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CHAPTER IX

DIVERGENCES BETWEEN MARGINAL SOCIAL NET PRODUCT AND MARGINAL PRIVATE NET PRODUCT

§ 1. In general industrialists are interested, not in the social, but only in the private, net product of their operations. Subject to what was said in Chapter V. about costs of movement, self-interest will tend to bring about equality in the values of the marginal private net products of resources invested in different ways. But it will not tend to bring about equality in the values of the marginal social net products except when the values of the marginal private net product and marginal social net product are identical. When there is a divergence between these two sorts of marginal net products, self-interest will not, therefore, tend to make the national dividend a maximum; and, consequently, certain specific acts of interference with normal economic processes may be expected, not to diminish, but to increase the dividend. It thus becomes important to inquire in what conditions the values of the social net product and the private net product of any given (r^{th}) investment of investment in an industry are liable to diverge from one another in either direction. There are certain general sorts of divergence that are found even under conditions of simple competition, certain additional sorts that may be introduced under conditions of monopolistic competition, and yet others that may be introduced under conditions of bilateral monopoly.

§ 2. If there existed only one type of productive resource, say, labour of a given quality, this statement of the issues would be complete. It would also be complete if several types of productive resources existed, but they were everywhere and in all circumstances combined together in exactly the same

proportions. In real life there are a number of different types of resource and they are combined in various proportions, not only in different industries, but in the same industry in respect of different quantities of output. Hence the expression "the r^{th} increment of investment in an industry," which was employed in the preceding section, calls for further elucidation. In a given industry y units of output are produced as a result of the joint operations of a , b and c (physical) units of three types of productive resource, or factors of production. When the output of the industry is increased to $(y + \Delta y)$, the quantities of the several factors become a' , b' and c' . There being no reason to suppose that $\frac{a' - a}{a}$, $\frac{b' - b}{b}$ and $\frac{c' - c}{c}$ will be equal, it is impossible to describe unambiguously the change in the quantities of productive resources taken collectively that has led to a given change in the output of the commodity. If, therefore, the r^{th} increment of investment is to have a precise meaning, it must be interpreted as the r^{th} (physical) increment of some one sort of productive resource (e.g. labour of a given quality) plus whatever additions to the quantities of the other sorts properly go with that increment. These quantities are perfectly definite, being determined by the condition that, in respect of any given quantity of output, the various factors of production must be combined in such wise as to make their aggregate money cost a minimum.¹ The above definition appears at first sight objectionable, because under it the r^{th} "unit" of investment is, in general, of different physical constitution from the $(r + 1)^{\text{th}}$ "unit." This objection would, of course, be fatal if we were concerned to compare the net products of different increments or units of investment. But in fact we are concerned to compare two sorts of net product—social and private as yielded by given increments of investment. For this purpose the relation in which different increments

¹ Thus, let y be the output of the commodity in question, and a , b , c the (physical) quantities of the several factors of production combined in making it. Then $y = f(a, b, c)$. Let $f_a(a, b, c)$ and $f_b(a, b, c)$ be the prices of these factors. Then, in respect of any quantity of output, the quantities of the several factors are determined by the equations

$$\frac{1}{f_a(a)} = \frac{1}{f_b(b)} = \frac{1}{f_c(c)} = \frac{1}{\lambda}$$



ments, or different "units," stand to one another is irrelevant. Our definition simply removes an ambiguity, and enables us to proceed unhampered with the line of analysis outlined in the preceding section.

§ 3. The source of the general divergences between the values of marginal social and marginal private net product that occur under simple competition is the fact that, in some occupations, a part of the product of a unit of resources consists of something, which, instead of coming in the first instance to the person who invests the unit, comes instead, in the first instance (*i.e.* prior to sale if sale takes place), as a positive or negative item, to other people. These other people may fall into any one of three principal groups: (1) the owners of durable instruments of production, of which the investor is a tenant; (2) persons who are not producers of the commodity in which the investor is investing; (3) persons who are producers of this commodity. The divergences between the values of social and private net product that are liable to arise in respect of this last class of persons will be discussed separately in Chapter XI. In the present chapter attention is confined to the other two classes of divergence.

§ 4. Let us consider first the class connected with the separation between tenancy and ownership of certain durable instruments of production. The extent to which the actual owners of durable instruments leave the work of maintaining and improving them to temporary occupiers varies, of course, in different industries, and is largely determined by considerations of technical convenience. It also depends in part upon tradition and custom, and is further liable to vary in different places with the comparative wealth of the owners and the occupiers. It appears, for example, that in Ireland, owing to the poverty of many landlords, the kinds of expenditure on land which they leave wholly to their tenants are more numerous than in England.¹ Details thus vary, but there can be no doubt that over a wide field some part of the investment designed to improve durable instruments of production is often made by persons other than their owners. Whenever this happens, some divergence between

¹ Cf. Bonn, *Modern Ireland*, p. 68.

the private and the social net product of this investment is liable to occur, and is larger or smaller in extent according to the terms of the contract between lessor and lessee. These terms we have now to consider.

§ 5. The social net product of an assigned dose of investment being given, the private net product will fall short of it by an especially large amount under a system which merely provides for the return of the instrument to the owner at the end of the lease in the condition in which the instrument then happens to be. Under this arrangement the private net product of any r^{th} increment of investment falls short of the social net product by nearly the whole of the deferred benefit which would be conferred upon the instrument. It need not fall short of it by quite the whole of this deferred benefit, because a tenant, who is known to leave hired instruments in good condition, is likely to obtain them more easily and on better terms than one who is known not to do this. So far, careful tenancy yields an element of private, as well as of social, net product. Since, however, separate contracts are often made at considerable intervals of time, this qualification is not especially important. Passing it over, therefore, we notice that, since the effects of investment in improving and maintaining instruments generally exhaust themselves after a while, the contraction of private net product below social net product, which the form of tenancy just described brings about, is not likely to be considerable in the earlier years of a long lease. In the later years of such a lease, however, and during the whole period of a short lease, it may be very considerable. Indeed, it is often found that, towards the close of his tenancy, a farmer, in the natural and undisguised endeavour to get back as much of his capital as possible, takes so much out of the land that, for some years afterwards, the yield is markedly reduced.¹

§ 6. The form of tenancy just described is illustrated by that primitive type of contract between landlord and tenant, in which nothing is said about the condition of the land at the end of the lease. But it is by no means

¹ Cf. Nicholson, *Principles of Economics*, vol. I, p. 418.

confined to this type of contract. Another very important field in which it is present is that of "concessions" to gas companies, electric lighting companies and so forth. An arrangement, under which the plant of a concessionaire company passes ultimately, without compensation, into the hands of the town chartering it, corresponds exactly to the system of land leases without provision for compensation for tenants' improvements. Such an arrangement at one time governed the Berlin Tramways. The Company's charter provided that, "at the end of the contract, all property of the road located in the city streets, including poles, wires, any waiting-rooms built on city property, and patents, come into the possession of the city without charge."¹ From the present point of view, this system is similar to that of the British Tramways Act of 1870 and Electric Lighting Act of 1881, which provided for the taking over of the company's plant "upon terms of paying the then value (exclusive of any allowance for past or future profits of the undertaking, or any compensation for compulsory sale or other consideration whatever)." For the "reproduction cost," which value in this sense seems to represent, of a concern established many years back might be expected to fall far short of its value as a going concern. It follows that, under the German and English plans alike, the terminating franchise system must, unless some plan is adopted to obviate that result,² reduce the private net product of investments, alike in the original plant and in later extensions, below their social net product, thus causing them to be carried less far than the best interests of the national dividend require. Furthermore, it is obvious that the restrictive

¹ Beamish, *Municipal Problems*, p. 565.

² Of course, the English plan is not so severe as the German in respect of investments in plant made near the end of the lease; for, presumably, for a short time the cost of manufacturing such plant will remain fairly constant. But for investments designed to create goodwill, and, through this, future business, it is exactly similar. Thus, after the agreement of 1905, by which the Post Office undertook to buy up in 1911 such part of the National Telephone Company's plant as proved suitable, at the cost of replacement, the Chairman of the Company stated that "the Company would not attempt to build up business that would require nursing as well as time to develop; it would confine itself to operations that from the start would pay interest and all other proper charges" (H. Meyer, *Public Ownership and the Telephones*, p. 309). A device for getting over the difficulty considered in the text was embodied in

influence will be most marked towards the close of the concession period. In view of this fact, M. Colson recommends a policy, under which negotiations for the renewal of concession charters would be taken up some 15 or 20 years before these charters are due to expire.¹

§ 7. The deficiency of the private, as compared with the social, net product of any ^{7th} increment of investment, which arises in connection with what I have called the primitive type of tenancy contracts, can be mitigated in various degrees by compensation schemes. These may conveniently be illustrated from the recent history of land tenure. Arrangements can be made for compensating tenants, when they leave their holdings, for whatever injury or benefit they may have caused to the land. Negative compensation for injury is practically everywhere provided for in the terms of the leases. In its simplest form it consists in monetary penalties for failure on the part of tenants to return their land to the owner in "tenantable repair." These penalties may be made operative directly, through an explicit legal contract; or they may be made operative indirectly, by a rule forbidding the tenant to depart from the local customs of husbandry; or, again, they may be made operative through a modification in this rule concerning local customs, so arranged as to free enterprising tenants from the burden which the rule in its simple form imposes, without sacrificing the purpose of the rule. Thus, under the Agricultural

the contract extending the franchise of the Berlin Tramway Company to 1919. This contract provided, *inter alia*: "If, during the life of the contract, the city authorities require extensions within the city limits, which are not specified in the contract, the company must build as much as 93 miles double track being counted as single. But the company should receive from the city one-third of the cost of construction of all lines ordered between Jan. 1, 1902, and Jan. 1, 1907; and one-half of the cost on all lines ordered between Jan. 1, 1908, and Jan. 1, 1914. For all lines ordered after that the city must pay the full costs of construction, or a full allowance towards the cost of operation, as determined by later agreement. The overhead trolley was to be employed at first, except where the city demanded storage batteries; but, if any other motor system should later prove practicable and in the judgment of the city authorities should appear more suitable, the company may introduce it; and, if the city authorities request, the company must introduce it. If increased cost accrue to the company thereby, due allowance being made for benefits obtained from the new system, the city must indemnify the company" (Beamish, *Municipal Problems*, p. 563).

¹ Cf. Colson, *Cours d'économie politique*, vol. VI, p. 419.

Holdings Act, 1906, a tenant may depart from local custom, or even from a contract, as to cropping arable land, provided that he shall make "suitable and adequate provision to protect the holding from injury or deterioration"—except in the year before the expiration of the contract of tenancy. If the tenant's action under this section does injure the holding, the landlord is entitled to recover damages and to obtain, if necessary, an injunction against the continuance of the tenant's conduct. Positive compensation was of some-what later growth. Rules about it were at first a matter of voluntary arrangement in the yearly leases made by landlords. Mr. Taylor quotes a Yorkshire lease, in which the landlord covenants to allow the tenant "what two different persons shall deem reasonable," in payment for the capital put into the land in the course of ordinary farming operations during the last two years of the lease.¹ Gradually compensation schemes have been given a legal status. Something in this direction was done in Ireland under the Act of 1870—the need for it being specially great in a country where the English custom, under which the landlord provides the buildings and permanent improvements, seldom applied.² In 1875 an Act laying down conditions for compensating the outgoing tenant in England and Wales was passed, but contracting-out was permitted. In 1883 a new Act, the Agricultural Holdings Act, was passed, in which contracting-out was forbidden. This Act distinguished between improvements for which the landlord's consent was necessary and those for which it was not necessary.³ Scotland is now under a similar Act. It has largely superseded the old long leases, and these are now practically being modified out of existence.⁴ In the detailed drafting of all Acts of this class difficulty is caused by the fact that some "improvements" do not add to the enduring value of the estate the equivalent of their cost of production. If the compensation for these improvements is based upon their cost, the private net product is raised above the social net product. In practice this danger

¹ Cf. Taylor, *Agricultural Economics*, p. 305.

² Cf. Smith-Gordon and Staples, *Rural Reconstruction in Ireland*, p. 20.

³ Cf. Taylor, *Agricultural Economics*, pp. 313 *et seq*.

⁴ Cf. Taylor, *ibid.*, p. 320.

is largely overcome by the rejection of initial cost as a basis of compensation value, coupled with the requirement of the landlord's consent to some kinds of improvement. Under the Town Tenants (Ireland) Act, 1906, for example, when a tenant proposes to make an improvement he must give notice to the landlord, and, if the latter objects, the question, whether the improvement is reasonable and will add to the letting value of the holding, is determined by the County Court. The British Landlord and Tenant Act (1927) contains a similar provision for compensation for improvements and goodwill on the termination of tenancies of business premises. But even on this plan the private net product may be slightly in excess. In order that private and social net product may coalesce, the value of an improvement, for compensation purposes, should in strictness be estimated subject to the fact that, at interchanges of tenants, the land may stand for a time unlet, and that during this time the improvement is not likely to yield its full annual value. If this is not done, it will pay a tenant to press investment slightly—very slightly—further than it will pay either the landlord or society to have it pressed; and hence, where, as in market-gardening, improvements can be made without the landlord's consent, it will check landlords from letting land. It is, thus, theoretically an error in the Agricultural Holdings Act of 1906, that it defines the compensation, which an outgoing tenant may claim for improvements, as "such sum as fairly represents the value of the improvements to an incoming tenant." The standard ought to be "the value to the landlord." But, when, as is usual, improvements exhaust themselves in a few years, the practical effect of this slight error is negligible, and does not cause the private and social net products of any *rth* increment of investment to diverge appreciably.

§ 8. These compensation arrangements, as so far considered, possess one obvious weakness, which generally impedes the adjustment they are designed to effect between private and social net product. It is true that a tenant can claim compensation for improvements on quitting. But he knows that the rent may be raised against him on the strength of

his improvements, and his compensation claim does not come into force unless he takes the extreme step of giving up his farm. Hence the private net product of investment is still counted below the social net product. This result is partially mitigated under the Agricultural Holdings Act of 1906—somewhat strengthened in 1920—where it is provided that: "When the landlord, without good and sufficient cause, and for reasons inconsistent with good estate management, terminates a tenancy by notice to quit," or when the tenant leaves in consequence of a proved demand for increased rent consequent upon tenants' improvements, the tenant may claim, not merely compensation for the improvements, but also "compensation for the loss or expense directly attributable to his quitting the holding," in connection with the sale or removal of household goods, implements of husbandry, and so forth. The above remedy is, however, defective in several respects. In the first place, since a tenant quitting his holding under the conditions contemplated obtains no compensation for the loss of "good-will" or the non-monetary inconveniences of a change of home, he will still be very unwilling to leave, and the landlord will still possess a powerful weapon with which to force him to consent to an increase of rent. In the second place, notice to quit on account of sale is not held to be "incompatible with good estate management." Consequently, when the land farmed by a sitting tenant is sold by one landlord to another, the tenant, if he leaves, obtains no secondary compensation of the kind just described. He will, therefore, be even more unwilling to leave. Should he elect, however, to rent the farm under the new landlord, he "is liable to the rent on any improvement which he has executed, without receiving any compensation."¹ It is probably a recognition of this danger that has given rise to the growing demand among farmers for legislation permitting them, when the landlord wishes to sell,

¹ *Report of the Committee on Tenant Farmers* (Cd. 6030), p. 6. Notice given to a sitting tenant on the ground that his land is wanted for building is also "not incompatible with good husbandry" and carries no secondary compensation. There would plainly be danger in the grant of such compensation here, since it would encourage the investment of resources in agricultural improvements at the cost of a more than equivalent social injury in postponing the use for building of land that has become ripe for it.

to purchase their holdings on the basis of the old rent. A provision for secondary compensation on disturbance similar to that of the Agricultural Holdings Act is contained in the Town Tenants (Ireland) Act, 1906. Here, under the circumstances specified, compensation may also be claimed for "good-will." But even with this provision it is apparent that the adjustment secured cannot be more than partial.¹

§ 9. In view of these imperfections in compensation arrangements, it is often contended, in effect, that for a really adequate adjustment, not merely compensation for tenants vacating their holdings, but legal security of tenure, coupled with the legal prohibition of renting tenants' improvements, is required. Of course, in some circumstances the state of things which this policy is designed to bring about is attained without any legislative intervention. In Belgium, for example, it is substantially established everywhere by the force of custom:² and, no doubt, many English landlords conduct the management of their estates in a like spirit. It is plain, however, that the willingness of landlords to refrain from using economic power for their own advantage, when the use of this power is permitted by law, cannot always be assumed; indeed, if it could be assumed, the whole elaborate development of compensation laws, which we have been discussing, would have been unnecessary. We are thus led forward to a consideration of the policy of legally enforced security of tenure *plus* "fair rents." In the way of this policy there are two principal difficulties. In the first place, the security of tenure that is granted cannot be absolute; for, if it were, considerable economic waste might sometimes result. It would appear, therefore, that security must be conditional upon reasonably good farming. Furthermore, it must be "conditional upon the land not being required in the public interest for compensation, it should be noted, is not that it would benefit the tenant. Professor Nicholson is right when he observes "that compensation for improvements will not benefit the tenant so much as is generally supposed, because the privilege itself will have a pecuniary value; that is to say, a landlord will demand, and the tenant can afford to give, a higher rent in proportion. Under the old improving leases, as they were called, the rent was low because ultimately the permanent improvements were to go to the landlord" (*Principles of Economics*, vol. 1, p. 322). Cf. Morrison's account of Indian arrangements (*The Industrial Organisation of an Indian Province*, pp. 154-5).

¹ The argument for compensation, it should be noted, is not that it would benefit the tenant. Professor Nicholson is right when he observes "that compensation for improvements will not benefit the tenant so much as is generally supposed, because the privilege itself will have a pecuniary value; that is to say, a landlord will demand, and the tenant can afford to give, a higher rent in proportion. Under the old improving leases, as they were called, the rent was low because ultimately the permanent improvements were to go to the landlord" (*Principles of Economics*, vol. 1, p. 322). Cf. Morrison's account of Indian arrangements (*The Industrial Organisation of an Indian Province*, pp. 154-5).

² Cf. Rowntree, *Land and Labour*, p. 129.

interest, whether for small holdings, allotments, labourers' cottages, urban development, the working of minerals, or the making of water-courses, roads and sanitary works. When it is required for any of these purposes the Land Court should have the power to terminate the tenancy, while ensuring adequate compensation to the tenant.¹ The precise drafting of appropriate conditions is not likely to prove altogether easy. In the second place, security of tenure being plainly illusory if the landlord can force the tenant to give notice by arbitrary increases of rent, it is necessary that fair rents be somehow enforced. This cannot be done by a mere prohibition of *any* increases of rent, for in some circumstances an increase would be fair. There would be no justice, for example, in taking from the landlord and giving to the tenant the benefit of an addition to the value of the land brought about by some general change in agricultural prices wholly independent of the tenant's action. Hence this policy seems to involve the setting up of a tribunal to fix rents, or, at all events, to settle disputes about rents, when invoked for that purpose. Were the Land Court, or whatever the body set up may be, omniscient and all-wise, there would, indeed, be no objection to this. But, in view of the necessary imperfection of all human institutions, there is some danger that a tenant may be tempted deliberately to let down the value of his holding in the hope of obtaining a reduced rent. Under the Irish system of judicial rents, a defence against this abuse was nominally provided in the form of permission to the Courts to refuse revision. But this remedy was not utilised in practice. Very often "not productive, but production, and more especially the evidences of production in the fifteenth year, were the determining factors" in rent revision.² Professor Bonn illustrates the result thus: "Two brothers divided a farm into two shares of equal values—the good husbandman got a rent reduction from the Courts of $7\frac{1}{2}$ per cent, the bad got one of $17\frac{1}{2}$ per cent."³ It is not, therefore, by any means obvious that the policy of fixity of tenure and judicial rents will really bring marginal private net

¹ *Land Enquiry Report*, p. 378.

² Smith-Gordon and Staples, *Rural Reconstruction in Ireland*, p. 24.

³ Bonn, *Modern Ireland*, p. 113.

product and marginal social net product more closely together than they are brought by simple compensation laws. The gap between the two marginal net products can only be completely closed if the person who owns the land and the person who makes investments in it are the same. But this arrangement is frequently uneconomic in other ways. For, especially if the farmers are small men, they are likely, as owners, to find much difficulty in raising the capital required for those larger improvements, which, under the English land-system, it is now usual for the landlord to undertake. It is beyond the scope of this volume to attempt a detailed discussion of the controversial topics thus opened up. What has been said, however, will suffice to illustrate one type of discrepancy between marginal private net product and marginal social net product, that is liable to arise in occupations where resources have to be invested in durable instruments by persons who do not own the instruments.

§ 10. I now turn to the second class of divergence between social and private net product which was distinguished in § 3. Here the essence of the matter is that one person A, in the course of rendering some service, for which payment is made, to a second person B, incidentally also renders services or disservices to other persons (not producers of like services), of such a sort that payment cannot be exacted from the benefited parties or compensation enforced on behalf of the injured parties. If we were to be pedantically loyal to the definition of the national dividend given in Chapter III. of Part I, it would be necessary to distinguish further between industries in which the uncompensated benefit or burden respectively is and is not one that can be readily brought into relation with the measuring rod of money. This distinction, however, would be of formal rather than of real importance, and would obscure rather than illuminate the main issues. I shall, therefore, in the examples I am about to give, deliberately pass it over.

Among these examples we may set out first a number of instances in which marginal private net product falls short of marginal social net product, because incidental services are performed to third parties from whom it is technically

difficult to exact payment. Thus, as Sidgwick observes, "it may easily happen that the benefits of a well-placed light-house must be largely enjoyed by ships on which no toll could be conveniently levied."¹ Again, uncompensated services are rendered when resources are invested in private parks in cities; for these, even though the public is not admitted to them, improve the air of the neighbourhood. The same thing is true—though here allowance should be made for a detriment elsewhere—of resources invested in roads and tramways that increase the value of the adjoining land—except, indeed, where a special betterment rate, corresponding to the improvements they enjoy, is levied on the owners of this land. It is true, in like manner, of resources devoted to afforestation, since the beneficial effect on climate often extends beyond the borders of the estates owned by the person responsible for the forest. It is true also of resources invested in lamps erected at the doors of private houses, for these necessarily throw light also on the streets.² It is true of resources devoted to the prevention of smoke from factory chimneys:³ for this smoke in large towns inflicts a heavy uncharged loss on the community, in injury to buildings and vegetables, expenses for washing clothes and cleaning rooms, expenses for the provision of extra artificial light, and in many other ways.⁴ Lastly and

¹ *Principles of Political Economy*, p. 406.

² Cf. Smart, *Statistics in Economics*, p. 314.

³ It has been said that in London, owing to the smoke, there is only 12 per cent as much sunlight as is astronomically possible, and that one fog in five is directly caused by smoke alone, while all the fogs are belated and prolonged by it (J. W. Graham, *The Destruction of Daylight*, pp. 6 and 24). It would seem that mere ignorance and inertia prevent the adoption of smoke-preventing appliances in many instances where, through the addition to the users. The general interest, however, requires that these devices should be employed beyond the point at which they "pay." There seems no doubt that, by means of mechanical stokers, hot-air blasts and other arrangements, factory chimneys can be made practically smokeless. Noxious fumes from alkali works are suppressed by the law more vigorously than smoke (*ibid.*, p. 126).

⁴ Thus the Interim Report of the Departmental Committee on smoke and Noxious Vapours Abatement 1920 contains the following passages:

"17. *Actual economic loss Due to Coal Smoke.*—It is impossible to arrive at any complete and exact statistical statement of the amount of damage occasioned to the whole community by smoke. We may, however, quote the following investigations.

"A report on an exhaustive investigation conducted by an expert Committee

most important of all, it is true of resources devoted alike to the fundamental problems of scientific research, out of which, in unexpected ways, discoveries of high practical utility often grow, and also to the perfecting of inventions and improvements in industrial processes. These latter are often of such a nature that they can neither be patented nor kept secret, and, therefore, the whole of the extra reward, which they at first bring to their inventor, is very quickly transferred from him to the general public in the form of reduced prices. The patent laws aim, in effect, at bringing marginal private net product and marginal social net product more closely together. By offering the prospect of reward for certain types of invention they do not, indeed, appreciably stimulate inventive activity, which is, for the most part, spontaneous, but they do direct it into channels of general usefulness.¹

Corresponding to the above investments in which marginal private net product falls short of marginal social net product, there are a number of others, in which, owing to the technical difficulty of enforcing compensation for incidental disservices, marginal private net product is greater than marginal social net product. Thus, incidental uncharged disservices are rendered to third parties when the game-preserving activities of one occupier involve the overrunning of a neighbouring occupier's land by rabbits—unless, indeed, the two occupiers stand in the relation of landlord and tenant, so that compensation is given in an adjustment of the rent. They are rendered, again, when the owner of a site in a residential quarter of a city builds a factory there and so destroys a great

of engineers, architects, and scientists in 1912 in Pittsburgh, U.S.A., estimated the cost of the smoke nuisance to Pittsburgh at approximately £4 per head of the population per annum.

"18. A valuable investigation was made in 1918 by the Manchester Air Pollution Advisory Board into the comparative cost of household washing in Manchester—a smoky town—as compared with Harrgate—a clean town. The investigator obtained 100 properly comparable statements for Manchester and Harrgate respectively as to the cost of the weekly washing in working-class houses. These showed an extra cost in Manchester of 7½d. a week per household for fuel and washing material. The total loss for the whole city, taking the extra cost of fuel and washing materials alone, disregarding the extra labour involved, and assuming no greater loss for middle-class than for working-class households (a considerable understatement), works out at over £290,000 a year for a population of three quarters of a million."

¹ Cf. Tansig, *Inventors and Money Makers*, p. 51.

part of the amenities of the neighbouring sites; or, in a less degree, when he uses his site in such a way as to spoil the lighting of the houses opposite: ¹ or when he invests resources in erecting buildings in a crowded centre, which, by contracting the air space and the playing-room of the neighbourhood, tend to injure the health and efficiency of the families living there. Yet again, third parties—this time the public in general—suffer incidental uncharged disservices from resources invested in the running of motor cars that wear out the surface of the roads. The case is similar—the conditions of public taste being assumed—with resources devoted to the production and sale of intoxicants. To enable the social net product to be inferred from the private net product of the marginal pound invested in this form of production, the investment should, as Mr. Bernard Shaw observes, be debited with the extra costs in policemen and prisons which it indirectly makes necessary. ² Exactly similar considerations hold good in some measure of foreign investment in general. For, if foreigners can obtain some of the exports they need from us by selling promises, they will not have to send so many goods; which implies that the ratio of interchange between our exports and our imports will become slightly less favourable to us. For certain sorts of foreign investments more serious reactions come into account. Thus, when the indirect effect of an increment of investment made abroad, or of the diplomatic manoeuvres employed in securing the concession for it, is an actual war or preparations to guard against war, the cost of these things ought to be deducted from any interest that the increment yields before its net contribution to the national dividend is calculated. When this is done, the marginal social net product even of investments, which, as may often happen in countries where highly profitable openings are still unworked and hard bargains can be driven with corrupt officials, yield a very high return to the investors, may easily turn out to be negative. Yet

¹ In Germany the town-planning schemes of most cities render anti-social action of this kind impossible; but in America individual site-owners appear to be entirely free, and in England to be largely free, to do what they will with their land. (Cf. Howe, *European Cities as Works*, pp. 46, 95 and 346.)

² *The Common Sense of Municipal Trading*, pp. 19-20.

again, when the investment consists in a loan to a foreign government and makes it possible for that government to engage in a war which otherwise would not have taken place, the indirect loss which Englishmen in general suffer, in consequence of the world impoverishment caused by the war, should be debited against the interest which English financiers receive. Here, too, the marginal social net product may well be negative. Perhaps, however, the crowning illustration of this order of excess of private over social net product is afforded by the work done by women in factories, particularly during the periods immediately preceding and succeeding confinement; for there can be no doubt that this work often carries with it, besides the earnings of the women themselves, grave injury to the health of their children. ¹ The reality of this evil is not disproved by the low, even negative, correlation which sometimes is found to exist between the factory work of mothers and the rate of infantile mortality. For in districts where women's work of this kind prevails there is presumably—and this is the cause of the women's work—great poverty. This poverty, which is obviously injurious to children's health, is likely, other things being equal, to be greater than elsewhere in families where the mother declines factory work, and it may be that the evil of the extra poverty is greater than that of the factory work. ² This consideration explains the statistical facts that are known. They, therefore, militate in no way against the view that, *other things equal*, the factory work of mothers is injurious. All that they tend to show is that prohibition of such work should be accompanied

¹ Cf. Hatching, *Economic Journal*, 1908, p. 227.

² Cf. Newsholme, *Second Report on Infants and Child Mortality* [Cd. 6909], p. 56. Similar considerations to the above hold good of night work by boys. The *Departmental Committee on Night Employment* did not, indeed, obtain any strong evidence that this work injures the boys' health. But they found that it reacts injuriously on their efficiency in another way, i.e. by practically precluding them from going on with their education in continuation classes and so forth. The *theory* of our factory laws appears to be that boys between 14 and 18 should only be permitted to work at night upon continuous processes of such a kind that great loss would result if they did not do so. The *practice* of these laws, however, permits them to be employed at night on unnecessary non-continuous processes which are carried out in the same factory as continuous processes. Consequently, the Committee recommend that in future "such permits should be granted in terms of processes, and not of premises, factories, or parts of factories without reference to processes" ([Cd. 6503], p. 17).

by relief to those families whom the prohibition renders
necessitous.¹

§ 11. At this point it is desirable to call attention to a somewhat specious fallacy. Some writers unaccustomed to mathematical analysis have imagined that, when improved methods of producing some commodities are introduced, the value of the marginal social net product of the resources invested in developing these methods is less than the value of the marginal private net product, because there is not included in the latter any allowance for the depreciation which the improvement causes in the value of existing plant; and, as they hold, in order to arrive at the value of the marginal social net product, such allowance ought to be included.² If this view were correct, reason would be shown for attempts to make the authorisation of railways dependent on the railway companies compensating existing canals, for refusals to license motor omnibuses in the interests of municipal tramways, and for the placing of hindrances in the way of electric lighting enterprises in order to conserve the contribution made to the rates by municipal gas companies. But in fact the view is not correct. The marginal social net product of resources devoted to improved methods of producing a given commodity is not, in general, different from the marginal private net product; for whatever loss the old producers suffer through a reduction in the price of their products is balanced by the gain which the reduction confers upon the purchasers of these products. This is obvious if, after the new investment has been made, the old

¹ Cf. *Annual Report of the Local Government Board*, 1908-10, p. 57. The suggestion that the injurious consequences of the factory work of mothers can be done away with, if the factory worker gets some unmarried woman to look after her home in factory hours, is mistaken, because it ignores the fact that a woman's work has a special personal value in respect of her own children. In Birmingham this fact seems to be recognised, for, after a little experience of the bad results of putting their children out to "mind," married women are apt, it was said before the war, to leave the factory and take to home work. (Cf. *Gadbury, Women's Work*, p. 176.)

² For example, J. A. Hobson, *Sociological Review*, July 1911, p. 197, and *Gold, Prices and Wages*, pp. 107-8. Even Sidgwick might be suspected of countenancing the argument set out in the text (cf. *Principles of Political Economy*, p. 408). It does not seem to have been noticed that this argument, if valid, would justify the State in prohibiting the use of new machinery that dispenses with the services of skilled mechanics until the generation of mechanics possessing that skill has been depleted by death.

machines continue to produce the same output as before at reduced prices. If the production of the old machines is diminished on account of the change, it seems at first sight doubtful. Reflection, however, makes it plain that no unit formerly produced by the old machinery will be supplanted by one produced by the new machinery, except when the new machinery can produce it at a *total cost* smaller than the *prime cost* that would have been involved in its production with the old machinery: except, that is to say, when it can produce it at a price so low that the old machinery would have earned nothing by producing it at that price. This implies that every unit taken over by the new machinery from the old is sold to the public at a price *reduced* by as much as the whole of the net receipts, after discharging prime costs, which the old machinery would have obtained from it if it had produced that unit. It is thus proved that there is no loss to the owners of the old machines, in respect of any unit of their former output, that is not offset by an equivalent gain to consumers. It follows that to count the loss to these owners, in respect of any unit taken over from them by the new machinery, as a part of the social cost of producing that unit would be incorrect.

An attempt to avoid this conclusion may, indeed, still be made. It may be granted that, so far as direct effects are concerned, ordinary commercial policy, under which investment in improved processes is not restrained by consideration for the earnings of other people's established plant, stands vindicated. There remain, however, indirect effects. If expensive plant is liable to have its earnings reduced at short notice by new inventions, will not the building of such plant be hindered? Would not the introduction of improved processes on the whole be stimulated, if they were in some way guaranteed against too rapid obsolescence through the competition of processes yet further improved? The direct answer to this question is, undoubtedly, yes. On the other side, however, has to be set the fact that the policy proposed would retain inferior methods in use when superior methods were available. Whether gain or loss on the whole would result from these two influences in combination, is a question to which it seems difficult to

give any confident answer. But this important conclusion is not the last word. The argument so far has assumed that the rapidity with which improvements are invented is independent of the rapidity of their practical adoption; and it is on the basis of that assumption that our comparison of rival policies fails to attain a definite result. As a matter of fact, however, improvements are much more likely to be made at any time, if the best methods previously discovered are being employed and, therefore, watched in actual operation, than if they are being held up in the interest of established plant. Hence the holding-up policy indirectly delays, but also the invention of improvements that have been invented, not merely the adoption of new improvements. This circumstance almost certainly turns the balance. The policy proper to ordinary competitive industry is, therefore, in general and on the whole, of greater social advantage than the rival policy. It is not to the interest of the community that business men, contemplating the introduction of improved methods, should take account of the loss which forward action on their part threatens to other business men. The example of some municipalities in postponing the erection of electric-lighting plant till their gas plant is worn out is not one that should be imitated, nor one that can be successfully defended by reference to the distinction between social and private net products. The danger that beneficial advances may be checked by unwise resistance on the part of interested municipal councils is recognised in this country in the rules empowering the central authority to override attempts at local vetoes against private electrical enterprise. The policy followed by the Board of Trade is illustrated by the following extract from their report on the Ardrossan, Salcoats and District Electric Lighting Order of 1910: "As the policy of the Board has been to hold that objection on the grounds of competition with a gas undertaking, even when belonging to a local authority, is not sufficient reason to justify them in refusing to grant an Electric Lighting Order, the Board decided to dispense with the consent of the Corporation of Ardrossan."¹

§ 12. So far we have considered only those divergences

¹ Cf. Knoop, *Principles and Methods of Municipal Trading*, p. 35.

between private and social net products that come about through the existence of uncompensated services and uncharged disservices, the general conditions of popular taste being tacitly assumed to remain unchanged. This is in accordance with the definition of social net product given in Chapter II. § 5. As was there indicated, however, it is, for some purposes, desirable to adopt a wider definition. When this is done, we observe that a further element of divergence between social and private net products, important to economic welfare though not to the actual substance of the national dividend, may emerge in the form of uncompensated or uncharged effects upon the *satisfaction that consumers derive from the consumption of things other than the one directly affected*. For the fact that some people are now able to consume the new commodity may set up a psychological reaction in other people, directly changing the amount of satisfaction that they get from their consumption of the old commodity. It is conceivable that the reaction may lead to an *increase* in the satisfaction they obtain from this commodity, since it may please them to make use of a thing just because it is superseded and more or less archaic. But, in general, the reaction will be in the other direction. For, in some measure, people's affection for the best quality of anything is due simply to the fact that it is the best quality; and, when a new best, superior to the old best, is created, that element of value in the old best is destroyed. Thus, if an improved form of motor car is invented, an enthusiast who desires above all "the very latest thing" will, for the future, derive scarcely any satisfaction from a car, the possession of which, before this new invention, afforded him intense pleasure. In these circumstances the marginal social net product of resources invested in producing the improved type is somewhat smaller than the marginal private net product.¹ It is possible that the introduction of electric lighting into a town may, in some very slight degree, bring about this sort of psychological reaction in regard

¹ It should be noticed that the argument of the text may be applicable even where the product formerly consumed is wholly superseded by the new rival, and where, therefore, nobody is actually deriving diminished satisfaction from the old product: for it may be that complete supersession would not have come about unless people's desire for the old product had been reduced by the psycho-

to gas: and this possibility may provide a real defence, supplementary to the fallacious defence described in the preceding section, for the policy of municipalities in delaying the introduction of electricity. This valid defence, however, is almost certainly inadequate. The arguments actually employed in support of the view that municipalities should not permit competition with their gas plant are those described in the preceding section. They are, in general, independent of any reference to psychological reactions, and are, therefore, like the arguments which persons interested in canals brought against the authorisation of the early railways, wholly fallacious.

§ 13. It is plain that divergences between private and social net product of the kinds we have so far been considering cannot, like divergences due to tenancy laws, be mitigated by a modification of the contractual relation between any two contracting parties, because the divergence arises out of a service or disservice rendered to persons other than the contracting parties. It is, however, possible for the State, if it so chooses, to remove the divergence in any field by "extraordinary encouragements" or "extraordinary restraints" upon investments in that field. The most obvious forms, which these encouragements and restraints may assume are, of course, those of bounties and taxes. Broad illustrations of the policy of intervention in both its negative and positive aspects are easily provided.

The private net product of any unit of investment is unduly large relatively to the social net product in the businesses of producing and distributing alcoholic drinks. Consequently, in nearly all countries, special taxes are placed upon these businesses. Marshall was in favour of treating in the same way resources devoted to the erection of buildings in crowded areas. He suggested, to a witness before the Royal Com-

logical reaction we have been contemplating. Furthermore, the preceding argument shows that inventions may actually diminish aggregate economic welfare: for they may cause labour to be withdrawn from other forms of productive service to make a new variety of some article to supersede an old one, whereas, if there had been no invention, the old one would have continued in use and would have yielded as much economic satisfaction as the new one yields now. This is true, broadly speaking, of inventions of new weapons of war, so far as these are known to all nations, because it is of no advantage to one country to have improved armaments if its rivals have them also.

mission on Labour, "that every person putting up a house in a district that has got as closely populated as is good should be compelled to contribute towards providing free playgrounds."¹ The principle is susceptible of general application. It is employed, though in a very incomplete and partial manner, in the British levy of a petrol duty and a motor-car licence tax upon the users of motor cars, the proceeds of which are devoted to the service of the roads.² It is employed again in an ingenious way in the National Insurance Act. When the sickness rate in any district is exceptionally high, provision is made for throwing the consequent abnormal expenses upon employers, local authorities or water companies, if the high rate can be shown to be due to neglect or carelessness on the part of any of these bodies. Some writers have thought that it might be employed in the form of a discriminating tax upon income derived from foreign investments. But, since the element of disadvantage described in § 10 only belongs to some of these investments and not to others, this arrangement would not be a satisfactory one. Moreover, foreign investment is already penalised to a considerable extent both by general ignorance of foreign conditions and by the fact that income earned abroad is frequently subjected to foreign income tax as well as to British income tax.

The private net product of any unit of investment is unduly small in industries, such as agriculture, which are supposed to yield the indirect service of developing citizens suitable for military training. Partly for this reason agriculture in Germany was accorded the indirect bounty of protection. A more extreme form of bounty, in which a governmental authority provides all the funds required, is given upon such services as the planning of towns, police administration, and, sometimes, the clearing of slum areas. This type of bounty is also not

¹ *Royal Commission on Labour*, Q. 8865.
² The application of the principle is incomplete, because the revenue from these taxes, administered through the Road Board, must be devoted, "not to the ordinary road maintenance at all, however onerous it might be, but exclusively to the execution of new and specific road improvements" (Webb, *The King's Highway*, p. 250). Thus, in the main, the motorist does not pay for the damage he does to the ordinary roads, but obtains in return for his payment an additional service useful to him rather than to the general public.

infrequently given upon the work of spreading information about improved processes of production in occupations where, owing to lack of appreciation on the part of potential beneficiaries, it would be difficult to collect a fee for undertaking that task. Thus the Canadian Government has established a system, "by means of which any farmer can make inquiry, without even the cost of postage, about any matter relating to his business";¹ and the Department of the Interior also sometimes provides, for a time, actual instruction in farming.² Many Governments adopt the same principle in respect of information about Labour, by providing the services of Exchanges free of charge. In the United Kingdom the various Agricultural Organisation Societies are voluntary organisations, providing a kindred type of bounty at their subscribers' expense. An important part of their purpose is, in Sir Horace Plunkett's words, to bring freely "to the help of those whose life is passed in the quiet of the field the experience, which belongs to wider opportunities of observation and a larger acquaintance with commercial and industrial affairs."³ The Development Act of 1909, with its provision for grants towards scientific research, instruction, and experiment in agricultural science, follows the same lines.

It should be added that sometimes, when the inter-relations of the various private persons affected are highly complex, the Government may find it necessary to exercise some means of authoritative control in addition to providing a bounty. Thus it is coming to be recognised as an axiom of government that, in every town, power must be held by some authority to limit the quantity of building permitted to a given area, to restrict the height to which houses may be carried,—for the erection of barrack dwellings may cause great overcrowding of area even though there is no overcrowding of rooms,⁴—and generally to control the building

¹ Mavor, *Report on the Canadian North-West*, p. 36.

² *Ibid.* p. 78.

³ O. Webb, *Industrial Co-operation*, p. 149.

⁴ Mr. Dawson believes that this type of overcrowding prevails to a considerable extent in German towns. He writes: "The excessive width of the streets, insisted on by cast-iron regulations, adds greatly to the cost of house-building, and in order to recoup himself and make the most of his profits, the builder begins to extend his house vertically instead of horizontally" (*Manuscript Log*

activities of individuals. It is as idle to expect a well-planned town to result from the independent activities of isolated speculators as it would be to expect a satisfactory picture to result if each separate square inch were painted by an independent artist. No "invisible hand" can be relied on to produce a good arrangement of the whole from a combination of separate treatments of the parts. It is, therefore, necessary that an authority of wider reach should intervene and should tackle the collective problems of beauty, of air and of light, as those other collective problems of gas and water have been tackled. Hence, shortly before the war, there came into being, on the pattern of long previous German practice, Mr. Burns's extremely important town-planning Act. In this Act, for the first time, control over individual buildings, from the standpoint, not of individual structure, but of the structure of the town as a whole, was definitely conferred upon those town councils that are willing to accept the powers offered to them. Part II. of the Act begins: "A town-planning scheme may be made in accordance with the provisions of this Part of the Act as respects any land which is in course of development, or appears likely to be used for building purposes, with the general object of securing proper sanitary conditions, amenity, and convenience in connection with the laying out and use of the land, and of any neighbouring lands." The scheme may be worked out, as is the custom in Germany, many years in advance of actual building, thus laying down beforehand the lines of future development. Furthermore, it may, if desired, be extended to include land on which buildings have already been put up, and may provide "for the demolition or alteration of any buildings thereon, so far as may be necessary for carrying the scheme into effect." Finally, where local authorities are remiss in preparing a plan on their own initiative, power is given to the appropriate department of the central Government to order them to take action. There is ground for hope, however, that, so soon as people

and Government in Germany, pp. 163-4). Hence German municipalities now often control the height of buildings, providing a scale of permitted heights which decreases on passing from the centre to the outlying parts of a town.

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become thoroughly familiarised with town-planning, local patriotism and inter-local emulation will make resort to pressure from above less and less necessary.

§ 14. So far we have been concerned with forms of divergence between social and private net products that are liable to occur even under conditions of simple competition. Where conditions of monopolistic competition¹—competition, that is to say, between several sellers each producing a considerable proportion of the aggregate output—are present, the way is opened up for a new kind of investment. This consists in competitive advertisement directed to the sole purpose of transferring the demand for a given commodity from one source of supply to another.² There is, indeed, little opportunity for this as regards goods of a kind whose quality is uniform and, as with salt, lumber or grain, can be easily tested; but, where quality cannot be easily tested, and especially where goods are sold in small quantities, which can readily be put into distinctive packages for the use of retail customers, there is plenty of opportunity.³ Not all advertisement is, of course, strictly competitive. Some advertisement, on the contrary, fulfils a social purpose, in informing people of the existence of articles adapted to their tastes. Indeed, it has been said "that advertising is a necessary consequence of sale by description," and represents merely a segregated part of the complex work formerly done by those middlemen who exhibited, as well as sold, their goods.⁴ Without it many useful articles, such as new machines, or useful services, such as that of life insurance, might not be brought at all to the notice of potential purchasers who have a real need for them. Furthermore, some advertisement serves to develop an entirely new set of wants on the part of consumers, the satisfaction of which involves a real addition to social well-being; and the development of which on a large scale at the same time enables the commodity that satisfies them to be produced on

¹ Cf. post, Part II. Ch. XV.
² Under simple competition, there is no purpose in this advertisement, because, *ex hypothesi*, the market will take, at the market price, as much as any one small seller wants to sell. Practically monopolistic competition comprises all forms of imperfect competition.
³ Cf. Jenks and Clark, *The Trust Problem*, pp. 26-7.
⁴ Cf. Shaw, *Quarterly Journal of Economics*, 1912, p. 743.

a large scale and, therefore, cheaply.¹ Under this head it is possible to make out a case in favour of the peculiar system of advertisement arranged on behalf of the general body of its current growers (without the mention of individual names) by the Greek Government:² though, of course, the development of a taste for currants is probably in part at the expense of the taste for something else. It is not, however, necessary to my purpose to attempt an estimate of the proportion which strictly competitive advertisement bears to advertisement in the aggregate—an aggregate the cost of which has been put, for the United Kingdom, at eighty million pounds, and, for the world, at six hundred million pounds per annum.³ That a considerable part of the advertisement of the modern world is strictly competitive is plain.⁴ This is true alike of the more obvious forms, such as pictorial displays, newspaper paragraphs, travellers, salesmen, and so on; and of the more subtle forms, such as a large exhibit of jewellery in the shop window, the according of credit, with the consequential expenditure on book-keeping and on the collection of recalcitrant debts, expenditure in keeping shops open at hours inconvenient and costly to the sellers, and other such forms. It is plain that, up to a point, investment of this type, in so far as it retains, or gains, for the investor "a place in the sun," yields, like expenditure upon national armaments, a considerable private net product. A curve, representing the private net products yielded by successive increments of it, would indicate positive values for a long distance. What relation does this curve bear to the corresponding curve representing the social net products of successive increments?

¹ Cf. the discussion of "constructive" and "combative" advertisements in Marshall's *Industry and Trade*, pp. 304-7.
² Cf. Goodall, *Advertising*, p. 49.
³ *Ibid.*, p. 2.
⁴ It should be observed that this type of advertisement, which aims in effect at diverting custom from a rival to oneself, may be pressed to lengths that the laws of modern States will not tolerate. Thus in some European States certain definite false statements about awards alleged to have been won at exhibitions or about an exceptional offer of bankrupt stock, direct disparagement of a rival's character or produce, and attempts to pass off one's own goods as the goods of a well-known house are punishable offences. (Cf. Davies, *Trust Laws and Unfair Competition*, ch. x.)
⁵ Of course the "resources" invested in these things are measured by the actual capital and labour involved in the production of the paragraphs, not by a monopoly charge—if such is made—extracted for them by the newspaper concerned.

First, it may happen that the net result of the expenditures made by the various rivals in conflict with each other is to bring about an alliance between them. If this happens, the expenditures induced by a state of monopolistic competition are responsible for the evolution of simple monopoly. It does not seem possible to determine in a general way the comparative effects on output that will be produced by simple monopoly and by monopolistic competition. Consequently no general statement can be made as to whether the curve representing the social net products of successive increments of investment will indicate positive values over any part of its course.

Secondly, it may happen that the expenditures on advertisement made by competing monopolists will simply neutralise one another, and leave the industrial position exactly as it would have been if neither had expended anything. For, clearly, if each of two rivals makes equal efforts to attract the favour of the public away from the other, the total result is the same as it would have been if neither had made any effort at all. This point was set in a very clear light in Mr. Butterworth's Memorandum to the Board of Trade Railway Conference in 1908. He pointed out that, under competitive arrangements, the officers of rival companies spend a great part of their time and energy in "scheming how to secure traffic for their own line, instead of in devising how best to combine economy with efficiency of working. At present much of the time and energy of the more highly-paid officials of a railway company is taken up with work in which the trading community has no interest, and which is only rendered necessary in the interest of the shareholders whom they serve by the keen competition which exists between companies."¹ In these circumstances the curve representing the social net products of successive increments of investment will indicate negative values throughout.

Thirdly, it may happen that the expenditures lead simply to the substitution in a market of goods made by one firm for the same quantity of equivalent goods made by another firm. If we suppose production, both under A's auspices and under B's,

¹ [Ct. 4677], p. 27.

to obey the law of constant supply price, and to involve equal cost per unit, it is clearly a matter of indifference to the community as a whole from which of these two producers the public buys. In other words, all units of resources expended by either producer in building up goodwill as against the other have a social net product equal to zero. If conditions are such that a diminution in the aggregate cost of production of the commodity would be brought about by the transference employed by A to abstract orders from B would yield a positive social net product, while all units of resources employed by B to abstract orders from A would yield a negative social net product. If we suppose the more efficient and the less efficient firms to expend resources in these hostilities in about equal measure, in such wise that their efforts cancel one another and leave things much as they would have been had the efforts of both been removed, it is obvious that the social net product of any compound unit of these efforts taken as a whole is, again, zero. There is, however, some slight ground for believing that firms of low productive efficiency tend to indulge in advertisement to a greater extent than their productively more efficient rivals. For, clearly, they have greater inducements to expenditure on devices, such as special packages, designed to obviate comparison of the bulk of commodity offered by them and by other producers at a given price. This consideration suggests that the curve representing the social net products of successive increments of investment is likely to indicate negative values throughout.

The discussion of the preceding paragraphs makes it plain that, speaking generally, the social net product of any *n*th increment of resources invested in competitive advertisement is exceedingly unlikely to be as large as the private net product. The consequent waste might be diminished by special undertakings among competitors not to advertise, such as hold good among barristers, doctors and members of the London Stock Exchange. Failing this, the evil might be attacked by the State through the taxation, or prohibition, of competitive advertisements—if these could be distinguished from advertisements which are not strictly competitive. It could

be removed altogether if conditions of monopolistic competition were destroyed.

§ 15. We now turn to conditions of bilateral monopoly, that is to say, conditions under which the relations between individual buyers and sellers are not rigidly fixed by a surrounding market. The presence of bilateral monopoly in this sense implies an element of theoretical indeterminateness, and, therefore, opens up the way for the employment of activities and resources in efforts to modify the ratio of exchange in favour of one or other of the "monopolists." The nature of the indeterminateness present is different according as the monopolists are, as it were, solidified units, such as single individuals and joint-stock companies, or representative units, such as Trade Unions or Employers' Federations, whose officials negotiate to establish a rate of pay, but whose individual members, when this rate is established, are still free at will to continue or to abandon business. This distinction is, for some purposes, important and ought not to be ignored.¹ It does not, however, bear directly upon our present inquiry. For, whatever the nature of the indeterminateness, it is plain that activities and resources devoted to manipulating the ratio of exchange may yield a positive private net product; but they cannot—even the earliest dose of them cannot—yield a positive social net product, and they may in some conditions yield a negative social net product.² The activities here contemplated consist chiefly— for physical force exercised in direct plunder does not operate through exchange—in the brain work of "bargaining" proper and in the practice of one or other of two sorts of deception. These latter are, first, deception as to the physical nature of a thing offered for sale, and, secondly, deception as to the

¹ With solidified units the *settlement locus*—i.e. the range of possible bargains—lies along the contract curve, and with representative units along portions of the two reciprocal demand (or supply) curves. For a technical discussion of this and connected points of my paper "Equilibrium under Bilateral Monopoly" (*Economic Journal*, Jan. 1908, pp. 205 et seq.); also my *Principles and Methods of Industrial Peace*, Appendix A.

² It will be understood that net product here means net product of dividend. It is not, of course, denied that, if a poor man outbargains a rich one, there is a positive net product of economic satisfaction, and, if a rich man outbargains a poor one, a corresponding negative net product of satisfaction.

future yield that it is reasonable to expect from a thing offered for sale, when the physical nature of that thing has been correctly described.

§ 16. Of bargaining proper there is little that need be said. It is obvious that intelligence and resources devoted to this purpose, whether on one side or on the other, and whether successful or unsuccessful, yield no net product to the community as a whole. According to Professor Carver, a considerable part of the energies of business men is devoted to, and a considerable part of their earnings arise out of, activities of this kind.¹ These activities are wasted. They contribute to private, but not to social, net product. But this conclusion does not exhaust the subject. It is often pointed out that, where their clients, be they customers or workpeople, can be squeezed, employers tend to expend their energy in accomplishing this, rather than in improving the organisation of their factories. When they act thus, the social net product even of the earliest dose of resources devoted to bargaining may be, not merely zero, but negative. Whenever that happens, no tax that yields a revenue, though it may effect an improvement, can provide a complete remedy. For that absolute prohibition is required. But absolute prohibition of bargaining is hardly feasible except where prices and conditions of sale are imposed upon private industry by some organ of State authority.²

§ 17. Deception as to the physical nature of a thing offered for sale is practised through false weights and measures, adulteration and misnaming of goods, and dishonest advertisement. Before the days of co-operation "the back streets of the manufacturing towns swarmed with small shops, in which the worst of everything was sold, with unchecked measures and unproved weights."³ To a less degree similar practices still prevail. There is little temptation to adopt them in marketing "production goods," where the buyers are large industrial concerns, like railway companies, which

¹ Cf. *American Economic Association*, 1909, p. 51.

² The legislation of many States concerning private labour exchanges is relevant here. For an account of this legislation, cf. Becker and Bernhardt, *Gezetzliche Regelung der Arbeitsvermittlung*.

³ Aves, *Co-operative Industry*, p. 16.

possess elaborately organised testing departments. But, in selling "consumption goods"—particularly semi-mysterious consumption goods like patent medicines—to poor and ignorant buyers, and even in selling production goods to less skilled buyers, such as farmers, there is some temptation. It is always profitable for sellers to "offer commodities which seem, rather than are, useful, if the difference between seeming and reality is likely to escape notice."¹ Deception as to the future yield, which it is reasonable to expect from a thing offered for sale, is practised, in the main, by unscrupulous financiers selling stocks and shares. Among the methods employed are the manipulation of dividend payments, "matched orders," the deliberate publication of false information,² and—a practice less clearly over the border line of fairness—the deliberate withholding of relevant information.³ It is evident that, up to a point, activities devoted to either of these forms of deception bring about a positive private net product, but not a positive social net product. Furthermore, they often lead to enhanced purchases and, therefore, enhanced production of the thing about which deception has been practised. Hence they divert to the

¹ Sidgwick, *Principles of Political Economy*, p. 416.

² For a lurid account of some of these methods vide Lawson, *Practical Finance*, and for an analysis of the protective devices embodied in the celebrated German law of 1884, vide Schuster, "The Promotion of Companies and the Value of their Assets according to German Law," *Economic Journal*, 1900, p. 1 *et seq.* It should be observed that the device of "matched orders" may be made difficult by a rule forbidding offers and bids for large amounts of stock on the terms "all or none." For, when such a rule exists, there is more chance that a seller or buyer operating a matched order may be forced unwillingly to make a deal with some one other than his confidant. (Cf. Bruce, *The Value of Organised Speculation*, p. 241.)

³ It is interesting to observe that, whereas the law often, and public opinion generally, condemns a seller who withholds relevant information, a buyer who acts in this way is generally commended for his "good bargain." Thus to pick up a piece of valuable oak furniture in an out-of-the-way cottage for much less than it is worth is thought by some to be creditable; and nobody maintains that the Rothschild, who founded the fortunes of his house by buying government stock on the strength of his early knowledge of the battle of Waterloo, was bound in honour to make that information public before acting on it. The reason for this distinction probably is that the possessor of an article is presumed to have full opportunity of knowing its real value, and, if he fails to do this, becomes, for his carelessness, legitimate prey. A director of a company who bought up shares in that company on the strength of knowledge gained in the Board room, and so not available to the shareholders generally, would be universally condemned.

production of this thing resources that would otherwise have been devoted to investments yielding the normal marginal return. Therefore, when this indirect consequence is taken into account, the social net product even of the earliest close of resources devoted to deception, is, in general, not zero but negative. If the thing in question is something the production of which involves no expenditure of resources, like the fictitious situations created by fraudulent registry offices, the social net product does not, indeed, sink below zero, for extra production of these imaginary entities involves no withdrawal of resources from elsewhere. As a rule, however, the social net product of any dose of resources invested in a deceptive activity is negative. Consequently, as with bargaining, no tax that yields a revenue, though it may effect an improvement, can provide a complete remedy, and absolute prohibition of the activity is required. Attempts to establish such prohibition have been made, on the one side, in various laws concerning false weights and measures and the adulteration of foods, and, on the other side, in various laws—laws, which to be effective, must be enforceable at the instance, not of the damaged party, but of public inspectors or commissioners¹—designed to control and regulate the practice of company promotion. In other fields the evil can be met in a more direct way by the establishment of Purchasers' Associations, in which the interests of the sellers and the buyers are unified.²

¹ Cf. Van Hise, *Concentration and Control*, pp. 76-8.

² Cf. *post* Part II, Ch. XIX.

The Postwar Literature on Externalities: An Interpretive Essay

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EXTERNAL EFFECTS ON FIRMS—OR EXTERNALITIES

As they are now inelegantly referred to—make their appearance in Marshall's *Principles* as external economies; i.e., economies external to the firm but internal to the industry. Little attention was given to this concept until Pigou's celebrated *Economics of Welfare*, where, developed and extended, it appears as one of the chief causes of divergencies between "private net product" and "social net product." Ex-

pressed more generally, externalities today provide the standard exception to the equation of optimality with universal perfect competition. In addition to the increasingly overt recognition of this qualifying or limiting proviso, interest in the externality concept, as a phenomenon in the context of partial equilibrium analysis, has grown steadily and picked up momentum in the post-war period. Its current popularity warrants the demarcation of a new field of specialization within the broader terrain of welfare economics.

Other than R. F. Kahn's emendation of A. C. Pigou's general proposition in his classic paper on Ideal Output [23, Kahn, 1935, pp. 1-35]—to the effect that competitive industries having external economies (diseco-

Since one of the purposes of this interpretative survey is to acquaint the non-specialist with the significance of the advances made on this front, and to leave him with a picture of works in progress, a chronological account would seem to be less suitable than one that divides the subject into a number of broad aspects. This treatment is,

less relevant, bits of apparatus. Lag, initially making use of more familiar, if pertinent to inter-industry, inter-firm, and inter-person externalities. Economists respond to real world problems with a time partial equilibrium analysis, has grown steadily and picked up momentum in the post-war period. Its current popularity warrants the demarcation of a new field of specialization within the broader terrain of welfare economics.

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