THE TYRANNY OF SMALL DECISIONS: MARKET FAILURES, IMPERFECTIONS, AND THE LIMITS OF ECONOMICS*

The perennial problem of the appropriate role of government in economic life has been subjected to increasingly intense consideration by American economists in recent years, as part of the active political controversy over the proper balance of resource allocation between 'private wants and public needs'. In particular, strenuous efforts have been made on the one hand to identify and analyze defects in the resource allocation effected by an unregulated market, such as might be remedied by government intervention; and, on the other, to devise economic criteria for allocating resources, alternatively, via government spending². The present essay falls in the former category: it defines and analyzes a particular inherent characteristic of the market, not to my knowledge hitherto identified as such, that is capable under certain circumstances of producing a defective or possibly objectionable allocational result.

I. The phenomenon defined

A market economy makes its major allocation decisions on the basis of a host of 'smaller' decisions—smaller in size and time-dimension—recorded in individual market transactions. These smaller transactions themselves vary greatly in their size and scope—in the amount of resources they affect and the period of time they cover.

- * The author is greatly indebted to Joel B. Dirlam, George J. Staller, Burton A. Weisbrod and Myron W. Watkins for their criticisms and suggestions.
- 1. This is the title of a very useful compendium of readings edited by EDMUND S. PHELPS, rev. ed. (New York, Norton, 1965). See also Francis M. Bator, The Question of Government Spending (New York, Harper, 1960).
- 2. See, e.g., John V. Krutilla and Otto Eckstein, Multiple Purpose River Development (Baltimore, John Hopkins, 1958); Roland N. McKean, Efficiency in Government Through Systems Analysis (New York, Wiley, 1958); Robert Dorfman (Ed.), Measuring Benefits of Government Investments (Washington, Brookings Institution, 1965).

The short- and long-run determinations by business men are governed by decisions of customers involving a corresponding range in size and time-perspective—to buy a single candy bar, a camping trip, an automobile, a house, or to enter a rental contract of short or long duration. Still, the 'size' or importance of the individual choices by customers is typically less than of those made by the business man, so that each of the latter's decisions reflects a prospective adding up of the consequences of a large number of customer actions taking place over a period of time.

A critical task in appraising the allocative efficiency of such an economy, then, is to determine whether and under what conditions the total effect of these small decisions will be optimal. The 'tyranny of small decisions' suggests that it may not be, merely because the decisive determinations are individually too 'small', in the sense above indicated. It suggests that if one hundred consumers choose option x, and this causes the market to make decision X (where X equals $100 \, x$), it is not necessarily true that those same consumers would have voted for that outcome if that large decision had ever been presented for their explicit consideration. If this is true, the consumer can be victimized by the narrowness of the contexts in which he exercises his sovereignty.

Now, welfare economists have long ago exposed various reasons why indeed these individual decisions may not add up to a collective micro-economic optimum. These reasons fall essentially into two categories: (a) market imperfections and (b) market failures. The significance of imperfections of competition is obvious: if even the individual choices are short of optimal, because, let us say, of consumer ignorance or monopoly, there is no reason to expect their total to be optimal. As for (b), it is by now commonplace that even perfectly competitive markets may fail to achieve Pareto-optimal results in the presence of such phenomena as externalities (economies or diseconomies, unpaid social costs, privately inappropriable social benefits) or internally increasing returns (when a price equated to marginal cost, as the Pareto optimum would require, will not be adequately remunerative to a private entrepreneur)³. In addition, economists have long recognized the possibility of objections to con-

3. See, e.g., BATOR, 'The Anatomy of Market Failure', Quarterly Journal of Economics, LXXII (August 1958), pp. 351-79.

sumer sovereignty itself, on 'non-economic' grounds. This category of possible objections to the functioning of the market, in contrast with the first two, questions or rejects the value judgments underlying Pareto's definition of optimality, and raises considerations generally deemed to lie outside the particular competence of economics.

The 'tyranny of small decisions' does not add a fourth category to this list. As the ensuing discussion will show, its manifestations fall sometimes in one, sometimes in another of the familiar three; and the defect of, or possible basis for objection to, the private market that it identifies can in principle be conceived of in one or another of those familiar terms. Thus Part II, below, will consider situations in which it may cause authentic market failure. The problems analyzed in Parts III—V will prove to involve mixtures of all three categories: sometimes the real culprit proves to be an imperfection of competition; sometimes what seem to be involved are dynamic consequences of the market that welfare economics is simply incapable of appraising.

But in all instances, I believe, the 'smallness' of the governing decisions is in one way or another an additional explanatory element. It seems in some instances to illuminate the problem better than the more familiar market failures or imperfections; and it sometimes seems to have the virtue of more clearly suggesting the necessity of looking at the process in broader terms than does the market, and possibly substituting a 'large' for a piecemeal accumulation of 'small' decisions, if the results of the market are to be intelligently appraised or effectively improved.

II. The phenomenon as an instance of market failure

The event that first suggested the phenomenon to this writer was the disappearance of passenger railroad service from Ithaca, a small and comparatively isolated (since that time even more so!) community in upstate New York. It may be assumed the service was withdrawn because over a long enough period of time the individual decisions travellers made, for each of their projected trips into and out of Ithaca and the other cities served, did not provide the railroads enough total revenue to cover incremental costs (defined over the same period). Considering the comparative comforts and speeds of

competing media, those individual decisions were by no means irrational: the railroad was slow and uncomfortable.

What reason, then, was there to question the aggregate effect of those individual choices—withdrawal of the service? The fact is the railroad provided the one reliable means of getting into and out of Ithaca in all kinds of weather; and this insufficiently-exerted option, this inadequately-used alternative was something I for one would have been willing to pay something to have kept alive. This way of looking at the result suggests a simple, though unfortunately subjective and hence not necessarily practical, test of whether the railroad's closing was economically correct: let each traveller or potential traveller have asked himself4 how much he would have been willing to pledge regularly over some time period, say annually, by purchase of prepaid tickets, to keep rail passenger service in Ithaca. So long as the amount he would have declared (to himself) would have exceeded what he actually paid in that period-and my own introspective experiment shows it would—then to that extent the disappearance of passenger service from Ithaca was an incident of market failure.

The cause of the failure was the discrepancy between the time perspective of the choices I was given an opportunity to make—deciding, each time I planned to travel, whether or not to go by train—and the relevant decision of the railroad, which was a long-run, virtually all-or-nothing and once-for-all decision, to retain or abandon passenger service. When each traveller or potential traveller chose between the local airline, his own automobile, and the railroad, his individual choice had an only negligible effect on the continued availability of the latter; it would therefore have been irrational for him to consider this possible implication of his decision.

4. If instead he had been asked by someone else—say the railroad company—he might not have answered honestly. This is because the mere availability of railroad service to a community is what PAUL A. SAMUELSON has termed a public good: so long as the railroad remains, it costs nothing additional to keep it available for B as well as A; and as long as it is available to A, it is automatically available also to B. This is the kind of situation in which each person approached to contribute to its continued availability is under systematic temptation to understate the intensity of his demand, in hope that the pledges of others will suffice to preserve the option for him anyhow. 'The Pure Theory of Public Expenditure', Review of Economics and Statistics, XXXVI (November 1954), pp. 388–9.

The fact remains that each selection of x over y constitutes also a vote for eliminating the possibility thereafter of choosing y; if enough people vote for x, each time necessarily on the assumption that y will continue, y may in fact disappear. And its disappearance may constitute a genuine deprivation, that customers might willingly have paid something to avoid. The only choice the market offered us travellers to influence the longer-run decision of the railroad was thus shorter in its time perspective, and the sum-total of our individual purchases of railroad tickets necessarily added up to a smaller amount, than our actual combined interest in the continued availability of rail service. We were victims of the tyranny of small decisions.

But if most of the travellers who felt a sense of loss at the railroad's demise had in fact patronized it, though infrequently, when it was still available, could not the railroad company have tested their evaluation of its continuation in service by charging them higher fares than it did on those few occasions? It might have tried, and to some extent succeeded: apart from administrative and regulatory inconveniences, railroads could for example charge higher passenger fares on rainy days, when the airplanes are grounded, or in the winter, and in this fashion appropriate a share of the consumers' surplus derived from their continued availability for just such emergencies⁵. But such a policy could not escape the basic difficulty. At each such time, the individual traveller would still be deciding whether or not to pay the higher price on the basis of the costs, pains and benefits facing him in that particular instance. The higher fare might cause him simply to postpone his trip. He would still have no opportunity to express or convey to the railroad—and, on the contrary, would still have an incentive to conceal—his full appraisal of the value to him of having the service available at all times.

As has already been suggested, this instance of the tyranny of small decisions can be conceived in more familiar terms. As has frequently been noted, when some of the economic effects of individual transactions do not enter into the calculations of the transacting parties, the total effect of individual optimizing decisions may fall short of a collective optimum. The essential flaw is precisely the one empha-

5. On some of the difficulties, see Burton A. Weisbrod, 'Collective-Consumption Services of Individual Consumption Goods', *Quarterly Journal of Economics*, LXXVIII (August 1964), pp. 475–6.

sized here: the individual transaction is 'too small' if it has external, unconsidered effects. Conversely, if, as in the present instance, the larger result, representing a summation of smaller decisions, is not optimal, it must mean that the component transactions involved external economies or diseconomies.

The specific externality involved here has been very clearly identified by Burton A. Weisbrod's argument concerns the possible failure of the market to provide services part of the demand for which is the desire of potential customers to keep open the possibility or option of enjoying them, when (a) the option is not (or not always) in fact exercised, (b) revenues from actual purchasers are or become insufficient to cover the costs of continued operation, and (c) 'expansion or recommencement of production at the time [in the future] when occasional purchasers wish to make a purchase ... [is] difficult or impossible'7. As Weisbrod points out, provision of the option to non-users is a costless (external) byproduct of supplying actual users; underallocation of resources to this endeavor occurs only when condition (b) prevails. So the external benefit in our example is the mere availability of the service to non-users, the continued ability to satisfy as-yet unexerted 'option demand', as he terms it8.

The concept of externalities is however in some situations inadequately descriptive of what we have in mind here. Thus, it has not until Weisbrod (to my knowledge) suggested to economists the tendency of the market to underrate option demand. While Milton Friedman recognizes that because of their great 'neighborhood effects' city parks would be supplied in inadequate quantities by the private market alone, he rejects this case for governmental initiative in the provision of national parks. Surely, he reasons, the only people benefitted by the latter are those who actually travel to them: distant,

^{6.} Op. cit., pp. 471-7.

^{7.} Ibid., p. 474.

^{8.} The simplest case of the Weisbrod phenomenon is where the option demand is not exercised at all during the period over which revenues must cover cost if service is to be continued. But, as he recognizes (op. cit., p. 476) and our foregoing discussion demonstrates, the problem may arise also if the option demand is merely exercised infrequently—insufficiently for the revenues from users on the one hand to cover costs, on the other hand fully to reflect consumers' aggregate evaluation of the continued availability of the service.

unseen parks can generate no external benefits. Why not then leave it to the market to ascertain by a system of user charges to what extent the users or potential users are willing to pay the opportunity costs of providing these services? The point is, however, that there are other, economically interested parties who would not be consulted in this determination—the people who may never travel to the parks yet for whatever reason derive satisfaction from their availability, and who would feel a loss if they were to disappear. The wilderness is a particularly apt example, because it most clearly meets the irreversibility requirement, (c), above: once 'production' has ceased it cannot ever be resumed!

So in our railroad example: externalities are usually understood to refer to the effects of a transaction on other parties, or on the transactors in other roles. In the present situation it is in large measure the interests of the same parties, railroad passengers as such, that are inadequately considered. The offenders are also the unwitting-or, if witting, none the less helpless-victims. One might of course still maintain that the potential rail passenger on a wintry night when planes are grounded is in economic terms a different person than the one who decides to take the plane on a sunny June day. The effect of the latter's decision on his own welfare in the former situation is an authentic externality. But it has a special character. Whereas it would never pay the individual that imposes external costs on others to alter his course of conduct unless compelled or bribed¹⁰ to do so, it would pay travellers and commuters to take into account, and be influenced in their travel choices by, the 'external' effect—on themselves—of their combined actions, if only the market gave them the opportunity.

III. Invention as the mother of necessity

The philosopher Morris R. Cohen, I have been told, used to challenge his classes with something like the following question: 'Suppose, seventy-five years ago, some being from outer space had made us this proposition: "I know how to make a means of transportation

^{9.} Capitalism and Freedom (Chicago: University of Chicago Press, 1963), p. 31.

^{10.} See R.H. Coase, 'The Problem of Social Cost', The Journal of Law & Economics, III (October 1960), pp. 1-44.

that could in effect put 200 horses at the disposal of each of you. It would permit you to travel about, alone or in small groups, at 60 to 80 miles an hour. I offer you this knowledge; the price is 40,000 lives per year." Would we have accepted? If there is a possibility we might have refused the offer, thus presented—a 'big' decision—then our having reached the same result gradually, unwittingly, by a series of individual purchases could represent a product of the tyranny of small decisions. It may be instructive to sift out the various possible reasons why, or criteria according to which, the market may not have produced optimal results in this historical process.

First, who are the 'we' in this experiment? The way in which the question is posed would seem to require some sort of collective determination, ending in a simple 'yes' or 'no' response, rather than—as the market does it—x yeses and y nos, perhaps at the cost of an equivalent proportion of 40,000 lives. If one feels 'we' as a collectivity—rather than as a simple aggregation of separate individuals—would have been better off had we had the opportunity to make the ('big') decision, politically, on an all-or-none basis, one may, of course, be simply rejecting the standards of welfare economics. This view, while defensible, is one about which the economist has comparatively little to say.

But perhaps the implication is, instead, that individual consumers may have made the wrong decisions, in the sense that at least some of them would have decided otherwise had they known the risks. Then we have a simple case of market imperfection—inadequate knowledge. This interpretation would be valid, of course, only if the risks (and other costs) were costs to the motorist alone. To the extent that the decision of X to buy a car increases the risks of injury or lung cancer to Y, whether or not Y buys a car, we have an external cost and genuine market failure, though of a familiar kind, and not particularly reflective of the tyranny of small decisions¹¹.

The spread of the automobile takes on the peculiar quality of the phenomenon expounded here if, as well may be the case, there is some *threshold level* of traffic density or air pollution below which there are no such risks, or beyond which these external costs mount disproportionately with subsequent individual purchases. It then takes

11. Except in the special sense, already suggested, that any decision from consideration of which external costs are excluded is *ipso facto* too 'small'.

a cumulation of small, individually riskless or comparatively riskless additions to the automobile population to develop a major external cost. Any possible consequent market failure would still be the result of the externality, however: if the interests of all affected parties, perpetrators and potential victims together, were to be consulted in each consecutive small decision, the sharply mounting social costs of consecutive automobile purchases would be adequately reflected in the price, and no market failure need occur.

One moves beyond the familiar externalities, however, when one traces the cumulative effects of individual purchase decisions on the structure of consumer wants themselves. Pigou long ago identified envy as an external cost of consumption, and saw that it was a possible source of market failure. Υ may want a car merely because Xand Z have purchased one; and Z may then want a newer model because B has one. But such externalities are not confined to envy, the 'demonstration effect', or vicarious or altruistic pleasure¹². I'may have to have a car because more and more of his friends are enabled by the cars they have purchased to live on the outskirts of town, and he wants to be able to continue visiting his friends; or because grocery stores have moved to shopping centers; or he may feel impelled to move to the suburbs himself because now the schools are better than in town. Invention, VEBLEN noted, is the mother of necessity. And the process is gradual and cumulative: it takes the moving of more than one friend or one grocery store to require the abandoned Υ to move too and fall victim to the garage-man and the plumber who charges portal-to-portal; and Υ 's move adds its small part to the pressure on W. So what we have is a situation in which a series of apparently free, individually welfare-maximizing purchase decisions, made in the context of a given way of life and given alternatives, has such a cumulative effect on those parameters that subsequent choices can no longer be made in the same atmosphere (literally as well as figuratively: the very atmosphere in town is polluted by cars). In a real sense the decision is less free than it was. The invention has bred a need; and to the cumulative process of creating new needs and then satisfying them one can not apply the

^{12.} A.C. Pigou, *The Economics of Welfare*, 4th ed. (London, Macmillan, 1960), p. 191; E. J. Mishan, 'A Survey of Welfare Economics, 1939–59', *The Economic Journal*, LXX (June 1960), pp. 246–8.

traditional welfare-maximization criteria constructed on the basis of the assumption that that economy serves best that best satisfies wants that are given and unchanging—or, if changing, that change under influences exogenous to the economic system that satisfies them¹³. It would seem we have two distinct phenomena here: one, market failure, within the criteria of welfare economics; and second, a change in tastes that welfare economics is incapable of adjudging¹⁴.

The process of converting inventions into necessities by changing the parameters of individual choice consists in part in the setting in motion of a gradual but cumulative and irreversible (or reversible only at great threshold cost) destruction of alternatives. The rise of the automobile gradually undermined the profitability of the passenger (and commuter) railroads, making it progressively more difficult for the latter to attract either capital or enterprising managers. The comfort and convenience of rail service therefore deteriorated, both absolutely and relative to emerging alternatives. This in turn made it progressively more rational to prefer the latter, and these choices in turn gave another twist to the screw. (This process is far

13. See John Maurice Clark, Economic Institutions and Human Welfare (New York, Knopf, 1957), Chapters 2–3, and pp.113–14; also his Competition as a Dynamic Process (Washington, Brookings, 1961), pp. 38–9; and Moses Abramovitz, 'The Welfare Interpretation of Secular Trends in National Income and Product', in The Allocation of Economic Resources (Stanford, Stanford University Press, 1959), pp. 13–21.

14. I am not able to discern to what extent precisely it is the one, to what extent the other. Weisbrod has suggested to me the desirability of distinguishing 'the aggregate effects of a large number of independent decisions in a static sense from the final effects of a series of decisions taken through time', his point being that the clearest case of market failure 'would be one in which time was irrelevant and yet the simultaneous and independent decisions of a large number of decision-makers produced consequences which they, as a group, would vote (with dollars) to undo'. The processes described in *Part II* meet this test: though as a matter of historical fact they may work themselves out over time, they are not dynamic in the economic sense; they do not require changes in taste or technology or serial decisions for them to produce their poor result.

The present instance is obviously more complicated. It involves changes in taste, in wants, and information. The fact remains that to some extent the changes in Υ 's 'wants' were the external consequences of \mathcal{Z} 's actions; to that extent, paradoxically, though a change in tastes is involved, the phenomenon is authentically static.

advanced in the United States; I do not know whether Europe has begun to experience it as yet, or is on the verge of doing so.) Even, then, if some of the newer alternatives began to involve mounting costs—congestion on city streets, long trips to and from airports—travellers and commuters might still prefer these options to the deteriorated rail service. So long as the deterioration of the latter proceeded more rapidly than the disutilities of the former, the process would not have reversed itself.

In these circumstances, it is entirely conceivable that the total process may not have involved optimization at all. If some fraction of the total resources put into autos, highways and air travel could have been equally available to invest in improving (and research in improving) the railroads (or some other mass transit), consumers might individually have chosen the latter in sufficient quantity to produce quite a different mix from the one that has emerged. Here then is a possible case for large public investment in such a renovation, justified partly by the imperfections of the private capital market¹⁵, partly by externalities¹⁶, and partly by the necessity of extra-market intervention to offset the tyranny of small decisions. It may take a major, discrete step, breaking the market-determined spiral of history, to offer consumers the full range of economically feasible alternatives required for rational choice.

15. If such an investment were economically justified, why would not the market provide it? Why is the process irreversible in the absence of government intervention? In part because management apparently considers internally-generated capital lower-cost than external and is more likely to invest in risky ventures like research and product innovation with the one than with the other; and railroads have relatively little such capital available to them. In part because this is not a purely competitive industry: the effort can hardly be mounted except by existing railroad companies. And suppliers of any new capital to the railroads, whatever its marginal revenue product, would have to pool that revenue product with the meager returns from past investment, and so receive only a diluted benefit—whereas if new entry were feasible all the profits of successful innovation would accrue to the new investors. Also for this reason the marginal efficiency of investment is reduced: for established firms, in contrast with new entrants, new equipment would be competing with the old for passengers they are already serving.

16. Private investors in improved mass-transit would not reap all the benefits—for example, of reduced congestion in city streets.

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IV. Skimming the cream and the destruction of associated services

In the transportation field particularly, the argument is often made for restrictions on competition, and particularly on entry, that otherwise aggressive competitors would 'skim the cream' of the traffic, and in so doing make it impossible for the established, common carriers to continue the less lucrative services—conducting regularly scheduled operations in bad seasons as well as good, on thin as well as rich routes¹⁷. A similar case is often made for resale price maintenance: that unrestricted price competition on popular, fast-moving brands (best-selling books, whiskies, toothpastes or appliances) would drive out of business the small, conveniently situated, low-volume retailer, the merchandiser who offers service, the diversified book store¹⁸, the neighborhood pharmacist, all of whom, it is alleged, survive in part because of the protected margins on the former items¹⁹.

These arguments find an important part of their support in the fact of consumer ignorance and the threat of destructive competition, familiar market imperfections, and to this extent do not concern us

- 17. See e.g., D. Philip Locklin, Economics of Transportation, 5th ed. (Homewood, Irwin, 1960), pp. 702, 820–21; Daniel Marx, Jr., International Shipping Cartels: A Study of Industrial Self-Regulation by Shipping Conferences (Princeton, Princeton University Press, 1953), pp. 4, 56–7, 187–98.
- 18. 'Christmas shoppers wishing to buy J. D. Salinger's best-seller "Franny and Zooey" may now buy it for \$4 on Fifth Avenue ... and for \$2.79 at most big department stores and discount houses. The literary price war in New York has reached its zenith ... Besides bringing bigger bargains for shoppers ... the competition has [hurt] merchants who sell mostly books and cannot fall back on revenue from television sets or vacuum cleaners. In fact, such long-established bookstores as Brentano's, Inc., fear for their existence, according to a spokesman ... "We supply knowledge, stock and book atmosphere", Theodore Wilentz of the Eighth Street Bookshop, said, although he admitted the shop had suffered some loss of revenue on best-sellers this year. An editor of Publishers' Weekly who has made the rounds of discount houses said the other day: "You can go in and browse, but you won't find anything you don't know about ... Last week I heard one lady ask, "Is this book O.K. for a 9-year-old?" And the clerk answered, "Look, lady, all I know is the list price is \$3.50 and our price is \$1.98" The New York Times, December 1, 1961, pp. 31, 58.
- 19. See P.W.S. Andrews and Frank A. Friday, Fair Trade, Resale Price Maintenance Re-examined (London, Macmillan, 1960), pp. 51-2, 66-76, for a cogent statement.

here²⁰. But they also implicitly or explicitly invoke the principle we have been expounding. If unrestricted competition prevailed, it would be irrational for each consumer to choose where to make each of his individual purchases on any basis except price and convenience, and, where these considerations so dictated, to buy his toothpaste and whiskey at the supermarket, his best sellers at a discount by mail, his appliances from the discount house, to travel on a non-scheduled airline if it offered bargain rates during the peak season. His individual, small decision to do otherwise would not in itself make a significant contribution to keeping the corner drug, book or liquor store in business, or the off-peak flights on the schedule. And yet the total effect of these individual decisions might be to kill off not only the rejected alternative but the auxiliary services it alone provides—options that buyers might, if given the explicit opportunity, have been willing to pay something to keep alive.

The problem can be illuminated, though not resolved, by the economics of integration. The drugstore, scheduled airline and maritime shipping conference member are integrated firms, purveying a variety of products or services. There are only two possible effects of this integration on the ability of these firms to compete with interlopers or price competitors who confine themselves to skimming the cream²¹:

20. That is, they involve a contention that the consumer is often deceived when he turns to what seems to him a cheaper source of supply: the discount house may turn out to give inadequate service on his appliance, the tramp freighter to carry inadequate insurance against loss of cargo, and so on. On the possibility of imperfections on the selling side of the market, see note ²⁴ below.

It should be noted that these market imperfections are themselves attributable in part to the smallness of the decisions involved. This is particularly clear in the case of consumer ignorance. There are considerable economies of scale and specialization in securing the market information necessary for rational buying. One reason the 'art of spending money' is so 'backward', as Wesley Clair Mitchell wisely observed many years ago ('The Backward Art of Spending Money', American Economic Review, II, June 1912, 269–81) is that even for major purchases the individual consuming householder's buying is on too small a scale to justify the effort of improving it.

21. Actually the competitor or would-be competitor in the allegedly richer market may be more thoroughly integrated than the ones seeking protection. It is grocery supermarkets, diversified discount houses and department stores that are the interlopers in books and drugs. Still, within the latter lines of trade, as thereto-

- (1) It may give them an advantage—in which event, it would seem, they can make no case for protection. The telephone company needs no artificial barriers against the entry of specialist firms seeking to take away its apparently more lucrative day-time, long-distance telephone business, in order to ensure its continued provision of night-time service. Its rates for the former would have to be even higher than they are were it not also in a position, with the same equipment, to supply off-peak, night-time service at rates in excess of incremental costs. Indeed, in such a situation it is in a sense impossible to say which part of the business is the 'cream', which part the 'skimmed milk', because the bulk of the costs are common. No competitor could survive on the cream alone, unless the incumbent company is inefficient, or charging extortionate rates, or using an outmoded technology—no one of which reasons constitutes a social justification for limitations on entry.
- (2) The integration may not confer an advantage in the lucrative part of the business sufficient to offset the advantages potential entrants may enjoy (perhaps because of their enterprise, abilities, volume of operations, or their particular kind of integration²²), in which event, it would appear, they still deserve no protection. Suppose, for example, some firm outside the Bell System found a new way to transmit long-distance telephone messages using the rays of the sun—i.e., during the day time only—at total unit costs less than current day-time rates. Would the incumbent company then deserve protection against the undermining of those high rates on the ground that otherwise night telephone service would disappear? The correct answer is that no class of customers should be required to pay more than the total cost of serving it alone²³. Whether by competition or by regulation²⁴ the day-time rates should be brought down at least to

fore practiced, these interlopers enter (according to the advocates of protectionism) or operate as specialists, handling only best sellers, or fast-moving proprietary drugs.

- 22. See note 21, immediately preceding.
- 23. HARRY GUNNISON BROWN, *Principles of Commerce* (New York, Macmillan, 1916), Part III, pp. 172-3.
- 24. Competition may of course be a wasteful means of bringing about the economically proper result. If so, this would be because of market imperfections—causing excessive entry of new capital, destructive competition, and so on—not because of market failure, strictly defined. Thus, central to Daniel Marx's sup-

the total unit costs under the new technology. If this requires higher night-time rates for the joint service to continue, then night rates should go up, possibly to the point where this business covers the bulk of the common costs. The advantages of integration may then still suffice to keep the old, established telephone company in business, perhaps retaining its monopoly—this would be our case (1). Or they may no longer suffice—our case (2)—in which event night telephonic communication is no longer economically feasible, and should disappear²⁵.

The policy issues here under consideration would seem to involve case (2) rather than case (1) situations. It is evidently possible without competitive handicap to sell whiskey and not delivery service, toothpaste and not the filling of prescriptions, New York to Miami and not New York to Ithaca flights, appliances and not quick repairs²⁶. The cream and the skimmed milk are separable; that is why purveyors of both ask to be protected in the former part of their business. In these circumstances, it would seem, competition ought to be allowed to drive the prices of the separable services down, and up, to their respective long-run marginal costs²⁷. Otherwise, purchasers of cream are being forced to subsidize devotees of skimmed milk.

And yet—over and above the possibly excessive imperfections of competition in the real world—there remains the germ of validity to the opposing case already suggested in this essay. May not many of the patrons who shift to the cheaper, sun-powered, daylight tele-

port of shipping conferences is his conception of the industry's propensity to destructive competition (op. cit., Chapters 2, 12, 14 and passim); and Andrews and Friday emphasize the many imperfections of competition in retail trade as an important part of their case for resale price maintenance (e.g., op. cit., pp. 17–22). What is the appropriate institutional mechanism for achieving the proper result is a matter for separate decision in each instance.

- 25. Unless of course one can adduce special reasons—distributional, externalities, imperfections—for overturning the verdict of the market.
- 26. Actually, case (1) elements are undoubtedly present. The corner druggist, the well-stocked bookstore and the airline with the fullest schedule and most interconnecting flights undoubtedly retain some of the cream business because of the other services they provide. But the case they make for protection is that these advantages are insufficient.
 - 27. But see note 24 above.

phone service later regret—that is, experience a sense of loss they would willingly have paid something to avoid—the disappearance of night service that results from these individually rational, small decisions? To this consideration it would seem a sufficient response, in most cases, that the market will ordinarily give customers the opportunity to keep the skimmed milk flowing. The price will have to rise to a truer reflection of its opportunity cost, and if enough patrons are willing to pay the price it will flow; if they are not, it ought not²⁸. If prices are not correctly adjusted, we have market imperfection, not market failure.

In what circumstances, then, may such an outcome reflect authentic market failure? As Weisbrod suggests, two conditions have to be met: (a) it must be infeasible to charge the required price for the separate service, and (b) resumption of service, once suspended, must be difficult (i.e., costly) or impossible²⁹. But these conditions are rarely absolute; different markets will satisfy them in varying degrees. Whether, then, we may have market failure because of the tyranny of small decisions in bookstores as well as railroads, drugstores or local service airlines as well as national parks, is a question of fact to be confronted in each situation separately.

As for condition (a), for example, it is impossible for public parks to levy charges on patrons who never actually visit them. This is the extreme case. But even when the option is sometimes exercised, it may be infeasible to collect the entire consumer's surplus generated by preservation of the alternative. We have already suggested why this might be so for passenger railroads. Similarly, it may be infeasible for the well-stocked bookstore to charge for the privilege of

- 28. It should perhaps be reemphasized that the kind of market failure considered in this essay is not the only possible kind. There may be external benefits flowing from a continued provision of service that may justify its continuation even if sales revenues prove insufficient.
- 29. Op. cit., p. 476. The reader will recognize the relevance of the second consideration in another situation of possible market breakdown, destructive competition. One of the main circumstances in which unrestricted price rivalry may be undesirable is in the presence of temporary excess capacity, where a tendency for price to be driven to out-of-pocket costs of some producers (and below those of others) may cause the dismantling or inadequate maintenance of productive capacity and going organizations that will in time be needed, and can at such times be reconstituted only at markedly higher cost.

browsing³⁰. On the other hand, it is difficult to see why druggists can not charge to the filling of prescriptions as much of the common costs as competition in toothpastes and patent medicines requires; why liquor stores cannot charge separately for delivery; and why feeder airlines cannot charge the travellers and communities they serve the full costs of that service.

Finally, even if competitive skimming of the cream did in fact cause the disappearance of desired associated services, we would have a case for government intervention only if condition (b) were met as well. It is very questionable that most of the cases discussed in this section meet this test nearly as well as those analyzed in Part II, above. The wilderness, once despoiled, can never be a wilderness again. The closing down of a neighborhood drug and liquor store, diversified book stores, even feeder airline service on thin routes, on the other hand, probably do not represent such 'large' decisions that they cannot be reversed in the future, should demand warrant it. For these cases, then, the social costs of restricted competition probably outweigh the costs of eventually rectifying market failure, when and if necessary. Whatever case can be made for fair trade, for maritime shipping conferences and for restricted entry into airline transport must therefore be based on the imperfections of unregulated competition, rather than, importantly, on the tyranny of small decisions.

V. Product inflation

The phenomenon that J. M. Clark has termed product inflation has certain characteristics very similar to those of the tyranny of small decisions. What Clark refers to is the possibility that in highly concentrated industries—he refers particularly to American automobiles—competition may take the form principally of cost-inflating and largely specious quality improvements³¹.

In confronting the knotty problem of evaluating product competition, the welfare economist usually settles for asking whether consumers continue to be provided with sufficient, technologically feasible price-quality combinations, and have sufficient ability to judge

- 30. Besides, short of congestion, it would be socially undesirable for it to do so: the opportunity to browse is a costless byproduct of bookselling.
 - 31. Competition as a Dynamic Process (Washington, Brookings, 1961), pp. 252-7.

product quality, so that each can register a free and tolerably wellinformed monetary appraisal of quality differentials and changes. Product inflation could by this test be said to have occurred only if quality competition had operated in such a way as to eliminate or to fail to develop lower quality-price combinations that consumers would willingly have purchased (or continued to purchase) in quantities sufficient to cover the cost of providing them. The question from the standpoint of this essay would then be: may there be something in the process of day-by-day or year-by-year choosing among qualityprice combinations, each choice typically involving rather modest differences—i.e. a 'small' decision—such that while consumers make the proper (from their standpoint) individual short-term choices, in so doing they pay an aggregate cost over time that they would have deemed excessive had they ever been given the opportunity to make such an over-all assessment? Or such that the total effect of these decisions is eventually to produce a range of choice from which desired and economically feasible lower price-quality combinations have either disappeared or have failed to appear? The answer to these questions may be yes; product inflation could therefore be a manifestation of the tyranny of small decisions. But, the subsequent discussion will attempt to show, it is not principally an evidence of market failure: the principal culprit seems to be imperfections of competition.

There are two aspects of product inflation that may indeed cast doubt on the optimality of the competitive market outcome; having already been discussed, they need detain us but briefly. One is the tendency quality variations have of generating external diseconomies of consumption—envy. The other is their contribution to the process of want creation: the mere appearance of new models inculcates in consumers dissatisfaction with the ones they have. These two effects can involve households in a self-defeating spiral of model changes, each at one and the same time creating dissatisfaction and (temporarily) removing it, at a cost that buyers might well deem excessive if the question were ever put to them on something other than a piece-meal, family-by-family, year-to-year basis³². This is not to say

32. There might also be an element of market imperfection here, with consumers short-sightedly failing to practice the kind of 'anticipatory retardation' that Fellner points out would be rational for producers in deciding whether or

one can be sure consumers would necessarily have had it any other way, whether in automobiles, refrigerators, women's dresses or books. First, they would undoubtedly appraise many of the quality changes as unequivocal and unidirectionally improvements, and willingly pay their cost, even if offered the choice over a much longer period of time³³. Second, they might derive sufficient pleasure from the process itself of buying, discarding and buying again, and willingly pay its costs (consider, for example, the changing 'models' of books).

But, apart from the two foregoing considerations, it is ineffective competition that must be blamed for product inflation. The difficulty is not that consumers, offered the relevant short-term alternatives, make

not to adopt the latest in a series of cost-reducing innovations. 'The Influence of Market Structure on Technological Progress', Quarterly Journal of Economics, LXV (1951), as reproduced in American Economic Association, Readings in Industrial Organization and Public Policy (Homewood, Irwin, 1958), pp. 287-8.

33. See the interesting attempt by ZVI GRILICHES to measure to what extent changes in automobile models have in fact met this test, by taking as the measure of genuine quality improvement over time the (cross-sectional) price differentials at given points of time between models embodying comparable quality differences. 'Hedonic Price Indexes for Automobiles: An Econometric Analysis of Quality Change', in The Price Statistics of the Federal Government (National Bureau of Economic Research, Number 73, General Series, 1961), pp. 173–96, and 'Notes on the Measurement of Price and Quality Change', in National Bureau of Economic Research, Conference on Research in Income and Wealth, Models of Income Determination, Studies in Income and Wealth, Vol. 28 (Princeton, Princeton University Press, 1964), pp. 381–404. It should be clear, however, that this ingenious calculation, based on an appraisal of a quality factor at some point in time, in no way meets (or is intended to meet) the criticisms raised here, which relate to external diseconomies of consumption and market-induced changes in taste over time.

Moreover, it may be noted, the Griliches measure embodies a defect even on its own terms. The price differential between a Chevrolet and a Cadillac at any time measures the 'hedonic' evaluation of the quality difference for the marginal buyer only; and it is the price differential that determines which is that marginal buyer. Selection of the particular price difference that prevailed in the base period can be justified, then, only on the basis of some objective, external criterion; the mere fact that some buyers were willing to pay it does not suffice. In the light of the consistently supernormal profits of automobile companies, clearly one could not find that necessary justification in the cost of producing the quality difference. Therefore, one can only conclude that for the great majority of buyers, who were of course unwilling to pay the differential, Griliches' measure exaggerates the value of the quality improvement over time. This criticism is indirectly suggested by Edward F. Denison's comment, Models of Income Determination, op. cit., p. 410.

rational choices setting in motion a course of development that produces a less-than-optimal end result, for which they would not vote if given the opportunity: that would be market failure. It is that an inadequately competitive market often fails to present them in the first place with the proper small choices. They are often not offered a choice between unchanged and changed models at a price differential fully reflecting the cost-saving made possible by sticking to the former. The recognition among oligopolists that competition probing the price elasticity of industry demand tends to be self-defeating, whereas 'quality' competition that moves that curve to the right is mutually beneficial, tends to make the choice rather between a new model of seller A and a unchanged model of seller B at the same price. The consumer is thus deceived about the social cost of satisfying his taste for variety and change, and hence votes to satisfy that taste more often than he would in a market characterized by more effective price competition.

It is concentrated oligopoly with high barriers to entry that makes the leading American automobile manufacturers comparatively uninterested in aggressively developing and promoting economy—of initial purchase, operation and repair—durability, or safety³⁴. Another market imperfection reinforcing this tendency, also mentioned

34. For a particularly incisive and convincing exposition and explanation of the systematic, consciously parallel tendency of automobile manufacturers progressively to incorporate embellishments on a non-optional basis, at progressively rising (and concealed) costs, see the statement of Ruby Turner Morris, U.S. Senate, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, Administered Prices, Hearings, Part 6, 85th Cong. 2nd Sess., 1958, pp. 2455-70. See also Robert F. Lanzillotti, 'The Automobile Industry', in Walter Adams (Ed.), The Structure of American Industry, 3rd ed. (New York, Macmillan, 1961), pp. 342-5; Paul W. Kearney, 'How Safe Are the New Cars?' Harper's Magazine, CCXIV (February 1957), pp. 38-43. Also John A. Menge, who supplies a persuasive explanation of why style competition and frequent model changes recommend themselves to the major producers, and accentuate the industry's concentration. 'Style Change Costs as a Market Weapon', Quarterly Journal of Economics, LXXVI (November 1962), pp. 632-47. The contributions of American Motors and the Volkswagen in at least temporarily checking product inflation do not of course disprove but instead support the CLARK and MENGE analysis: it would be the smaller companies that might find it in their interest to emphasize price, durability, stability of style and economy, with the major producers introducing their so-called compact cars only defensively and with a lag.

by CLARK, is the difficulty consumers have in appraising, hence their slowness in shifting their patronage in response to, claims along these lines³⁵.

Similarly, it is oligopoly plus the limitations on entry and discouragement of price competition in passenger air transport, domestic and international, that have caused competition to take forms—notably emphasizing newer and faster equipment, frequency of scheduling, inflight entertainment and luxurious meals—that adjust costs upward toward price rather than price down toward cost—another instance of product inflation³⁶. Or, to take a homelier but possibly more irritating example, it is significant that when the A & P company at last succumbed to the competitive pressure to introduce trading stamps, it stated it did not expect to have to raise prices because it anticipated the increased volume resulting 'without corresponding increases in fixed costs' would absorb the added costs³⁷. It is not clear whether the company rejected the alternative

35. Given this kind of ignorance on the part of buyers, certain kinds of collusion among manufacturers could serve as an offsetting imperfection at the selling end, and, in so doing, improve the industry's performance. Suppose, for example, short-lived mufflers are really an 'inferior substitute', as defined by STANISLAW H. WELLISZ ('The Coexistence of Large and Small Firms: A Study of the Italian Mechanical Industries', Quarterly Journal of Economics, LXXI, February 1957, 119), but because of consumer ignorance the manufacturer installing longerlived but more costly mufflers suffers a competitive handicap. In this event, a collusive decision to install the superior substitute on all cars would constitute an offsetting, performance-improving imperfection. Again, Ford claims that its featuring of safety devices on its 1956 models scared away buyers. Would it not have been better, then, if all manufacturers had gotten together, and agreed to redesign their cars for greater safety in specified ways? Ruby Morris makes a strong case, along similar lines, for collusion to reduce the frequency of style changes, op. cit., pp. 2437, 2446-50, 2468. For a similar example of a possibly socially-desirable, offsetting imperfection in the installment-financing field, see HAROLD MICHAEL MANN, Imperfect Competition and Consumer Welfare: A Study of General Motors Acceptance Corporation (unpublished dissertation, Cornell University, 1962). Of course, government regulation could serve the same purposes.

36. See, e.g., RICHARD E. CAVES, Airline Transport and its Regulators (Cambridge, Harvard University Press, 1962), pp.251, 329, 421 and Chapter 14; also RICHARD HELLMAN, 'The Air Transport Industry', in Walter Adams (Ed.), The Structure of American Industry (1st ed., New York, Macmillan, 1950), pp. 470, 478-9, 483, 491-6.

37. The New York Times, March 25, 1962.

competitive tactic of reducing prices because it felt (a) such a competitive move would have been less perceptible to customers, or (b) more quickly matched by its competitors, or (c) consumers really prefer stamps to equivalent price reductions. But if the reason for this significant incident in our national reversion to barter was either of the first two, then this further spread of trading stamps was an instance of product inflation attributable to market imperfection.

In each of these instances, the consumer may have been offered an excessively small range of choice, unreflective of all the consequences of this or that decision—to phone the airline with the more or the fewer flights scheduled, to patronize the grocery offering trading stamps or the one that did not, in both cases with no apparent price differential between the rival suppliers. Naturally, in each instance he chose the former, in numbers sufficient to force competitors to 'improve' their service in the same way, at mounting costs all around³⁸. To consider the latter example alone, it remains an interesting question how shoppers would now respond if they were given a once-and-for-all choice for or against trading stamps, in terms clearly setting forth how much groceries and gasoline would cost with and without them. Whether through market imperfection or market failure, we may here again have been victims of the tyranny of small decisions.

VI. Conclusion

It is an inherent characteristic of a consumer-sovereign, market economy that big changes occur as an accretion of moderate-sized steps,

38. There is a clear analogy here to the case of competitive and self-defeating advertising. It pays each individual company to advertise, whether aggressively or defensively; and the expectation of a favorable customer response and the presence of either excess capacity or economies of scale may permit the advertised product to be offered at the same price as the unadvertised one. Yet the net effect of such a cycle of competitive moves and responses may be nothing more than higher costs for all. If consumers are never presented with a clear-cut choice between advertised and unadvertised brands at prices reflecting their respective costs, or are deterred by ignorance from choosing the cheaper, unadvertised brand we have a case of product inflation attributable to market imperfection. So, of course, even if A & P's anticipation of higher sales and hence no-higher total unit costs were justified—and in fact it was not, universally; some A & P stores did in fact raise prices when they introduced stamps (Wall Street Journal, September 17, 1963)—that anticipation would not have been correct for the industry as a whole.

each of them the consequence of 'small' purchase decisions—small in their individual size, time perspective, and in relation to their total, combined, ultimate effect. Because change takes place in this fashion, it sometimes produces results that conflict with the very values the market economy is supposed to serve. In some instances, this seems to be because certain kinds of economically significant votes never get taken in the ballot box of the market place. In others, of which economists have long been aware, because the individual transactions have consequences extending beyond the transacting parties themselves, so that the sum-total of economic costs and benefits do not get calculated by the market. In others, not because of inherent defects of the market system itself but because of imperfections of competition. All have these characteristics in common: that 'large' changes are effected by a cumulation of 'small' decisions; that consumers never get an opportunity to vote with their dollars on the large changes as such; and if they were given the opportunity, they might not approve what they have wrought.

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SUMMARY

A market economy makes its large allocations and reallocation of resources on the basis of a summing up of the 'votes' recorded by customers in a host of small, individual market transactions. A critical task in appraising the efficiency of such an economy, then, is to determine whether and under what conditions this adding up process produces optimal results. The 'smallness' of the decisive, individual transactions—their limited size, scope and time-perspective—can, it is argued, be a source of misallocations, in the sense that consumers might disapprove of the larger result thereby produced, if they were ever given the opportunity explicitly to vote for or against it.

In certain circumstances, the smallness of the relevant decisions may produce authentic market failure. This will be the case where they do not include an independent appraisal of customers' desire to keep available for possible future use a service that they do not actually use in sufficient amount to cover the costs of providing it. In other circumstances, the smallness of the individual transactions may encourage irrational consumer choice, because they are too small to justify the effort of securing good market information. In yet others, monopoly elements may cause the buyer to be presented with excessively narrow choices that do not correctly reflect that actual costs of the competing alternatives; and the result may

be an uneconomic spiral of product quality changes over time so-called 'product inflation'. Finally, the cumulation of individual choices may have the ultimate effect of changing consumer preference function themselves, in which event it is not possible for welfare economics to judge the optimality of market performance.

These possible defects of the market may be conceived in the more familiar terms—as attributable to externalities, market imperfections or the defects of consumer sovereignty itself. Emphasis on the contribution influence of the smallness of the controlling decisions has the virtue of suggesting the possible necessity of substituting a 'large' for a piecemeal accumulation of small decisions if the results are to be intelligently appraised or improved.

ZUSAMMENFASSUNG

Allokation und Reallokation der Resourcen werden in der Marktwirtschaft auf der Grundlage der aufsummierten individuellen Markttransaktionen vorgenommen. Bei der Untersuchung, ob eine solche Wirtschaft auch effizient arbeitet, ist es vor allem schwierig, genau zu bestimmen, wann und unter welchen Bedingungen dieses Aufsummieren zu optimalen Ergebnissen führt. Der äusserst geringe Umfang und die begrenzte Reichweite der einzelnen Transaktion kann nach Ansicht des Autors in dem Sinne Fehlallokationen hervorrufen, dass die Konsumenten – könnten sie explizit dafür oder dagegen stimmen – mit den Folgerungen aus ihren aufsummierten individuellen Transaktionen nicht einverstanden wären.

Unter Umständen kann der geringe Umfang der relevanten Entscheidungen sogar zu einem richtiggehenden Versagen des Marktes führen, etwa dann, wenn der Wunsch der Konsumenten nicht bewertet wird, eine bestimmte Dienstleistung – trotz augenblicklich zur Deckung der Beschaffungskosten nicht ausreichender Nachfrage – auch in Zukunft angeboten zu erhalten. Es ist auch denkbar, dass eine «irrationale» Nachfrage entsteht, sobald nämlich der geringe Umfang der einzelnen Transaktion die Beschaffung von ausreichenden Marktinformationen nicht gerechtfertigt erscheinen lässt. In andern Fällen werden durch monopolistische Erscheinungen die effektiven Kosten konkurrierender Güter nicht mehr richtig wiedergegeben, was die Wahlmöglichkeiten der Käufer verzerrt; im Extremfall kann daraus sogar eine qualitative «Produktinflation» entstehen. Schliesslich ist es auch denkbar, dass sich durch die Aggregierung der individuellen Präferenzen die Präferenzfunktionen der Konsumenten ändern; es ist dann nicht mehr möglich zu beurteilen, ob der Markt im Sinne der Welfare Economics optimal funktioniert.

Diese potentiellen Mängel des Marktmechanismus können zwar den bekannten Erscheinungen, wie externe Elemente und Unvollkommenheiten des Marktes, sowie den Nachteilen der Konsumentensouveränität selbst zugeschrieben werden. Sobald man jedoch auch die durch den geringen Umfang der kontrollierenden Entscheidungen entstehenden Effekte berücksichtigt, ergibt

sich – will man rationale Ergebnisse erhalten – die Notwendigkeit, unter Umständen die Schritt-für-Schritt-Außummierung der einzelnen Transaktionen durch ein umfassenderes Nachfrageaggregat zu ersetzen.

RÉSUMÉ

Une économie du marché fait ses allocations et reallocations des resources sur la base d'une addition de «votes», que les consommateurs font sur le marché. L'examen de l'efficacité d'une telle économie est alors une tâche difficile, car il faut déterminer quand et sous quelles conditions, ce procès d'addition produit des résultats optima. «L'étroitesse» des transactions individuelles décisives et leur dimension, étendue et perspective temporelle limitées peuvent, selon l'auteur, amener des allocations mal orientées dans le sens, que les consommateurs pourraient désapprouver les résultats, s'ils avaient la possibilité de voter explicitement pour ou contre.

Sous certaines circonstances, l'étroitesse des décisions importantes peut entrainer une vrai défaillance du marché. Cela peut être le cas, lorsque le désir des consommateurs pour un service spécial – qui pour le moment n'est pas demandé et ne couvre donc pas les coûts de procuration, mais que les consommateurs désirent utiliser dans le futur – n'est pas considéré. Sous d'autres circonstances, l'étroitesse des transactions individuelles peut encourager une demande irrationnelle du consommateur, car les transactions sont trop petites pour justifier l'acquisition de bonnes informations sur le marché. Dans d'autres cas, des éléments monopolisateurs empêchent les consommateurs d'avoir une notion correcte des prix effectifs de marchandises concurrentes. Ceci peut mener au cas extrême à une «inflation du produit» qualitative. Finalement, l'accumulation des préférences individuelles peut entrainer un changement des fonctions de préférence des consommateurs; dans ce cas, il est impossible de juger si le marché fonctionne de façon optimum dans le sens des Welfare Economics.

Ces défauts potentiels du marché peuvent dériver d'éléments extérieurs et des imperfections du marché ou des défauts de la souveraineté des consommateurs. Si l'on veut également considérer les effets produits par l'étroitesse des décisions de contrôle, il est nécessaire de substituer l'addition pièce à pièce de petites décisions par une «macrodécision» si l'on veut obtenir des résultats rationnels.