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ON INVESTMENT

FOREWORD

The laying-aside of resources, or saving, is a basic phenomenon among men, as it is among bees. It is a basis of material civilization.

Toynbee has demonstrated the existence of twenty-nine human civilizations. He has studied these in a monumental masterwork.

We believe that on the material level this effort can be expressed in one sentence: There is a close correlation between the rate of investment by a group or community and the expansion of its civilization.

This conviction is the starting point of our short analytical essay on the phenomena of investment. The essay is far from exhaustive. The reader will judge whether it is nonetheless useful.

SAVINGS

Income (or Production) $=$ Consumption $+$ Saving (or Investment). Since the time of Keynes it has been through this equation that an economic study has been approached. For Keynes and his school the principal motive power of the economy is the "propensity to consume."

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It is the desire of one who receives income to satisfy his needs by means of this income, by an act of free will. From the propensity to consume, the Keynesian school deduces, in a perfectly free economy of stable currency, other economic parameters: preference for liquidity, marginal effectiveness of capital, and interest on money. According to this school, these are the factors which, through the intermediary of saving, govern investment in a perfectly free economy.

Reality does not correspond to this schema. Consumption is not entirely determined by psychological factors, acts of will. It would be so if the irrepressible, imperative, or, if you will, animal needs of the community, of all its members, were satisfied. Now, how is the minimum level of needs to be defined? It cannot be.

Saving is not only due to the fact that an increase in income does not correspond, by an act of free will on the part of the recipient of the income, to an equivalent increase in consumption, the difference being free savings.

The free savings in poor societies is very small. There, consumption would match income very closely if the social structure did not limit consumption *against the will* of a great number of economic agents—against the desire of these agents to consume. Total savings, equivalent to investment, is due to social constraint. It is exercised by all regimes: in the "capitalist" system by the plus-value of Marx and by the treasury, in the Communist system by arbitrary fixing of prices, obligatory loans to the government, and also by the Treasury. Only the methods differ.

This statement might tempt one to return to marginalist reasonings. Unfortunately, these reasonings operate on a "model" free society corresponding to no observed reality.

In the societies called "free," decisions concerning investment are governed in part by the economic self-interest of entrepreneurs, in part by considerations of the general interest, and in part by the powerful will of elites. Only the first motive fits into the marginalist reasoning.

In Communist societies or people's democracies decisions to invest are in principle the attribute of a technocracy acting as a function of an economic plan. This plan takes into account to some extent the needs of consumption and should therefore be based on a certain degree of marginalism. But it also prides itself on being rational. As a matter of fact, all plans include a large dose of the arbitrary and the motives of powerful will.

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These same facts can be described in another way.

A given collective income represents a production value to be distributed among the members of the group. Each of them receives his share. In the monetary economy—and this is the only kind we know—the distribution is made by means of income and prices. Certain members of the group receive (for any reason, which may or may not result from bartering—this in no way alters the reasoning) more than their minimum irreducible needs.

The marginalist theory reasons very subtly on the behavior of these economic agents. Suffice it to say here that in these circumstances a part of income is saved and forms the monetary counterpart of a fraction of investments. This is free saving and is due to a voluntary limitation on consumption. This fraction is relatively small, at least if the precise definitions given below are adopted. The rest of investment is covered by forced saving, raised by taxes and by contributions from business enterprises which may or may not be state owned. In every known society there are also individuals who do not receive an income sufficient to meet their minimum needs. Their consumption is inferior to their needs. This limitation of consumption is the counterpart, to a small degree, of free savings, hence of the "excess" of income of another segment of the group of economic agents, and, for the more important part, of forced savings.

Consequently, if one considers social justice to consist in satisfying first of all the needs of all, the existence of investments, in the presence of unsatisfied needs, is possible only because of the limiting of consumption because of social injustice. It is not the reduction of the consumption of the "rich" which would effectively permit satisfaction of the needs of the poor.

The definitions and conventions which make this reasoning valid, and which we are adopting, are those of modern macroeconometrics.

The members of the economic group are the state, represented by central and local administrations; business enterprises considered as individual or physical entities or persons; families; and, finally, individuals.

Certain individuals (by this term we here mean individual persons) play a double role in society. In one of these roles the individual is consumer or, rather, citizen, the final receiver of the income distributed for the satisfaction of all individual desires. He is a "private individual," in the usual terminology. The other role of the individual is his productive activity. Only the active population possesses this characteristic. By a false but convenient convention it is admitted that those active individuals who receive as income only wages and salaries, and government payments, play but a single role—that of consumer. The individuals who play a double role are then the members of the liberal professions and individual entrepreneurs (engaged for the most part in agriculture). Theoretically they do not exist in Communist countries.

The convention of considering wage-earners as simple economic "private citizens" is justifiable. Only individual entrepreneurs, consciously or not, divide their income into two parts. One part, which in modern theory is called the "just wages of the entrepreneur" plays the same role as every other income of "private citizens," partly consumed and partly, insofar as it surpasses individual needs, saved. In his other role the individual entrepreneur acts as director or manager of a productive organism. His behavior is then identical with that of the manager of a powerful corporation or that of a Communist functionary.

There is obviously an important difference between the origin of income of entrepreneurial individual private citizens and that of wage-earning private citizens. The individual entrepreneur is himself judge of this income and himself effects its division and the exploitation of his business. The wage-earner's income formerly resulted only from the play of market mechanisms and is today discussed and defined by the state and by company and workers' unions—thus by a delegation, an alienation, of choice, analogous to the alienation of political choice.

But this difference is, in the modern world, increasingly theoretical. State intervention by direct action of the treasury, manipulation of prices, action of the great depersonalized organizations of economic power, leave this freedom of choice to only a very small number of individuals, everywhere considered as anarchical.

All enterprises, individual or not, consume and save. What they consume is called "factors of production." Their saving is the counterpart of the major part of investments. It is forced savings, whose origin is the plus-value of Marx. In addition, like private individuals, they transfer to the state taxes and social assessments and, in the capitalist regime, a part of their income to other economic agents, in the name of property rights. In the Communist regime this last transfer is made to the benefit of the state.

Thus, to summarize: Our definition of free and forced savings stems partly from the statement of the double role of individual entrepreneurs. If, however, we follow the classical economists who call "free" all savings derived from exchanges, the picture changes. But it no longer takes the real existing world into account. The marginalism of private citizens determines the really voluntary limitation of consumption by the release of free savings, the difference between their income and their consumption. This savings is smaller as the given community is poorer.

The marginalism of producers and of the state is of another nature. It directs forced savings, due to the alienation of resources, one of the manifestations of the alienations of choices which define society.

ORIGIN OF INVESTMENT

The animal knows neither work nor leisure. He is born, eats and sleeps, procreates and dies.

Man tasted of the forbidden fruit, and God condemned him to earn his bread by the sweat of his brow. The origin of investment is there: man's hard life and his innate laziness, his reaction against effort.

The need to produce and the tendency toward laziness incited man to apply his intelligence to the creation of tools. He could do this only when he had a certain amount of leisure, when he was able to expend an amount of present work, necessary to the fabrication of the tool, without too great an increase in his hunger, too much suffering from cold, or too much loss of sleep. He decided to do it, for he could foresee that the tool would save in future work. He made the first calculation—unconscious, to be sure—of living on income. Thus a stone fastened to a piece of wood, a spear, a bow, permitted the hunter to kill game more easily. First the lever, then the wheel meant a decrease in the effort necessary to lift and transport loads.

Leisure permits investment. This leisure is the addition of the force of work beyond the effort necessary for the satisfaction of minimum needs (a level impossible to define). Leisure can be used for other things than the creation of tools. The arts may be cultivated, monuments constructed, gods adored, war waged.

On the individual level the distribution of available goods gives to each, if minimum needs are satisfied, a certain sum of leisure. The scale of needs, hence that of leisures, is of infinite variety. One powerful captain of industry works himself to death and never relaxes. Another considers politics or the direction of a newspaper as a game. Many activities are, in fact, games or work, according to the position of the individuals who practice them. There exist men who voluntarily or traditionally reduce their needs to a minimum in order to have to perform only a minimum amount of work. On the average, however, the majority of men work "normally." The rich among them have at their disposal greater amounts of leisure time and greater means to invest more on the individual level. The poor satisfy their needs (including their needs for amusement) by their own activity but do not have at their disposal the surplus of resources which would enable them to invest. The poorest lead an almost animal existence.

What does investing on the individual level mean? Essentially its function is to increase one's own value: on the material level by the designing of the tools of individual and family life, such as housing, furniture, clothing, automobile, telephone, home appliances, radio and television sets, and, on the spiritual level, by enrichment of the self through reading, theater and movies, travel, practice of a religion, art, conversation, and social life. It is the basic aim of each man's life, after having satisfied fundamental needs, to invest on the individual level.

Material civilization is the fruit of the utilization of leisure through the manufacture of tools. Spiritual civilization is born of other utilizatons of this leisure. The total quantity of man's leisure has increased prodigiously since the revolution of abundant energy and will continue to increase. The materialist explanation of history is basically a tautology, an obvious fact.

INVESTMENT IN THE GROUP

The notions of work and leisure may be extended to a group. The equation: Income = Consumption + Investment could then be written: Work = Consumption + Leisure. Work here is not the value of the production factor "work"—the value of the active population's present activity. It is the value of the total amount of production.

Consumption is not concerned with the active population alone. It is the act of the whole body of members of the group, including children, old people, the retired living on income, and mothers in the home. Besides these categories of persons there are also, for example, poets and priests. They consume. Do they produce? The same question should be asked for housewives. It is an incontestable fact that they perform immense and essential services. Poets and priests are also useful. One can, by convention, catalogue the statistical manifestation of their existence only in the right-hand column of the equation, under the title of "consumption." This is the convention adopted in Marxist countries. But it is also possible, and this seems more just, to class in the left-hand column, in the category of work or production, every value to which utility is attached. One would then class, in this left part which represents the social product, the income of poets, of priests, of actors, for example, like those of other "liberal activities," the earnings of students, family allotments to mothers of young children, and so on.

As a counterpart to this, consumption, whatever the conventions adopted, may be divided into two parts. On the one hand, there is the consumption of resources necessary to the material life: food, clothing, fuel for cooking and heating, electricity for the running of household appliances and lighting, medical care, the services of social organization, such as security of wealth and of persons, regulation of lawsuits; and, on the other hand, the consumption of all the benefits of spiritual civilization: arts, religious services, politics, teaching. A similar distinction can be made for investments. They may be productive or non-productive. Productive investments correspond, on the group scale, to the first utilization of leisure: the creation of tools permitting a more effective future work. Non-productive investments correspond to the construction of palaces, churches, roads, warships, more generally to that part of the group income used by the elites to affirm on the material level the power of the group and also its social, artistic, moral—in a word, its spiritual direction.

The origin of productive investments is the laziness and the inventive spirit of men; that of non-productive investments the existence of the priest, the sorcerer, or the chief, who alienates a part of the resources, not only to satisfy his consumption needs, but also to strengthen his power and the material and spiritual power of the group he represents.

It will be seen that no value judgment should be attached to the modifiers "productive" or "non-productive." Both are manifestations of civilization, and both are necessary to its expansion. One apparent contradiction must be explained. It has been said that investment originated in social constraint, creative of forced saving; it has also been said that investment is the utilization of leisure to improve productivity and that it results from a calculation of "rentability," from a choice between consumption and savings leisure. It is, according to this reasoning, the counterpart of free savings.

The synthesis of these two apparently contradictory theses is not difficult. Total investment has as its counterpart, in small measure, free savings, and for the rest, forced savings. Free savings is invested for the most part in productive investments. The same is true for forced savings coming from the capitalist plus-value (or from the earnings of socialized enterprises); non-productive investments, on the contrary, are especially financed by forced savings derived from the obligatory contributions of taxes. It is true that state and group loans, floated from funds of the public, therefore from resources coming partly from free savings, are often used to finance non-productive investments. It appears that the structure of developed societies, a fruit of the division of labor, leads to a centralization of leisures in the form of forced savings, to a draining of a part of free savings through the mechanisms of credit (the rest is directly invested in durable consumer goods), and then to a division of this total sum between productive and non-productive investments. Insofar as forced savings is invested in productive investments, the two definitions of the origin of investments—social constraint and utilization of leisures—are valid. For non-productive investments, the definition of the utilization of leisure is valid for that part which stems from free savings drained off by voluntary borrowings. For the other, only social constraint is found at their origin. This social constraint is basically an alienation of the choice of producers among the possible utilizations of the fruits of their labor.

PRODUCTIVE INVESTMENT: AMORTIZATION

A close examination leads to the discovery of difficulties in clearly delimiting the total of the right-hand column of the equation: Work = Consumption + Leisure.

At first glance consumption seems easy to define. There are the resources (goods and services) immediately destroyed by use: a loaf of bread, a gallon of gasoline, a mile of railroad travel, a medicament, the advice of a lawyer. But a shirt? No one would consider classifying this as other than consumer goods. We know, however, that the shirt is submitted to unconscious amortization and that this is an important characteristic of an investment. And a woman's stocking? In our grandmothers' time it played the same economic role as the shirt. It formed, sometimes over a period of years, part of a carefully maintained trousseau. Today, a stenographer in New York or elsewhere buys a pair of nylons in the morning and throws them out that same evening. The stocking has become a piece of goods almost in the nature of a cup of tea. The notion of goods for immediate consumption is therefore basically contingent, a function of the moment and of the behavior of the economic agent.

It also seems easy to define clearly a productive investment: a resource which makes subsequent work easier, more productive. But here is an example which shows the weakness of this definition. To pay for the carrying of mail, stamps were invented. This improvement in productivity was for all practical purposes made without supplementary investment, by the creation of a new item of consumer goods: the postage stamp, representing the true resource, the carrying of a letter. Productivity can be increased by the replacement of an inconvenient good by another, more convenient one. Money is the best general example of this, and the postage stamp is an example of an item even more convenient than money. The condition that a resource increase productivity is necessary to define productive investment, but not sufficient.

Today, when a certain volume of mail is being handled, a postage-meter machine is substituted for the stamp. The operation of gluing stamps bought in advance and held in stock is eliminated, as is that of canceling. The cost of the postage meter is amortized through the economy it effects. It is a productive investment. These investments are generally decided upon as a result of what is called an "economic calculation." Simplified, it is presented as follows:

The unit of production without investment costs a.
The unit of production with the investment costs b, which is less than a.
The investment costs i.

If the investment is amortized over n units of production, the true production cost of a unit, in the hypothesis of straight-line amortization, each unit restoring $i + n$ of the value of the investment is $b + i{:}n$.

If $b + i{:}n$ is smaller than a, the investment is economically interesting. The decision, in reality, is taken after a study of the cost and price structure, which represents the relative usefulness and the cost rates of various resources, including monetary capital.

These may be called investments of choice, in the sense that they consist of a chosen replacement of human labor by mechanical labor. A plow can be forged by hand or by press. Its quality will not be exactly the same; its price may be quite different. But the two plows, the one made by hand, and the other by machine, will both be serviceable.

Optional investments may be primary ones. The first machines were of necessity made by hand; then these machines made others, with the addition of a certain quantity of work. The further one moves from primary investment, the less choice there is between the manual and the mechanical methods. It is inconceivable, today, to manufacture a cylindrical metal piece otherwise than by means of a tool called a lathe. The installation of a lathe for certain pieces of work is therefore an imperative investment. The decision to make this investment is purely technical and does not involve an economic calculation, whose results would be obvious. The same thing holds for the installation of an alternator where one wishes to use alternating current. Imperative investments make it more difficult to begin the industrializing process in new countries.

An investment, then, may be productive without having been decided upon as the result of an economic calculation. What then is the criterion of non-productive investments? One alone remains. They are not subject to amortization. This is not to say that they are not useful. It is surely necessary to construct schools, courthouses, bridges, museums—contemporary examples of investments that are non-productive from the economic point of view. But these examples show the contingent character of a productive investment: when judges were paid by the case, when a school or a museum is a commercial enterprise, when use of a bridge involves a toll, the investments are productive.

For an investment which is non-amortizable by definition, of which the best examples are prestige expenditures, military expenditures, and also, today, school construction or the building of a city hall or a museum, it can properly be said that the amortization period is zero, that it is amortized over zero units of production. This category of resources, then, plays the same role as consumption, in the equations which head our reasonings. This is also approximately true, per unit of production, of investments with a very long period of amortization, hence amortizable over a great number of production units.

It is thus seen that the division of the utilization of the social product into consumption and investment is essentially contingent and depends on the social conventions, on the "morals" of the moment. More exactly, if one calls investment the counterpart of all savings (which is a current practice), only productive investments bring the multiplier and the various accelerators into play, which is to say that only they have a deflationary action on prices. All other investments are inflationary and play the same role as consumption from the point of view of economic balance.

THE INVESTMENT RATE

We have seen that the relationship between an investment and the number of units of production of which it is capable is an important fact of the economic calculation. This relationship obviously depends not only on the economic character of the investment but also on its technical character. A given branch of production of resources, steel production for example, requires a large investment for each unit, while that of a commercial middleman requires very little investment. We call this relationship "investment cost," broadening its definition to that of the relationship of total investment (amortizations and new installations) per unit of time to the corresponding production. In the following analyses allowance has been made for technical variations of this cost, the examination of which does not fall within our subject. But the reader is warned not to forget this simplification when attempting to compare costs in various branches of activity.

The investment cost represents the savings load supported per unit of production. This load is carried through self-financing, through borrowing, or through deduction from earnings. In the first of these methods the savings burden is placed on the purchaser of the product; in the second method this is also the case, but the burden is set off against the future repayments of the amounts borrowed. If, meanwhile, the value of money has decreased, this load is borne by the whole body of members of the group. It is evident that financing through taxes is also an imposition of the savings burden on the whole group. Obviously every case involves forced savings.

The non-productive investment rate is infinite, since there is no production corresponding to the investment. This is one of the best definitions of such investment.

The rate in an industry whose installations are under construction and not yet producing is likewise infinite. Thus is explained the intensity of the inflationary effect which accompanies the early stages of the industrialization of an economy.

In an industry whose activity is more or less stable, the investment rate indicates the intensity with which this industry is developed, modernized, transformed, renewed.

The scale of rates compared to the normal rate (for example rate t^0 below) is an important characteristic of a branch of the economy. Expanding activities have a high rate. A characteristic rate, t^0, corresponds, for each activity, to the replacement of existing plant and equipment without change in productive capacity. Lower rates indicate an aging, a non-compensated using-up of equipment.

Activity with an investment rate of zero is undergoing a pillaging exploitation. Finally, a negative rate of investment may be imagined, when the exploitation includes the sale not only of products of the plant but also of the plant itself.

It is obviously possible to generalize and consider the coefficient frequently used today, that which determines the share of gross investment or of total savings in the utilization of gross national product. It is of the same nature as the investment rate of a single branch of activity. Like the individual who is able to save only when his basic needs are satisfied, poor countries (today called "underdeveloped") have a very small rate of savings. High rates are characteristic of rich communities, highly developed industrial countries. These countries, whatever may be the temporary dis-investments caused by wars, natural calamities, and cyclical crises, rapidly surge ahead.

Poor countries are able to support the high rates of investment of rapid industrialization only through rigorous political constraints. Without a highly developed civic spirit, the necessary limitation on consumption cannot be obtained except through coercive measures. The only exceptions to this rule are those countries provided by nature with riches that are very great in relation to their population and that have an important exchange value on the world market (coffee, cotton, and especially petroleum).

The difficulties of poor countries are further increased by the fact already mentioned: industrial installations under construction are marked by an infinite rate of investment. There is no solution to this problem other than the aid of foreign capital or the expansion of agriculture. Aid from outside is effective only if those who provide foreign capital are content with long-term repayment of their loans at a low interest rate and are willing to leave the income in the country receiving the aid. This income constitutes in effect the savings of enterprises founded with the loans, thus the major part of the financing of other investments. If these earnings are transferred to the lender, nothing in the situation of the poor country is changed.

The development of agriculture, on the contrary, is an effective means of general development. The savings rates in this branch of activity are almost always higher than zero (self-consumption is but rarely equal to production), and the investment rates of new installations, soon productive, are rarely infinite. The savings effected remain within the country. In addition, agricultural expansion rapidly provides an available surplus in the labor force. An economic development based on agriculture permits, in principle, a reduction to the minimum of the appeal for external aid. These problems obviously are quite different in highly developed countries.

The lowering of investment rates of various activities and of the general rate of investment indicates a lessening of the marginal effectiveness of capital, an economic expression of the slowing-down of progress relative to productivity. These phenomena are counteracted by the great technical revolutions. The steam engine, electricity, the internal combustion engine, automation, nuclear energy, and the developing revolution in management methods form and will continue to form the signposts of this development, proper to our civilization of abundant energy.

The problem is that of abundance in a relatively rigid economy. The consumption of food products fades into the background, while the accumulation of agricultural surpluses becomes a major concern of those in charge. The production and "consumption" (in reality, individual investment) of "durable consumption" goods (in reality, items of individual investment) made by assembly-line technique in powerfully machined factories become the single most significant economic fact.

Conjectural variations of investment rates lead, in free market economies, to deflationary crises due to excess productive investments. (These crises existed in the economies of the pre-energy era but were then due to natural or accidental causes—the crusades, the discovery of America, climatic changes, epidemics, and not to technical progress.) The basic industries—energy, metallurgy—are the first to suffer. The time required for construction of their installations and the impossibility of rapid amortization make risky calculations of income from them. They therefore attract little capital. The state intervenes, "nationalization" is witnessed in an economic action which differs from that of Communist planners only in its cloak of propaganda. This is the period which we are going through now in certain countries of western Europe.

INVESTMENT AND THE STATE: SOCIAL JUSTICE AND SOCIALISM

We have examined the case of the physical individual. His leisure has permitted him to create tools and thus to increase his productivity. Then, when the monetary-exchange economy arrived, these leisure periods were transformed into savings, the origin of investments.

We then generalized through the comparison of a productive cell—family, business, public service, nation—to an individual producer. Each producer receives an income (produces a value), consumes, and saves. In addition, all producers, except the one who represents the whole body of the economy (considered, only to simplify our reasoning, as closed—having no trade with the outside), transfer a part of the resources at their disposal. In everyday language, they give, voluntarily or not, instead of exchange, a part of their work and receive from it gratuitously. Non-producers do nothing but receive resources, gratuitously, by definition.

For all economic agents, producers or not, except for the total group itself (considered as distinct from the state and as including the state as it does every other economic agent), the fundamental equation of economic balance is therefore: Income (Product) = Consumption + Savings + Net Transfer.

In a given system of social relations and of prices each active individual receives the income which represents the value the group attaches to his activity. It may be guessed that in fact certain individuals receive too high an income in relation to the "real value" of their activity, others an income too low.

This is the foundation of socialism, a result of the misery of the British proletariat in the first half of the nineteenth century. This doctrine affirms that wage-earning workers (originally manual laborers) receive generally in the capitalist or liberal system an income lower than the value of their production, while the owners of the means of production, of investments, or of the monetary capital which represents them enjoy incomes higher than the "real" value of their activity.

Contemporary socialism believes that it can and must remedy this state of affairs by transfers of income through taxes providing social insurance, family allotments, old-age pensions; by a close regulation of wages, of number of hours worked (the work week), of prices; and, in a final stage, by the socialization of the means of production. In the socialist society decisions on new investments and the management of existing investments will be undertaken in the name of criteria other than those of property and private interest. Inactive individuals, children, and the aged will enjoy income of transfer, and active individuals will receive in addition to their direct income, which depends on their activity, indirect income, granted by the group according to criteria other than that of productive activity.

Many of these measures have become reality in evolved societies, and no one can deny that these societies are more humane, more just. But the role assumed by the state and the bureaucracy in this system can be questioned.

The writer must place himself outside and above the quarrel over the relationship between income and the "real" value of its corresponding production, without denying that it (the quarrel) exists. It exists as does every other manifestation of the struggle for life. It explains unionism, an effective means of defense for the mass of workers in the face of those who have control over investments. Nevertheless, there is, to appreciate the relation between income and the corresponding value of production, no criterion other than the existing system of transfers and prices. Its injustice may be denounced, and action may be undertaken to modify it, but one cannot base his convictions on this question on the reasonings which led Marx to declare the existence of the plus-value without admitting the suppression of all forced savings. It may in fact be said that forced savings, in all its forms, is contrary to the principle of individual freedom of choice. From this can be deduced the need for an economic structure in which all revenue would be distributed to final consumers (to "individual private citizens"), in which the treasury would serve only to cover public consumption, while profit was abolished. Investment would be totally financed through free savings, by means of credit mechanisms. Such a structure is conceivable. Econometricians show that it even constitutes a state of "optimum social output." It is a perfect liberal system without private benefits, the source of forced savings due to Marx's plus-value. But these same econometricians, partisans of the theory of optimum social output, also demonstrate an obvious fact: the necessary level of investment would be reached in such a system only if money were constantly devalued, and this would have to be done the more rapidly, insofar as consumption would have to be limited more severely, as the community is poorer or as earlier dis-investment has been more significant. In addition, all transfers with the possible exception of those necessary to the financing of public consumption and social welfare would have to be suppressed. This applies especially to interest on money and the sale of land.

Now the alienation of resources through currency devaluation leads, as historical experience clearly shows, to the greatest possible injustice in the distribution of income. We do not see, however, through what mechanism free savings could finance non-productive investments. Perfect liberalism does not therefore resolve the problem of social justice, and forced savings is still necessary to maintain a sufficient level of investment. What Marx tried to show was that this forced savings is distributed justly if the control of investments remains in the hands of the "workers."

Today we do not see, on the economic level, how the planning or carrying-out of investments through marginal mechanisms influences the distribution of income available to individuals; that is, how it influences forced savings. In our modern terminology of stochastic science we would say that the correlation between the just distribution of income and the control of investment has a certain value on the political and psychological level of the reciprocal attitude of the elites and the masses. But experience seems to show that this correlation is a loose one. In capitalist, but rich, economies incomes seem to be better distributed than in socialist, but poor, economies. The study of the correlation ought to include among others the variable of the absolute richness of the total group, itself a function of the effectiveness of the economic system.

With consumption as a point of departure, it is possible to attempt a second theory of social justice. This consists in stating the right of each individual, independently from the value of his production, to enjoy an income sufficient to cover his consumption. On this theory is based the whole social edifice which opposes the morality of Sparta and that of the coconut tree. Had it not been applied at the earliest stages of the human species, this species would probably not have survived. It states the moral truth of the need for solidarity and charity among men. But it is totally incapable of rational application to economic science and implies an absurdity, the suppression of free savings. It is impossible to define an individual's minimum consumption. Between the "market basket" of a Chinese coolie (a bowl of rice a day, a pair of sandals and a scrap of clothing every few months); that of the Parisian manual laborer; and that of a Pennsylvania miner in Mr. Lewis' union, the spread is wider than between the consumption of an office worker and that of the richest man in the United States.

It is, believe me, impossible to build on the fact that the income of a group does or does not permit a high level of consumption, an affirmation as to whether or not the income of a community is well or poorly distributed. Productivity of labor and absolute wealth, the size of this income, also play their roles. In an economy in which each receives according to his needs someone or something must decide these needs, even though it be the state, which is really an anonymous bureaucracy or "mandarinate." Nothing is further removed from liberty, that essential "item" of consumption. The perfect expression of this method is rationing.

The last term of the equation, Income (Product) = Consumption + Savings + Net Transfer, is the net transfer toward the exterior. It is an algebraic sum of positive and negative quantities. Its study is at least as important as that of trade, the object of classical political economy. Its historic role is perhaps greater. The relations between the slave and his owner, the Roman client and the patrician, the prefeudal commander and the patron, the vassal and the suzerain, the serf and the master, the absolute monarch and his courtiers and subjects, the state and its citizens, are relationships not of trade but of transfers or resources. It has been the same thing within the family since the origin of man.

Negative transfers are all the resources which the individual receives gratuitously. Their quality and their importance define in large part the economic regime. In the classical free-capitalist system, the holders of rights of property or other privileges, hereditary or not, enjoy such transfers. They represent all the varieties of "dividend" income. The "charity" on which poor inactive persons live in these regimes is also a transfer of this kind. In modern regimes, this last type of transfer is replaced by indirect income: social security payments, family allotments, old-age benefits, and so forth.

Positive transfers are direct personal taxes and transfers to families whose heads underwrite the needs of the members. Another category of transfers, positive or negative, is that of speculative profits which derive on occasion from an important part of the exchanges of resources in free systems: stock-exchange operations, land speculations, real estate transactions, raw materials, etc. Still another is constituted by corruption and rackets, economic phenomena which are sometimes not negligible in amount.

Private transfers seldom appear in the statistics. They are generally included in income. This is the equivalent of moving the corresponding values from the right side of the equation to the left, that of income, with, of course, a change in sign. The same operation should be made for transfers to inactive persons, as these constitute their only income.

It is obvious that total transfer is zero. What some receive, others give. But who gives and who receives? Statistics disclose that the ensemble of individuals in Western countries receives more than it gives. The corresponding resources come from taxes and contributions paid by corporations. Among individuals, peasants and the poor receive a great deal more than they give. The wealthy give more than they receive, if income from property is placed on the left side of the basic equation. If, however, incomes from property are considered as transfers, the wealthy receive more than they give.

To sum up, the state, the wealthy in free systems, the ensemble of individuals in welfare states, draw off from productive activity a sizable quantity of resources, which is then either consumed or redistributed or used to constitute forced savings. In the Communist system the state is the only entity which receives transfers. It redistributes a part of these to individuals.

Transfer to the state, the treasury, plays an important role in the economic balance and has special influence on the distribution of revenue between consumption and investment. It is difficult in this study to push the analysis of these facts very far, but a brief examination of the roles of the two principal types of taxes, direct and indirect, seems useful.

When the state collects important sums through heavily progressive income taxes and then redistributes them through social payments or non-productive investments, it seems to increase consumption and to reduce the savings which might be invested in productive installations. Then a struggle against deflation takes place. This is the remedy invented in England in the nineteenth century against crises of underconsumption due to low wages. This type of treasury procedure is in actual fact much more complicated.

It is first of all difficult to determine the effects of this action on individuals who are at the same time individual entrepreneurs, hence to determine the effects of this fiscal policy on the major part of free savings. While the state can, by fiscal policy, decide the sign and the value of the total transfer resulting from a group of individuals, it cannot act by this means on the distribution between savings and consumption within the group. And it is basically this distribution which determines the effect of a modification of fiscal policy on the economic balance.

Let us examine the influence on the economic balance of the aggravation of direct progressive taxation. We recall that only rapidly amortizable investments are deflationary. We can then establish the following catalogue of tendencies provoked by the increase of progressive direct taxation:

A. *Direct effect:* diminution of disposable income.

Secondary direct effects:

1. If the diminution of disposable income causes especially a diminution of consumption, the resulting effect is deflationary.
2. If the diminution of disposable income causes a lessening of investments habitually financed by free savings, that is, rapidly amortizable, the resulting effect is at first slightly deflationary, quickly followed by an inflationary effect.

B. *Indirect effects:*

1. If the resources gathered by income taxes serve public consumption or non-productive public investment, the resulting effect is inflationary.
2. If the resources thus collected are redistributed among individuals whose needs are not normally satisfied, the resulting effect is inflationary.
3. If the forced savings thus made is simply substituted for free savings transferred by means of the tax into the hands of the state to finance the same types of investment, there is transfer of the control of investment without visible effect on the economic balance.

We see then that the effect of progressive direct taxation on income is, as far as economic balance is concerned, much more complicated than its supporters seem to feel or at least to declare publicly.

The state may also act on economic balance by an action on prices, by means of indirect taxes, and through other measures. These methods are employed intensively in the collectivist economies of the Communist world.

In capitalist countries, the state intervenes relatively little in the creation of an individual's real income. On the other hand, it attempts strong intervention in the utilization of income by heavy direct taxation. In Communist countries, the state imposes a "rational" hierarchy of income, or at least attempts to do so. Intellectuals appear at the head of the list, along with workers of extremely high output, high functionaries, and not, as in some capitalist economies, businessmen. On the other hand, the pressure of direct taxation is weaker. The state governs private demand less through direct personal taxes than through manipulation, made possible by the public appropriation of the means of production, and controls prices by means of indirect taxes and (which in this case means the same thing) by the very structure of cost prices.

The differences between the two systems are then noticeable. They have to do, however, only with the methods and means employed. The aim is the same: to direct or at least to orient the utilization of income. This action may, in free regimes, be covered by the banner of currency defense; in collectivist systems, by the argument of the primacy of basic investments, an indispensable tool for future expansion. It is nonetheless true that one of the basic attributes of individual freedom, the power to enjoy freely and decide freely the use of the fruits of one's work, is breached throughout the globe. The quarrel between Marxists and liberals is, in this field, without meaning except as a quarrel over ways and means.

Can this analysis say that we are in revolt against public control of the utilization of income? Not at all. We have shown at the outset that investment is generally possible only by means of social constraint and that what is called social injustice is in fact inevitable because of the necessity of financing an important part of investment through forced savings. This declaration is but the admission in other terms of the need for control of the utilization of income. We think, simply, that it is just to reduce this control to a minimum.

Now it is possible, on the other hand, to defend the stand that the means of progressive direct taxation is more opposed to the principle of freedom than is action on prices or, in the final analysis, taxation on corporations. The injustice of this second method is offered as an objection. The tax burden should be borne by the wealthy, who will not suffer thereby. If prices are made to bear the burden, it is the poor who pay. The argument does not bear up under analysis. On the one hand, the taxes paid by the wealthy constitute, in all countries of the world, only a small part of the fiscal burden. On the other hand, it is not prices that determine the satisfaction of needs, hence the well-being of the poor, but real income—monetary income relative to the price structure. And nothing prevents an adaptation of price and wage structure to the satisfaction of the needs of the mass of the population. Finally, do we not often face the question of limiting consumption to assure a sufficient investment rate? In this situation, action on prices is certainly more effective and more rapid.

The real reasons why direct taxation is preferred in non-Communist economies is not fiscal justice. It stems from contradictions among three orders of facts: freedom of producers to fix their prices, freedom of individuals to dispose of their income and divide it between consumption and savings, and the necessity of a total savings sufficient for the financing of investments. These contradictions are generally raised in favor of the freedom of producers, which leads to a heavy direct taxation.

Our method of analysis, applied to corporations, permits us to see what happens.

We insisted at the outset on the double role of individual entrepreneurs, as both "enterprises" and "individuals." This duality should be kept in mind when one examines the position of the corporation vis-à-vis the state. In the income of the individual entrepreneur it is necessary to distinguish between his "just earnings as an entrepreneur," by which he receives social transfers and pays taxes as an individual, and his income as a corporation which satisfies its own equation of balance: Income = Consumption + Savings + Net Transfer to the Outside.

Consumption refers here to that of the factors of production, including the just earnings of the entrepreneur, the raw materials, goods, and means of production, and finally the amortization of machinery. Savings is constituted by non-distributed earnings and reserves, which serve to finance investments of the corporation by the process called self-financing. Positive transfers, preponderant in the corporation, are capital of debt repayment, with its corresponding interest, direct and indirect taxes, and distributed profits. A part of these transfers is thus founded on the right of ownership of the means of production, an object of socialist attacks. In reality, the role of this right, in this form, is today secondary and certainly less important than the role of the state.

Negative transfers are state subsidies and loans from third parties. The investment of the corporation is financed not only by non-distributed earnings, reserves, and loans, hence the savings of third parties, but also by amortization funds, although the latter represent factors of production. Among individual entrepreneurs, amortization funds, earnings, and reserves are confused with remuneration for labor. In other words, remuneration for labor and forced savings due to the plus-value of Marx are not separate and distinct. The importance of these private transfers, in a free economy, is high; that of income distributed to other active persons, particularly to the workers, is low.

It is then perfectly logical and necessary to base taxes on income (actually only slightly on income from the labor of individuals and largely on income of corporations derived from the plus-value of Marx) and not, through prices, on individual consumption, which is too low.

We know that, in a coherent economic system which is adapted to the reality of present-day production techniques, a different method of taxation may be applied, one of superior social effectiveness. This possibility will be examined in another study.

INVESTMENT AND THE CLASS STRUGGLE

The class struggle, described by Marx, is born within the corporation. It concerns primarily the distribution of the income of the corporation among its consumption (remuneration of the factors of production and especially of labor), its savings, and its transfers. This, then, involves the opening of a wide spread in remuneration for labor.

Marx deduced from his analysis of the productive process, a work of genius in its time but rather elementary for us, that the worker produces a plus-value extorted from him by the corporation.

We say that the corporation creates an income (a net value of production in the existing price system) through the more or less judicious and effective bringing into use of the factors of production and that it distributes this income among consumption, savings, and transfers. It is evident, if only for arithmetical reasons demanded by the balanced equation, that the "consumption of the production factor labor," in other words, the remuneration of the corporation's workers (including the chairman of the board), must be much less than the value of production. It is absurd to suppose that this could be otherwise. This is

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true even if past labor (amortization) is added to the present labor utilized by the corporation. The "plus-value" which obviously does exist and is necessary is in no way an "extortion." This applies to all economic regimes without any exception. But it is true that through reversal of the above order an early antagonism arose in all systems, having as its object the distribution of remuneration for the labor factor among the individual producing members of the corporation. There is a class struggle for the pieces of the existing pie. Past experience of the purely free economy (today a thing of the past everywhere) has shown that if labor is considered as merchandise bought and sold on the market, the cutting of the pie is such as to lead to misery of the masses, cyclical crises, insecurity, and wars—all economic absurdities. Even without considering the inhuman injustice of these scourges, Marx was right in demonstrating this fact.

There exists in this field another antagonism which Marx did not discuss: The forced savings created by the plus-value is imposed, according to the view that is taken of it, either on the workers of the corporation or on the buyers of its product. The latter may also claim their piece of the pie by asking for lower prices.

This second antagonism is born of the workers' desire (including that of the managers) to consume more, to think of themselves more and of their children less. For it is in fact the generation following that of the investor which particularly profits from his economizing action. In addition to other means of limiting present consumption, the "thrifty spirit" of the head of the family in free societies and the "happy tomorrows" of Communist ideologues are opposed to this selfish but quite human tendency.

The mass poverty of free economies was an extremely effective method of limiting consumption. Poor societies, in the early stages of their economic development, were thus able to invest important portions of their product, at the price of blood, hunger, and tears. When free wages were rejected in the name of social justice, other methods of limiting consumption had to be applied in poor societies. One of these methods is communism, whose simplicity, in principle, is doubtless appealing to the masses in poor countries.

Now what is the struggle carried on for years in the newspapers of the Eastern countries between those who stress the priority of heavy industry and those who wish to lighten the burden of today's consumers by an increase in the consumer goods offered them? In essence it differs in no way from the workers' strike in a capitalist enterprise, undertaken to secure higher wages from management. Whether Malenkovism is practiced in the U.S.S.R. or the U.A.W. emerges victorious from a strike in Detroit, in both cases the possibility of consumption and free savings by participants in productive plants increases, and the investment capacity of these plants diminishes. The only difference is in the methods of East and West. The aims are the same: for the masses, to consume more today, to be happier on the level of material needs, and to be more free; for the elite, to limit present consumption in order to prepare for a better future.

Democracy is political in the West, at the price of an economic inequality which permits this limitation. Democracy is economic in the East, but consumption is limited even more severely by the suppression of freedoms.

The class struggle also takes place on another level. The differences between opposing regimes here goes beyond the level of methods. It concerns the power struggle, unleashed on the material level by those who control investment.

CONTROL OF INVESTMENTS

The word "control" is used here in the English sense of "government," of exercising the power of decision.

When we reflect on this problem, we observe that it presents on the economic level the basic aspect of the social problem, that of the elite in its relation to the masses, of the symbiosis of the powerful and the humble. This is the problem of power and of the will to power.

There are three bases of power, successively dominant in the historical period of human society. The theological basis, supernatural, of the sovereign by the grace of God, wherein the priest, the sovereign, and the owner are blended into one; the legalistic basis of the absolute right of property, extended to include all goods; and the rational basis which, in the name of the principles of justice and efficiency, delegates power to representatives through universal suffrage, giving it to those who "know better," through the real or theoretical consent of the masses.

It is impossible, by definition, to try to analyze or to form a value judgment on the theological source of legitimacy, since it is based on an act of faith. Besides, it can today be only a screen hiding the real choice made between the other principles.

These other principles are actually in opposition in the modern world. Shall it be an owner of the Soames Forsyte type, member of a network of families, of a caste, who bases his decision essentially on profit, on the share of income which will fall to him in the distribution we have analyzed, from the fact of investment? He will estimate this future profit as a function of market forces: interest on money, the state of wages and expenditures, often in an intuitive way, but also, today, drawing on a probabilistic study of income. Or shall it be a manager, member of a professional class of "decision-makers"? This type of man will try to construct a rational representation, a "model" of infinitely complex reality, and draw the arguments for a decision from this model.

Both run the risk of deceiving themselves. The difference between them is that the first, the owner, pays in this case on his fortune and that the second, the manager, pays on the future of his career. Since the banks and even the state may be substituted for the owner in case of failure, and the manager may also find another field of activity, the difference of sanction is often not clearly marked. Often, but not always. This debate goes far beyond Marx and Marxism. In contemporary reality it is not belief or disbelief in the Marxist religion which distinguishes those who support these two methods. There is a strange blend of belief and skepticism in Western societies, as in Communist societies. In the first, socialist planning is broadly employed by public administration and also in the great depersonalized concentrations of economic power. In the second, the forces of the market impose on functionaries decisions identical to those which would have been taken by "owners."

The control of investments by market forces has shown its effectiveness in the industrial revolution of the nineteenth century. Closer to our own time, credit for the rebirth of western Germany after World War II is attributed to this system; the rebuilding took place in a highly evolved society, temporarily subjected to dis-investment of sizable proportions.

It seems however that the principle of planning, on which the economic system of the U.S.S.R. is based, today yields immediate economic results in the initial phase of development of poor societies. Best proof of this is found in the development of Russia since 1917. The suffering of the people, comparable basically to that of the English people between 1800 and 1850, is a separate matter.

The control of investment by the forces of the market succeeded in the initial stage of the technical revolution of abundant energy. In this stage the theological principle of legitimacy was still strong, and the economy was atomistic. Producers and directors of investment were numerous and unorganized. Neither producers nor wage-earners were dominant. The laws of the market then permitted, through the mechanisms of distribution of income described by Marx, among others, a limiting of consumption in such a way as to effect a considerable proportion of available resources—of the social product—to amortize productive investments. Under these conditions the economic balance was subject to violent swings, called crises. The deflationary effect of productive investment predominated because of small total demand. The inflationary swings which followed crises were, consciously or not, caused by wars and non-productive investments in colonies of foreign countries. The one single method to be neglected in combating deflationary crises was that which consists of raising the level of consumption by the mass of workers within the economy itself. The businessmen of the United States in the early years of the twentieth century alone applied this simple idea, with amazing and world-wide success. Nevertheless, and on a world-wide basis also, expansion was in every way important.

The class struggle on the field of distribution of income was, naturally, extremely bitter. It occasionally thrust the infinitely more important question of control of investments into the background.

From this first stage there came the philosophy of socialism as reformer and organizer of the wage-earners. Capitalism, on its side, organized powerful monopolies. Wages ceased to be the counterpart of a sale of labor and became title to a share of the social product.

The rate of improvement in the wage-earner's condition began to surpass the rate of increase in productivity. If the tendency before was in the direction of deflation, the economy suffering from underconsumption, corrected by economic imperialism, inflationary tendencies now became predominant, the more so as a great war destroyed a fabulous quantity of resources. Under these conditions only investments yielding immediate income, strongly deflationary, with a short period of amortization, in consumer goods and service industries, continued to attract capitalist savings governed by the laws of the market. The great depression of the thirties was the result.

It may be stated without paradox that, for example, underinvestment in basic heavy industries, flagrant in western Europe between the two wars, is due to the earliest social reform laws, the establishment of reforming socialism. Economic absurdities are then seen, caused by violent swings in the production of consumer goods, such as the authoritarian destruction of huge quantities of foodstuffs while entire countries are dying of hunger, in order to "support prices." Theories of abundance are born as a reaction, fallacious theories which neglect the essential fact of investment. Planners appear. Keynes seeks new recipes for monetary manipulations to combat unemployment.

Meanwhile Lenin had already passed the stage of these first attempts at modern economic thought. Starting with the doctrine of a conscious and rational elaboration of investment rates, he built the theory of the dictatorship of the proletariat, essentially founded on the control of investment by the state and by the state alone, even though the supreme, but infinitely remote, end remained the withering-away of that state. Beyond the problem of cutting the existing pie, dear to reforming socialists, the more serious problem of the control of investment has passed to the front of the stage.

CONCLUSION

We live in the following situation: In Western countries the mirage of reforming socialism, which believes itself capable of distributing existing income so as to satisfy the needs of all, leads to underinvestment in basic industries, combated in turn by attempts at planning of these investments. The whole is incoherent, doubly inflationary on the side of both consumption and investment. These countries, if they are also committed to keeping external economic pledges (obligation for transfers to the outside) and heavy military expenditures, live doubly beyond their means. It is not at all astonishing that the last vestiges of liberty disappear.

In the sphere of influence of what is called communism, integral planning results in the misery of the masses. It differs from that described by Marx in its spiritual character. All social advantages, health, the satisfaction of minimum material needs, are theoretically granted to the workers of these countries. But they are deprived of two things: the ability to spend their income freely and the ability to enjoy one essential item of consumer goods, liberty. The priority of productive investments with a very long amortization period, along with low productivity and empirical planning often leading to a waste of strength, produces a violent inflationary push. Foreign trade is strictly regulated, demand for products is out of all proportion to supply, money fails to play its normal role, prices are arbitrarily fixed. It is impossible to maintain order in such a situation without a brutal police force, and sometimes the lid blows off.

The underdeveloped countries of Asia, Africa, and South America may choose between the two systems. Their leading classes are attracted by the example of the successful industrial revolution in the West and in the United States. The masses believe, rather, in the possibility of escaping from the necessary limitations of consumption through the mirage of the Russian miracle and forget the suffering of that people in arriving at its present level of development.

Perhaps the best solution to avoid catastrophe would be to explain the truth to them. From the outside it would seem that a solution exists through truth, which is the aim of this essay. Here we may attempt but a short description of its general contours.

The end is to increase indefinitely the productivity of man's action and the richness of his life, all the while safeguarding liberty. This end will be attained by the indefinite increase of individual investment, on both the material and the spiritual levels, and of useful non-productive investment, investments which have been defined in this article.

The means is the increase, also indefinite, of disposable income. This increase must be obtained not so much through the most "just" distribution of slices from the pie, which is an illusion, as through efficiency leading to an enlarging of the pie to be cut. For this, useless non-productive investments must be reduced to a minimum and the factors of production utilized in the most effective manner; that is, we must tend toward the maximum of productivity by a balanced level of productive investments.

Progress in this direction will lead to a progressive reduction of the relative importance of transfers, particularly of private transfers. Statisticians have in fact noticed this reduction in the most recent historical period: income from property diminishes as economic development proceeds. Certain economists call this phenomenon of the weakening of economic privilege the "ruin of the property owner."

Decisions to invest will thus be more and more subject to socially objective criteria. Planning of the great basic investments, financed by an international organization for transfers of resources of rich groups, threatened with deflation, toward poorer groups, threatened with inflation, will be the first requirement.

It will be necessary to abandon the illusion, dear to certain economists, that we live in a transitional, unbalanced period between the blessed age-old period of the balanced economy that preceded the abundance of energy, and a future epoch of balance among primary activities, of little importance, secondary activities declining in importance, and tertiary activities highly developed. The human revolution unleashed by rational science about two hundred years ago is only beginning. Each new day brings proof of this. The conquest of outer space commences before our eyes. Nearer to our daily preoccupations, automation and the application of scientific methods of mathematical tools to the science of management and, in fact, to all of sociology—applications unknown ten years ago and made possible by progress in electronics—seem destined in the near future to upset the organization of society more profoundly than did the revolution of the nineteenth century. With this prospect before us, today's bitter quarrel over the ownership of the means of production and the control of investments will become, like the other, a mere formal discussion. In the final analysis, the state, like the entrepreneurs, is made up of men. What they should be concerned with is the ability to handle the data permitting them a reasonable hope that the decisions they make are good ones. That is the difficulty, the only real difficulty of our complex civilization of abundant energy, different from all preceding civilizations.

The operational revolution whose debut we are experiencing, however, permits us to hope, to glimpse the possibility of resolving this difficulty.

The observation, by means of a power of which our predecessors had no idea, of facts whose very mass rendered their interpretation inaccessible through statistical science, the manipulation of these facts by the new logical disciplines—all these intellectual possibilities lead us to hope that, without suppressing liberty and without concentrating power in the hands of a narrow circle of supermen, the world will avoid the alternative of total destruction which, thanks to nuclear science, it is possible to choose today.