 – Specialised services

(b) Produced in middle towns of a size specific to the scale requirements
 – Transport cost increasing processes
 – Appropriate specialised services

The outputs of these classes of production activities are generally traded from higher to lower centres; in other words, accessible market areas are usually an important determining factor.

Two-way flows

 – Processing of agricultural commodities
 – Leisure and recreational activities

Exports from lower to higher centres

 – Agricultural raw materials and produce for processing
 – Localised resource orientated (e.g. electricity supply)

Activities for local consumption having no scale requirements

 – Processing activities which are transport cost
   increasing, or not transportable
 – Unspecialised services

These latter activities may be located anywhere and to an extent everywhere.

Table 1: Potential flows between higher and lower centres

Apart from the example of *isotims* that I gave last week, we have implicitly assumed our flat and fertile plain to be devoid of transportation networks. This assumption may have simplified matters but it is not realistic.

Tonight we will limit our discussion to road networks.

Generally there will develop a hierarchy of roads in a similar way as there develops a hierarchy of central places – motorways, trunk roads, A roads, B roads, unclassified roads, and an assortment of tracks not worthy of being called roads.

But whilst this may be so, there are only three possible regular networks – triangular, square and hexagonal.

One may take a network as a part of a city, a city or a region - no matter. Now, given an equal length of road per area, which is the most efficient from the point of view of transportation costs? Triangular, rectangular, or hexagonal?

It would seem that the rolling English drunkard[18] was not incapable. Whilst we tend to think of our roads as radiating out from central places, when we look at an Ordnance Survey map we will observe that the network conforms to the triangular pattern – twists and turns excepted.

Now many towns, particularly those subject to the attention of town planners, conform to a rectangular or grid-iron pattern. Given this network the corner sites will usually be the optimum location for a number of activities. One important reason for this is that at the corners there is the maximum flow of potential customers.

Accepting this, however, there is, from the locational aspect, an even more important determining factor here: a rectangular road network produces market areas that extend diagonally.

Let us assume a particular production activity for which only corner sites are feasible locations, but which in addition requires a certain market area in order to obtain sufficient revenue.

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18 A reference to the poem *The Rolling English Road*, by G. K. Chesterton, published in 1913: 'Before the Roman came to Rye or out to Severn strode, the rolling English drunkard made the rolling English road.'

Its optimum location will be a corner site that includes no other competitor within its market diagonal. Thus if we consider the city to be an example of macro-concentration, then within that city there are forces working towards the micro-dispersion of certain activities. The extent of the dispersion will depend on the size of the market area required, as shown in Figure 4.

Public houses are good examples. A customer who enters one is lost to another and there is little scope for competition between public houses. They tend to disperse throughout the feasible locations.

This does not apply to, say, Marks & Spencer stores and Woolworths, where the customer of one is a potential customer of the other and there is scope for direct competition. However it is a consideration that will enter into the decision of Woolworths as to how to locate as between a number of towns, any or all of which may be *feasible* locations. They will locate so as to not cut into their own market areas.
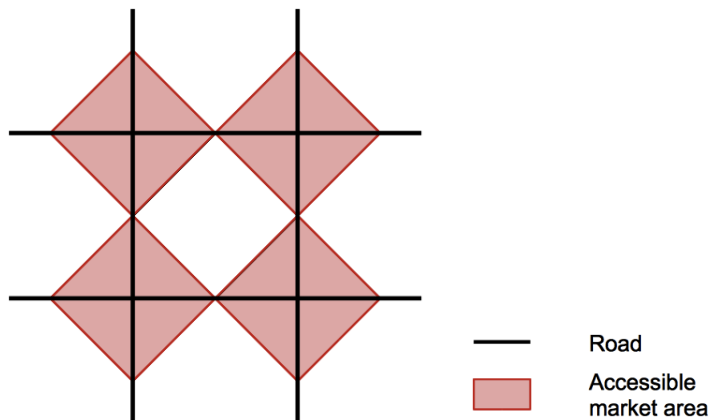

Road

Accessible market area

Figure 4: Market access of a rectangular road network[19]

19 A rectangular road network has a potential efficiency of 50% – for any given level of transport cost, only 50% of the local area is economically accessible. Triangular and hexagonal road networks have potential efficiencies of 100%.

As a matter of interest, a triangular road network produces hexagonal market areas, and hexagonal road networks produce triangular market areas, as shown in Figures 5 and 6.
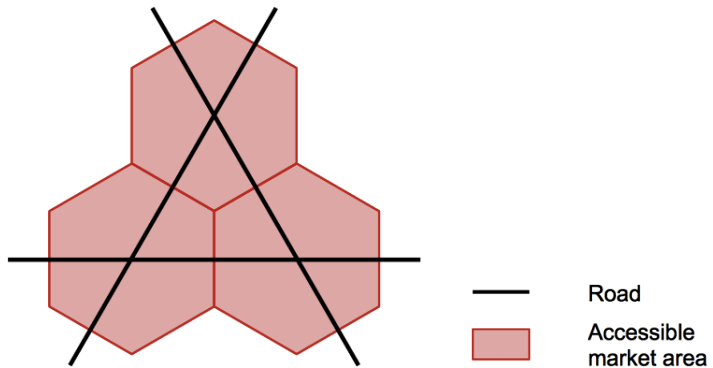
Sufficient unto the evening.

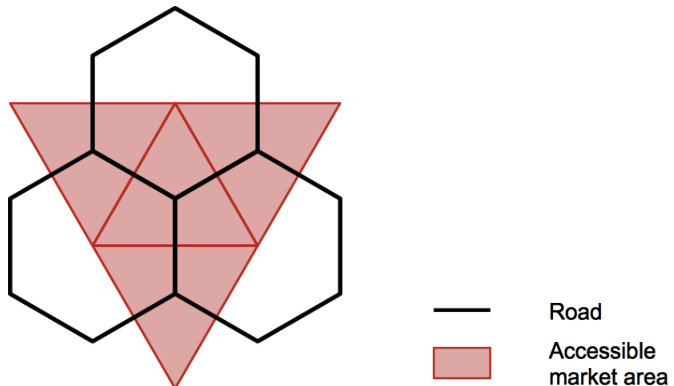Figure 5: Market access of a triangular road network

Figure 6: Market access of a hexagonal road network

5

Equilibrium and Economic Growth

25th October 1983

So far I have said very little about pricing and to those of you who have glanced at the textbooks this may seem strange. Here we are at the half-way stage. Further, most of you probably know sufficient general economic theory to have concluded from what has been said earlier that, as in the very short run the locations for all *government*, *consumption* and *production* activities and their capacities must be fixed, then the short-run equilibrium must be a matter of price equilibrium.

I agree, but there are reasons. First, we have concentrated on *production* activities in competitive market conditions as it is only these activities which are driven towards *optimal* locations.

In a competitive market input and output prices are given – they are determined by the market. Remember, a competitive market is not of necessity a perfect market. In a competitive market there may not be one ruling price, but there will exist a price band for close substitutes, and market forces will not permit significant persistent divergencies. All brands of cornflakes are not the same price but they are all in the same range. Thus, what constitutes an optimum location will be determined largely by minimum cost, or maximum revenue, or some combination of these two at prices determined by the market.

In addition to the question of where, when locating a new plant or making new investment spending, the life of the fixed capital has to be taken into account. Nonetheless, in general it is only at its optimal location that a firm will be able to price competitively. At any other location it will need some monopoly advantage.

Again, these monopoly advantages may be of many kinds. For example, if in say 1970 a firm purchased a freehold, a long lease,

or invested in a piece of long-life capital, then inflation will have given it a monopoly advantage. They will be able to exclude new entrants irrespective of location, as firms will be unable to compete at the current inflated price of certain inputs – for example, a cold-store. This kind of monopoly advantage is not only a cause of inefficiency but is also a cause of locational distortions. A location becomes optimal by reason of the fixed capital that exists at that location.

One aspect of pricing that we need to give some attention to, is that concerning production and trade – that is, pricing in spatially separated markets, or in spatially extended markets.

Now subject to the constraints which fix the amounts demanded in each market, or at different locations within a particular market, commodities move efficiently when, and only when, the price system satisfies two conditions:

a) The price difference exactly covers the transportation cost on all routes of traffic flow.

b) Inter-local price differences never exceed transportation costs.

Let us take one commodity, say coal, which is produced at a number of different mines, each of which has constant unit costs and a fixed capacity. The costs and capacity may differ from mine to mine. Let total demand be greater than or equal to total capacity. These assumptions are realistic for the coal industry in the United States. To what extent should the different mines be worked?

The problem is one of what is known as linear programming, with production costs added in to the transportation costs, and with mine capacity imposing an upper limit to the outflow at each location.

At all mines at which the coal price is less than production costs the most efficient outflow is zero. At mines where there is some production but also some excess capacity the coal price exactly equals production cost. Where capacity is fully utilised, the coal price exceeds production cost by some surplus, or rent.

If this total surplus or rent income covers fixed costs, that is

costs arising only in the long run, then the mine should be run on a long-run basis; that is, it should not be brought in and out of production. If the total surplus or rent income exceeds fixed cost then the plant should be expanded.

Thus, do we see that even though total demand exceeds total supply, on grounds of economic efficiency some pits may be held out of production whilst others work at less than full capacity and yet others may be expanded or even new pits sunk. It may be inefficient to allow the price to rise so that pits already in existence can expand production.

It follows, the argument currently being put forward by the National Union of Mineworkers to the effect that: 'all pits should be worked until their reserves are exhausted' cannot be supported either on the grounds of economic efficiency or in relation to total employment. However, the argument may be justified on other grounds.[20]

There is more to this line of enquiry. It can be shown that whilst inter-regional trade will reduce price differences so that given free trade the equilibrium price will reflect only the differences of transport costs, it does not of necessity increase output either in terms of quantity, or of relative price times quantity.

What then is maximised by trade?

With respect to the commodity flows a convenient description of competitive market equilibrium is the maximisation of total consumers' plus producers' surplus, minus transportation costs.

In the case of other than free trade transportation costs must be understood as including tariff and similar charges or rebates.

On the standard supply and demand diagram it is the area underneath the demand curve and above the supply curve that is the mathematical equivalent for the equilibrium conditions in a spatially extended market.

This is shown in Figure 1.

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20 The year-long miners' strike took place in the United Kingdom shortly after this talk was given, from approximately 6th March 1984 to 3rd March 1985.
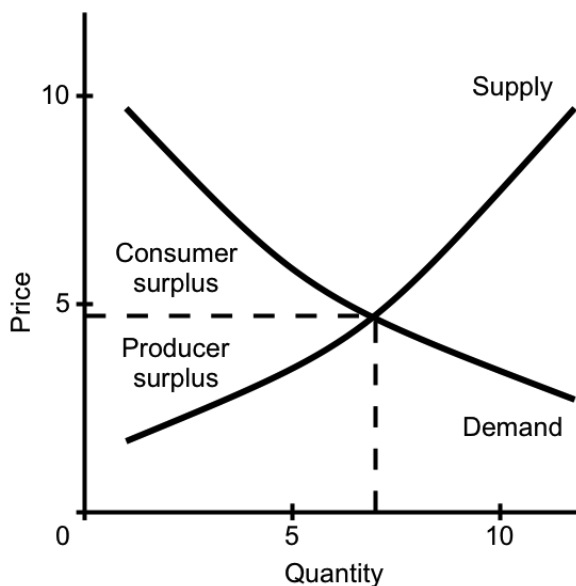
Figure 1: Equilibrium conditions in a spatially extended market

It is a mathematical fact that the maximisation of this surplus, net of transportation costs, generates conditions which determine equilibrium:

a) Net outflow of the commodity equals excess supply at this location at this price. In other words at this price a mine will ship out to other locations all coal produced and not demanded locally.

b) Between any pair of locations, price differences equal transport costs.

I have attempted an explanation here only in terms of a one-commodity model, but the model is capable of generalisation. The important topical lesson is that the extension of a market, even though it is associated with bigger demand, does not of necessity mean that output at any particular location will also expand; it may just as easily contract.

Further, the opportunity for greater inter-regional trade does not

of necessity work towards increasing output in aggregate.

Thus whilst by joining the EEC the market for British producers was enlarged it does not follow that they were placed in a better position to supply that market – in many cases, the reverse holds.

For example, during the l970s the idea was mooted of forming a Customs Union between Australia and New Zealand on the EEC model, but investigations showed[21] that all the advantages would accrue to the Australian producers, whilst New Zealand producers would be on the receiving end of most of the disadvantages. The notion did not get off the ground.

We will pursue this line further when we come to consider economic potential and taxation, but for the moment, note that free trade cannot be relied upon to do more than maximise consumers' plus producers' surpluses in total. Another way of stating the case is that free or freer trade can be relied upon only to produce a more efficient use of total resources, and a better distribution of outputs with the minimum of erratic price movements.

What we have been talking about so far can be explained, as I have illustrated, in terms of established supply and demand theory.

This theory presumes the existence of an equilibrium, the point of intersection. Spatially this is realistic in the short run, where everything is fixed, but what about the long run?

Long-run equilibrium requires that:

a) No activity could be more profitably relocated.
b) No immobile resource could be more profitably used.
c) Capital is earning the same rate of return everywhere.
d) No mobile resource could move to a location where the extra benefits exceed moving costs.

Does this imply that all resources are allocated efficiently?

From the general theory of economic equilibrium we know that this is true, provided that:

a) Returns to substitution are diminishing – there is nothing to be gained by employing a substitute.

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21 See the discussion in Clark's *Regional and Urban Location*, Chapter 9, p.99.

b) Returns to scale are constant or decreasing – there is nothing to be gained by being larger.

c) There are no indivisible factors of production.

d) There are no external economies or diseconomies.

With the exception of the first, these assumptions are all liable to be violated in a spatial economy. Therefore one cannot assert without considerable qualification that, in general, competitive equilibrium will achieve efficient spatial allocation of resources.

Furthermore, the equilibrium will not be unique but will depend on the path of historical development. As I have emphasised from time to time, at the outset the locational choice is more often than not indeterminate, but nonetheless this will set the subsequent pattern, and we get stuck with the West Midlands as discussed last week. What can be described as *moving costs* thus constitute a frictional force, which may prevent the economy from ever attaining the overall optimal locational pattern.

There remains to be considered the issue of economic growth. Historically, economic growth has tended to lower transportation cost relative to prices of other goods and services partly because of economies of scale, but mainly because of technical change. The effect of this is to extend the market areas of low-cost suppliers at the expense of high-cost suppliers and to reduce inter-local price differences. In addition economic growth also makes room for new plants whilst, with the old soldiers, old plants fade away.

In a variety of ways economic growth tends to reduce, relatively if not absolutely, the frictional forces preventing an economy from achieving an overall locational pattern. But this is a micro-view, important – most important – to individual firms and persons who, in the nature of things, pursue their own well-being; yet not so important today as the macro-view which may show more clearly the part played by government policy.

It is to this we will turn next week.

6

Economic Potential (i)

1st November 1983

For the past five weeks we have been considering what is generally known as location theory, and in particular the issue of locational choice as it applies to the location of a particular productive activity operating in a competitive market when the locations of all other activities are given. What I hope you can now appreciate is that what constitutes an optimal location in this case is determined by a complex of forces, not all of which work in the same direction. Further, since the original choice was in most instances indeterminate, what constitutes an optimal location is very much the result of historical development.

In practice locational choice is unlikely to extend to more than half a dozen sites for a variety of reasons and this greatly simplifies the job. Which of these half dozen is the best?

First one has to decide on the necessary information to answer the question. Second, as most of the required information will not be available or not available in the right form or sufficient detail, one has to decide what of the available information will stand proxy for the necessary information. The third stage is the collection of the data.

Having completed this slog and decided on the appropriate formula the rest will depend largely on the expertise of the computer programmer.

In other words the situation today is that theory and technology are in advance of the available information, and this applies even more so to regional analysis, which we will be considering for the next few weeks.

The relationship of regional analysis to location theory is rather similar to that as between macro- and micro-economics.

Regional analysis, like location theory, is a complex and specialised subject. The best texts in my opinion are those published by the Massachusetts Institute of Technology of which this[22] is the fourth in their series. It runs to over 750 pages, and so do not expect in two or three weeks' time to be masters of regional analysis. I will deal only with one method of regional analysis that uses what are known as gravity models, and only that part of the method that uses economic potential.

This decision is not haphazard. Economic potential is especially useful in relation to issues of fiscal policy and in relation to policy issues affecting a Customs Union, such as the European Economic Community. For those of you who wish for a general read I can recommend Colin Clark's *Population Growth and Land Use* which includes a few pages on economic potential.

First let us get a notion of this concept of gravity in spatial economics. The term gravity and the term potential are both borrowed from physics.

Physics distinguishes between electrostatic attraction and gravitational attraction. Now independent of distance the electrostatic attraction is far more powerful than the gravitational attraction. The ratio between the two gives a number of forty digits beginning with a 2 – this means electrostatic attraction is 2,000 million, million, million, million, million, million times greater than gravitational attraction.

How is it then that physics can measure such a relatively minute force as gravitational attraction? In layman's terms electrostatic attraction arises from the existence of positively charged particles and negatively charged particles and thus it is self-cancelling, tending only, as it were, to hold everything in place – in balance. Nuclear energy is basically a matter of upsetting this balance and so releasing the enormous energy. A more simple experiment is by rubbing the top of a plastic pen on a piece of cloth; a few charges

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22 A reference to the series of books by Walter Isard (1919–2010), leading up to his *Introduction to Regional Science*, which was first published in 1975.

are rubbed off, the balance is upset and, for a time, the electric force can easily overcome gravitational attraction and pick up a piece of tissue. It overcomes the entire attraction of the earth.

Gravitation, on the other hand, is always attractive. If such a thing as anti-gravity exists, it is not known to contemporary physics. Thus, given the electrostatic balance, gravitation always wins. The so-called black holes are examples of gravitation winning. There are regions in which gravitational attraction has accelerated the particles of mass beyond the speed of light.

So much for physics, about which I know nothing; on to the analogous concepts used in spatial economics.

Over recent weeks we have noted that there are locational forces making for concentration and other forces making for dispersion. By the application of von Thünen's theory we have noted also that in combination these forces create predictable patterns – rather as do iron filings in a magnetic field.

Whether or not there is a similar power ratio in economics as in physics I do not know, but being in ignorance, I advise against upsetting the balance just in case.

What we are moving on to consider is the economic equivalent to gravitation which, being always attractive, always wins.

Again I do not know whether there is an economic equivalent of black holes. It seems to me that what happens in spatial macro-economics is the central place becomes so dense that it ceases to operate and begins to decay. Thus, whilst it may not be appropriate to speak of anti-gravity or negative gravity in spatial economics there does appear to exist a critical point at which gravitational attraction is reversed.

Have you now some notion of the concept basic to so-called gravity models, as used in regional analysis?

Economic potential seeks to determine the relative attractiveness of different areas as locations for a particular class of productive activities.

For this purpose three classes of activities are distinguished.

1. Resource orientated or immobile activities.

Included within this class are all activities whose choice of location is significantly limited by what we may call technical constraints. For example, one can only locate a coal mine on a coal field, or the best location for a coal fired electric generating station is adjacent to a coal field. But this class is even wider. According to newspaper reports the proposed production line for Nissan cars will rely largely on components imported from Japan, and expects to export a major part of its finished output. It follows, it must locate as close as possible to a suitable port. For this reason the site adjacent to Immingham on South Humberside is thought to be the front-runner.[23] If what the newspapers say is true, then this new production line comes within the immobile class.

2. Market orientated activities.

These are those activities that need to follow their market. The dominant factor determining what are the feasible locations is the location of the markets for the output. You won't sell many newspapers if you are located in the middle of a ploughed field on a wet day.

3. Footloose or mobile activities.

These are those activities in which neither the source of their inputs nor the location of their markets has any particular locational significance. So far as technical factors are concerned, and in this context that includes most of the factors considered during the first five weeks, anywhere is more or less a feasible location. You may follow the sun or not follow the sun as you wish.

Do we get the notion of these broad classes – not forgetting that between each class there is a twilight zone?

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23 Immingham Dock was built in 1912 by the Great Central Railway Company. Shortly after this talk was given, however, the government decided instead to sell the former Sunderland Airport to Nissan Cars at agricultural land prices, and the new factory opened in September 1986. It is located five miles from the Port of Tyne, where its international distribution is based, and enjoys good access to Newcastle Airport and a number of major trunk roads.

Now from this classification the argument proceeds. Since footloose industry can, by definition, locate more or less anywhere the original choice is from the economic aspect indeterminate. It is said that Silicon Valley located in California for no other reason than it is a pleasant place to live and work. But of course once Silicon Valley is there it becomes of itself a factor determining optimal location. Nonetheless it could become established only because there were no other areas offering significant locational advantages.

From this it follows, if on economic grounds one could determine the areas most attractive to footloose industry then one could also predict with some confidence that concentrations of footloose industry would become established in those areas.

Now the technological advances that have taken place this century and in particular the present micro-chip revolution have so greatly extended the class of footloose industry that it today is the dominant class. Being the dominant class means that where footloose industry tends to concentrate a lot of market orientated industry must of necessity follow. A concentration of industry means a concentration of jobs which those seeking work will follow. As the population grows in a particular area so that area will become an increasingly attractive location for the multitude of other activities.

Do we see how one thing is added to another to produce the phenomenon known as macro-concentration?

Economic potential is a measure of the relative attractiveness of areas as locations for footloose industry.

From these calculations it is argued that not only will footloose industry concentrate in areas of high economic potential, but so also will a lot of market orientated industry and population. Eventually only immobile industry with their working populations, and the non-working population, will be located outside of the areas of macro-concentration.

Now macro-concentration is a suitable subject for treatment by

means of a gravity model, for it is essentially the result of two variables, mass and distance. Assuming everything else being equal – the equivalent to the statement in physics as to the electrostatic balance – then the interaction between any two masses can be expected to be directly related to their size; and since distance involves friction, inconvenience, and cost, such interaction can be expected to be inversely related to distance.

It was in the 1850s that an American, H. C. Carey, in his *Principles of Social Science*, observed the presence of apparent gravitational forces in social phenomena. He stated that the force was in direct ratio to the mass and inversely to the distance.

During the l940s another American, John Q. Stewart, presented three primary concepts based on Newtonian physics.[24] These were:

1. Demographic force.

This was equated with gravitational force that is a constant times the product of two masses divided by the square of the distance separating the two masses:

$$F = \frac{G \times P_i \times P_j}{d_{ij}^2}$$

For the non-mathematically minded this reads:

The demographic force F is a gravitational constant G times the product of the population of city i times the population of city j divided by the distance d between those two cities squared.

2. Demographic energy.

$$E = \frac{G \times P_i \times P_j}{d_{ij}}$$

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24 In *Demographic Gravitation: Evidence and Applications,* published in 1948.

This concept corresponds to gravitational energy, and differs from the demographic force only in respect of the distance variable d which is not squared.

3. Demographic potential.

This corresponds to gravitational potential:

$$_iV_j = \frac{G \times P_j}{d_{ij}}$$

where V is the potential produced at point i by a mass at point j, and is defined as a constant G, times the mass P at point j, divided by the intervening distance d.

Now I will be giving you more mathematical formulae but if you cannot read them, do not bother about it. All that is important at this stage is to follow the development of the notion and to get the general feel. It is the general feel that will be important when it comes to interpretation.

From Stewart in the 1940s we move on to Harris in the 1950s. He was then Professor of Geography at Chicago University. The mass, designated by P in equation 3 above, was taken by Harris to be the retail sales of county j, whilst the distance variable d was based on transport costs. He used the formula:

$$_iV_j = \Sigma_{(j=1 \ to \ n)} \ (P_j / d_{ij})$$

Harris reasoned that the potential map he produced measured the accessibility of any county, i to the entire market of the USA, and argued that such a map was of significance for the analysis of the location of manufacturing industry in general since such location is sensitive to the geographical distribution of the market.

This map of Harris's produced some useful results, but in particular it demonstrated that in the economic sphere mass and distance may be measured in a number of different ways.

Harris produced a second map using the formula:

$$TC_i = \Sigma_{(j\,=1\ to\ n)}\ (P_j / d_{ij})$$

TC was in this case a measure of the transport costs at point *i* and for the purposes of calculation it was assumed that each dollar of retail sales represented one ton of product. Harris reasoned that transport costs on getting the finished product to the market exert an important influence on the location of manufacturing industry and, everything else being equal, a firm seeks to locate at the site that minimises transport costs to the market.

So now there were two maps each of which yielded some interesting results. The question was: How to bring them together?

In the economic sphere it must be that total potential at point *i*, designated as *V*, is the sum of the separate potentials produced by each mass.

In the mid-1950s another American, Edgar S. Dunn, combined both market potential and total transport costs into a single index to indicate the optimal location. Edgar Dunn's work rested on the assumption that a one percent disadvantage in transport costs exactly offset a one percent advantage in market potential. His work brought into focus the dilemma arising from Harris's two maps but it did not resolve it. As yet, no basis for his assumed relationship has been produced.

It is at this stage, after a century of work in the United States – Carey published in 1858 and Dunn in 1956 – that we come to the British contribution. Colin Clark was a visiting scholar at Chicago during the time Harris was producing his two maps. When Colin Clark returned to this country to take over as the Director of a Research Institute at Oxford he continued to work on the potential concept. No doubt it appealed to him as his first degree was in the physical sciences.

In the United Kingdom at that time we were enjoying so-called full employment, but significant regional differences in the rate of unemployment continued and were a matter for concern. There

was wide acceptance that these differences should be smoothed out by means of employment subsidies but the practical questions were 'How much?' and 'How to pay for it?'.

Colin developed the concept of economic potential to devise a self-financing scheme of payroll taxes and subsidies sufficient to eradicate the regional differences in the rate of unemployment.[25]

He concluded that the Hammersmith district of London would be the area of maximum tax whilst the Orkneys and Shetland would be the area of maximum subsidy. He demonstrated that a payroll tax and subsidy scheme could be self-financing and effective. The only problem was that in order to be effective the magnitude of the necessary transfers were likely to create more problems than they solved. In other words the payroll tax and subsidy approach did not offer an effective practical solution to the regional differences in the rate of unemployment.

As some of you may be able to 'hole out on a solution in one',[26] it may be worth noting another contemporary event. At about the same time the United Committee for the Taxation of Land Values were spending around £12,000 – a lot of money in those days – to produce evidence in support of their proposal of Site Value Rating. However, since the United Committee considered that they knew all there was to be known about economic theory and methods of analysis they relied on the expertise of a practical rating surveyor and ignored the academics, even though Colin was a well-known supporter of the rating of site values.[27]

An isolated single piece of evidence contributes nothing to the advancement of science. No matter how expertly the job is carried out the chances of it being an accident remain at 100 percent.

In my opinion a great opportunity was missed, perhaps forever. Colin Clark has been long in retirement, his Institute has long since ceased to exist, and the expertise he gathered around is now

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25 *Industrial Location and Economic Potential*, Lloyds Bank Review, 82, 1966.

26 Such as the use of site value rating in place of payroll taxes and subsidies.

27 A reference to the first Whitstable Survey, carried out in late 1963 for the Rating and Valuation Association. A second survey was carried out in 1973.

widely dispersed;[28] in any event the United Committee no longer has the necessary cash.

Be this as it may, in the scientific sphere one does not tarry speculating over what might have been. Colin Clark pressed on and produced a series of potential maps covering the EEC on the basis of a number of hypotheses. This work we will consider next week.

What I hope you have appreciated from tonight is the sense and feel of this particular approach to regional economic analysis using the proven concepts of physics. If we are to interpret Colin Clark's results then the sense and the feel are far more important than the mechanics of the calculations.

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28 Colin Clark was Director of the Agricultural Economics Research Institute at Oxford from 1952 until 1969, when it was merged into other departments of the University. He then moved permanently to Queensland, Australia.

7

Economic Potential (ii)

8th November 1983

First a brief re-cap on last week. It was in the 1850s that an American, Henry Carey, in his *Principles of Social Science* noted the presence of gravitational force in social phenomena. Henry Carey is considered by many to be the founder of the United States school of economics; he was born in Philadelphia in 1793 and died there in 1879. Henry George was also a Philadelphian, and was born there in 1839. George's savannah story may be viewed as a gravity model, although there is no evidence that George viewed it in that light, and he was most certainly no admirer of Henry Carey, whom he considered as 'the American apostle of protectionism'.

However it was Carey's observation that led, one hundred years later, to the establishment of a place for gravity models in spatial economics.

In the early 1950s Professor C. D. Harris of Chicago University produced two maps. The first was essentially a measure of market potential, based on the formula:

$$_iV_j = \Sigma_{(j=1 \text{ to } n)} (P_j / d_{ij})$$

The second was essentially a transport cost index, based on the formula:

$$TC_i = \Sigma_{(j=1 \text{ to } n)} (P_j / d_{ij})$$

Harris's work is of particular interest for it demonstrated that in the economic sphere mass and distance could be measured in more than one way and each way could produce useful results.

Thus it raised, but did not answer, the question of how to sum

these separate potentials at any point.

Edgar Dunn attempted such a combination, but no basis has yet been found for the relationship he assumed.

Finally last week I mentioned Colin Clark's development whilst he was Director of the Research Institute at Oxford during the 1960s. Colin produced some very useful economic potential maps covering the EEC, although strictly, he did not resolve the issue raised by Harris, but used yet another different measure of mass.

But before moving on to Colin's completed work let us be clear as to the theoretical foundation of gravity models and then, out of strict chronological order, I will describe my own work on defining mass. My work got no further than his, due to the break-up at Oxford and lack of funds.

In physics there is electrostatic attraction which consists of very powerful positive and negative forces. Although powerful these forces tend to be self-cancelling and hold everything in balance at a micro-level. In addition, physics distinguishes gravitational attraction which is, as it were, always a positive force and as a result, although weak relative to electrostatic attraction, always wins in the long run, other things being equal.

In spatial economics one may observe also a gravitational attraction and, other things being equal, this too always wins in the long run. Remember that in the context of spatial economics the term 'other things being equal' is used as it is in physics (i.e. other forces are in balance) and is not to be confused with the unrealistic assumption that is necessary for micro-economic analysis.

An important difference between spatial economics and physics is that in spatial economics there is no one way in which to measure the two variables, mass and distance. Thus there is a difficulty in summing the economic potential at any point. It could be that there is no final solution to this issue. In other words we must not reject the possibility that in spatial economics mass and distance must be defined with reference to the particular purpose and the particular conditions.

The potential $_iV$, as defined by Harris, is a measure of market accessibility, so that a maximum value of $_iV$ indicates the location for maximum sales or turnover. The transport cost index TC_i is a measure of transport costs, so that a minimum of TC_i indicates the location at which minimum transport costs would be incurred.

Now, if there is a reasonable basis for assuming that transport costs are not a determining or a significant factor, or that there are overriding advantages to be gained from economies of scale, then maximum $_iV$ is most likely to indicate optimal location.

However, if transport costs are a determining factor, or the market is invariant with location, then minimum TC_i will indicate optimal location.

To move on to my own efforts, in the late 1960s I was working on a local government finance project and this was published as E.S.A. Paper No. 2 in January 1970. I concluded so-called site value rating to be fundamental to any final solution, but I lacked the required factual evidence to support this conclusion. I reasoned that if I produced a relatively detailed economic potential map for the United Kingdom, I would then be able to relate the Whitstable Survey already completed by the United Committee to economic potential. I could then select three or four other local government areas at various potentials for a site value survey and on the basis of all these factors calculate a relationship between site values and economic potential. Given this information, it would then be a simple matter of calculation to extrapolate for the whole of the United Kingdom on a scientific basis.

The local government project was being financed by a W. D. & H. O. Wills family trust so money was not a limiting factor. What was not foreseen was a change in the tax laws, which resulted in the Inland Revenue collecting 110 percent of the trust income and which necessitated a liquidation of the trust. The project came to a sudden premature death. However some interesting work had been completed on the mass variable, and the issue of distance appeared to present few problems.

The United Kingdom is a particularly suitable region as a basis for a gravity model. Being an island, it has a precisely defined home market which is a political entity. Further, since the market is small it is often possible for a footloose industry to serve the whole market from a single location. Thus it is not unreasonable to assume the market to be invariant relative to the location. In these circumstances it is total transport costs rather than market potential that is likely to influence the optimal location.

However the United Kingdom is a very open economy in which imports plus exports account for over 40 percent of final output. It seemed to me reasonable to assume that for any firm producing for the international market, accessibility to that market would be a factor in determining whether or not the United Kingdom was a feasible location. But, within the United Kingdom, this overseas market may be considered as an invariant with location, and the optimal location would be determined by the minimum TC_i in relation to all significant places of shipment.

Further, since imports are, in general, of significance to production activities located within the United Kingdom, then this particular TC_i must be considered as having a double effect. Thus when measuring the mass variable, the power and distance of export markets themselves and the source of imports were relatively insignificant. The important issue was a measure of trade flows through the significant places of shipment.

From all this, it was concluded that the appropriate measure of potential would be given by adapting Harris's TC_i formula, rather than his $_iV$ formula.

The next problem to be resolved was that concerning the measurement of mass – designated in Harris's formula by P. When measuring mass for the purpose of constructing a gravity model one is in fact giving an economic weight, or number, to selected nodal points. The basis of these economic weights or numbers will depend on the available data and the purpose of the model but they are nothing more than relative magnitudes of limited validity.

What matters is that one point is, say, twice the mass of some other point. It is of no matter whether this is expressed in terms of pounds sterling, tons, or by the number 100 and the number 200.

In measuring seaports and airports it was decided for a number of reasons to exclude passenger movements and oil shipments. Excluding these items, the relative economic mass was measured by value times weight.

Since economic potential is very much concerned with the way things are going, estimates were made for five consecutive years from 1965 to 1969, and the final figure adjusted to allow for the trend. For example as London was declining in importance it was adjusted downwards whilst Immingham was adjusted upwards, as also were Felixstowe and Harwich. All told, estimates were made for 34 ports, although some of these were later amalgamated.

The results may be of interest. London with Medway came top with a number of 176; then Liverpool with Manchester 169; the Humber ports – Hull, Immingham, Grimsby and Goole – 103. No other group of English ports exceeded 50. Bristol for example was 36, whilst Southampton surprisingly registered only 15.

In Scotland the only port of significance was Glasgow with a number of 49, and for convenience this was amalgamated with the Forth ports to give a total of 73. The South Wales ports – Newport, Barry with Cardiff, and Port Talbot with Swansea totalled 99.

The only airport to register was Heathrow with a number of 3 – equal in importance with the port of Holyhead but on a national scale insignificant. However I doubt whether this power order is an indicator fifteen years later – for example, I doubt whether London would be top.

The next step was to select the main nodal points that would actually be used in the final calculation. It was decided to ignore population size and densities on the basis of up-to-date evidence then becoming available in the research reports being prepared for the Redcliffe-Maud Royal Commission on Local Government.[29]

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29 The Royal Commission on Local Government in England, 1966–1969.

These reports showed that in a large number of cases the population of a town or city was no indication of either its market importance or the employment opportunities.

We started with the rateable values produced by the 1964 revaluation, and the subsequent annual changes were used to estimate trends. These were then concentrated into 30 nodal points, plus four road bottlenecks through which it was assumed the attraction would be concentrated – Carlisle, Berwick, Yeovil and the Severn Bridge. We did three runs, one on the basis of total rateable values, a second ignoring domestic rates, and a third giving half weight to domestic rates.

Secondly these powers were adjusted on the basis of the Inland Revenue regional income tax returns. The third stage was to again adjust the nodal points for the attractive power of each significant shipment place, since none of our nodal points coincided precisely with these shipment places. At this point the work stopped and the third stage was not completed.

Now whether these first decisions were right or wrong, and to what extent they would have been changed, I cannot say. What I hope to have conveyed to you is something of the feel of the practical work as a complement to the historical development dealt with last week.

Finally tonight let us turn the clock back a few years to Colin Clark's completed maps of the EEC. I do not propose to deal with the details of the project as I was otherwise engaged and took part only in the discussion and criticism. Those of you who wish for all the facts may read the paper in *Regional Studies,* Volume 3, pages 197–212. It was published by the Pergamon Press in 1969.[30]

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30 This research is also discussed in Clark's *Regional and Urban Location*, Chapter 9, where he notes that areas of high potential may, under certain conditions, exhibit dis-economies – due to congestion, pollution, shortages of labour, wage differentials, higher rates of municipal taxation, etc. These factors may increase the relative attractiveness of areas of lower potential, in particular in the third quintile. Nevertheless, the broad conclusion remains; large changes of economic potential must necessarily have major effects.

Colin's aim was 'To examine which regions in Western Europe are the most attractive to industry and the likely effect which an enlarged Customs Union and developments in transport might have on the distribution of the most favoured regions. This study attempts to discover whether, if Britain were a member of the Common Market, any part of Britain would be included within the region of greatest potential for economic growth in Europe, or whether Britain would be relegated to a position on the periphery, and likely to decline in importance relative to the other countries of Europe.'

For this purpose a development of Harris's $_iV$ formula was used. For P Colin used regional incomes distributed over 103 nodes. His divisor for economic distance included an allowance for tariffs, and in addition he made some allowance for trade external to Western Europe on the basis of market size and distance.

Thus Colin's potentials were essentially a measure of the attractiveness of a location within Western Europe based on the accessibility of that location to the Western European market as a whole, plus some allowance for external trade.

Next week we will go straight into a consideration of Colin's maps so that we may interpret them and draw policy implications.

For this week, have you some appreciation of gravity models and their limitations? Are you clear on Colin Clark's aim, and what his method will show?[31]

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31 The maps forming part of the next lecture first appeared in Regional Studies, Volume 3, in 1969, and correspond to the trade conditions of the time. By the mid-1960s, negotiations under the General Agreement on Tariffs and Trade (GATT) had brought about a general reduction of trade tariffs, but had not addressed many non-tariff barriers. The World Trade Organization replaced GATT in 1995. The average tariff levels for GATT participants had been as high as 22% in 1947, but had been reduced to an average of 5% by 1999.

8

Economic Potential (iii)

15th November 1983

Tonight we will move straight into Colin Clark's maps. Remember they are essentially measures of market accessibility, and the numbers are no more than arbitrary units indicating relative attractiveness – the higher the number, the more attractive the location. Please refer to *Map 1: Before the Treaty of Rome*.

Note that Western Germany, France and the United Kingdom have national core regions of high economic potential. I suspect that Colin's method understates the power and extent of the United Kingdom core region, by reason of not taking sufficient account of international trade.

Note also the potential depression that covers Belgium, Holland and Luxembourg. Again I suspect that Colin's method overstates this depression by not taking sufficient account of international trade, as both Belgium and Holland were colonial powers with an important colonial trade.

Nonetheless this area of depressed potentials possibly explains why Benelux was the first customs union in Western Europe.

The whole of Italy is in areas of relatively low potentials and Scotland is even worse; about half the geographical area of Scotland has potentials no higher than the toe of Italy.

With West Germany, Holland, Belgium, Luxembourg, France and Italy joined in a Customs Union a very different picture arises, as shown on *Map 2: The E.E.C. Six and the U.K.*

Now, there is an international core region of high economic potential covering parts of West Germany, Holland and Belgium. Economic potentials decline with distance from this core region in all directions.

The United Kingdom potentials show no decline absolutely, but

there is a significant decline relatively, and no part of the United Kingdom now falls within an area of highest economic potential. Overall the United Kingdom is in a worse position than Italy.

What is most interesting is that the Benelux depression vanishes and the entire area has economic potentials higher than any in the United Kingdom. This offers an explanation for the rapid decline in the importance of the Port of London, and the growth of such ports as Rotterdam and Antwerp.

Map 2 shows the position prior to our joining the EEC; the next map shows the advantages of doing so.

Let us refer now to *Map 3: Enlarged Customs Union.*

On this map Colin assumed Norway would join, which it didn't, and no account is taken of North Sea oil and gas discoveries. All potentials are increased by the enlargement but it is rather a case of 'to him who hath more shalt be given'.

It is the international core region that gains most, and from this the United Kingdom is wholly excluded. Relatively, the United Kingdom position remains just a little less attractive than Italy.

Perhaps more important, whilst potentials in general rise, the United Kingdom potentials are not much changed from those calculated on pre-Treaty assumptions. Thus, the United Kingdom position has declined relative to the rest of Western Europe.

Let us turn now to *Map 4: Container Transport.*

This map is possibly a good indicator of the position today. The continental core region from which the United Kingdom is excluded remains, and its size is extended, but its relative power of attraction is not increased.

On the other hand, the attractiveness of the United Kingdom has improved so that it enjoys a slight edge over Italy.

Colin also produced a map on the basis of a Channel Tunnel,[32] but in this case the advantages accrued to the continent of Europe, as shown on *Map 5: Channel Tunnel*.

It would seem that it is better for this country to have improved

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32 Work began on the Channel Tunnel between England and France in 1988.

and cheaper transportation diversified through a number of ports than for trade flows to be concentrated through a single tunnel. For an elongated island this makes sense.

Colin concluded: 'The economic potentials suggest that, in future, manufacturing industries will tend to locate and become concentrated within the Rhine Valley of West Germany, eastern Belgium, and south-east Netherlands.

'Before the Treaty of Rome, one of the three areas of high economic potential was in Britain, but since that date and despite the assumptions made which directly improved Britain's position relative to the rest of Europe, the country has been shown to lie outside the central area of greatest potential in Europe.

'Since the Customs Union agreement entails not only the unhindered movement of goods across frontiers but also freedom of labour and capital, the possibility arises that the labour and capital of Common Market countries which are remote from the potential centre of Europe will migrate to the centre, to the detriment of the countries on the periphery.'

But accepting both Colin's argument and his conclusion what are the direct policy implications?

First, it seems to me the United Kingdom is unlikely to be any more attractive as a location for new investment outside the Customs Union than it is inside. But if we stay inside, what can be done to improve our relative position?

On this the implications for Westminster seem to be clear in at least one direction. The United Kingdom would benefit from improvements to all our ports, large and small, along the south and east coasts. It would also benefit from improvements to road and rail and inland waterway connections between these ports and our main industrial areas.

The maps indicate that cheaper transport costs along a diversity of routes are an important way in which this country may improve its position relative to the continental mainland.

But what, in fact, have we done? There have been some port

improvements but mostly this has been through private investment rather than public investment – for example, at Felixstowe.

When it comes to motorways, what has been done is even more irrelevant to our being part of a continental Customs Union. The only completed west-east route is the trans-Pennine M62. Our only completed north-south route uses the west coast, and then divides as a holiday route to Devon and Cornwall, or through to London. Apart from the Humber ports none of the ports facing the continent are connected to a through motorway link with industrial areas.

The railway situation is even worse. Southampton's direct rail link north through the West Midlands has been taken up. Our only high speed electrified freight line is from London through to Liverpool and Manchester, and then again up the west coast to Glasgow. Why?

Certainly there was no great economic advantage to us in joining a European Customs Union but even so, having joined, we have done little or nothing to improve our position and make the best of it. Yet, even assuming we made all these improvements, Colin's research work implies that the high potential core would still be on the other side of the Channel and in the longer run we must expect gravity to win. Bluntly, I find Colin's paper somewhat fatalistic and at this point we part company.

In my mind his work raises the question: What is it precisely that attracts a new investor to a location of high economic potential? Bearing in mind our present economic organisation there seems to be only one answer – such a location yields the best return. It is expected to be more profitable than any other location.

Let us follow this through. According to Colin's potential maps it is to be concluded that, before the Treaty of Rome, a given quantity of labour and investment would have yielded the same at an area of high potential in the United Kingdom as it would in West Germany – say 100 units, with take-home pay say 50 units.

This situation is shown in Table 1, reflecting the position shown in *Map 1*.

Map 1: Before the Treaty of Rome			
United Kingdom		Western Germany	
Return	50	Return	50
Take-home pay	50	Take-home pay	50
Total	100	Total	100

Table 1: Before the Treaty of Rome

Now, with the enlarged Customs Union the yield in the United Kingdom would have increased by a ratio of 28 to 30, as shown on *Map 3*; that is, from 100 to just over 107, or say 108. In Western Germany the yield would have increased by a ratio of 28 to 38; that is to 136. Let us also assume that labour demands and receives 25% of this increase.

So with the enlarged Customs Union we have this position:

Map 3: Enlarged Customs Union			
United Kingdom		Western Germany	
Return	56	Return	77
Take-home pay	52	Take-home pay	59
Total	108	Total	136
Productivity	+ 4%	Productivity	+ 15%
Investment	+ 12%	Investment	+ 54%

Table 2: Enlarged Customs Union[33]

Note, on these assumptions the West German employee now enjoys a better standard of living than his British counterpart.

33 In Table 2, the changes in productivity and investment are calculated thus:
    Productivity = Total ÷ Take-home pay, compared with original conditions.
    Investment   = Return, compared with original conditions.

More, on an added-value basis the German's productivity has risen by 15%, whilst that of the British employee has risen only 3.8%. Profit on the United Kingdom investment has increased by 12% but in West Germany it has increased by 54%.

If we assumed that in both countries employees maintained their share of the product, then the German employee would have been even more better off than his British counterpart, although on an added value basis their productivity would be unchanged. Even so, profit in West Germany would still have increased by 36% as against only 8% at the United Kingdom location.

Now this is speculation, but, if we admit to economic potential being a measure of the relative attractiveness of areas as locations for footloose industry, then the economic potential must be also a measure of the expected return, or profit, from the employment of a given amount of labour and a given amount of investment at these locations.

An industrialist is not attracted to an area because it is an area of high economic potential; he is attracted because within that area he expects the best yield or profit on his investment.

In a competitive market economy this must be the way that economic potential, or gravitational attraction, is manifested at the micro-level. I am not arguing that what is illustrated in the tables is exact; what I am arguing is that it is an illustration of what must happen.[34]

Certainly it offers an explanation for the yelps of British politicians, industrialists, and media-men over the past 20 years.

More speculation next week.

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34 The maps shown on the next five pages illustrate changes in market access, as moderated by economic distance. Any other factors which may affect the attractiveness of a given location to footloose industry are then assumed to be uniform across the region, and also to remain constant over time across the five scenarios. The maps are instructive within these limits.
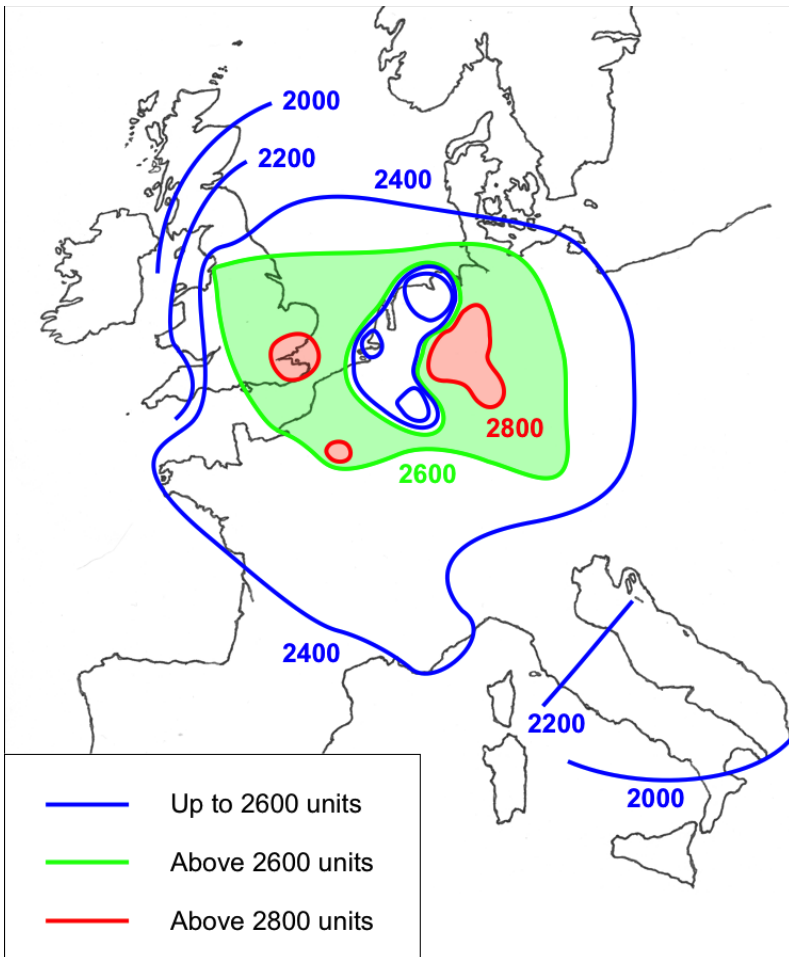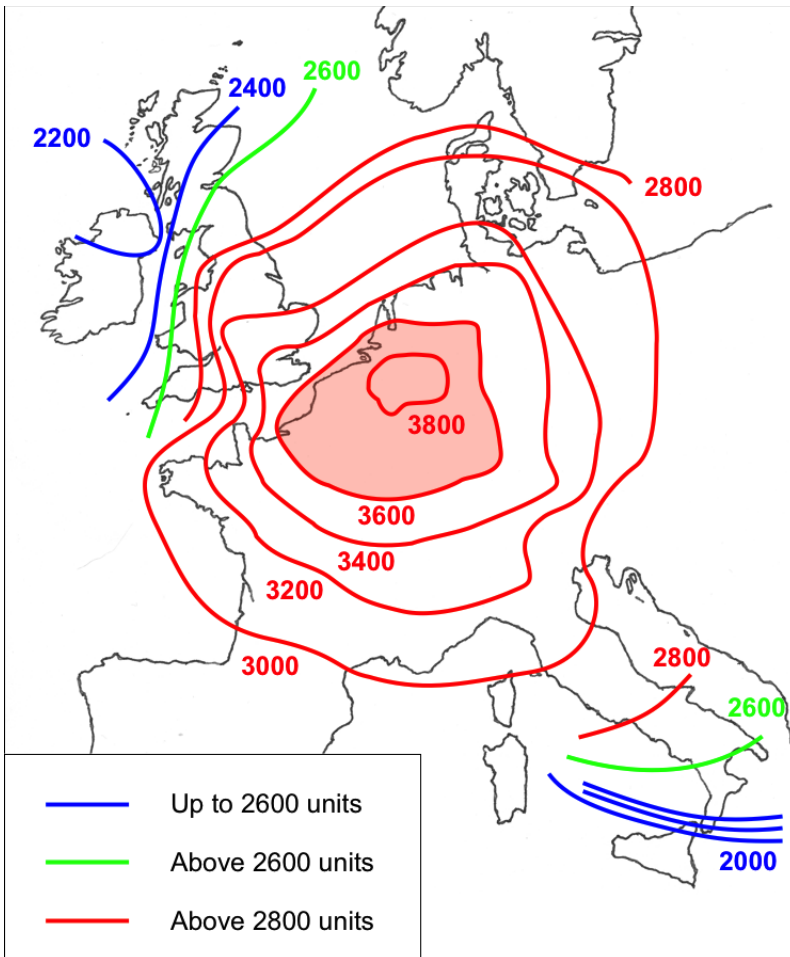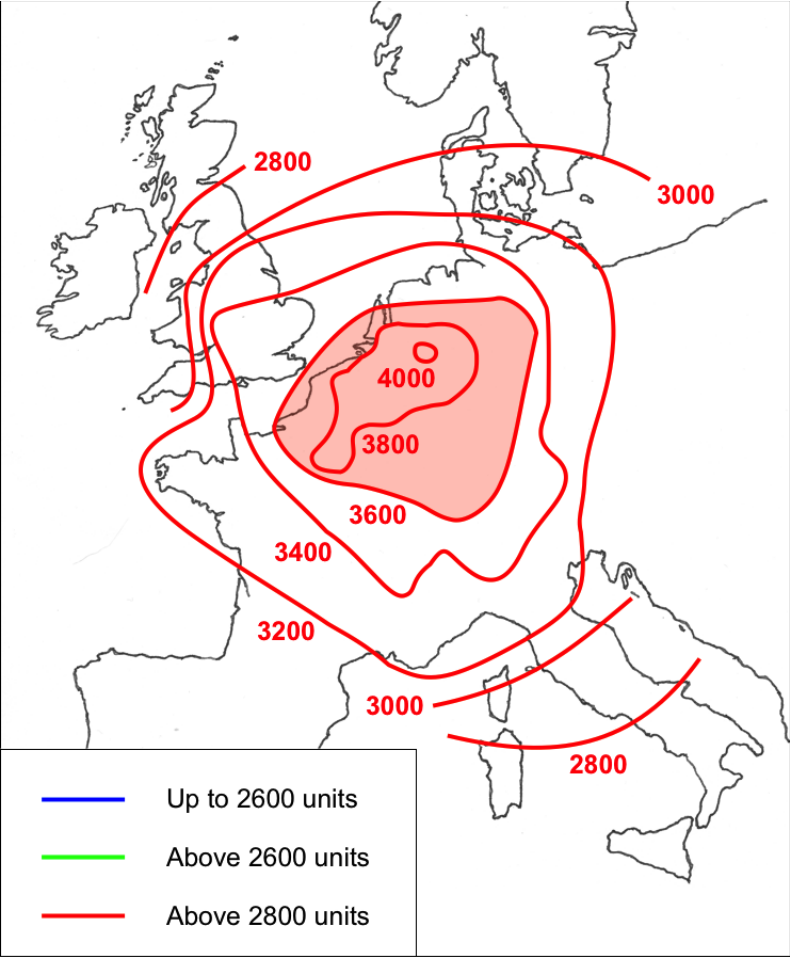
Map 1: Before the Treaty of Rome
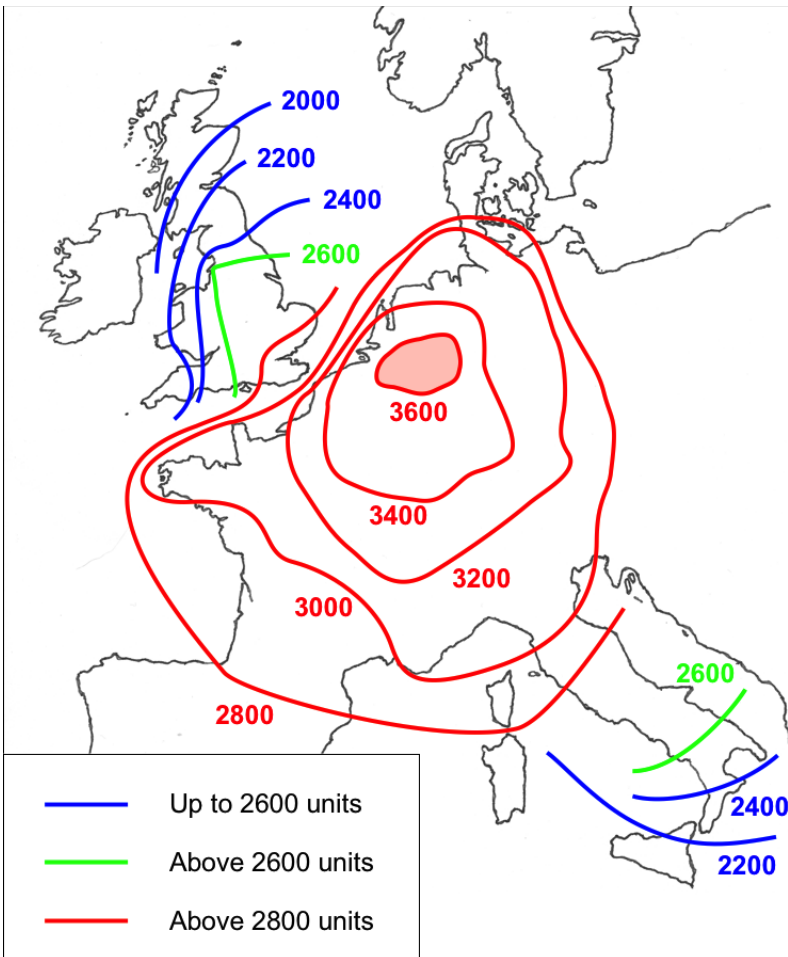
Map 2: The E.E.C. Six and the U.K.
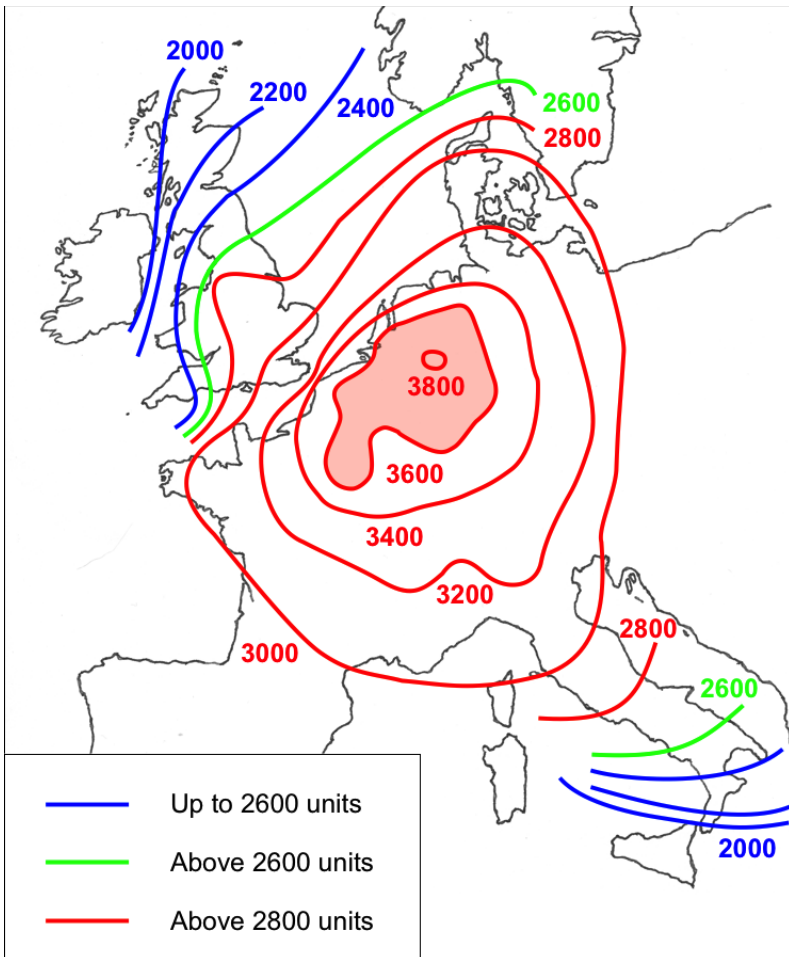
Map 3: Enlarged Customs Union

Map 4: Containerised Transport

Map 5: Channel Tunnel

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Tax Effects

22nd November 1983

Maybe it was a mistake for this country to join a European Customs Union. Maybe we should have worked to extend NAFTA into a North Atlantic Free Trade Area association. But all this is idle speculation in the context of current policy issues; we have joined a European Customs Union and we have been a member for ten years.

The issue today can be only: Should we stay in, or come out?

However, the implication of the gravity models we considered last week is that no matter whether we decide to come out, or decide to stay in, we will still be faced with a continental core region of relatively high economic potential from which the United Kingdom is wholly excluded.

Thus, we must expect *footloose* industry to tend to concentrate in parts of West Germany, Holland and Belgium, and as this proceeds many *market orientated* industries will follow.

But against this the gravity models also indicated that anything that reduced economic distance – for example cheaper and easier transportation – would tend to improve the attractiveness of the peripheral regions relative to the core. Even so, such actions are unlikely to change the situation fundamentally. The attractive core would remain; the flow would not be halted, although it may be slowed down.

Thus the question economics is required to answer remains essentially unchanged, no matter whether we are in or out of the Customs Union, no matter whether the government at Westminster attends most diligently to improving our infrastructure.

The question is: Is there anything a national government can do to counter the attractiveness of the international core region?

The implications of this question go far beyond issues raised by the Treaty of Rome to cast doubt on free trade arguments in general.

The United Kingdom is of itself a free trade area; it has a national core region which attracts new investment away from the provinces. For some decades the effects of the so-called 'drift to the South East' and the growing regional imbalance has been a recurring political issue.

Western Europe is now, more or less, a free trade area; it has an international core region which attracts new investment away from the peripheral regions.

Thus, what gravity models seem to tell us is that as the geographical area covered by free trade is extended, then an ever more attractive core region will be created, and this will work to the detriment of everywhere else outside of the region of highest potential.

More, some weeks ago we concluded that free trade did not of necessity expand output and increase material wealth in aggregate.

It follows, if we accept the prediction of gravity models, then one region will gain materially from an extension of free trade and, therefore, other regions will lose out relatively, and may lose out absolutely – become poorer with free trade than with protection.

Politicians in their ignorance are, it would seem, wiser than they know. When the United Kingdom vigorously pursued a free trade policy we were the acknowledged workshop of the world; the core region most certain to benefit from free trade.

Then, 50-odd years ago this changed – we switched from free trade to protectionist policies. But let us pursue the question in relation to the immediate issue of the Treaty of Rome.

We will assume that in pre-Treaty conditions a given amount of labour and investment in a *footloose* industry located in the United Kingdom would yield the same net added-claim as it would if located in Western Germany.

This is shown in Table 1, based as previously on *Map 1*.

Map 1: Before the Treaty of Rome			
United Kingdom		Western Germany	
Return	50	Return	50
Take-home pay	50	Take-home pay	50
Total	100	Total	100

Table 1: Before the Treaty of Rome

Jumping to post-Treaty with improved transportation costs, we find the area of highest potential has risen from 2,800 to 3,800 as shown on *Map 4*. We will assume the net added-claim has risen by the same ratio of 28/38. The net added-claim (*n a-c*) then becomes 136 – an increase of 36%, of which we will further assume that employees receive a quarter – an increase from 50 to 59.

On the same assumptions, the net added-claim for the United Kingdom location will have increased by a ratio of 28 to 34, or an increase of about 22%, and this is associated with an increase to employees of, say, 6. This situation is shown in Table 2.

Map 4: Containerised Transport			
United Kingdom		Western Germany	
Return	66	Return	77
Take-home pay	56	Take-home pay	59
Total	122	Total	136
Investment	+ 32%	Investment	+ 54%
Productivity	+ 9%	Productivity	+ 15%

Table 2: Containerised transport[35]

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35 Productivity = Total ÷ Take-home pay, compared with original conditions.
    Investment   = Return, compared with original conditions.

Let us now take into account tax effects. In both countries let us assume total tax revenue is 40% of the net domestic added-claim.

Map 4: Containerised Transport			
United Kingdom		Western Germany	
Profit	17	Profit	23
Tax take at 40%	49	Tax take at 40%	54
Take-home pay	56	Take-home pay	59
Total	122	Total	136

Table 3: Containerised transport with tax effects

Profit at the West German location is up by 35% on the United Kingdom location. From established economic analysis we know that, irrespective of the formal incidence of any tax, the effective incidence will be on the net domestic added-claim, less take-home pay. But what is open to the Westminster government is to reduce the United Kingdom tax take relative to West Germany. With the West German tax take at 40%, if we reduced our tax take to 35% the result would be:

Map 4: Containerised Transport			
United Kingdom		Western Germany	
Profit	23	Profit	23
Tax take at 35%	43	Tax take at 40%	54
Take-home pay	56	Take-home pay	59
Total	122	Total	136

Table 4: Containerised transport with reduced tax

As I emphasised last week all this is speculation. My argument is that, accepting that economic potentials are a measure of the

relative attractiveness of various locations to *footloose* industry, then these economic potentials must be positively related to improvements in the productivity of a given amount of labour and capital so that at higher economic potentials a given amount of investment spending will return a better profit margin. Other things being equal new investment will be attracted to one location rather than another by the expectation of a higher return over the life of the investment. The relationship must be something like I have illustrated and, therefore, the gravitational attraction can be offset by lower taxes, at least in the short run.

Let us look now to the longer run. To offset the gravitational attraction the regions of relatively low potential must have a tax take lower than the regions of relatively high potential. Less public revenue means less public spending, and less public spending means that in the longer run the infrastructure and public services of the regions of lower potential will suffer. In the longer run gravity will still win.

The most important policy implication to be drawn from gravity models is that an international Customs Union – or extensive free trade – will always work in the longer run towards widening the gap between the rich and poor regions, unless the union is based on a system of differential taxation, and there is built in a method of transferring the revenue collected from the regions of high potential to the regions of lower potential.

To return to the immediate position of this country relative to the European Customs Union, there is still one fiscal card we have certainly under-played, and it is one that could possibly redress the balance given that our government did all the other things it should do. The card is VAT. Under the Treaty of Rome we are bound to impose VAT and it follows, within the rate limits set by the inducement to evade, a higher rate will yield more revenue at no additional cost. Like all taxes VAT is a bad tax, but it is not so bad as some other taxes. The common argument against VAT is that it is inflationary. This argument is misleading. All taxes raise the

general price level and an amount raised by VAT would not raise prices any more than the same amount of tax revenue raised in any other way. VAT gets its bad name as it operates on prices quicker than most. Yet in some ways this is no bad thing; the close connection between cause and the price effect at least enables one to calculate with greater accuracy and thus be better able to take countermeasures.

An advantage of VAT is that it is to some extent a differential tax positively related to economic potential. The tax base is output prices less input prices, and thus approximates to what I call *n a-c*.

It follows, if a given amount of investment and labour at a particular economic potential yields a larger *n a-c* than the same amount at any location of a lower economic potential, then the lower potentials will also attract less VAT at any given rate. VAT imposed at a standard rate throughout the United Kingdom will not tend, therefore, to increase regional imbalance and may tend to reduce it, as compared with other methods of raising the same revenue.

Another advantage of VAT is that the Treaty of Rome allows the tax to be rebated on exports and charged on the landed price of imports. This means that VAT may be used in a way that does not greatly affect the competitive position of British producers as against overseas producers in either home or export markets.

Now these advantages of VAT, a tax which we are bound to impose under the terms of the Treaty of Rome, do not apply to other methods of raising tax revenue. In particular they do not apply to pay bargain taxes, which currently yield about 50% of central government total tax revenue.

Pay bargain taxes vary with the return to labour and are, in general, invariant with economic potential. Further, they are imposed only on producers in this country and cannot be rebated on exports; they are not and cannot be imposed on producers in other countries. Thus pay bargain taxes not only tend to increase regional imbalance within this country; they also combine with

economic potential differences to erode the competitiveness of British producers in both home and export markets. They increase the gravitational attractiveness of the continental core region.

I trust I have said sufficient to make the case for a switch to VAT and out of pay bargain taxes bearing in mind that we are signatories to the Treaty of Rome. The policy problems arise from the fact that a change in VAT is quick acting and considerable care has to be taken to ensure not only an adjustment of the amounts but also to allow for the time lags involved in the tax shifting process. The only tax which acts on a firm's costs as quickly as VAT is the payroll element of pay bargain taxes. Nonetheless, I conclude that it is possible to, say, increase the rate of VAT to 20% and possibly extend its range so that the whole of the payroll element could be abolished.[36]

This, I contend, would give a significant fillip to the British economy and providing due attention was paid to improvements to our infrastructure would counter the effects of the continental high potential core region. No doubt some of you could proffer a final fiscal solution[37] to some of the issues arising out of the existence of the Treaty of Rome but, in general, economic policy has to concern itself with significant improvement made within the life of a single Parliament using the tools already to hand.

Most of what I have said tonight is speculation. Insufficient research has been done along the right lines, and in any event precise calculations could not be made without government help. Nonetheless, if one accepts Colin Clark's work, then I feel sure a significant improvement could be achieved within a year or two along the lines suggested. In the context of this series of seminars, we have shown how, even though lacking a coherent theory, the policy implications of spatial economics and general economics can be combined to deal with a practical policy issue.

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36 The rate of VAT within the UK was increased to 20% on 4th January 2011.

37 A possible response could be the use of geographically differentiated rates of taxation, or large scale fiscal transfers from central to peripheral areas.

10

Questions and Discussion

29th November 1983

Listening to me talking about spatial economics for about 15 hours will not transform you into masters of the subject.

Nonetheless, I hope I have been able to open your eyes to the existence of a spatial dimension and, most important, to the fact that taking into account the spatial dimension often changes significantly the policy implications to be drawn from general economic analysis.

Both approaches are necessary; the ideal would be a coherent theory combining the two. That is something I will have to leave to others. However, I trust that at last week's meeting I demonstrated how the two separate approaches could be used as it were in harness in an attempt to resolve a particular economic issue.

I have based this series of seminars on an analogy drawn from physics. Physics distinguishes between electrostatic attraction and gravitational attraction.

The micro-level of spatial economics which we covered in the first five weeks may be considered as analogous to electrostatic attraction in physics. There are forces working to attract and other forces working to repel. At this level we asked the question: What is the optimum location for a particular activity on the assumption that the location of all other activities is determined, or fixed?

We distinguished between three kinds of activity: *government* activity, for which the optimum location maximised social welfare; *consumption* activity, for which the optimum location was that which maximised utility; and *production* activity, for which the optimum location was that which maximised profit. Our discussion was limited to those production activities operating subject to competitive market forces.

The important points to remember are I think these. First, the so-called invisible hand of unbridled market forces, whilst tending to drive a production activity to its optimal location – that location at which its profits will be maximised in the given conditions – will not always provide the best solution for the community as a whole. Do you recall the example of the ice cream sellers?

Second, the various forces acting at the micro-level tend to set up patterns in any given state of technology analogous to magnetic fields. These patterns may be analysed in terms of von Thünen rings.

Third, at the micro-level there is no general tendency for production activities to concentrate or disperse. Some activities tend to concentrate, other activities tend to disperse. However, in the particular conditions that hold today in this and some other countries there is for many activities a general tendency towards micro-dispersion – often described as urban sprawl.

In particular what follows from all this is that the concept of the best site[38] – an interpretation many of you have wished to attach to the optimum location – the concept of the best site has no meaning in spatial economics unless qualified.

As I understand it, the best site refers to that site or location which offers, actually or in potential, the largest return in absolute terms to the freeholder of that site irrespective of the sum that the freehold investment represents. This means, not only may it not be an optimum location for any particular economic activity, but it may not even be an optimum location for a freehold investment.

The optimum location for a freehold investment activity is that site which yields the best net rate of return on the sum to be invested. That there is no necessary relationship between the so-called best site and the optimum location is in present conditions an important factor leading to inner-city decay. Remember, the optimum location is that location at which, depending on the kind of activity, either *social welfare* is maximised, *utility* is maximised,

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38 As in the single-product economic analysis of Henry George, for example.

or *profit* is maximised. Whether it is the location at which 'rent' is maximised is of no account.

During the second part of this term we turned to the macro-level of spatial economics – regional analysis. In this part we concerned ourselves with only one of the many methods of regional analysis, economic potential. The chief reason for this concentration was that the policy implications of potential maps are relevant to the present position of the United Kingdom.

Economic potential is a measure of the relative attractiveness of different areas to footloose industry. A macro-concentration of footloose industry will also be attractive to many market orientated industries and a significant proportion of the employed population.

Economic potential may be considered as the economic equivalent to gravitational attraction which, I argued, must operate through improved net disposable profit margins for footloose production activities, or alternatively through an improved rate of net disposable return on a given amount of investment spending.

Thus the percentage tax take is, in addition, an important determining factor. If economic potential is to be viewed as a gravitational pull, then fiscal policy may be viewed as if it were a centrifugal force which may partly, wholly, or more than offset the gravitational pull.

Finally may I recall our touching on the issue of free trade. Free trade does not of necessity lead to the production of a greater quantity of goods and services. What it does of necessity is to maximise producer plus consumer surpluses. Thus a free trade area (or Customs Union) will cause the core region of high economic potential to become richer relative to the peripheral regions, but may also cause the peripheral regions to become poorer absolutely.

Free trade may be in the nature of things and as such it is a right and proper objective for public economic policy. However, as the gardener replied to the vicar – 'you should have seen the garden when God had it to himself' – the outcome of freeing trade will depend upon the general conditions.

Free trade will always be advantageous to some, but it may also be disadvantageous to others. The freeing of trade is an appropriate policy only in appropriate conditions. In inappropriate conditions the freeing of trade may bring into disrepute what is a right and proper objective for public economic policy.

This kind of consideration will be uppermost next term when we come to the application of economic theory.[39]

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39 These further lectures took place between January and March 1984.

Selected bibliography

1. von Thünen, J., 1826. The Isolated State: An English edition of Der isolierte Staat. Trans. by C. Wartenberg and P. Hall, Oxford: Pergamon Press, 1966.

2. Carey, H. C., 1858. Principles of Social Science. (Published in three volumes, 1858–1860, in Philadelphia, London, and Paris.)

3. Weber, A., 1909. Alfred Weber's Theory of the Location of Industries. Translated by C. Friedrich, University of Chicago Press, 1929.

4. Hotelling, H., 1929. Stability in Competition. The Economic Journal, Volume 39, No. 153, pp 41–57. Published by Wiley, on behalf of the Royal Economic Society, London.

5. Christaller, Walter, 1933. Die zentralen Orte in Süddeutschland. Gustav Fischer, Jena. (The Central Places in Southern Germany - Central Place Theory).

6. Chauncy D. Harris and Edward L. Ullman, 1945. The Nature of Cities. Published in The Annals of the American Academy of Political and Social Science, Vol. 242, Building the Future City. November 1945, pp. 7-17. Sage Publications, Inc. in association with the American Academy of Political and Social Science.

7. Stewart, John Q., 1948. Demographic Gravitation: Evidence and Applications. Published in Sociometry Vol. 11 No. 1/2. (February–May 1948, pp. 31–58).

8. Harris, C. D., 1954. The Market as a Factor in the Localization of Industry in the United States. Annals of the Association of American Geographers, Volume 44, 1954, Issue 4, pp. 315–348.

9. Dunn, Edgar S., 1956. The Market Potential Concept and the Analysis of Location. The Regional Science Association: Papers in Regional Science, Volume 2, Issue 1, pp. 183–194. January 1956.

10. Isard, Walter, 1956. Location and Space-economy: a General Theory Relating to Industrial Location, Market Areas, Land Use, Trade, and Urban Structure. Cambridge, Mass. Published jointly by the Technology Press of Massachusetts Institute of Technology and Wiley, New York.

11. Isard, Walter, 1960. Methods of Regional Analysis: An Introduction to Regional Science. Cambridge, Mass. Published jointly by the Technology Press of the Massachusetts Institute of Technology and Wiley, New York.

12. Clark, C., 1967. Population Growth and Land Use, Macmillan, London-Melbourne-Toronto, and St Martin's Press, New York.

13. Industrial Location and Economic Potential in Western Europe by Colin Clark, F. Wilson and J. Bradbury. Agricultural Economics Research Institute, Oxford, April 1969. (Also: Regional Studies, Volume 3, Issue 2, pp. 197–212, February 1969.)

14. Isard, Walter, 1969. General Theory: Social, Political, Economic, and Regional, with Particular Reference to Decision-making Analysis. Cambridge, Mass. M.I.T. Press.

15. Hoover, Edgar, 1970. An Introduction to Regional Economics. Alfred A. Knopf, Inc., New York, for the University of Pittsburgh.

16. Clark, Colin, 1970. Taxmanship: Principles and Proposals for the Reform of Taxation. Hobart Paper No. 26, Institute of Economic Affairs, London.

17. Isard, Walter, 1975. Introduction to Regional Science. Englewood Cliffs, N.J. Prentice-Hall.

18. Clark, Colin, 1982. Regional and Urban Location. University of Queensland Press, St. Lucia, Queensland, and St. Martin's Press, New York.

NORMATIVE ECONOMICS

1

Civilisation and Justice

8th May 1984

Today it is commonplace to distinguish between micro-economics, concerned mainly with, as it were, the building blocks of economics such as the theory of the firm, and macro-economics, which is the modern term for what used to be called political economy. It is commonplace also to distinguish between positive economics, usually defined as the economics of what is, and normative economics, usually defined as the economics of what should or ought to be.

This seminar series is labelled Normative Economics, but the reasons for this do not wholly accord with those generally accepted definitions. I find it more useful to consider positive economics as the economics of what appears to be, rather than of what is – the study which enables one to locate where an economy is, or appears to be, now in May 1984. In distinction, normative economics is concerned with the normal for the kind of economic order that exists now, or for the kind of economic order under consideration.

Normal is to be distinguished from natural. A deformity may be natural but symmetry is normal. The normal colour of a crow is black, while the normal colour of a London sparrow is brown, but one is as natural as the other. Similarly, what may be normal for one kind of economic order may be different from what is normal for another, although again one is as natural as the other.

Again, as I will be arguing, the social diseases of poverty, unemployment and inflation are not normal for our kind of economic order, but as our particular economy diverges from the normal then, given the particular divergence, these social diseases are natural. They are the natural outcome of certain conditions.

When considered in this way, positive and normative economics combined provide a macro-economist with direction.

The minimum information necessary not to be lost, or to have direction, is knowledge of where you are, and where you wish to go. If you know where you wish to go but not where you are, you are lost. If you know where you are, but not where you wish to go, you are as good as lost.

But again, on this issue of direction, my views do not accord with those of a major part of the economic establishment.

Fundamental to the thinking of many academic economists now is the assumption, more often than not implicit, that it is the job of the politician, or of government, to state the target; whilst the job of the economist is limited to advising on the method of achieving that target. This is in effect to deny that economic science has any ethical content. It implies only an outward content, and denies the possibility of any inward content.

Professor Pigou[40] put it in these words: 'It is for its fruit-bearing and not for its light-bearing qualities that economic knowledge is worth pursuing. If it were not for the hope that a scientific study of man's social actions may lead to practical results in social improvements, I should myself regard the time devoted to that study as misspent. If I desired knowledge of man apart from the fruits of knowledge, I should seek it in the history of religious enthusiasm, of passion, of martyrdom, or of love; I should not seek it in the market place.'

That may be a true statement of Professor Pigou's position, but for me it is insufficient. Admittedly economics is an exoteric rather than an esoteric study. The fruit-bearing qualities are important. But to pursue the analogy: I argue that a factor determining the quality of the fruit is the root connections of the tree bearing that fruit. Economics, properly studied, is a study that conforms to the

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40 Arthur Pigou succeeded Alfred Marshall as Professor of Political Economy at Cambridge University from 1908 to 1943. The quotation is a paraphrase from his book, *The Economics of Welfare*, Chapter 1, published in 1920.

esoteric injunction, 'Know thyself'.[41]

Human limitations may require divisions in logic but, as a matter of practice, the exoteric and the esoteric – the inward and the outward – the two aspects are complementary. Constriction in one sphere imposes of necessity a constriction in the other sphere.

Unless economics has light-bearing qualities it can never distinguish good fruit from bad; its fruit-bearing quality will be a matter of accident, not a matter of knowledge.

For Maynard Keynes, it would seem, economics was perhaps even more than light-bearing. At the end of the second World War, only a few months before his death, the Royal Economic Society gave a dinner in his honour when he retired after thirty-three years as editor of the Economic Journal. At the end of his speech Keynes proposed the toast, 'I give you the toast of the Royal Economic Society, of economics and economists, who are the trustees, not of civilisation but of the possibility of civilisation'.[42]

I do not pretend to know what Maynard Keynes meant. I can offer you only my interpretation – what it means to me. Economics is not the stuff of which civilisations are made. That stuff is provided by others: saints, scholars, composers, writers and all such manner of master artists.

Yet, regardless of the individual attainments of such people, regardless of their ideals, regardless even if every individual within a population were such a master artist, unless the economics is right there can exist no possibility of civilisation.

Thus for me the interpretation of Maynard Keynes requires economics to have a concept of the *normal*, for civilisation must be a normal development for human society. But economics and economists are concerned as trustees, not activists; concerned with keeping open a possibility, rather than its realisation. Whether or not people wish to realise the possibility is not an issue central to economics. Archbishop William Temple formulated the same idea

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41 The injunction said to have been inscribed at the Temple of Apollo at Delphi.
42 Reported in R. F. Harrod's *Life of John Maynard Keynes*, 1951, pp. 193-194.

when he stated the concern of economics to be the conditions in which self-interest may serve what justice demands.[43]

I feel such a condition to be both civilised and normal. But there are great dangers in this approach, for the concept of *normal* can quickly degenerate into ideal systems, ideal states, golden ages, and so on. These latter concepts can rest wholly on a logical structure and as a result lack emotive power. In these cases the required heat can be generated only by action and reaction, the final achievement depending on generating sufficient heat to cause an explosive revolution. In any event such logical structures are too rigid, too lacking in art, too confining to the spirit, to be concordant with a *normal* which includes civilisation and justice.

Professor Joan Robinson wrote: 'It is perfectly legitimate to have schools of thought in a developing subject. A school of thought is distinguished by its method, not by its tenets. Science itself, in a certain sense, is based on faith – on a confident belief that all phenomena will yield to investigation and will turn out to fit into a scheme of natural law. But this faith expresses itself in a programme of work, not in a settled body of conclusions.'

She continued thus: 'A school of thought flourishes when its followers continuously revise and shift the ideas of the founder, test his hypotheses, correct his errors, reconcile contradictions in his conclusions, and adapt his method to deal with fresh matter. It takes a great deal of genius to set a new subject going; the disciples must admire, even revere the master, but they must not defer to him. On the contrary they must be his closest critics.'[44]

Joan Robinson's purpose in making these statements was to argue that Marxism did not so develop, but soon became, as she described it, embalmed. But this embalming process is not limited to Marxism; it is an all too common process within schools of thought. Some readers may recognise that Henry George and his works have been, like Marx, embalmed. There is no reason why

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43 Quoted from W. Temple's *Christianity and Social Order*, published in 1942.
44 Possibly quoted from J. Robinson's *An Essay on Marxian Economics*, 1942.

the concept of the normal should not become a dogma or doctrine that is held on to, and maintained as true. Once a concept becomes a tenet then the embalming process is inevitable, and it is a long and hard struggle to escape from the touch of death.

So, throughout this series of seminars and after, remember, you are not the recipients of some revealed truth; whether the concept of the normal is true or false is not the issue. The concept of the normal is to be accepted or rejected on the grounds of whether its light-bearing qualities are useful for the job in hand.

In any developing science working hypotheses are, in general, to be preferred to truths, for working hypotheses can be discarded with ease when they cease to be useful, whilst it is near impossible to discard as false what previously was maintained as true.

However, whilst bearing all this in mind, the concept of what is normal must prospect to a country beyond the logical and even psychological if it is to breathe the clean air and partake of the easy spirit of civilisation and justice. For this purpose we will rely on two fundamental laws which, in their various manifestations, are the frontiers of all scientific disciplines. In economics, they may be described as the *Law of events* and the *Law of the sequence of events*. The first of these is shown in Figure 1, below.

NEUTRAL FORCE OR
CONDITIONING FORCE

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+   -

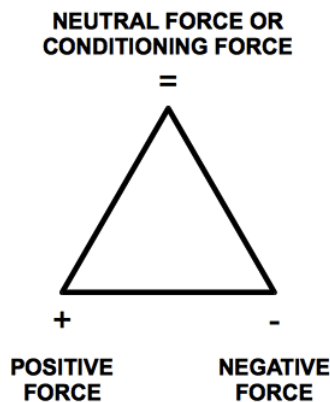POSITIVE   NEGATIVE
FORCE   FORCE

Figure 1: The law of events

Briefly and simply, the law of events states that nothing ever happens, no event occurs unless three forces come together as one.

It is often stated that economics is essentially concerned with human relationships. This is misleading, for it tends to concentrate the attention on only two factors, in which all is action and reaction. For example, much of positive economics is founded on the theory of supply and demand at the micro-level; the interaction between a buyer and a seller.

A bargain implies a human relationship between a buyer and a seller, but the outcome of this relationship will vary in different conditions. Three factors determine the nature of the event: the bargaining skills and power of the buyer; the bargaining skills and power of the seller; and the market conditions in which they come together. This can be represented as shown below, in Figure 2.

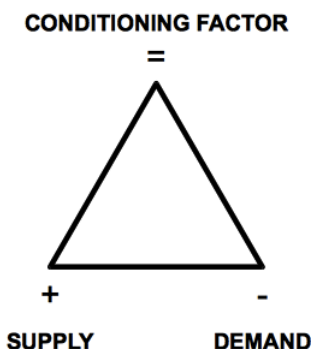**CONDITIONING FACTOR**

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△

+ -

SUPPLY **DEMAND**

Figure 2: Supply and demand under different conditions

A further example was the fundamental change in labour market conditions which caused the apparent breakdown of the Phillips curve relationship. As a result of the pay bargain tax wedge, the labour market ceased to operate as if it were a competitive market and operated as if it were a fixed price monopoly market.

The Phillips relationship did not break down, but in the changed conditions it operates the other way around, and the outcome is

very different. Volumes have been written disputing the Phillips hypothesis or refining it to allow for changes in bargaining powers as between the contracting parties, whilst the fact that conditions have changed passes unobserved. Little wonder that the policies derived from such works lead only to strikes, riots and civil commotion.

Economics is concerned with human relationships and more. It is primarily concerned with the conditions in which these human relationships come to be and it is, in general, the conditioning factor which determines the outcome.

Again a word of warning; there are three factors, of which the conditioning factor is only one. Overmuch concentration on the conditions can be just as misleading as ignoring the conditions.

This is particularly so when tracing a story through a stretch of time. Through time, conditions usually appear to evolve without any break in continuity. For example, some students may have read Henry George's savannah story, in which he tells the tale of the development of 'a St. Louis, a Chicago, or a San Francisco...'[45] from the settlement of the first immigrant family.

The changing condition he observes is the gradual growth of population in size and density. His story is continuous, and so he assumes that the laws of distribution which were natural at the beginning were natural also to the great city in the final stage. By concentrating on one particular condition he failed to observe the fundamental difference between an economic order of family households producing primarily for their own consumption, and an economic order of individual persons producing primarily for the consumption of others – that is, producing for trade.

The laws of distribution natural to one kind of economic order are not of necessity natural to a very different kind of economic order. In fact, Henry George did not wholly miss this fundamental break in the continuity, but his concentration on the changes in one particular condition led him to conclude: 'But this, in our inquiry,

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45 Described in Henry George's *Progress and Poverty*, Book IV, Chapter 2.

is not a matter of moment', an error now embalmed in the teaching of Georgist schools.

In this series of seminars we shall be concerned with what is *normal* for an economy in which individual persons produce, not primarily for their own consumption, but for the consumption of others. In particular, we shall be concerned with the laws of distribution normal to such an order.

The *Law of the sequence of events* is more widely recognised as the law of octaves, as in the diatonic scale in Figure 3.

In music the distinction is made between a rising scale, running from bottom to top 'do', and a falling scale, running from top to bottom 'do'.

DO RE MI	FA SOL	LA TI	DO
1 2 3	4 5	6 7	8

Figure 3: *The law of the sequence of events*

In economics it is the characteristics of the different sequences that are of greater importance. One sequence, corresponding to the falling musical scale, exhibits the characteristics of continuity, whilst the sequence corresponding to the rising musical scale exhibits the characteristics of discontinuity; for there are certain intervals where an exogenous impulse is required for continuity.

In the case of a sequence of events exhibiting continuity the emphasis must be on non-interference – set up the appropriate conditions and let it run. As we shall see later the laws of distribution are of the nature of 'the falling rain from heaven upon the earth beneath'.[46] In these cases any interference with the run of things will, in general, result in a divergence or a deformity.

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46 Misquoted from W. Shakespeare, *The Merchant of Venice*, Act IV, Scene 1.

In the case of a sequence of events exhibiting discontinuity then at distinct points something has to be fed into the system if the sequence is to continue, or to continue without divergence or deformity. If a small settlement is to grow into a prosperous, healthy, and harmonious great city then, at certain points in the development, various public services have to be provided. If these are not provided then either the growth will stop or if it continues the result will be a poverty stricken, stinking, diseased slum.

I trust that this opening chapter at least indicates the possibility of economics not as a dismal science but as a scientific discipline which cultivates the free spirit; and that the economist can, like any other person, master his or her craft to the benefit of all.

The acceptance of the implications of Maynard Keynes's toast and of William Temple's statement requires us to prospect into the sphere of objective concepts, for the concepts of civilisation and justice are beyond logic.

If we accept economics to be the trustee of the possibilities of civilisation, then we need at least a nodding acquaintance with that for which it is a trustee of the possibility.

If we accept that economics is concerned with the conditions in which self-interest serves what justice demands, then we need also a nodding acquaintance with justice in order to appreciate its demands.

All this requires us to prospect to a country beyond the community, to a society of free spirits where each is his own master.[47] This is the sphere of *normative economics*.

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47 To prospect is to search, and to cast one's gaze in a specific direction. See also the brief discussion of the work of St. Thomas Aquinas in the appendix, where the use of the terms *community* and *society* in this context is noted.

2

The Trading Community

15th May 1984

We will start with filling out the concept of what would be *normal* for the kind of economic order we live in today. We begin with a real continuous whole, which we label the human race.

The term *real* states that we accept that the human race, considered as a whole, has an existence outside of the mind. A real whole is to be distinguished from a collective whole, say a heap of stones. A heap of stones is in reality a finite number of separate stones; the heap as a whole is a concept that exists only in the mind. Rather than referring to, say, a hundred stones we treat them in our mind as a whole and call that whole a heap.

In distinction a real whole is not a heap concept and, when we describe the human race as a real whole, we are stating that it has an existence as a whole outside of our mind.[48]

The term *continuous* states that we accept the human race to be not only a substantial lump but that it also includes internal space and time dimensions.

Thus, when we view the human race as a *real continuous whole* we are viewing it as having substance, with a given volume, with space and time dimensions, and having a real existence outside of the mind. Viewing the human race in this way, all we can do is to divide, or multiply out, into a number of wholes. Let us multiply the human race out to its smallest unit, the atom of the human race, the family. A family will consist of individual persons, but from the view we have taken of the human race such individuals are, as it were cul-de-sacs. They lack the possibility of continuity through

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48 For further background to this discussion of real and accidental wholes, see Thomas Gilby, *Principality and Polity*, p. 251, and *Between Community and Society*, pp 107–116. (See also: Aristotle, *Nicomachean Ethics*, and *Politics*.)

the time dimension; they are, therefore, particles – parts of a whole. Considered in this way a human family is an ends-connected organisation. The end or purpose of its existence as a whole is the reproduction of the human race. It ensures continuity through time.
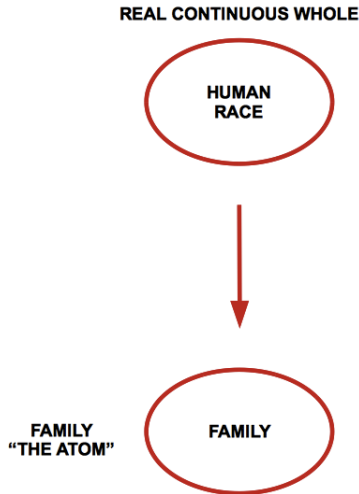
REAL CONTINUOUS WHOLE

HUMAN
RACE

FAMILY
"THE ATOM"

FAMILY

Figure 1: The human race as a real continuous whole

From the view of economics a family may be seen as a family household – the unit of final consumption, the atom of the demand side. This too is an ends-connected organisation. The end or purpose of the existence of a family household as a whole is the material provision for its continuity.

However, although in contemporary macro-economics a household is the unit of final consumption, a family household may also be a complete economic order in itself – as when it produces for its own consumption. In this case also, it is an ends-connected organisation, its end or good being the good of the household. Henry George's first settler, mentioned in the previous lecture, was an economic order of this kind.

A number of self-sufficient family households may come together as a community; indeed, there may be a number of such communities co-operating to form quite a substantial ends-connected economic order. A distinguishing characteristic of this kind of economic order is that each and every family household produces primarily for its own consumption and at most trades only its surpluses. On the production side there may well be division of labour, but the division is imposed and determined by the good of the household or collection of households.

Inherent in ends-connected groupings is a pecking order, a succession of bigger bosses, a hierarchy. There is an inevitable tendency for the lower orders to serve, or appear to serve, the higher; for the good of the smaller unit to be sacrificed for the good of the larger whole. The direction and outcome depend very much on how the end is interpreted and the means used to achieve that end. It may be held that the end justifies the means.

The manorial system of medieval England was also an ends-connected economic order of the kind described and that, according to folklore, was Merrie England. This kind of economic order has much in common with the former system in Russia. In Russia the counterpart to our own manorial system never passed away, and so to a large extent the Communist Party rulers were able to replace the Tsar as the Great Father of all the Russias.

Ends-connected economic orders have their rightful and proper place in the scheme of things, so let us not pass any judgement. They may be good, bad or indifferent.

However, although ends-connected organisations may continue to exist, in this country, the United Kingdom, the order is different in kind to the order that has been described. Our economy is not dominated by households, nor even other organisations, producing primarily for their own consumption.

Hayek has observed this notable fact, and has concluded it to be unfortunate and sometimes misleading for our discipline to be known as economics, which by derivation implies the study is

concerned in particular with households. I do not go along with him in the search for a new label. There is no need for economists to be misled by the label and the public in general are unlikely to know the derivation from Greek. A new label, on the other hand is likely to confuse. Let us return to the wholes.

This scale, whilst its atom – the family – may be accepted as a unit of final consumption, is observedly not a scale applicable to our kind of economic order.

So let us begin by substituting for the human race the term *humanity*. The term humanity is to be understood as describing that quality which distinguishes the human race as being human, and every single human being from non-human beings. Thus, when we multiply out, there is no stop at family or family households – the process continues to its atom, which is every *individual person*. So we now have the scale from humanity to the individual person.
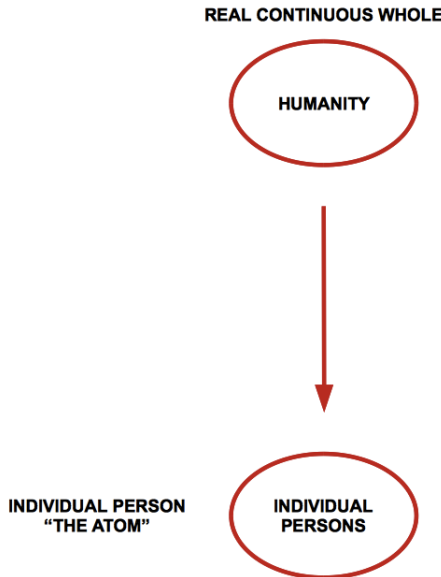
Figure 2: Humanity as a real continuous whole

Individual person is a useful descriptive term. I doubt whether anyone could be misled. Further, *individual* is derived from the Latin for not divisible (*in* – not; *dividuus* – divisible), and *person* is derived from the Latin word *persona*, a mask for actors; and as mentioned before economics is much concerned with outward acts.

It is possible for individual persons to be self-sufficient economic units – hermits, for example. Nonetheless, an economist may treat this as an exception, noting only that there are those who prefer to keep apart from any kind of economic order.

The issue is, however, a matter of some importance as there are academics who from time to time base their arguments on so-called Robinson Crusoe economics.

In the early thirties Lord Robbins[49] published his *Nature and Significance of Economic Science*, in which he concluded: 'Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.' Lionel Robbins reached his conclusion from a consideration of Robinson Crusoe having a limited stock of wood which he needed to make a fire, fence around his cabin and so on; his question, and I quote Robbins: 'How much wood to use for fires and how much for fencing?' This question, argued Robbins, is an economic question; the wood is the means and it is scarce, and it can be used in more than one way.

I admit that Robinson Crusoe has a difficult decision to make, which I assume he will make in accordance with his own scale of preferences, but I deny that the issue is one of economics. Whatever Robinson Crusoe decides will affect only himself, alone on a desert island – there is no market, and hence there can be no market price. The case does not serve as a ground for economic argument nor for an economic conclusion. There are sciences which study human behaviour but for economics human behaviour

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49 Lionel Robbins was Professor of Economics at the LSE from 1929 to 1961, and is credited with the conventional separation of normative and positive concepts in economics, as different from the usage of those terms here.

is part of the given data. Economics accepts that some individual persons may decide to be self-sufficient units but as a result of this decision they cease to enter into an economic order; economics accepts that an individual person is moved to their individual ends, or good.

It is observable that what one person considers to be a good another considers to be a bad and this observation is important. When one says of some happy individual pursuing the good life that they are on the road to ruination, one may be right, but one is admitting also that there may be as many individual ends, good or bad, as there are individual persons.

The notion of working for the common good is more often than not tainted with arrogance. What right has one individual person to impose their ends on another? There may be special cases but as a general proposition it is unsupportable.

St. Thomas Aquinas concluded democracy to be the worst form of government,[50] and there is a large element of truth in his conclusion. What right do the majority have, in general, to impose their ends on the minority? Is that any better, or any worse, than a minority – even a minority of one – imposing their own ends on a majority? Some individual persons may wish to defer to the ends of others – that is a decision for them. A number of individual persons may be drawn together as they share similar ends and may, for the purpose of pursuing these shared ends, form themselves into an ends-connected organisation – this again is their decision.

Nonetheless, as a general proposition, if we accept the findings of the natural and physical sciences that all organisms contain cells that strain to go pirating away on their own, then we must expect clusters formed by individual persons to be no more compact, for they are looser and larger, and their centres are, as William Temple calls to our attention, dogged centres of self-interest.

All this human behaviour forms part of the fundamental data for economics. The investigation of this data is largely outside the

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50 Forms of government are compared in Aquinas's *De Regimine Principum*.

scope of the methods of economic science but it is from this data that the science arises.

Individual persons, straining to pursue their individual ends, pirate away from ends-connected organisations, such as family households, to seek the means of pursuing their individual ends.

In doing so they spontaneously create, with a few exceptions, a means-connected economic order – that is an economic order that provides individual persons with the means for pursuing their individual ends. Within such a spontaneous means-connected order there will exist from time to time ends-connected organisations to which individual persons will cohere, but will cohere only for so long as the grouping provides the means of pursuing individual ends. Thus we may conceive of a *spontaneous order*. This is where the science of economics begins.

When individual persons pirate away from an ends-connected order, they specialise. I use the terms specialise and specialisation as distinct from the division of labour although in appearance they are indistinguishable. Division of labour may be imposed on a person from without whilst specialisation is always imposed from within; specialisation is 'doing one's own thing'. Both division of labour and specialisation may lead one to slave all day over a hot stove, but in the former case it is imposed because it is women's work, in the latter case it happens because one wants to cook.

Of necessity a specialist produces an output primarily for the consumption of others and in return receives, for their own consumption, output produced by other specialists. In other words specialisation and trade of necessity go together. There cannot be specialisation without trade; they are, as it were, the two sides of the same coin. Thus in its grossest form the *spontaneous order* is manifested as a *trading community*.

Within a trading community human relationships form, evolve and dissolve, only to be reformed continuously as the necessary means of pursuing individual ends. A trading community exists to facilitate trade; it provides a market or markets, and in doing so

facilitates specialisation.

In an ends-connected order hierarchies evolve, orders are imposed from without and above, and the lower orders serve the higher. A means-connected order is different. In the general case, relationships within a trading community are governed by mutually accepted customs and usages but inevitably from time to time disputes will arise and there will be a need for recourse to positive law. Decisions will need to be made by a third party and if necessary those decisions enforced. Further, markets work more efficiently when provided with some general claim to goods and services widely accepted within the community, such as money.

As a general proposition we may state that a means-connected trading community works more efficiently, and can only realise its potential, when provided with a variety of goods and services from outside the trading system. The provision of these necessary public goods and services calls into existence a *polity*.

Now the polity exists to serve the trading community, both collectively and distributively, through the provision of goods and services necessary for the development and efficiency of the trading community but which cannot be provided, or cannot be provided so efficiently, from within the trading community.

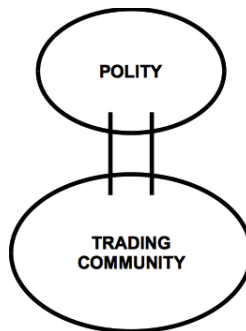This may be illustrated by lines on the following diagram.

Figure 3: The trading community and polity

Now we come to an issue which continues to be the subject of much political debate and the cause of deep divisions. If the polity is to serve the trading community in a variety of ways, on what principle must it work?

Does it decide for itself in its own wisdom? The danger of this approach is that wisdom decays into an incomprehensible debate amongst specialists who rarely reach an agreed conclusion. If there is an outcome, then it is either a compromise – usually the worst of all worlds – or it is imposed by the most forceful and eloquent specialist, the master of the appropriate techniques. Eventually wisdom is either obscured or ignored and the outcome is a matter of accident.

Alternatively, does the polity react to pressure from within the trading community? The greatest good for the greatest number has an appeal, but the usual result is the imposition of the views of the most powerful pressure group. What about the rest? Must they conform, or drop out, or perhaps be dispatched to the salt mines?

If the polity is to serve the trading community, both collectively and distributively, then it must be sensitive to the changing needs of the trading community.

This connection is best shown on the diagram with a double arrow. A debate among specialists is necessary also, and the polity must take note of the advice offered.
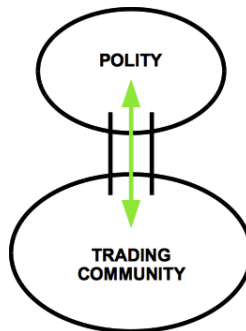

Figure 4: The link between trading community and polity

Yet, given all this, there are limits beyond which it is unwise for the polity to extend its activities. These limits are determined by fundamental social laws which the polity must interpret if it is to serve wisely and well the changing needs of the trading community, both collectively and distributively.

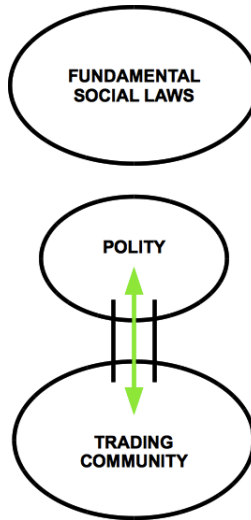Thus, on the diagram, we now have *fundamental social laws*.

Figure 5: The fundamental social laws

The details of these laws need not detain us at the moment. They include, for example, moral law, which for economics is probably best formulated by the commandment: 'Thou shalt not steal'. But there is more to it; Aquinas put the case of the starving man who stole bread from a rich man's table. He concluded there could be no doubt as to who had transgressed the law, but he went on to pose the question: 'Who committed the sin?'

Any attempt to answer this question will raise issues of both collective and distributive justice, and this brings us back to William Temple. This sphere which I have labelled *fundamental social laws* is also the realm of justice.

Individual persons within the *trading community* seeking the means to attain their individual ends are motivated by self-interest. It is the job of the *polity*, standing between, to ensure conditions in which self-interest serves what justice demands.

Thus, these fundamental social laws operate in two ways: distributively through the polity, and collectively on the trading community as a whole. This we may now illustrate by means of additional lines on the diagram.
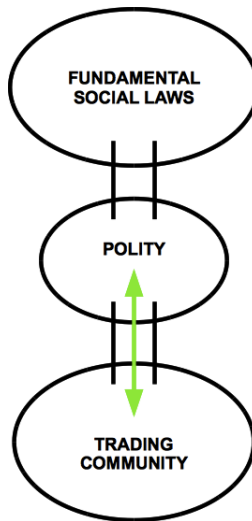

Figure 6: The operation of the fundamental social laws

Please refer to Figure 7, overleaf. Now we have illustrations of three scales, and the one on the left is essentially different from the two on the right. The two on the right exhibit continuity, and it was for this reason that we were without much difficulty able to jump from the macro-whole to the micro-whole, or atom. The scale on the left illustrates, in outline, a *normal spontaneous order* and exhibits discontinuity.

I have attempted to illustrate this discontinuity by using three distinct spheres. On the diagram they are linked, and this implies

actual *normality*. It is in the sense of bridging these chasms and keeping these bridges open that one may understand Keynes' view of economists and economics as 'trustees of the possibility of civilisation'.

The possibility is one thing, the realisation something very different. This *normal spontaneous order* of community, polity and society – to use the terms of Scholastic Philosophy[51] – is not to be viewed as a succession of chronological achievements.

The potential is created by a discrete event when a critical number of individuals seek the means of achieving their individual ends through specialisation and trade.
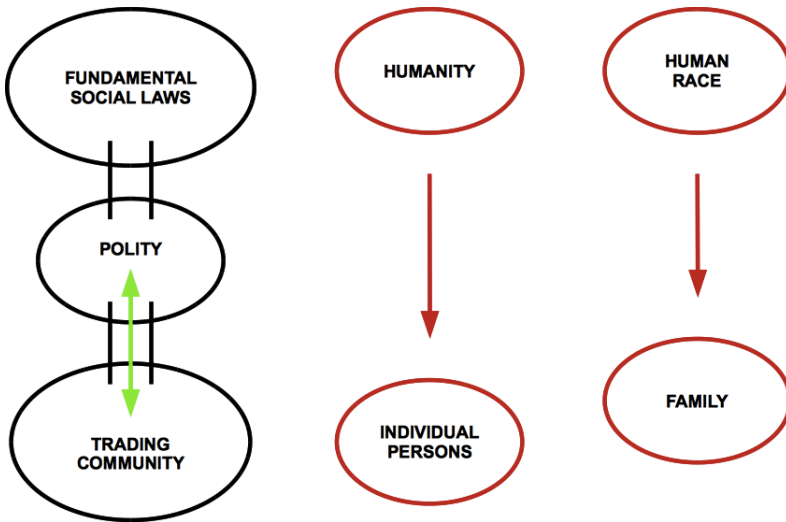

Figure 7: The concept of a normal spontaneous order

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51 See also: *Between Community and Society*, by Thomas Gilby. The polity is an essential transition stage, allowing for a gradual withdrawal of man-made laws in the move towards a harmonious society of all mankind governed by virtue. In the ordinary case, however, the existence of the polity is required.

3

The Laws of Distribution

22nd May 1984

We have now to consider the laws of distribution natural to our concept of a *normal spontaneous order*. The distribution of the product conforms to the law of sequence that exhibits continuity; in other words 'it falleth as the gentle rain from heaven upon the earth beneath.' This implies no interference, and so all we have to do is to note how in the nature of things it falls out; set it up, and let it run.

The manifest *universe* is what may be termed a real continuous whole; it has a real existence external to our minds, it has substance, and it includes within it a space and time dimension. From our point of view all this is given.

Economics is concerned with humanity, and therefore the economic standpoint must be a human standpoint. With this in mind we may distinguish first between the *non-human* universe and the *human* universe – the human race and all that partakes of humanity, as distinct from the rest. From our standpoint all this is given. Observation shows that there is given also to the human race, both collectively and distributively, the power to modify and to be modified – *modification*.

Observation shows also that whilst this power to modify and be modified is given, for the human race to continue to exist as a human race, then it has no option but to use this given power. It must modify and in the process becomes modified. Thus there is brought into existence the real continuous whole of the *modified universe* in which the human race has its existence. This real continuous whole of the modified universe has its existence within the real continuous whole of the universe itself.

The modified universe is a real continuous whole and therefore

has a real existence outside of our minds. It is substantial; it includes a space and time dimension. This is a very big picture – the most extensive – but from it we can derive certain fundamental laws which, as stated previously, the polity is required to interpret.

First, there is the law we may describe as the universal law of economics. The modified universe is necessary for the continued existence of the human race and for this modified universe to exist it is necessary for human beings to use their given power to modify and be modified.

As with the universe, so with the modified universe; we may distinguish between the *non-human* and the *human*.

From the point of view of economics we may state that it is necessary for the human race to actively use the given power to modify the non-human universe so as to bring into existence the *non-human modified universe* which is necessary for the continued existence of the human race. This for economics is a universal law which may be loosely formulated as 'No labour, no wealth'.

In this sense the term *labour* is to be understood as the active use of the given human power to modify – often described as human effort. The term *wealth* refers to the *non-human modified universe* which results. However, from time to time in economics it is often useful to refer to the results of human modification as wealth. For example, Professor Friedman includes a term in his *Restated Quantity Theory of Money*[52] to take into account the level of education and training, etc. which is, in a sense, an alternative means of storing wealth and claims to wealth. Nonetheless, whilst not ignoring the possibility of human modification, economics is concerned in general with the external act of modification.

From this universal law we can derive what for economics is the fundamental moral law which is best summed up in the commandment: 'Thou shalt not steal.'

Collectively this is a truism. For the human race collectively the universal law does not give the possibility of getting *owt* for *nowt*.

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52 A theory relating the quantity of money in circulation to the level of demand.

Whilst everything is given the universal law is that the modified universe is actualised only when the human race collectively use that which is given; but distributively, the possibility of stealing exists.

In the context of normative economics we may state, then, that in a normal economic order any divergence from the distribution natural to that order offends against this fundamental moral law.

Both of these laws may be considered as forming part of the *fundamental social laws* mentioned previously.

Let us revert to the real continuous wholes. We began with the real continuous whole of the universe which, we agreed, included within it the real continuous whole of the modified universe.

As discussed we know that with a real continuous whole we may divide it – or, if you prefer, multiply it out – to its atom, or smallest reproduction unit. From the point of view of economics, the atom of the modified universe is called a *firm*.

In a normal spontaneous order a firm is an organisation that brings together all that is required to produce an output for sale. By definition any produce or output is part of the modified universe.

What then will firms, in general, need to bring together in order to produce their output – their contribution, as it were, to the modified universe?

The first thing we need to note is that whilst the time dimension is internal to a real continuous whole, its atom has a lifetime – that is to say it has an existence through a length of time.

In *positive* economics, we take this fact into account by always measuring the capacity of a firm to produce an output in a certain period of time – so many cars per week, or per year – rather in the same way as the capacity of a pipe is measured in terms of, say, so many gallons per hour.

However, deciding on some arbitrary length of time, say a year, does cause complications. As going concerns firms will, in general, bring in so-called net assets from the previous time period and carry over net assets into the following time period.

In *normative* economics, we may avoid this complication by always taking as our time period the lifetime of the firm, whatever that may be. We do not have to do this, but it is a useful simplification since firms, like human beings, may be considered as bringing nothing material in and as taking nothing material out.

To our question: What will firms in general need to bring together in order to produce an output?

Producing an output is essentially a process of modification; thus firms in general will need the exclusive use of some part of the *non-human unmodified universe*; lacking this, there will be nothing to modify.

Now I state firms in general, as particular firms may be engaged exclusively in the further modification of some part of the already modified universe. Be this as it may, firms in general will need the exclusive use of some part of the *non-human unmodified universe* if they are to produce an output and, since this will be *acted upon*, we may consider it as carrying the inert force.

To produce an output a firm will need to bring together with this first factor the human power to modify which in economics is called *labour*. As labour *acts upon*, we may consider it as carrying the active force.

Now there is a second thing we need to note carefully. Of necessity there is a point of interaction between the *non-human unmodified universe* and what we call *labour*. For the process of modification, the two factors must come together at some point, but in the real continuous whole with which we started all these points of interaction were merged into the continuous whole. In multiplying out to the atom, the firm, we have done, as it were, an unscrambling job – the points of interaction are no longer merged.

For example, let us consider a gallon of water in a bucket as a real continuous whole. The gallon consists of eight pints but in the bucket the pints are merged. No one pint takes up any particular space or stands in any particular relationship to any other pint. But now if we divide the gallon into eight separate pints then, although

the total space, or volume, will be precisely the same the space occupied by each pint, or the location of each pint will stand in a particular relationship to each and every other pint. Strictly, we have not added a dimension but a dimension which in the gallon was unmanifest becomes manifested when the gallon is divided into eight separate pints. As with the pint, so also with the firm.

A firm brings together the inert factor and the active factor and they interact at a particular point. This point of interaction will stand in a particular relationship to each and every other point of interaction. For our purpose we may state that in order to produce an output a firm will need the exclusive use of a *location* and by deduction from our law of events, this particular location will carry the conditioning force.

Thus, in order to produce an output, firms in general need to bring together and have the exclusive use of an inert factor, an active factor, and a conditioning factor. This relationship is shown in Figure 1.
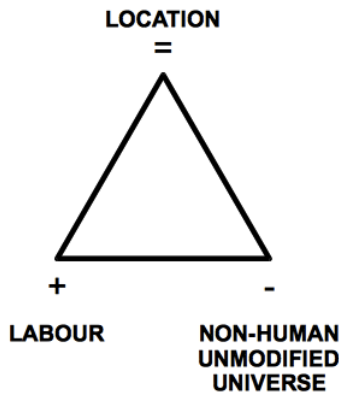

Figure 1: The output of a firm

We can move now into the sphere of economics that engaged many nineteenth-century economists, such as David Ricardo, Karl Marx, and also Henry George. How is this output distributed?

These nineteenth-century economists approached the question of distribution by attempting to establish laws of proportion in real terms. Their approach was determined by the fact that until the advent of Maynard Keynes the view that money was a veil, behind which real forces worked themselves out as if there were no money, dominated economic thinking.

For example, Henry George's *Law of rent and wages* is a law of proportion assumed to be applicable in a non-monetary economy and therefore applicable also in a monetary economy. This assumption is valid providing always that the economy is a one-product economy, and Henry George did indeed specify a one-product economy – he called the product 'wealth'.

This term wealth often misleads those untrained in the rigours of economic analysis. Admittedly coal, steel, cars, may be included within the term wealth, but this means only that George's term, 'wealth', is a much wider term than, say, Ricardo's 'corn'. What is important is that, to use George's terms, land and labour, or land, labour and capital, in general produce one product called wealth. To produce a particular product, say coal, necessitates specifying particular land and particular labour.

Thus these laws of proportion require the specification of a particular product, for they are determined by the quantity of that product that can be produced on marginal land by a given quantity of labour.

However, we may approach the issue of distribution here rather differently. We are concerned with the distribution natural to a firm producing an output for sale in a *trading community* of a *normal spontaneous order*.

As stated previously the *normal* will be a monetary economy – that is to say goods and services of all kinds will be traded directly for an accepted general claim to goods and services of all kinds.

This being so, we may express distribution not in terms of output, but as receipts. Remember the period of time we are taking is the lifetime of the firm. During its lifetime a particular firm will

have produced an output, which will have been sold at current market prices.

Thus, prices times output will yield the firm's total receipts – the total claim to goods and services generated by that firm, which we may show thus:

Prices (P) x Output (O) = Total receipts (£A)

The question is, how is this £A distributed?

As we have agreed, any particular firm will need non-human inputs of either the unmodified universe, or the modified universe, or some particular combination of the two.

Now the unmodified universe is, as we have accepted already, given. A gift is something you do not have to pay for. If you do have to pay it is not a gift – it is not given. In economic terms the unmodified universe is then a free good, meaning a good one does not have to pay for. But note carefully, the unmodified universe is a free good in the sense that it is free to use – a firm does not have to pay for its exclusive use in the process of modification, or production, since that is the purpose for which it has been given.

If the unmodified universe is appropriated then a firm might be required to pay for its use as an input, but this cannot be *normal*. Appropriation offends against the fundamental moral law and therefore cannot be considered as *normal*. So, any non-human input of the unmodified universe does not have to be paid for in the *normal* case, and therefore no part of £A has to be set aside.

In stating that in the *normal* case the unmodified universe is a free good, I am not arguing that if a firm should inflict damage in the process of using that good – what in economics is called 'external dis-economies' – then they do not have the duty to repair that damage, or make some agreed restitution. Failure to perform this duty may give rise to a legal penalty, but a legal penalty is not a market price. All this is a different issue.

Any non-human input of the *modified universe* is, however, the output of some other firm which they have produced for sale. It

follows, inputs of the modified universe have to be paid for at the current market price and some part of £A will go to cover this cost.

Before proceeding to the labour factor, let us consider the conditioning factor we have called *location*.

This issue of location arises as a result of the multiplying out of the real continuous whole of the modified universe. In this process it becomes manifest that the point of interaction between the inert force – the non-human inputs, and the active force – labour, for any particular firm will stand in a particular spatial relationship to all other points of interaction. Nonetheless, all this is present in the modified universe as in the real continuous whole of the universe itself – it is all there, it is all given, but in these cases it is merged; it is as it were, unmanifest.

Thus every possible point of interaction and every possible relationship between those points is given in the real continuous whole of the universe. Location, then, is essentially a part of the unmodified universe and is to be distinguished from an input only by the fact that it is conditioning, rather than inert.

In the nature of things, therefore, location is, as we have agreed, as the rest of the unmodified universe is, a free good and no part of £A need be set aside to pay for it.

Now let us turn to consider *labour*; the human power to modify which in the process of producing an output for sale carries the active force. At the micro-economic level of a particular firm we may distinguish between three categories of labour.

From time to time a firm will require labour from other firms – this may be general labour but more often than not it is highly specialised labour such as accountancy, legal advice, financial advice, and so on. Now this labour input is strictly the output of other firms in the system. It is, therefore, an input of modified universe and must be paid for at the current market price. It is to be distinguished from non-human inputs of modified universe only by the fact that it is active rather than inert. Its part in the process of production is modification rather than to be modified.

We will call this category of labour indirect, and some part of £A will have to be set aside to pay for it.

Now we come to a stage where we can draw a line at this point, as shown below in Table 1.

Distribution of output	
Total receipts	£A
Less:	
Non-human inputs	
Unmodified universe	Free
Modified universe	Costs
Location	Free
Indirect labour	Costs
Net added claim	£A - costs

Table 1: Net added claim before pay and wages

If we aggregate the £As of every firm we will finish up with a total for claims to the modified universe greater than the actual total. This will happen as a result of double counting, for in the £A of most firms will be sums which are included also in the £As of other firms – all the items listed as costs which are the cost to one firm of inputs which are the output of other firms.

However, if we first deduct these costs from each firm we will have a total claim which if aggregated will then equal the total of claims to the modified universe – we will have avoided the double counting.

So we draw a line, and deduct from £A all the costs to arrive at a sum we will call the *net added claim*.

This sum represents the total claims added, or generated by, the activities of the firm in question, and may be aggregated without double counting. Remember we are simplifying the process by

taking for each firm a time period equal to its lifetime.

Now, if we can state how these net added claims are distributed in respect of any particular firm then, by aggregation, we will be able to state the distribution of the total claims to the modified universe, and therefore the distribution of the modified universe as between claimants.

From what has been agreed already the net added claims can accrue only to labour, but they may accrue in two different ways, and these two ways are of importance.

Any particular firm may employ some part of its labour. Those providing this labour may be trainees preparing to become their own masters or they may be people who prefer the status of employee to that of being their own master. Some may be people who are for one reason or another incapable of becoming their own masters.

In a *trading community* of a *normal spontaneous order* the market price for the labour of these employees will be determined through market forces. On the one side there will be the quantity of the supply of a particular quality of labour, and on the other side the quantity of demand for that particular quality of labour. Thus this employed labour will receive its market price which we will call *pay*.

After deducting the pay of employed labour the balance of net added-claims will accrue as the return to the labour of those who constitute the firm itself. This we will describe as master labour and its return their *wages*.

Note that what we describe as *wages* in this *normal* order partakes to an extent of the nature of what today we call profits. They are both remainders; in this case what is left from the total receipts of market prices received for output, after meeting the costs at current market prices of inputs which are the output of other firms, and the pay of employed labour.

Let us then return to our opening question: How is this output to be distributed? We may now refer to Table 2, below.

The normal distribution is for all claims to accrue to those who provide the labour, and since all claims accrue as a return to labour then the product, or output, as a whole must accrue to those who labour.[53] This means that the so-called 'primary division between rent and wages' is not *normal*.[54]

Distribution of output	
Total receipts	£A
Less:	
Non-human inputs	
Unmodified universe	Free
Modified universe	Costs
Location	Free
Indirect labour	Costs
Net added claim	£A - costs
Employed labour	Pay
Master labour	Wages
Net added claim	Pay + Wages

Table 2: Net added claim after pay and wages

53 It is thus implied that in a *normal* distribution: £A − *costs* = *pay* + *wages*.

54 In the approach developed by Ricardo, George, and other economists, wages are the return to labour, whilst rent is generally regarded as the excess return above the level of wages that accrues to an owner of land solely by virtue of ownership, and may be determined by reference to the margin of production. This is described as a 'primary division of wealth between rent and wages'.

4

Public Revenue

29th May 1984

I wish to press on with this issue of distribution. We concluded it to be in the nature of the *normal spontaneous order* for all the claims and, therefore, the whole product to accrue to those who provide the labour.

This conclusion, however, raises yet another question: How is the *polity* to be provided with the means to fulfil its purposes?

An easy solution would be to impose a tax on the claims accruing to labour. But previously, we defined a tax as an arbitrary levy imposed by force or the threat of force. Thus a tax is, by definition, a form of stealing and therefore offends against the fundamental moral law of economics. A tax cannot be in the nature of a normal spontaneous order. A tax of any amount or form is out.

To this extent we may agree with Henry George's remedy, 'to abolish all taxation'; but we cannot accept his qualification 'save that upon land values'. The *normal* admits of not a single tax. If taxation exists, then it is not *normal*.

Let us remind ourselves of what we agreed as being the purpose of the polity. The polity exists to serve the trading community by providing both collectively and distributively goods and services which are necessary, if the trading community is to provide an efficient means for individual persons to pursue their own individual ends, but which either cannot be provided from within the trading community or are better provided from outside the trading community.

Now in the kind of order we are considering the polity is not some kind of charity which everyone has a duty to support; it is not something bigger, higher, more important, than individual persons, with a god-given right to live off their backs; it is not a

tyrant; it is not a master. It is a servant; it exists to serve, indeed, it has a duty to serve. In a normal spontaneous order individual persons are the masters and the polity is their servant; but if the polity is to perform its duty then it must have the necessary means. How is it to receive these means?

As previously dealt with, firms in general bring together all that is needed to produce an output for sale and it is the proceeds from the sales which provide them with the means.

Now as we have agreed it is the duty of the polity to produce an output – goods and services which cannot, or cannot efficiently, be provided by firms operating within the trading community.

In other words the polity is in effect a special kind of firm, or combination of firms, which produces a special kind of output. If the polity could sell that output then the proceeds would provide the required means. If it cannot sell its output then the means will have to come either by way of gift or by way of theft – think of another way if you can. In this country the constitutional fiction is that subjects of the Crown make customary and annual gifts which may be collected as if they are a debt.

So the first step in resolving the issue is the widely accepted distinction between public sector firms and private sector firms. In the case we are considering private sector firms are those which operate within the trading community and are, as it were, master firms, whilst public sector firms are those which operate outside of the trading community under the direction of the polity and are, as it were, servant firms.

The second step is to determine the principle, or essential characteristic, of the processes that in the normal case are to be included within the sphere of the polity – the public sector.

A characteristic of public goods and services is that their provision of necessity gives rise to a collective benefit.

For example, the first duty of government is the defence of the realm. If the realm is not defended, then government has nothing to govern. When this duty is fulfilled, it benefits everybody within

the system, and no individual person within the system can opt out of the benefit. That some individual persons may not consider this a benefit is beside the point; their option is to either accept, or find a better whole. This is not to deny that there may be considerable room for a variety of opinions and for public debate as to the best method of fulfilling this first duty.

Further, if the duty is not fulfilled then the penalty exacted from some may be death, but usually, the penalty is not exacted from those guilty of dereliction of duty. Justice is done but not seen to be done. It is done collectively but not distributively.

In many cases this collective benefit is subject to spatial or locational limitations not co-extensive with the system as a whole.

For example, the provision of an efficient fire brigade service in Manchester may confer a benefit on all Mancunians but it does not do much for Londoners. This spatial limitation is important for it gives rise to a subsidiary scale within the sphere of the polity; but, having noted its existence, we need not delay over the details.

Whilst this collective benefit is a necessary characteristic of public goods and services it is not, however, by itself, a sufficient distinguishing characteristic. Private sector firms may also provide a collective benefit – a village shop, for example.

A further distinguishing characteristic of public goods and services is that the provision of a collective benefit, and the actual provision of public goods and services, does not automatically yield a return from those who receive the benefit. For example, at the bar downstairs you order a pint of beer; a bargain is struck and the pint of beer goes over the counter in one direction and a pound note goes over in the opposite direction. Both contracting parties are happy for they both expect to gain from the exchange.

Let us now take the example of the fire service. The existence of an efficient fire service provides a collective benefit for all those living within a certain area – it is there if needed. But there is no automatic exchange; the means of providing this service do not automatically return to the fire service.

Take it a step further; your house catches fire, and you use the service; but in using this service there is no guarantee that you will benefit. Your house might be reduced to ashes just as if you had not used the fire service. Those who will have benefited will be those who have not used the service but as a result of the service being used, and the fire contained, may still continue to live in undamaged houses. Why should the user who may have received no benefit pay, whilst those who have benefited pay nothing? If self-interest is to serve what justice demands then surely the conditions must be such as to ensure that those who receive the benefit pay. It may not be in the self-interest of the person whose house is on fire to call the fire brigade – it will be in the interest of those whose houses are not yet on fire.

George observed that a specialist bestows a benefit on the community in general and that this benefit returned automatically and concentrated with the specialist, as in the figure below:
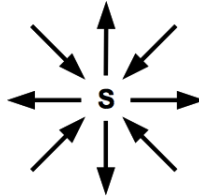

Figure 1: Automatic return to the specialist

What he failed to observe is that in certain cases – for example, the polity, acting as a specialist firm – there is no automatic return:
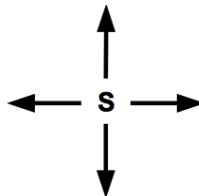

Figure 2: No automatic return to the polity

One diagram represents the production of private sector firms; goods and services the trading community is well able to provide for itself. The other diagram represents a necessary distinguishing characteristic of public goods and services which the polity is required to provide for the trading community.

These two illustrations give the black and white picture but there is in addition a grey area where the decision may go either way. This being so I will elaborate using the example of the railways. Just over twenty years ago a group of us carried out some intensive and extensive research[55] based on the East Kent railway lines then being electrified. It was this project that confirmed my suspicions of there being something fundamentally wrong with the Ricardian theory of distribution.

In the case of railways one may distinguish between the capital sum needed to set up and maintain the system and the running costs incurred by providing a service. The railway system will provide a collective benefit to all those living and working within its catchment area but in addition the service provides a direct benefit to those who use it. Now, if the price to the users is fixed to cover both the capital costs and the running costs then every user will be paying for more than the cost of the benefit received. On the other hand, every non-user will avoid paying for the benefit bestowed collectively. This violates fundamental social law.

There is an argument that providing the costs can be collected in some way the service should be free to users as this would yield the greatest benefit to all concerned. For example, in the late 1940s I heard it argued that if the LCC could get through Parliament its Site Value Rating Bill[56] then all London Transport and commuter services should be free. It was argued that the increase in rate revenue would more than cover the net cost of the free services. Possibly this is a valid special case but in the absence of hard evidence I doubt whether it can be applied generally.

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55 This was *An Inquiry into the Difficulties of the Railways*, published in 1962.
56 The London Rating (Site Value) Bill, 2 & 3 Geo. VI Session 1938–1939.

An alternative which could be applied more generally, whilst allowing for local special cases, is for the capital costs which do bestow a collective benefit to be paid for by all on whom that benefit is bestowed whilst the users cover the running costs. This proposition is based on our research results, which showed that apart from a few exceptional circumstances that never lasted for more than about five years, no railway, anywhere in the world, ever covered its running costs and obtained a commercial return on its capital outlays from its activities as a railway.

Further, our research gave the lie to the oft repeated assertion that an incoming freeholder pays twice for the railway, or some other public utility; once in the price of the freehold, and again when using the service. In East Kent the price of domestic and commercial freeholds tended to rise upon the announcement of the electrification scheme but this was reversed when the new fare structure was announced. In general under the present system sitting freeholders may be handed a free gift but it is the users who lose out absolutely and this is reflected in the current market price of freeholds. Not only do users have to pay a fare which is over the odds, but also as a result of the high fare, the service provided is less than it should be. For the most part, government loans and subsidies go to meet the costs of under-using a system which has been laid down and paid for.

But to return to our main theme – do you note the grey area? On the issue of capital costs there are firm grounds for concluding they should be covered by the polity out of revenue collected from those who collectively receive the benefit. On the issue of running costs since it is possible for a bargain to be struck between the user of the service and the supplier of the service, then it is possible for the service to be a private sector operation.

Any decision on this latter issue will turn on the particular circumstances of the particular case and cannot be decided at this distance. What one can state with certainty is that the United States arrangements of providing a public sector railway service through

Amtrak over a privately provided railway system[57] is, in basic Anglo-Saxon, 'arse-upwards'.

We may now sum up this section and answer the question: What economic activities are to be included within the sphere of the polity – the public sector?

These activities have two distinguishing characteristics which are both necessary and, in combination, sufficient.

First, the activity must provide a collective benefit to every individual person or firm within a certain geographical area or the whole of the trading community. Second, the activity does not automatically give rise to a direct bargain between the supplier and those on the receiving end.

Thus, it is necessary to make special arrangements for the polity to obtain the means for continuing the supply. In the normal case these special arrangements cannot include the imposition of a tax.

The application of this principle will give rise to certain special cases in which a decision can be made only in the light of the particular circumstances of the special case.

Now, from what we have concluded, the polity is in effect a monopoly supplier of public goods and services – and, being a monopoly, it is possible, therefore, for the polity to exercise these monopoly powers to the detriment of the trading community.

So what is *normal?* As we have agreed, from the standpoint of economic science the polity is essentially a public sector firm, or a collection of public sector firms, and as such will be subject to the distribution we discussed.

Thus for the polity inputs of the *unmodified universe* and *location* will be free goods. But to the extent that it takes inputs which are the outputs of other firms, it will have to pay the current market price. As a first charge its revenue will need to be sufficient to cover these costs. The polity, or its representatives, will enter the

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57 The government-funded operator, Amtrak – the National Railroad Passenger Corporation – was formed in 1971 through a consolidation of private railway companies, but did not originally own the underlying railway infrastructure.

market as willing buyers and strike a bargain with willing sellers. No special arrangements are required in respect of this operation, which in aggregate gives rise to self-cancelling claims.

However the polity exists to serve the trading community and from this it follows that all labour within the sphere of the polity will be employed labour – the labour of public servants – there can be no master labour. Therefore the revenue of the polity which corresponds to *net added-claims* will be required only to meet the *pay* of employed labour. Within the polity there can arise no income of the kind we have described as *wages*.

On this issue of pay however there are differences between the polity and the trading community. As we have agreed, within the trading community the level of pay will be determined by market forces but within the polity there will arise special cases which require market forces to be less than dominant. In the general case comparability with the trading community will be the determining factor but this will not always apply and in some cases may be impossible to apply.

In passing we may note that in the frequent disputes between the public sector unions and their employers more often than not the union is insisting on the right principle – comparability – which in present conditions is often unworkable, whilst the government insist on a wrong principle which is workable – what they can afford to pay. The impasse results from the employees being unable to go elsewhere and the employers being restrained from sacking and replacement. In the case of air controllers President Reagan was not so restrained. He called in the military air controllers.[58]

One case where comparability is insufficient is when the independence of the public servant needs to be assured and, in particular, it is deemed necessary to protect the public servant

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[58] The United States air traffic controllers' strike began on 3rd August 1981. As Federal Government employees, their employment contracts did not permit them to take strike action, and they were dismissed *en masse* two days later.

against bribery and corruption. For example, on these grounds it was decided in Victorian times that judges should be very highly paid. Positive vetting may reduce the chances but it is foolish to ignore the weaknesses of human nature. However, given our concept of the normal there will be less likelihood of bribery and corruption, for when every individual's income is a return from their labour there will be less of a difference between the rich and poor.

Another special case is when the polity requires particular qualities of labour special to the polity and therefore not subject to comparability. In this case the pay will have to be a sum acceptable to those able to supply the special quality of labour immediately, and sufficient also to ensure a continuing sufficient supply. For example, the pay a trained fighting soldier might be prepared to accept may be insufficient to ensure a flow of recruits.

No good purpose is to be served by our attempting to lay down rules – the *normal* is too far off. Sufficient to note that in general comparability will be the factor determining the pay of employed labour within the polity but that there will arise also a number of special cases in which comparability does not apply.

So what is to be considered as the norm determining the price and quantity of public goods and services provided by the polity?

First the revenue of the polity must cover its outgoings, which are purchases of output of other firms plus the pay of its employed labour. This is a minimum for if the polity incurs a persistent deficit then it is attempting to provide something for nothing. This, as Maynard Keynes emphasised 60 years ago, is an impossibility. Every public deficit must be covered one way or another. Those of you who have attended earlier seminars will know that whichever way a government attempts to cover a deficit will cause injustices and eventually lead to the breakdown of the system. Persistent deficits, therefore, cannot be considered as normal.

On the other side if the polity runs persistent surpluses then it is taking out of the trading community more than it is supplying. It is

using its position of power to take something out of the trading community and give nothing in return. This offends against the fundamental moral law and therefore cannot be considered normal.

It follows, the concept of normal implies that the polity operates on a balanced budget principle. It is required to supply public goods and services of a quality and quantity to a point where its revenue, taking one year with another, is just sufficient to cover its outgoings, which are the cost of purchases from other firms at current market prices plus the pay of its employed labour.

To take this issue further we have now to consider the special arrangements which will allow the polity to collect its revenue. On the practical arrangements I do not intend to waste time; most of you know the answer, and those who wish to study the mechanism cannot do better than study Hector Wilks' report on a pilot study at Whitstable published in 1964.[59]

My argument is that the instructions given to Hector Wilks were wrong in theory and any errors in minor practical details in Wilks' report arise directly from him being given as an expert rating assessor instructions based on wrong theory.

As we have already illustrated, the polity provides the trading community with public goods and services, but in the nature of things, it receives no automatic return. This is to be expected from an inspection of the diagram built up on the second evening – in Lecture 2, Figure 6. It is based on a scale exhibiting discontinuity, and between the polity and the trading community there is, as we see, a gap. Special arrangements need to be made to provide a link so that a return can flow from the trading community to the polity.

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59 The supply of public goods and services, including transport infrastructure, typically creates a change in location values. A valuation survey was carried out in the area of Whitstable, Kent during 1963 for the Rating and Valuation Association by Hector Wilks and Company to investigate the feasibility of site value rating as an alternative to the system of local government finance then in place. The method of valuation used for the Whitstable survey was, however, at variance with the line of reasoning presented in this series of lectures, and Colin Clark's offer of assistance was apparently not taken up.

Now the benefits arising from the provision of public goods and services distribute themselves in a variety of combinations at all the locations within the trading community.

Further, since every location stands in a certain relationship to every other location we find there is created within a trading community a power of attraction which operates similar to gravity in the physical sciences. I dealt with this phenomenon in the recent seminars on location theory.

Location, as we have agreed, carries the conditioning factor and thus determines the conditions of the point of interaction between the inert non-human inputs and the active labour inputs in any economic activity. Again, as we have agreed, the conditions are an important factor determining the outcome or output. It follows, certain locations will have an advantage over other locations for certain activities. It may be that some locations will have an absolute advantage over all other locations for most activities but what is important is that within a trading community it is to be expected that all locations will have an advantage for certain activities or at a very minimum will be feasible locations for certain activities.

This being so, those wishing to use a location to carry on an activity for which that location has an advantage, or is most suitable relative to other locations, will be prepared to pay a price for that location. It will be to their advantage. It will be to their self-interest. They expect to gain from paying this price.

As we are dealing with a trading community there will arise a market for locations and the price to be paid for the use of any particular location will be the current market price. This will appear to be the price for the particular location but in the normal case this cannot be, for we have agreed that location is a free good.

What then does this market price represent?

It is the current market price for the benefits manifested at that site as a result of the provision of public goods and services; it is in fact the current market price for public goods and services. In the

normal case this market price is assessed and collected by the polity, and provides the public revenue from which it continues to provide public goods and services.

Now, as we agreed earlier, the polity is required to supply public goods and services of a quality and quantity to a point where its revenue, taking one year with another, is just sufficient to cover its outgoings, which are the cost of purchases from other firms at current market prices plus the pay of its employed labour. But as we have now argued this public revenue is itself determined by market forces, and so the polity is constrained from exercising monopoly powers.

Finally, in this normal order the polity is subject to precisely the same fiscal discipline as every individual person and firm in the trading community; taking one year with another it is required to adjust its spending to its expected income. Today the accepted principle of public finance is precisely the opposite; a government decides how much it will spend and then through taxation adjusts its income to cover that expenditure.

Thus we may interpret Maynard Keynes' statement. Economics is the trustee of the possibilities of civilisation in so far as, accepting civilisation to be the normal, it is the science that provides the know-how for establishing the return link for the trading community and the polity, for providing the polity with the means to provide public goods and services to the trading community. If this link is not established consistent with the fundamental social laws then civilisation cannot be realised.

5

Natural Resources

5th June 1984

I have now completed my outline of what I call the *normal spontaneous order* and the laws of distribution natural to that order. Tonight I intend to clear up a few pockets which I bypassed in earlier weeks. Next week, our last meeting of this series, I will sum up, but mostly it will be open for your questions and counter-arguments.

First of all let us consider the position of the extractive industries – an issue which has been studied in depth by Professor Mason Gaffney now of University of California Riverside and one of the very few academics in the Georgist tradition. I argue that the *unmodified universe*, what Professor Marshall described as the free gifts of nature, is in the *normal* case a free good.

The basis of the argument of Professor Gaffney and others is, in our terms, that firms should pay for such *unmodified universe* as they consume in the processes of production. This sounds a very reasonable proposition but I counter that it rests on a confusion of terms. It confuses the process of consumption with the process of production.

It can be no part of the economic argument that either process, of consumption or production, are destructive or creative processes in the sense that they cause a quantitative change. Indeed, to argue along these lines runs counter to the conclusions of all scientific disciplines. I accept the conclusion from other scientific disciplines that it is not within human power to add to or subtract from the universe as a whole. My argument acknowledged this at the outset by taking the universe as a *real continuous whole*. I have no intention of taking on Einstein and all comers.

Having avoided denying the conclusions of all other sciences by

accepting the universe as a *real continuous whole*, it follows that the processes of consumption and production can be distinguished only on the basis of a qualitative change – that the two processes cause changes that are different in quality. In the terms we have been using, both processes are processes of modification, but the outcome of each process can be distinguished qualitatively.

Let us take as an example, a cup of water – not *unmodified universe*, but it will do for starters. When you draw a cup of water from the tap it is purported to be of drinking quality and this is reflected in the current market price. When, as the final consumer, you drink that water it ceases to be of drinking quality. Nothing is lost, but a great deal of costly effort has to be put in to restore the resulting liquid to drinking quality so that it once again may command that market price.

Thus the process of *consumption* is a process of modification that subtracts from the quality, the desirability, the utility, or what have you, and this subtraction is reflected in a lower market price.

Old gardening books extol the virtues of night soil as an activator for compost but today most of us have to pay a sewage rate for the disposal of liquids we have consumed and paid for as of drinking quality. It is the same with a car; as final consumers we buy a new car at a relatively high market price and having consumed part or the whole have to sell it off at a lower market price or even pay for its disposal. From the economic point of view, therefore, a distinguishing characteristic of the consumption process is that in general the market price of the output is lower than the market price of the input.

The process of *production*, on the other hand, operates the other way round. A firm takes in *non-human inputs* and modifies them in a way that improves their quality, desirability, utility, or what have you, and this is reflected in an enhanced market price. If a firm fails to achieve this then it pays the penalty by being forced out of production.

In the *normal* case the difference between the relatively low

market price of inputs and the relative high market price of outputs is the return to the *labour* that performed the modification. Today it is the firm's income, out of which it pays its employees with the remainder representing its profit, or net property income. From the economic point of view, therefore, a distinguishing characteristic of the production process is that, in general, the market price of the output exceeds the market price of the input.

Diverting from our main theme for a moment we may note that this distinction supports the view that subsidies can never be justified. If it is considered necessary to give a subsidy at some point, or points, along the production process then it means that somewhere along that process there is a failure which the subsidy is intended to obscure. Traced back to source this failure is a misuse of some part of the unmodified universe.

The unmodified universe is collectively a free gift, and for this reason is a free good[60] distributively when used for the purpose it is given collectively. This argument does not, and cannot be extended to cover misuse. The so-called free market economists have an element of truth in their arguments; what they usually fail to appreciate is that a market operates efficiently only in the right conditions. Adam Smith's invisible hand has a limited sphere of operation. But let us get back to our main theme.

This time we will start with a part of the *unmodified universe*. A firm wishes to explore for coal and to do so it will need, at least so far as possible coal seams are concerned, the exclusive use of some part of the *unmodified universe*.

It discovers coal, and immediately there is an addition to *natural resources*. There is now a coal field, and this coal field represents the output of the exploration firm. The firm has not consumed any part of the *unmodified universe* over which it was given exclusive use, but by its work and knowledge it has so modified that part that it has become a *natural resource* – a coal field – a part of the *modified universe*.

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60 In economic theory, a free good is not scarce, and has no opportunity cost.

This *natural resource* – the coal field – the output of the exploration firm, is for the coal miner his raw material; the miner's output is the raw material for a power station; the output of the power station is the raw material for a manufacturing unit; the output of the manufacturing unit is the raw material for a corner shop; the output of the corner shop is the purchases made by its customers who are, say, the final consumers. Thus the process of production is completed.

This complete process, or cycle, of production will require direction but in *normative economics* this is not a matter for concern. In the *normal* case conditions will be right and the point will be filled by self-interest serving what justice demands. The concept of the invisible hand given us by Adam Smith has a place.

Now, each and every firm should pay for its raw material – inputs of the modified universe which are the outputs of other firms. Equally each and every final consumer should pay for the final output they consume. However, to impose an arbitrary levy at the first stage, as Mason Gaffney proposes, or at any other or every stage in the production process by whatever method is similar to imposing Value Added Tax (VAT) or a cascade tax; prices would be tax inflated with all the deleterious side-effects. Is such an imposition to be justified on the basis of the consumption of the unmodified universe? Let us consider where such a consumption may arise.

Where there was coal there will be no coal when the production process is completed. It is reasonable to conclude that the coal has been consumed. Let us accept for the sake of argument that the coal is a collective gift and that it has been consumed and that what has been consumed should in justice be paid for. If it has been consumed then it can only have been consumed by the final consumers as a whole, and in a trading community those final consumers would have paid the full current market price for whatever they consume. There is no need for any special arrangements so far as the extractive industries are concerned.

There is no need on their account for government to interfere or impose a levy on the process of production.

If we take the example of agriculture again there is no need for a special arrangement. A farmer does need the exclusive use of some fields and these might possibly form part of the unmodified universe. But a farmer does not consume his fields; indeed, to the extent that he is a good cultivator, he will improve them so that they too become part of the modified universe. A farmer's improvements form part of the output for sale.

Before concluding with this issue there are two other matters which are often associated.

First there is the question of husbanding our natural resources. On this I agree with Henry George: 'It is a well provisioned ship on which we sail through space.'[61] For economics the important issue is to ensure that our system encourages the discovery of natural resources and does not give rise to processes of production which are wasteful of them. I conclude that in the normal case both would be well served by self-interest.

Second there are all those questions which in economics are bracketed under the heading external dis-economies: damage to the environment, pollution, disposal of waste matter – including if you wish radioactive waste – which inevitably arise in both the consumption and productive processes.

Again this is another issue and one for the legal profession rather than for economics. We all have a duty to dispose of waste so that it does not endanger others or the environment. We all have a duty not to conduct ourselves in a way that damages the environment, and so on. Failure to fulfil these duties should incur a legal penalty.

This is part of the job of the polity but not specifically the job of economics. The job of economics is to point towards an economic system in which external dis-economies are against an individual's self-interest.

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61 Quoted from Henry George's *Progress and Poverty*, Book IV, Chapter 2.

Bearing in mind the nature of self-interest, the most sensitive part is the pocket backed if necessary by legal penalty. If it costs a fortune to safely dispose of certain kinds of waste then productive processes giving rise to that kind of waste will be avoided.

To conclude with this issue: I do not accept that the extractive industries, or agriculture, are special cases within a normal trading community. Arguments in favour of special case treatment are, in all the cases which I have noticed, based on a confusion between consumption and production – a failure to note that the distinction must of necessity rest on differences in quality as reflected in the market price and not differences in quantity.

Secondly tonight I feel bound to deal with the issue of what Henry George called rent, which has no place in the distribution natural to what I have called a *normal spontaneous order*. Rent, according to Henry George, is the return to what he called land. Land he defined as the whole of the natural universe, excluding man, which is accessible to the human race.

The first point to which I would call your attention is that George's land is not a factor of production in fixed supply, irrespective of the time period under review. If we take as our time period the hundred years since *Progress and Poverty* was first published,[62] then the natural universe accessible to mankind – George's land – has been significantly extended in all directions: below the surface of the earth, above the surface, as well as along the surface. Thus, it follows of necessity that we cannot apply to George's rent, as a return to George's land, the special fixed supply case of the theory of supply and demand, which is the established generalised version of Ricardo's rent. In particular, George's universe was not a real continuous whole.

Second, Henry George lived and formulated his ideas in the United States during a period when a succession of events happened at speed. He did not specify as a prior requirement for rent the appropriation of land, as did David Ricardo. In the United

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62 Henry George's *Progress and Poverty* was first published in 1879.

States at that time there was an open frontier. Equally he did not specify a trading community – the case we have been considering.

George began by imagining pioneer families settling their households on adjacent un-appropriated land. As St. Thomas Aquinas observed centuries before, men are gregarious by nature. These pioneer families co-operated one household with another but essentially they produced primarily for their own consumption and traded only their surpluses. In these conditions there arose in the nature of things what we may describe as a fertility rent. Some families happened to enjoy more fertile land and the fertility rent accrued to those families.

At the time the United States accepted St. Paul's dictum: 'to one the gift of prophecy and to another the gift of good bottom land'.[63] Fertility rent caused no great problems. The differences were rarely excessive. There was an open frontier, and the condition did not last for more than a couple of generations. In similar conditions in this country there arose the manorial system of strip cultivation which helped to reduce the compounding of natural differences in fertility over a period of centuries.

I do not deny the existence of fertility rent in the conditions as imagined by George. I point out, however, that the hypothesised conditions are not those of a trading community of a normal spontaneous order in which production is not for own consumption but for sale. Further, the hypothesised conditions are not those of a contemporary industrialised monetary economy.

George did observe that, at a certain point in the development of his imagined community, what he called land began to manifest what he described as a new kind of productivity. To him this appeared as a natural progression and he assumed continuity. This led him to attempt to explain the new productivity in terms of the earlier fertility rent. Like Alfred Marshall a few years later, Henry George assumed that what he was observing was no more than a different species of the same kind.

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63 An intentional mis-quotation of the text of 1 Corinthians 12, verses 8 to 10.

What George failed to note was that along the line of his argument he changed a number of the fundamental conditions. He begins with un-appropriated land but then later he states that the immigrant farmer can only realise on the rent arising from the new kind of productivity by selling part or whole of his original settlement. In other words a prior requirement for this new rent is the appropriation of land. He begins with subsistence farmers producing primarily for their own consumption and he ends with specialist firms producing an output for trade – producing primarily for the consumption of others. This end condition was not a *trading community* of the *normal spontaneous order* but what we may distinguish by calling a *trading economy* – something akin to the system we have today.

In the terms I have been using what Henry George calls land is a part of the unmodified universe at a particular location. Now I admit that if locations are appropriated then what George calls rent will arise in a trading economy. Indeed, the appropriation of locations is a distinguishing characteristic as between a *trading economy* and a *trading community* – there are other distinguishing characteristics. Where I dispute with George is that I argue that this so-called rent in a trading economy is different in kind from fertility rent. If one considers fertility rent to arise from a free gift of nature then the new rent is most certainly not a free gift of nature.

Before a trading economy can become established a prior requirement for its development is the provision of a whole variety of public goods and services. These public goods and services manifest themselves by giving differential advantages to different locations. When these public goods and services are provided free of charge in the sense that that there is no direct or related payment then, given the appropriation of locations, those who wish to use a particular location for consumption or production activities will in general, human nature being what it is, have to pay the appropriator of the location a sum related to the advantages

accruing to that location from the supply of public goods and services.

This is the nature of what Henry George calls rent in a trading economy. That this kind of so-called rent arises I do not deny, given the required conditions. What I deny is that it is *normal*. It cannot be *normal*, for it offends against the fundamental moral law of economics. Some people receive free of charge public goods and services paid for by an arbitrary levy imposed on others by force or the threat of force. It is not the poor impoverished unemployed people that enjoy the good life at the tax payers' expense, but the Duke of Westminster.

But here I agree more with Ricardo. The landlord – the Duke of Westminster if you wish – is not the villain of the piece. Such an argument, at best, amounts to an attempt to pass the buck. Central and local authorities bestow a multitude of gifts on the Duke of Westminster at the taxpayers' expense. Having made the gift he is free to sell them at the best possible price and live off the proceeds.

It is not specifically the fault of a landlord that his self-interest is other than what justice demands. The responsibility for this lies with every taxpayer and voter collectively.

6

Normal Spontaneous Order

12th June 1984

Whatever one says or does tends to be coloured by personal preferences, or a scale of values. This is more so when, as during the last five weeks, we have often pressed against the frontiers of economic science. However, I trust the outline presented on the two diagrams is at least passably objective.

What I have described as the *normal spontaneous order*, as illustrated in Figure 1, is a possibility that flashes in when a critical number of individual persons seek the means of pursuing their own individual ends through specialisation and trade.

The second diagram, Table 1, shows the distribution *natural* to that order. What is important here is that all claims to the product accrue as the return to labour. From this it follows, all personal property rights also stem from labour. When an individual person produces goods and services by their own labour, then they can state: 'This is mine.' This gives them the wherewithal to trade.

To state: 'This is mine' requires the individual to show that either they produced it by their own labour, or they obtained it by way of a free exchange, or they were given it as a gift by an individual who enjoyed a valid title.

This is in the nature of the *normal,* for the power to labour is given not collectively, but distributively; that is, to each and every individual person; but apart from labour all that we have is given collectively, and thus it is in the nature of the *normal* that what is given collectively are *free goods*, freely available to any individual person who wishes to use them. They have free use but not the right to state: 'This is mine.' It is not normal to allow individual persons to appropriate that which is given collectively and so state: 'This is mine.' It is not normal to allow some individual persons to

appropriate goods and services produced by the labour of others and so state: 'This is mine.' It is not normal for the majority of individual persons to have nothing to sell but their labour, and for them to be denied property rights over that which they produce by their labour.

Thus, in the normal case, there is no primary division of wealth; no division as between rent, wages, interest or profits; no division as between labour income and property income. The so-called laws of distribution derived from Ricardo, whether in their Marxist or Georgist form of development, are not *normal*, any more than is the distribution accepted by contemporary mainstream economics.

The economic order of the United States, of this country, or of Russia are not different in kind. They are all variations on a sub-normal theme. They are all based on the appropriation of that which is given collectively. They all reduce the majority of individuals to a condition in which they have nothing to sell but their labour. They are indeed to be distinguished from slave states only in one small particular: they allow those who labour to some small degree to choose their master.

The concept of the normal gives an alternative to the contemporary trading economies, which are to be distinguished only by their political hue. However, contemporary trading economies and a normal trading community have at least one thing in common. They both require to be provided with public goods and services from outside the trading system.

In the *normal* case, public goods and services are those goods and services which in the nature of things do not give rise to an automatic return to those who labour to produce them. Special arrangements have to be made, and these arrangements are the special task of economic science. The job of economic science is to ensure that these arrangements are such as to cause within the *trading community* individual self-interest to serve what justice demands. When these special arrangements ensure that condition then there will exist the possibility of civilisation.

This is my interpretation of Maynard Keynes' remark that economics is 'the trustee, not of civilisation but of the possibilities of civilisation.' So long as economics fails in its particular task, then the possibilities of civilisation do not exist.

Finally may I remind you of what I said on the first evening. To have direction one must have a destination but having a destination one must know where one is and the first step on the road to the destination, otherwise one remains utterly lost. The concept of the *normal* is one thing; the first step on the road is another, and requires a mastery of other techniques not even mentioned during the past few weeks.

There is one further technical point, for the technically minded. Previously I stated that the polity was required to operate taking one year with another on a balanced budget. That implies that total costs equals total revenue, but it does not answer what quantity is to be supplied along any particular line. Over twenty years ago when investigating the railways – the piece of research that started me off on this line of thought – we dealt with the particular question by analogy with the circulation of the blood. As I recall some 75 percent of our veins are a dead loss when their usefulness is measured in relation to the traffic they carry. But, insignificant percentages apart, if one tried to cut out the loss-making veins, then very quickly the whole system would collapse. This general principle applies to the goods and services supplied in the normal case by the polity. In general, the polity is required to provide public goods and services along all lines up to the point where marginal revenue equals marginal costs. Along a representative line this is likely to result in a surplus and therefore a surplus overall. In general firms operating within the trading community would stop at this point at which their wages would be maximised. So far as the polity is concerned, they can go beyond this point; whether they operate each and every line to a point where total costs equals total revenue or whether to go further in some than others so as to achieve an overall balance is a political decision.
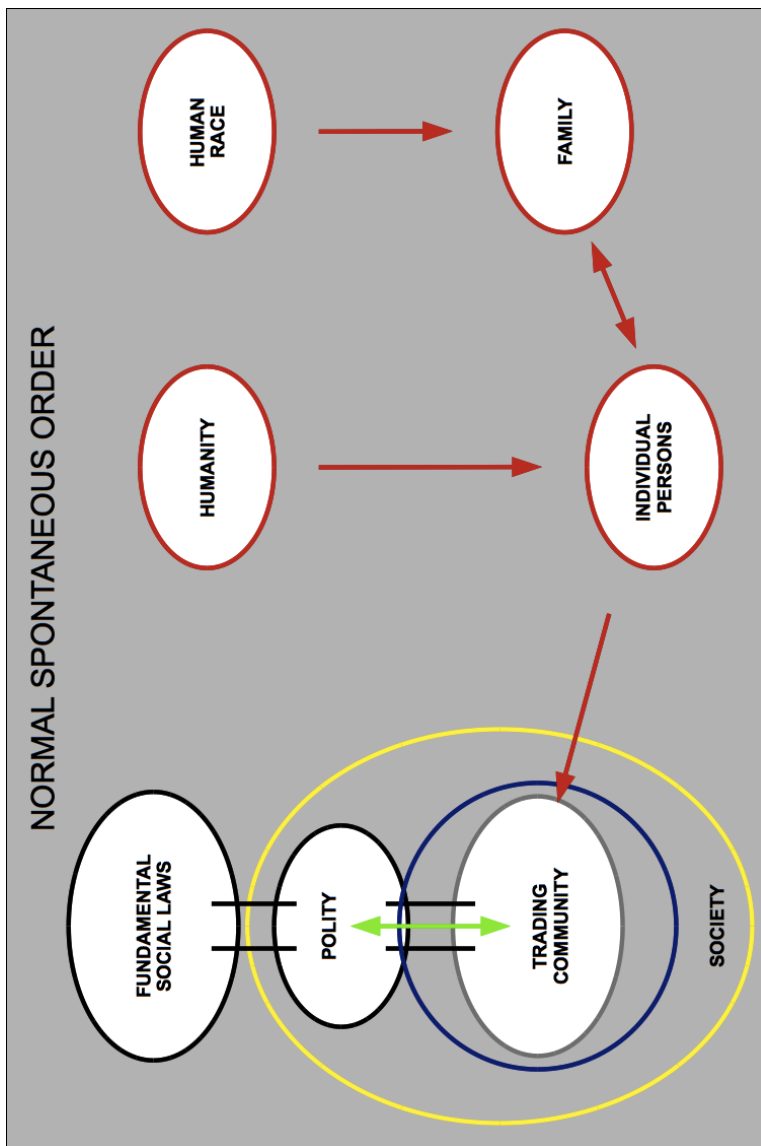
Figure 1: Normal spontaneous order

Distribution of output	
Total receipts	£A
Less:	
Non-human inputs	
Unmodified universe	Free
Modified universe	Costs
Location	Free
Indirect labour	Costs
Net added claim	£A - costs
Employed labour	Pay
Master labour	Wages
Net added claim	Pay + Wages

Table 1: Distribution in a normal spontaneous order

Selected bibliography

1. Marshall, Alfred, 1890. Principles of Economics, Volume 1. Macmillan & Co., London. (Volume 2 was not published.)

2. A. Pigou, 1920. The Economics of Welfare. Macmillan & Co., London.

3. Lionel Robbins, 1932. An Essay on the Nature and Significance of Economic Science, Macmillan & Co., London.

4. Winston S. Churchill, 1939. Step By Step. Thornton Butterworth Limited, London.

5. W. Temple, 1942. Christianity and Social Order. Penguin Books, Harmondsworth, London.

6. Robinson, Joan, 1942. An Essay on Marxian Economics. Macmillan & Co., London.

7. F. A. Hayek, 1944. The Road to Serfdom. Routledge Press; also University of Chicago Press.

8. Samuelson, Paul, 1948. Economics: An Introductory Analysis. McGraw-Hill Book Company, New York.

9. R. F. Harrod, 1951. The Life of John Maynard Keynes. London, Macmillan & Co. (also W. W. Norton & Company, 1983).

10. T. Gilby, 1953. Between Community and Society: A Philosophy and Theology of the State. Longmans Green & Co. Ltd. London.

11. T. Gilby, 1958. Principality and Polity: Aquinas and the Rise of State Theory in the West. Longmans Green & Co. Ltd. London.

12. A. P. d'Entrèves, trans. J. G. Dawson. 1959. Aquinas – Selected Political Writings. Basil Blackwell & Mott Ltd. Oxford. (Contains Latin and English parallel text, including De Regimine Principum.)

13. H. M. Wilks, 1964. Rating of Site Values: Report on a Pilot Survey at Whitstable. Rating and Valuation Association, London.

Additional notes

Spatial Economics

<u>Lecture 1</u>

Henry George (1839–1897). George postulated that location value is entirely the result of collective efforts, and should therefore be used exclusively as the source of all public revenue. The difference between the product of the best site and that of the marginal site is described as rent, to be differentiated from wages, and is presumed to reflect location value. Thus, if rent is used collectively, the first settler to arrive would gain no advantage, as compared to the last.

David Ricardo (1772–1823). Ricardo, an early influence on Henry George, identified the potential effects of extending cultivation to less productive sites in order to support the growth of population. This was expected to lead to higher net revenues, or rents, on the better sites. He also advanced the theory of international free trade and the distinction between absolute and comparative advantage.

Principle of diminishing returns. This method of analysis suggests that, as additional units of a given factor of production are added, the net increase in output is progressively reduced. In the marginal case, it is reduced to zero. The larger producer surplus associated with the earlier doses of the given factor is then described as rent.

<u>Lecture 2</u>

Location of government activities. If public expenditure is financed mainly by general taxation, the need to identify an optimal location for the provision of public services may be avoided. Costs incurred as the result of choosing a sub-optimal location are then likely to be passed on to taxpayers, within the overall level of taxation.

Lecture 3

International free trade flows. According to von Thünen's analysis, certain patterns of international trade flows between geographical zones may not be economically possible, regardless of the effects of any comparative advantages that would otherwise be expected to apply in the absence of any variations of economic potential.

Lecture 6

The Whitstable surveys. Two field surveys of site value rating were carried out, in late 1963 (for the Rating & Valuation Association), and again in 1973 (for the Land Institute), in and around the town of Whitstable, in Kent. The method of valuation adopted in both of the surveys was to determine the annual market value of each site, not including the value of any buildings or improvements, but on the assumption of the full development of the best permitted use. A similar full permitted use of any adjoining sites was also assumed. No allowance was made for the possible effects of changes to the existing systems of taxation, or their consequences. The principal conclusion of the two surveys was that the annual value of the sites assessed in this way could be broadly equivalent to the yield of the existing system of rateable valuations. The distinction between the public value and private value in any given location, as described by Marshall, does not appear to have been reflected in either case.

Normative Economics

Lecture 1

Normative and positive. The term *normative economics* is used in this context to indicate the emergence of a normal phenomenon, not shaped or constrained by artificial customs or practices, and in accordance with fundamental social laws; by contrast, the term *positive economics* is used to describe the analysis of the present state of an economy, from which any changes must proceed.

Esoteric laws. The law of events, and the law of the sequence of events, are ancient formulations of unknown esoteric origin, made popular in the writings of P. D. Ouspensky (1878–1947). The law of events asserts that all events arise not from duality, but from an interaction of three elements which are invariably active, passive and conditioning. Examples include the interaction of a buyer and a seller under conditions of monopoly, or of a competitive market; and with, or without, a stable currency and the rule of law. The law of the sequence of events then proposes that a series of connected events exhibits the characteristics of the natural octave, such that an unfilled interval (the absence of an intervening semitone) exists between the notes *mi* and *fa*, and also between *si* and *doh*. If these intervals are not filled by an external input of energy, then the octave, and hence the sequence of events, does not proceed to the intended conclusion, but may instead turn aside into a different and unintended path. Examples are often found in everyday life.

Philips curve. A proposed relationship between the rate of increase in money wages, and the rate of unemployment, as described in a paper by Professor A. W. Philips published in November 1958.

Lecture 2

The nature of the polity. For the purposes of analysis, humanity is considered to be an example of a 'real continuous whole'; not a collection of other entities, but possessed of a substance of its own, and exhibiting an internal continuity. In the trading community, however, the ultimate unit is the individual member of humanity. The pursuit of multiple individual ends may then lead to a means-connected order, in which specialisation and trade go hand in hand. The trading community nevertheless requires the rule of law and a degree of central authority to facilitate the supply of public goods in the broadest sense, which it cannot of itself easily provide, and the concept of the polity necessarily arises. In terms of Aristotelian analysis, however, the polity does not thereby itself become a real

continuous whole, for it is composed of individual human beings who remain subject to the fundamental social laws of humanity.

Normal spontaneous order. The relationships between the trading community, the polity, and the fundamental social laws, may then be viewed as a normal spontaneous order, in which a discontinuity appears between the trading community and the polity. Through its relationship to the fundamental social laws, however, a successful polity may keep open the possibility of civilisation. Realisation of that possibility is then a matter of choice.

Scholastic philosophy. In the writings of St Thomas Aquinas, the state, or polity, stands as an intermediate between the conditions of community, and society. In a natural community, people are bound together by ties of family and kinship. This is an inherent aspect of the nature of humanity. Society, however, encompasses the whole of humanity under conditions of virtue and friendship, such that no centralised protection from the mis-deeds of others is required. Thus, in their pure forms, both community and society are aspects of the human condition, but the first is not an historical precedent, nor is the second an ideal to be attained. The aim of the state is to facilitate an ease of movement from community towards society. The success of the state is evident from a progressive elimination of the man-made laws, and a growing distribution of responsibility, leading to wider participation in decision-making and higher levels of personal accountability. The centralisation of power and control in a totalitarian state is a sign of failure; a balanced combination of monarchy and democracy is to be preferred. For further discussion of this topic, the reader is referred to the work of Thomas Gilby, as listed in the selected bibliography.

Lecture 3

Restated quantity theory of money. An alternative approach to the quantity theory of money, first proposed by Milton Friedman in the publication *Studies in the Quantity Theory of Money*, 1956.

Lecture 4

Influence of Henry George. George (1839–1897) is remembered for his influential book, *Progress and Poverty*, and other related works. In 1888 he had visited England, where his proposals for the taxation of the annual value of land were welcomed by the Liberal Party. In so far as George recommended the use of a single tax to collect the whole of the annual value of unimproved land, his ideas were rejected as being equivalent to the nationalisation of land. His accompanying proposal to remove all other forms of taxation was also rejected. Some years later, the introduction of site value rating was included in the April 1909 budget proposals of the Asquith government, which had been elected with a strong Liberal majority in 1906. This budget, popularly known at the time as the *People's Budget*, proposed for the first time to use arbitrary taxation as a means to re-distribute wealth from one group of people to another, rather than as the method of financing public goods and services. This became an issue of debate between the Liberal government of the day and a Conservative majority in the House of Lords, leading in due course to further general elections in January and December 1910 and the enactment of the Parliament Act of August 1911. The Lords finally accepted the modified budget, without the proposed land tax element, on 28th April 1910. The Parliament Act of 1911 then removed the right of the House of Lords to block money bills (i.e. any proposed changes to taxation) and effectively became part of the British constitution; it also reduced the maximum term of a parliament from seven years to five. In the late 1930s, and again in the post war period, attempts were made to introduce a Site Value Rating Bill for London, by means of which public revenue could be raised using methods similar to those recommended by George, but without the removal of other forms of taxation. These attempts did not succeed. Since 1910, government expenditure in the UK has risen steadily from about 12% of GDP (until 1914), up to 25% of GDP (from 1918 until 1939), with a further increase from 35% to around 45% of GDP from 1950 onwards until the present day.

Lecture 6

Public finance. For many years, the accepted aim of public finance was to raise the necessary funds to cover the expenses of the state, or of some local counterpart. These expenses typically included the administration of justice, international representation, defence, and increasingly, the relief of poverty. In the first half of the twentieth century, the cost of two world wars ensured that this remained the case. By the 1950s, however, the remit of public finance had been extended to include the redistribution of wealth, and the use of the government's powers of intervention to change the outcome of the economy. The steady increase in the level of public spending then required some explanation of how decisions affecting such a large part of the economy were to be made. This discussion turned upon two underlying concepts of the nature of the state. The first, is that it is an independent entity with its own scale of values which it can use to determine the pattern of public expenditure. It then remains only to devise a means of raising sufficient funds through taxation and borrowing to achieve the desired result. The second, is that the state consists of ordinary individuals carrying out their functions under a constitutional arrangement, and subject to the same system of fundamental social laws as other citizens. This view has tended to prevail in the United States and in the United Kingdom, and is closer to the tradition of the common law. It still remains the basic principle of most forms of local government, where it continues to find expression in the provision of local services and infrastructure accompanied by local accountability, participation and supervision.

Possibilities of civilisation. In order to allow for the flourishing of a normal trading community in a broader society, a means must be found for the necessary levels of expenditure on public goods and services to be financed in a manner consistent with fundamental social laws. The concept of the normal must 'prospect to a country beyond the logical, and even psychological, if it is to breathe the clean air and partake of the easy spirit of civilisation and justice.'

Practical application

There is at present much emphasis on three different aspects of centralised general government income and expenditure, namely stabilisation of the economy, a planned redistribution of incomes, and, in almost a subordinate sense, the provision of such goods and services as may be deemed expedient. Thus, the practical scope for application of the ideas presented in these lectures is more likely to be found, in the first instance, in local government, where service provision is the main aim. Here, it should be possible to identify that proportion of location value that results from the provision of local public goods and services, and to ensure that costs are shared equitably for decisions taken collectively, so that all participants in the economy – firms, households, individuals, public bodies, and others – act within the scope of the same fundamental social laws.

Further work

Three areas of further work remain to be addressed. The first is the integration of spatial economics with other areas of economic analysis. An effort in this direction was made by Burgess in *Public Revenue Without Taxation*, based in part on a development of the work of Keynes. The second is to identify more fully the effect on public bodies of coming under the discipline of spatial economics, instead of a reliance upon arbitrary taxation and borrowing as their main source of income.[64] The third is to clarify the implications of spatial economics for the theory of national and international free trade. All three areas offer potential new insights in public finance.

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64 The formation of a public good, such as the construction of a bridge as part of the public highway, typically produces an identifiable change in location value. This may be positive or negative, and will be reflected in the market price of location. It is then a matter of judgement as to what proportion of the cost is recovered through location charges, and what proportion through user charges. The public authority responsible for the bridge may then have an assured income without recourse to taxation; it also has a clear indication as to whether or not its actions are in agreement with revealed preferences.

Selected bibliography

Reference 12, although published much later, has been included as an example of more recent work on a similar theme.

1. Bastable, C. F. 1903. Public Finance, 3rd ed., Macmillan & Co., London. (First published 1892).

2. Dicey, A. V. 1915. Introduction to the Study of the Law of the Constitution. 8th ed., Macmillan & Co., London.

3. Ouspensky, P. D. 1949. In Search of the Miraculous: Fragments of an Unknown Teaching. Routledge & Keegan Paul Ltd, London.

4. Samuelson, P. A. 1954. The Pure Theory of Public Expenditure. Review of Economics and Statistics. Vol. 36 (4): pp 387–389.

5. Samuelson, P. A. 1955. Diagrammatic Exposition of a Theory of Public Expenditure. Review of Economics and Statistics, Vol. 37 (4): 350–356.

6. Prest, A. R. 1960. Public Finance in Theory and Practice. Weidenfeld and Nicolson, London.

7. Wiseman, J. & Peacock, A. 1961. The Growth of Public Expenditure in the United Kingdom 1890–1955. Princeton University Press.

8. Buchanan, J. M., & Tullock, G. 1962. The Calculus of Consent: Logical Foundations of Constitutional Democracy. University of Michigan Press, Ann Arbor, Michigan.

9. Buchanan, J. M. 1965. An Economic Theory of Clubs. Economica. Blackwell Publishing. 32 (125): pp 1–14.

10. Buchanan, J. & Wagner, R. 1977. Democracy in Deficit – The Political Legacy of Lord Keynes. Academic Press Inc., New York.

11. Ronald Burgess, 1993. Public Revenue Without Taxation. Shepheard-Walwyn (Publishers) Ltd, London.

12. Paul Krugman, Masahisa Fujita and Anthony Venables. 1999. The Spatial Economy – Cities, Regions and International Trade. Cambridge, Mass: M.I.T. Press.

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