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On the Theory of the Centrally Administered Economy: An Analysis of the German Experiment. Part I

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On the Theory of the Centrally Administered Economy: An Analysis of the German Experiment:

PART I

By WALTER EUCKEN
(Translated by T. W. HUTCHISON)

INTRODUCTION

I. AFTER 1936 the German economy came more and more under central direction and administration. This was not the result of a conscious effort of policy to create a new form of economic organisation. It was rather a result produced accidentally. It was the full-employment policy which started the movement, and it was the implementation of this policy which led step by step towards a centrally administered economy ("Zentralverwaltungswirtschaft").

In 1932-3 the full-employment policy began with public works, expansion of credit, a cheap money policy, and a pegging of the exchange rate. As this policy threatened to bring a sharp rise in prices, a general price-freeze was ordered in 1936. Germany—like many other countries since then—entered upon a period of "repressed inflation". Prices ceased to give expression to the scarcity of goods and services on the markets. This state of affairs gave rise to the creation of a central administrative apparatus to direct the economy, to supervise foreign trade, to allocate the most important raw materials such as coal, iron and cement, to weigh up priorities, distribute licences and so on. This was the beginning. With the growing danger of war, and with its actual outbreak, the measures of central administration and direction played an increasingly important role in the economy. It was necessary to concentrate productive resources on armaments and to force up the rate of investment. There was the growing pressure of an expanded but immobilised supply of money. So more and more branches of production, and even the distribution of labour supplies and consumers' goods, came under the orders of the central planning authorities.

It was not that the *whole* everyday economic life of the country was controlled by the central administration through the direction of labour, production orders, compulsory deliveries, rationing and so on. On the contrary, important markets remained free for a long time. Only in recent years did barter develop on a large scale, when the German people not only got their rations of bread, potatoes, or meat, from the central authorities, but tried to obtain food and other consumers' goods by barter, or grew vegetables and potatoes for

themselves. Then different forms of economic organisation were combined together. But since 1938 it was *one* of these forms which dominated, that of the centrally administered economy.

The following pages are concerned almost exclusively with this element in the German economic system (“Wirtschaftsordnung”), and not with the very important problems of money and barter which arose in the course of this interesting episode. An economic order in reality is always made up of a combination of different pure forms. We are only concerned here with one of these. A centrally administered economy is not to be confused with one where all property is collectively owned. Certainly, central administration and direction of an economy can be combined with collective ownership of property, as, for example, in Russia since 1928. But this combination is not necessary. The interesting point is that in Germany the means of production remained predominantly in private ownership, and farms and factories alike continued to belong mainly to private individuals and companies. But the private owners could only dispose over their means of production to a limited extent. There was widespread requisitioning of industrial stocks, which were only released for definite purposes consistent with the central plan. We can say, in fact, that for the economic process as a whole, it was not the plans and actions of individual businesses and households that were decisive, but the plans and orders of the central authorities.

2. What questions do we want to put about the German experiment? In our case, a question which has been much discussed, and which has shown itself to be a fruitful one: are the same economic “laws” valid in the centrally administered economy as in the exchange economy?

Economists have given two fundamentally different answers to this question. J. S. Mill spoke of “the very different laws” which held for the competitive as compared with the collectivist economy. Similarly also Dietzel.¹ In contrast with these “dualists”, the “monists” hold that the economic processes of an exchange and of a collectivist economy—two concepts usually not at all precisely defined—are essentially similar. This was the view of Wieser, Pareto, and especially Barone. The point of view of these writers has been widely accepted, and on the whole the monists predominate.

Who is right? Is the fundamental logic of economic action really the same in the commercial as in the socialist society, as Schumpeter has recently held?² Or, are these two quite different worlds? This is much more than a purely academic question. In the economic life of this century both methods of direction are being applied, that of the exchange economy and that of the centrally administered economy.

¹ J. S. Mill: *Logic*, Book 6, Chapter 10, para. 3. H. Dietzel: *Theoretische Sozialökonomik*, 1895, p. 85 ff.

² Barone, in *Giornale degli Economisti*, 1908; Pareto, *Manuel*, p. 362 ff.; and Schumpeter, *Capitalism, Socialism and Democracy*, 1942, Chapter 16.

The history of our time offers for our analysis, as to our forefathers it did not, many experiments in the central administration of economic life. We are dealing with this one experiment. Can we understand the economic phenomena of the twentieth century if we approach them with a single unified theoretical apparatus created for the analysis of the exchange economy? Or is it necessary to work out a special theory of the centrally administered economy to do justice to economic reality?

Wieser and Barone had no knowledge of such definite examples as we have. Of course, historical cases of a predominantly centrally administered economic order are numerous, for example those of Egypt or of the Incas. But economic processes in our modern industrial age are so much more complex and comprehensive, and the tasks of direction so much more difficult, that these older examples are of secondary interest. Economists today have material before them quite unknown to their predecessors.

Our analysis of the German experiment was undertaken just at the moment when this experiment was coming to its close. The direction of the economy by central administration broke down in 1946-47. Procedures and forms pertaining to monetary and barter economies, and to an economy of self-sufficient household units, began to spread. But this investigation is not a historical one; nor is it an obituary notice. Our aim rather is to get a grasp of the general principles which German experiences can teach. It is agreed that the direction of economic life by a central administration came about in Germany mainly for purposes of war. Frequently improvisations had to suffice, instead of the long-term planning possible in peace. What is simply a peculiarity of war conditions must not be attributed to the centrally administered economy.

THE ECONOMIC PROCESS AS A WHOLE

I

HOW A CENTRAL ADMINISTRATION WORKS

The study of the organisation of an exchange economy begins with the procedures of individual firms or households, let us say, in a leather factory. It is ascertained that the firm bases its plans on price and cost calculations, that is, on the relation of the prices of the products to the prices of the factors of production. This is what is decisive in guiding production. In this way each firm controls, in its own sphere, a fraction of the economic process, and the process as a whole is controlled by means of prices.

The study of a firm in a centrally administered economic order—for example during the German experiment—leads to quite another conclusion. Our leather factory produces on the orders of the Leather Control Office. This “Control Office”, “Department” or “Planning

Branch" ("Fachabteilung" or "Planstelle") allocates raw hides and auxiliary materials. It gives the firm its instructions to produce, and disposes of the leather it produces. For knowledge as to how the plans are formed by which the economy is guided in a centrally administered system, we must go to these control offices. There were "Controls" for textiles, clothing, glass, pottery, iron and so on. How did this central direction work out?

In four stages:—

First, there was the collection of statistical material for which the Controller would have at his disposal a Statistical Section. This primary importance of statistics is a characteristic of the centrally administered economy. The statisticians tried to assemble for the planning authorities all the important data necessary: thus, for example, equipment, storage capacity, the need for storage space, the needs for coal and electricity, the production and import of raw materials, the production and uses of, for example, leather, textiles or other raw materials and other products. From this statistical material a quantitative balance-sheet was obtained which put the supplies against the consumption for the preceding year, half year, or quarter.

The statistics had to follow precise orders with regard both to their collection and treatment. They formed the foundation for the planning itself which was the *second* stage of the process. This consisted of drawing up programmes for requirements and supplies, and for the means by which the two were to be balanced.

It is an essential point that the figures planned for requirements had their source only partially in the demands of the higher authorities, who would be requiring for purposes of armaments, or investment in general, particular quantities of iron, machinery, leather, etc. Another part originated with other users ("Bedarfsträger"), that is, mostly other control offices. Thus for example, leather would be ordered by the Shoe Control, or the Machinery Control, while the Leather Control ordered tanning materials, oils, fats, coal and so forth from the control offices responsible. Requirements always came in to the particular planning branch or control office collectively, or in aggregates ("gebündelt"). It is important that at this very early stage in drawing up the plan, standardisation of goods became a necessity. Determining the leather requirements, for example, of the Shoe Control was all the more difficult the greater the variety of types of shoe in production. Central planning requires standardisation.

After the centrally administered economy had been working some time, the planning offices often used the figures for earlier planning periods, which could be ascertained with precision. The figures were intended for the *future* planned quantities, but were taken over without further scrutiny from previous plans. There was a danger here that the necessary consistency with the facts of the present position might be lacking. For this reason the central authorities higher up, for example in the Ministry of Economics, often had occasion to warn

against the exuberance of the statisticians. For example, it was on one occasion explained that: "However much planning may require a statistical basis, it must never be forgotten that statistics can only relate to the past. The outward form which planning assumes, that is, balances of figures, is not the essence of planning, which is rather an active shaping of the future." Incidentally, the calculating of needs per head of the population was held of small significance, as it took no account of local and occupational differences.

With regard to supplies, the principal item apart from imports and drawing on stocks, was, of course, production. Here the principle was laid down that production had to be estimated on the basis of the narrowest bottleneck. For instance, equipment and raw materials might be ample, but if it was coal or labour that was in short supply, it was in accordance with *these* that plans had to be drawn up. As bottlenecks were constantly shifting, the basis of the plan had constantly to be altered. The real art of this sort of central planning lay in recognising promptly where the bottleneck was to be expected next.

Over the balancing of requirements against supplies, long battles were necessary, and we shall be dealing with these repeatedly later on. The many single control offices fought for allocations of more coal, or transport, or labour. On the other side, the requirements of each "consuming" party, every one trying to get hold of as much leather, textiles or petrol as possible, had to be cut down. The attempt would be made first at the level of the individual Control Office, by lengthy negotiations, to get the different "consumers" to moderate their demands. But the higher authorities took a hand from the start. They did so, in the *first* place, by fixing grades of priority, and *secondly*, by giving the decision in cases of conflict.

As an instance for the fixing of priority rankings, the petrol arrangements may be taken. First, in November, 1941, it was ordered that petrol was to be used only for war purposes in the strict sense.

Allocations were to be made on the basis of the following priorities:

1. For providing the population with food and fuel.
2. For clearing railway stations and docks.
3. For maintaining agricultural production.
4. For sanitary organisation and the police.
5. For firms on important war work and for the building plans of the Plenipotentiary Authority for Special Problems of Chemical Production.
6. For providing for the armaments and other production decisive to the war effort.
7. For providing for the building plans of other industries decisive for the war effort.

For the valuing and directing of the stream of goods the grading of needs in this way was essential, and the individual control offices had

to proceed accordingly. If no agreement was arrived at, let us say, as to how much coal the Leather Control should get, the Minister of Economics himself had to decide.

The results of this procedure were set down in a Budget or Balance Sheet ("Mengenbilanz"), for a quarter or half a year, or for a whole year, according to the peculiarities of each process of production. Here is an outline of one of these Budgets:

OUTLINE BUDGET.

<i>Supplies.</i>	<i>Consumption.</i>
1. Home Production	1. Home Consumption (arranged according to uses)
2. Additions from Occupied Territories	2. Needs of occupied territories
3. Imports :	3. Exports
<hr/>	
1—3 Total of Current Supplies	1—3 Current consumption
4. From stocks	4. Additions to stocks
<hr/>	
1—4 Total supplies	1—4 Total consumption

Under heading 1 on the right (home consumption), it would be set out in detail how much, say, leather, had been fixed for the armed forces, for agriculture, for machinery, for shoes, and so on.

That is what the plans of the centrally administered economy looked like. They consisted of a long series of interlocking budgets of one control authority after the other. The controls for coal, iron, electricity, petrol, leather, textiles, and so on, set out their budgets which together made up the plan as a whole. But the fitting together of the detailed programmes was brought about through the general directions (e.g., priority rankings), of the higher authorities, and through their actual intervention in many particular cases. Thus, although the control officers carried out and worked out the programmes, they were dependent on, and subordinate to, the ministries and other central offices. That was how the planning process was unified.

The *third* stage was the issuing of production orders to individual firms. The production of the firms was fixed in terms of quantities for particular periods of time, and with regard to varieties and qualities. Requisitioned raw materials were released to the individual factories for their production, and orders for the disposal of the resulting product were issued. The very difficult task of working out production orders for individual firms was often carried out through industrial organisations like the "Reichsgruppe Industrie", cartels, associations, etc. Experts had to be used who were at the same time highly interested parties, and, similarly, organisations which were private pressure-groups. We shall be returning, also, to this subject.

Fourthly, and finally, there was the check-up on results. Firms were obliged continuously, either quarterly, monthly, or even daily,

to report their stocks and production, and the control offices had continually to be checking that the actual figures and the 'programmed' figures agreed. Shortfalls might be traceable either to particular firms, or to the non-arrival of allotted raw materials, or through labour being drawn off by other control offices, and so forth.

In any case, the heads of the control offices had to intervene. So the carrying out of the plans was accompanied by continual negotiations and running battles. In the end another factor would intervene in this checking up on the plans. The plans were naturally often being carried through months, or even a year, after their original working out. Meanwhile the data had altered, for instance, with regard to coal supplies. It was then necessary to revise the plans and production orders.

This was how the four interconnected stages proceeded and were continually repeated. Other centrally administered economies might proceed in a similar way or in a different way. What is the economic significance of this procedure ?

II

THE DIRECTING MECHANISM

Let us consider for a moment a small, closed, self-sufficient, household economy ("Eigenwirtschaft"), a community of thirty people, who produce for themselves everything they consume, and are under the authority of a single individual. The task of directing such an economy would be as follows : the director day by day has to decide how the factors of production shall be combined, where each worker is to work, who on the potato field, who in the forest, and what tools each shall have at his disposal. At the same time he has to decide as to the use of the land, buildings, livestock, and transport. He has to decide also the time-structure of production, that is, as to investment and savings. This is only possible if the director is clear the whole time as to the importance of different requirements, and how much each unit of the factors of production can contribute, in each different use, to satisfy the community's needs. All these valuations are interdependent. If, for example, the director decides to build a bridge, that is, to invest, then *all* values are altered. Each unit of the means of production, an hour's work on the potato field, or in the forest or the stables, gets a different relative significance and a general shifting may prove necessary.

Economic calculations run in three directions. The planner constantly examines how far the factors of production in their previous use and occupation have actually met the needs of the community. These cost calculations relating to the *past* are the basis of the plans for the *future*. Plans for the future are tentatively built up from past experience, the task being to meet *existing* scarcities, or those expected in the near or distant future. Economic calculation, therefore, is made

up out of examination of the past and projection into the future, with attention to the present. Each individual unit of consumers' goods and means of production is allotted its niche in the economic cosmos by the plans of the directing authority.

With division of labour, and an economy of many millions of people, there is a corresponding task. But in this case the direction will not be set by calculations by the individual. Rather, the task will be to find *the form of organisation for economic life best suited to a satisfactory direction of the economic process from the point of view of the needs of the community.*

The particular solution to the problem of direction which the centrally administered economy in Germany arrived at, had two essential characteristics. (1), Planning and direction were based on round aggregate valuations without individual values or calculations of marginal cost. (2), As economic calculation had no compelling force behind it, this method of direction was able to survive for a long time.

(1) (a) To take the first of these two points : the offices of the central administration worked with aggregate valuations derived from the calculations of the statisticians.

Who made these valuations ? In the first place they were proposed by the sectional control offices. In our example, the Leather Control proposed to distribute leather among different users (e.g., the armed forces, footwear, industrial purposes), according to the users' own valuations. After negotiations with the "consumers", alterations would be made ; that is, an attempt would be made to bring the valuations of the Leather Control into equilibrium with those of the "consuming" control offices. The dealings were always in mass quantities. Values were not given to single units but were calculated for total quantities, perhaps for five or eight thousand tons at a time. These aggregate valuations, and thereby the direction by the control office of the factors of production and of consumers' goods, were supported by the fixing of priority gradings by the higher central authorities which we have just referred to. But these priority grades were always ineffective. They were too crude, and the individual grades were made up of too many different kinds of needs. (For example, Grade three, "petrol for maintaining agricultural production".) Secondly, these gradings took insufficient account of the decreasing importance of particular types of need as they came to be satisfied. Finally, they took no account of the supply position with regard to complementary goods. A decree of the Central Planning Office of December, 1944, deals with this very clearly : "The problems of directing production by the crude process of priority grades become more and more difficult as scarcities increase. Unimportant production must not merely be slowed down, but stopped altogether. To fix an order of priority for important production in accordance simply with the nature of the product must lead to serious mistakes and misdirection, if the supply position of the consumer is not taken into account. The provision of single

screws, which may be all that is needed to complete some agricultural machinery, may be much more important than supplying the same screws to a tank factory, which has a much higher priority, but which will need the screws only some months ahead. The various levels of need, in conditions of general shortage, cannot be dealt with by priority orders. Particularly with the present strain on all the means of production, all offices responsible for directing production must maintain a close scrutiny, to ensure that each item as it is produced is directed to the right destination. I lay it down that the time has come to enforce the principle: 'Planning instead of Priorities'. I decree that with effect from January 1st, 1945, all priority rankings lapse."

If particular sectional controls were unable to agree about aggregate values, the decision had to be made higher up by central authorities. This is clearly shown in a decree of 1942: "Every effort is to be made by the sectional controls, in agreement with the consuming organisation, to fit requirements to productive possibilities. Only in exceptional cases, when a decision of this kind is not possible, may it be referred to the Ministry concerned. If the planning office and the consuming organisation are not under the authority of the same Ministry, the decision must be made by a common superior authority."

No values could be reckoned in individual detailed quantities. Decisions had to be made daily about single tons of iron or copper, or about individual workers. Where and for what purpose were these factors to be used? What value had they in each of the many various possible uses? Where and how were they to be used for the maximum satisfaction of needs? These questions could not be answered by such round aggregate valuations. If there were 1000 cbm. of wood to be disposed of, this would be distributed in round quantities for fuel, mining, artificial silk and so on, without any full consideration being possible with regard to particular qualities.

(b) Some sort of cost calculation did find a place in the set up. But this cost accounting was also of a 'round' aggregate kind. When the Petrol or Leather Control made allocations to the different "consuming" parties or sectional controls they were continually comparing the services and foregone services which petrol and leather in general rendered in different uses. Also, in cases of conflict, when the responsible Ministry was asked for a decision, say, as to how much leather was to go for shoes and how much for machinery, the decision was made on a general cost comparison. Costs were made after general considerations as to the aims of the economic system. It would be considered whether these general aims would be better served by using leather for workers' shoes or for machinery. The services rendered in one direction to the overall plan were weighed against those foregone in another direction. Thus, however generally and imprecisely, there was some consideration of cost questions.

Certainly any calculation of marginal costs was impossible: for example, in one province in 1945 there were 1,000 tons of iron to

distribute. Iron was needed by all sorts of branches of the economy, by handworkers, engineering, textiles, railways, repair works and so on. How many tons should each particular branch of industry and each firm receive? Should the textile industry get 80 tons? Or more? Or less? A choice had to be made. Here also cost considerations were weighed up. The services iron could render in this use and that were compared. But the value of *single tons* used in one way or another could not be calculated. So values were reckoned in round aggregates, and distribution followed according to general estimates of this kind.

(c) As has been explained, a comparison of realised and planned figures would be made in order to compare actual production with that planned. But there was no real economic accounting. The quantities set out in the plans were compared with the quantities actually used or produced by the firms. But whether the factors of production were used economically, whether, that is, the planned cost figures were rightly worked out or in need of amendment, could not be deduced by comparing the planned and the actually realised figures. A tile works for example would be allotted far more coal than it needed, and this would be corrected only many months later. If the figures of actual production agreed with those planned, then there were no grounds for any correction. This comparison of planned and actual figures afforded no possibility of approaching an optimum combination of factors by trial and error. And the control offices realised this.

2 (a) *The compelling force of economic calculation*: The price system in an exchange economy is not merely a measure of scarcity or a calculating apparatus (the efficiency of which, incidentally, we are not concerned to judge here). The price system, rather, is a controlling mechanism of compelling force. If costs exceed returns, the discrepancy forces the firm in the long run to make a change or to close down. To put it in another way, if price relationships are such that the prices of the factors of production necessary for producing a good are higher than the price obtainable for this good, then there must be a change.

But in the centrally administered economy, valuations—themselves arrived at in a different way—play a different role. For example: during the war a silk-weaving factory was built at C. (Hanover). Even from rough 'aggregate' valuations it was clear that this location was unsuitable, and that the Crefeld silk-weaving factories could produce much more cheaply. The consumption of iron, cement, machinery and labour for the new factory in C. was unnecessary and a wrong investment. This could have been ascertained even by a rough aggregate value-cost comparison. The factors of production could have served the needs of the plan better in a different use. Nevertheless the decision to build was carried out. Personal considerations turned the balance. In the exchange economy, the factory in C. would have

been condemned as a failure. In the centrally administered economy, where there is no automatic process of selection, it could be built and kept working. For these overall valuations have no compelling force behind them. Economic science should pay more attention to this peculiarity of economic calculation in a centrally administered economy, for it exercises a significant influence on the way in which the economic process works out.

(b) How are these facts to be explained? How is it that in the centrally administered economy economic calculation exerts no decisive force? The purpose in calculating costs in a perfectly competitive system is well known from the textbooks. Costs show what values the factors of production could realise in an alternative use. All sorts of needs, effectively backed by the purchasing power of income-receivers, struggle for the versatile factors, and the decision is made by price-cost calculations, in which costs represent forgone utilities. Production *must* meet needs backed by purchasing power. This is the compelling "*must*" of economic calculation. Through the agency of cost calculation, it is effective needs which control the productive process. Certainly, in monopolistic or oligopolistic markets the directing power of the consumers is essentially prejudiced and weakened.

In the centrally administered economy, there is quite another relationship between needs and supplies. The tension between the two finds no effective expression in the markets. Demand and supply for iron, coal, and all other goods does not originate with different independent economic individuals, each with his own plans. Rather, the fixing of needs and the direction of production is in a single hand. The planning authorities consequently proceed by first fixing the requirements for coal, bread, houses, and so on, and then adjusting the productive process to these needs by their aggregate valuations and production orders. But they do not have to proceed like this. They can also proceed subsequently by altering the consumption side of the equation, which is then adjusted to the production side. Allocations of textile goods can suddenly be cut or the construction of a new factory halted. Consumers cannot control the central administration. All economic power is concentrated in the central administration, which is thus itself subject to no controlling mechanism.

Perhaps this may be regarded as a weak point in the centrally administered economy. In fact, it is only a weak point if the maximum satisfaction of needs is regarded as the purpose of production. The absence of any compelling force in value and cost estimates is at the same time a source of strength, for it makes full employment comparatively simple to bring about. We shall return later to this point at greater length. Furthermore, the political authority is able, in the centrally administered economy, to shape developments in economic life in accordance with its political objectives, regardless of cost calculations.

III

THE ROLE OF PRICES

We shall study this question also from two points of view : (1) What role did prices play in Germany ? and (2) What general lessons are to be derived from German experience ?

(1) German economic policy was concerned as far as possible to control the economic process by indirect methods. Here, for example, is what an important decree had to say : " All planning must have the aim of exercising the maximum directive effect on the economy with the minimum of interference. Interventions are unnecessary so long as individual firms voluntarily cooperate in the policy laid down by the State, or where, from considerations of purely private self-interest, their actions correspond with the requirements of the nation." On this principle, an attempt was made to avoid all direct control over intermediate stages of the productive process. The central control of weaving, for instance, made possible indirectly the control of spinning.

From the efforts of the central authorities to control the economic process indirectly, rather than by direct order, it was a short step to attempting the use of prices, and this attempt was actually made.

A. In order to be able to use prices as an instrument for controlling economic life, the Ministry of Economics and the Price Commissioner endeavoured to unify and improve accounting and the calculations of their profits by private firms. Particularly as deliveries for the armed forces gained in importance, very precise instructions as to cost accounting were issued. The economic calculation of many German firms was markedly improved and unified at this time. At certain points too, prices were used with success to achieve a combination of the factors of production somewhat nearer to the optimum, for instance with regard to the production of munitions for which no former prices existed.

At first, in these cases, the costs of production of the individual firms were calculated, and prices fixed accordingly for each individual firm on the basis of its costs. Consequently, the firms had no interest in working economically, for profits were a percentage of costs, and were greater if costs were high than if they were low. Therefore, in 1940, to induce firms to produce economically, another system of calculating prices was introduced : on the delivery of the munitions a uniform price was paid, reckoned in accordance with the costs of an average enterprise. A stimulus was thus given to improved production methods in order to make profits. This procedure was later much refined.

Particular achievements of this kind do not alter the fact that the prices, as they existed, were inadequate for controlling economic life as a whole. The current prices expressed the scarcity relationships of the autumn of 1936. Any change had been prevented by the price freeze. If the plans of the central authorities had envisaged meeting a

requirement equal approximately to the earlier demand, then the prices and price relationships would have remained serviceable longer. But the opposite was the case: public works, and investment for armaments purposes, brought about big discrepancies between the centrally planned needs and the earlier demand curves. The prices fixed for iron, coal, tiles and so forth, no longer expressed the relationship between needs and supplies as these were laid down in the plans of the central authorities. Calculations based on these prices for products and for the means of production could not command the factors of production to meet the needs of the plan; and profit and loss calculations and budgets gave no information as to whether the factors of production were being combined in the optimum way for the production of the goods as planned by the central authorities.

No improvement in the methods of calculation could get round this fact. The prices which the firms reckoned with in their books failed as an expression of scarcities, and so lost their controlling function.

B. This made a second question all the more important: would it not have been possible to fix prices afresh? The prices of 1936 were useless for the purpose of reducing the aggregate valuations of the central authorities to prices for particular quantities. But would it perhaps have been not impossible to do this by new prices? The existing prices represented a long obsolete system of data. Couldn't new prices be fixed which would have given the maximum support to the plans of the central administration?

Two methods were discussed in connection with this problem: (1) was it perhaps possible for higher authorities themselves to fix important prices afresh? Or (2), if this was not possible, could not the prices be refixed by a temporary application of the market mechanism?

To take a particular example in Germany, namely that of the price and use of copper-beech wood. Almost throughout the whole of the nineteenth century beechwood had been used only for fuel and charcoal. Owing to a series of discoveries in the last 50 years it found many new uses and gained considerably in importance. There was the discovery that the soaking of the wood with tar would turn beech logs into railway sleepers of high quality. The discovery of artificial drying and steaming methods led to beech being used on a wide scale for furniture and woodwork of many kinds. Many discoveries in the plywood industry again considerably extended the range of uses. Finally, there was the discovery which made beechwood a basic material for the production of cellulose and opened up a further field of consumption.

What would constitute a reasonable distribution of the continual supplies of beechwood between these almost unlimited uses if an optimum utilisation was to be obtained? Without doubt, the pegged price of beechwood as compared with other timber prices, and with most other prices, was much too low. It had been kept at the same level

since 1932. Would it not have been reasonable, by raising the price of beechwood, to ensure an efficient use of particular qualities and quantities ?

The forestry authorities had several times examined the question as to whether a new and higher price for beechwood should be fixed, but the right price could not be discovered. The central forestry administration only knew that the current price for beechwood was too low. It was able to get a rough conception of the new value of beechwood and thus could make a rough aggregate valuation. But from this aggregate valuation no exact price per unit could be discovered. The new data and prices were far too imprecisely known to venture on such an experiment. A distinguished forestry specialist said at the time : " We do not know the value of beechwood ; we only know that it is relatively high. How high, the market must decide later."

It may well be asked whether the market could not have decided then and there. That would have been to adopt our *second* method : to have left the prices of wood free for a time. Wouldn't then the right price for beechwood have resulted ? But the prices of all the products of the consuming industries, of furniture, plywood, cellulose, mining, railways, and so on, were fixed. So were the prices of all the substitutes for beechwood. Thus, the prices of all the various products which made use of wood as a raw material gave no expression to the relationship between needs and supplies in the market for wood. In short, the partial freeing of the prices of a single group of goods would have been pointless. The interdependence of *all* markets and of the economic process as a whole, would have necessitated the freeing of *all* prices and the determining of the scarcities of *all* goods, in order thereby to establish them in the single case of beechwood.

Here we reach a more fundamental question. Why were not all prices free ? *Wouldn't it then have been possible to determine relative scarcities by new price relationships, and thus reduce the new round aggregate valuations of the central authorities to individual prices ?* Such a step, alone for reasons of monetary policy, was ruled out by the German government. The general freeing of prices would not merely have led to the development of new price relationships. The existing inflationary pressure would have led to a sharp rise in the general level of prices, to an appreciable fall in the value of money, to irrefutable wage claims, to obvious losses for savers, and to a rise in the cost of armaments. The tight hold on prices at their previous level, and the repression of inflation by pegging prices, became a dogmatically held principle of economic policy, as it has since become in other countries.

This negative answer in the German case does not dispose of the whole problem. Let it be supposed that there was no inflationary pressure, and that the arguments on monetary grounds against freeing prices had not held. Could not freely formed prices have replaced the aggregate valuations of the central authorities ? For example : an armament firm receives 10 millions on account of deliveries, and pays

5 millions of this to its workers. If the workers had been allowed with this purchasing power to express freely their demands for consumption goods, for bread, meat, clothing, housing, and so on, they would of course have expressed their own valuations for consumption goods and not those of the central authorities. Prices would have expressed the valuations of the mass of consumers, not those of the central administration. The prices of bread, houses, clothing, and of all the factors of production responsible for these goods, would have conflicted with the carrying through of the plans of the central authorities. Prices would have expressed the plans of consumers and not the plans of the central administration. Above all, goods would have been drawn into consumption rather than investment uses, and a conflict would have arisen between the central plans and those of individual households and firms. Here we reach the basic question.

(2) Would it not perhaps have been possible to graft prices on to the controlling mechanism of the centrally administered economy in the following way? The central administration would have distributed consumption goods by rationing, as well as fixing prices. With regard to consumption goods, demand and supply would have been equated by rationing. But with regard to the factors of production, there would have been no rationing. Entrepreneurs would have applied for these to the state authorities. The factors would have been priced, and then these prices adjusted according to the extent of demand. By this adjustment of prices would not demand and supply have been brought into equilibrium and would not thus exact cost calculations have been possible? In this way, the German authorities would have been proceeding in accordance with proposals outlined by, for example, O. Lange. Wouldn't it have been possible to follow out this proposal?

The position was that a constant struggle was taking place for the factors of production between the different control offices, planning departments, and ultimate users. To stick to our example, the representatives of agriculture fought to get leather for harness, those of industry for machinery, of the workers for shoes. Or iron was wanted for small craftsmen, for machinery, for transport and so forth. The quantities available were generally too small and didn't meet the demands of all the sectional controls and departments. The proposal we are discussing would have had these battles fought out through a pricing system. The distribution of suitable supplies of leather between individual uses would have been effected by prices.

This method of control was out of the question for the central administration, for it would have meant to some extent letting the control of the means of production—in this case leather or iron—out of its hands. When fixing prices and rations for food and also for manufactured goods, and in its investment programme, the central administration could not know the amount of leather or iron that would be wanted by the different control authorities or the other requirements for such materials. These demands only appeared subsequently. If the

allocation of the means of production had been left to the decision of the price-bids of the businesses and departments, then the results might have contradicted the plans of the central administration. For example, it might have happened that a relatively large quantity of leather would have been used for agricultural purposes, or for workers' shoes, which would have brought about an acute shortage of, say, driving belts for machinery, and thus jeopardised the production programme of the central administration in other branches of industry. Therefore, the central administration cannot leave the direction, in any important respects, of such means of production, to be decided through pricing, but must reserve the direction for itself, which was what happened in Germany. (See I above.)

As soon as the firms, or sectional controls, had been left free to determine their own demand independently, with the central administration confining itself to fixing prices in relation to scarcities, conflicts would have arisen between the plans of the central administration and the plans of the firms and controls. Such conflicts would have been resolved by orders from the central authorities, that is, by abandoning the price mechanism. This proposal, therefore, cannot be carried through in practice, even under the assumption of a suitable monetary policy. *Competition can be used to improve efficiency, but as a mechanism of direction for an important section of the economy it cannot be applied without the abdication of the central authority.*

IV

SOME CONSEQUENCES

It is possible to understand the economic process in the centrally administered economy, now we have seen the place in this process of the central factors: these are, the plans and production orders of the central authorities arrived at by calculations of physical quantities to which 'overall' aggregate valuations are assigned. The following features at once arrest the attention:

1. Central planning presupposes standardisation and the fixing of norms and types for production. It is impossible for the planning authorities to take full account of the countless changing individual needs of consumers, to provide variety in clothes or shoes, to get these goods to those who want them most, and to adapt their plan to changing wants. (V., Section 1.) Central orders are the easier to give the more schematised are production and consumption.

The needs of *consumers* can easily be reduced to norms by rationing and allocations, and the influence of the infinite variety of individual preferences eliminated. "The experiences of the last seven years clearly demonstrate," wrote a textile expert in 1946, "that it was not only the deployment of industry for war purposes, but rather, the increasingly dominating role of the planning authorities that con-

stantly tended to reduce the number of goods (raw materials or finished products) which the plans envisaged". Simplifying the *production* side was more difficult. The multitude of small and middle-sized firms in Germany had each their own different variety of demand for machines, spare parts, materials and so on, which it was very difficult for the planning authorities to weigh up and decide upon. In every way the small and middle-sized firms in their infinite variety are difficult to fit into central plans. Planning authorities can best carry out their tasks of valuation and direction with respect to mass-produced goods, which use a few standardised materials and a small number of processes. The comparatively standardised character of agricultural production explains why agriculture is easier to plan than industry.

Central administration of the economy has led not only to standardisation but to a general preference for the largest scale for production when new factories are being built. The "Volkswagen" factory in Fallersleben is an example. The significant point here is that it is not only the size of the plant which affects the economic order. Much has been written about this in the literature of the subject, and it has been argued that the growing size of the plant must result either in monopoly or in a centralised economy. Sometimes this development has in fact taken place. But the causal connection runs also in the reverse direction. *According to the type of economic system, different optimum sizes of plants will be aimed at.* For example, in the centrally administered economy, a particularly large scale will be preferred or created such as would never have come into being otherwise. This is what happened in Germany. The preference for particularly large-scale units results from the special form which planning takes in the centrally administered economy. Over a period of years, under a centrally administered economic regime, the German economy took on quite another shape: the trend was all to standardisation and large scale units. But where this could not develop quickly enough—which of course was apt to happen—difficulties and disturbances were inevitable. For example, as a consequence of the numerous different types of motor car, it was very difficult for the central administration to keep the armed forces supplied with spare parts.

2. As we have seen, the programmes were drawn up by the sectional controls. Each control was out to produce as much as possible, for each held its own line of production to be specially important. So the Leather Control would try to get hold of as much coal and transport as possible in order to step up leather production. Coal and transport facilities were needed by all the other sectional controls. The resulting struggle between the controls for the factors of production, and particularly for labour supplies, had, as we have seen, to be decided by orders from the centre. But much time went by before the ministry or political authority responsible could be called in and give its decision. Meanwhile, each control would be using every means it

could to procure factors of production or labour supplies. This collision between sectional controls was a characteristic of the centrally administered economy. A sort of group anarchy seemed to be inherent in the system. In spite of the intervention of the higher authorities, this 'anarchic' tendency must be recognised if the apparatus of control is to be understood.

3. The centralised method of control also results in the leadership responsible for directing the economic process passing into quite other hands than those which wield it in a competitive economy. The business man disappears with the rise of a centrally administered economy, because his main function, that is, the meeting of consumers' needs and the discovery of possibilities for supplying them at a profit, disappears also. In his place, the technician moves into the key position both in the firms and in the planning offices. Friction in firms between the technical and the business side is a well-known phenomenon. In the centrally administered economy in Germany it was the technician who gained the supremacy. But along with the privileged technician the statistician took on an important role in the direction of planning, for the entire planning process was based on statistics from the first proposals to the working out of budgets, and to the comparison of planned and actual figures.

This change in the nature of the leadership was no accident, but a direct result of the special method of control in the centrally administered economy, in which the tendency is increasingly to replace economic considerations by technical.

4. Finally we must ask whether any equilibrium emerges in the centrally administered economy.

Those of the planners who pondered this question were inclined to answer in the affirmative. They understood by 'equilibrium' the balancing of the budget of physical quantities in their section of the economy, and they were concerned that this should finally be completely achieved. Extensive negotiations among the sectional controls, and finally decisions by the central authorities higher up, could, they thought, bring it about that, for example, the quantity of coal which the Leather Control used came to the same figure both in the balance sheet of the Coal Control and in that of the Leather Control: or that the quantities of leather goods, shoes, harness, and so on, which appeared in the balance sheets of different sections of industry and agriculture, corresponded with the quantities in the budget of the Leather Control. The plans then were held to "balance", and a quantitative equilibrium was held to have been attained.

Certainly this equilibrium, when it actually existed, was not an equilibrium in the economic sense. The question thus remains open whether an *economic* equilibrium can be said to emerge in the centrally administered economy, or whether any tendency to such an equilibrium exists.

This question is difficult to answer, because the concept of equilibrium in an exchange economy is not immediately applicable to a centrally administered economy. In the exchange economy, three different levels of equilibrium can be distinguished.

First, there is equilibrium for the individual household or firm. In the centrally administered economy, equilibrium for the household is not possible nor is it aimed at. Rather, it is a characteristic of the centrally administered economy that the household cannot actively press its demands, but is simply the passive recipient of quantities fixed in the aggregate 'overall' allocations from the centre. Hence the case can occur in a household of a scarcity of bread with a superfluity of tobacco. Thus the balancing of satisfactions or marginal utilities in accordance with Gossen's second law does not take place. This brings it about that households try to approach nearer to maximum satisfaction by means of exchange, that is by other procedures than those of the centrally administered economy. (Barone and many of his followers come to a different conclusion because they work with a model which is not that of a centrally administered economy. They assume that the individual income receiver gets a particular sum of money from the central authority which he can freely dispose of. Here the principle of Gossen's second law and of the equilibrium of the household would actually be fulfilled. But then the State would be surrendering the directing of the economy to consumers and would cease to direct it from the centre.)

Partial equilibrium for the *individual firm* is also impossible in the centrally administered economy. It is impossible to speak of the marginal returns to capital for each kind of factor of production being equal, or of there being any 'law' of, or even tendency to, equi-marginal returns. For the individual firm only makes subsidiary decisions and has to fit in with the allocations of factors that come from the planning authorities.

Similarly, the concept of *partial equilibrium of individual markets* is not applicable in the centrally administered economy. With regard, for example, to accommodation in a town, if this is distributed not by demand and supply in the market, but by allocation, there can be no equilibrium in the sense of the commercial economy. There is no equating of two independent quantities, demand and supply, but the distribution of a supply fixed to correspond with the planned requirements of the central authorities.

If these two conceptions of equilibrium fail to apply to the centrally administered economy, must this also be so with regard to the *third* conception, that of *general* economic equilibrium? The question arises whether in the centralised economy the productive processes for all goods, that is, the proportions in which labour and the means of production are applied in each case, can be so fitted in with one another as to represent an optimum fulfilment of the requirements of the plan. In the centralised economy in Germany, these proportions were not

realised. One bottleneck followed another. Often they accumulated simultaneously, and there was no mechanism for guiding the processes of production in the direction of equilibrium proportions. Aggregate valuations and calculations, which could not be essentially improved on by the grafting on of a price mechanism, did not suffice to bring about these adjustments. This fact, as remains to be shown, was of particular importance with regard to investment.

V

SUPPLEMENTARY REMARKS

1. It was shown at the start that the study of an economic system predominantly of the centrally administered type, as in Germany, must turn away from the private households and firms and be focused rather on the planning authorities. That is where the mechanism of direction is to be found. But if one subsequently turns back to the firms and households it will be noticed that what goes on there does not correspond with the account given by the planners. This discrepancy was of essential importance for economic life in Germany—and indeed not only in Germany. Certainly the procedure in private firms was completely overshadowed by the plans of the central administration. But the firms had their own subsidiary plans, and to understand German economic life in this period it is necessary to take account of this subsidiary private planning.

A shoe factory gets allocations of leather, coal and electric power, and in accordance with its orders, produces shoes of a particular quality. Often, particular materials would be lacking, say, spare parts for machines, or chemicals; or allocations of these would arrive late. In one way or another, there would be "disequilibrium". The firm helped itself by resorting to its own "black" stocks, or by purchase or exchange. Otherwise, production would have been impossible. The central plans often related only to the so-called "key" materials, while the others would be obtained privately. The planning authorities often reckoned with the firms helping themselves, or with their possessing their own unreported stocks, or with their making their own deals. In this way, the private plans of the firms supported and supplemented the centrally administered economy.

It is not correct that the black market always hindered the attainment of the central administration's targets. On the contrary: in modern industrial production, firms require too many different kinds of auxiliary materials and parts for the central authority to keep track of them all, in spite of the most far-reaching standardisation. A factory making machinery, for example, had completed certain machines punctually as ordered. But they couldn't be dispatched because there were no nails for nailing down the cases. It actually happened that a manager waited for months with delivery until the

nails were allocated. Other managers would not. Fearing the consequences of late delivery, they got themselves the nails by exchange. Such 'illegal' actions were of daily occurrence, but in spite of their illegality they were an essential aid to the fulfilment of the "legal" plans. In other cases, such transgressions certainly were harmful.

2. We reach here an important general question: can such complicated processes of production as those of a modern industrial economy be directed alone by the methods of a central administration? If, conceivably, all exchange deals and all black markets were completely suppressed by the confiscation of all stocks, could a central administration direct the economy at all? In modern factories, dozens, even hundreds, of materials are used daily in changing quantities. Is it conceivable that all these raw materials, goods, spare parts, chemicals and so on could be allocated by the central authorities in the right qualities and at the right time? Wouldn't an attempt of this kind at a *total* direction of the central administration throughout the economic system be suicidal? Would the disproportionalities be kept within tolerable limits?

This question cannot be precisely answered on the basis of German experience. For in Germany the procuring of many materials, and even of labour supplies outside the official channels of the central administration, played an important role. Certainly from what could be observed, the conclusion followed that without the procurement of black supplies of the means of production and of labour, the productive process would have suffered severe disturbances in many of its branches and for considerable periods of time. What is unique about this phenomenon is not that one pure form of economic order—that of the centrally-administered economy—has to be supplemented by other forms. This is also the case with regard to other economic orders of society. The subsistence economies of small family groups directed by the head of the family are not usually found in their pure form. Usually certain goods, say, salt, or metals, are got by exchange, so that here too, though for quite other reasons, there is a mixture of different pure forms of economic order. In contrast to other mixed economies, supplementary arrangements outside the central plan are explicitly forbidden by the planning authorities and the State. This is not the case in other mixed economies. It is a peculiarity with widespread consequences. The functioning of a centrally administered economy and its methods of control presuppose—at any rate they did in Germany—private exchanges which were often undertaken against the special orders of the central authorities.

3. The following definite conclusions can be drawn. The economic planning of a central administration consists of the balancing of the physical budgets of the sectional controls, and out of that balance a certain statistical 'equilibrium' emerges. But because aggregate economic calculations permit of only the roughest cost estimates,

the central administration has no means of bringing about any sort of general economic equilibrium. Firms and households, within the framework of the central plans, attempt by exchange to realise as far as possible the principle of equi-marginal returns and of individual equilibrium. Thus, by these subsidiary and independent plans and actions, firms and households approach more nearly an equilibrium than is possible by the methods of direction of the centrally administered economy alone.

(To be concluded)