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Article — Digitized Version

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Intereconomics

Suggested Citation: Karsten, Detlev (1972) : The limits to growth — Malthus revived, Intereconomics, ISSN 0020-5346, Verlag Weltarchiv, Hamburg, Vol. 07, Iss. 11, pp. 343-345,
<https://doi.org/10.1007/BF02929666>

This Version is available at:

<https://hdl.handle.net/10419/138733>

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The Limits to Growth – Malthus Revived

by Dr Detlev Karsten, Stuttgart *

The publication of "The Limits to Growth – A Report for the Club of Rome's Project on the Predicament of Mankind" has resulted in a world-wide discussion of this vital issue. The following article reviews different aspects of the study.

The authors—Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, William W. Behrens III—try to prove two things. One is the existence of global limits to growth, and the other is the already pressing importance of these limits for our present day behaviour. Their reasoning rests on the observation of past trends of population growth, of depletion of nonrenewable resources, of food production, of industrial production and of environmental pollution. On account of the exponential growth which characterised the development of these factors in the past it is hardly surprising that a model which is based on extrapolation and which allows for interaction between these elements predicts a collapse of the whole system: famines, decline of medical care and the adverse health effects of environmental pollution result in reduced life expectancy, in an absolute decrease of population and in a very much depressed standard of living. All this will happen within the next 100 years even under the most optimistic assumptions of the development of the key factors.

Mobilisation of Counteracting Forces

The intention of this demonstration is to mobilise counteracting forces which would help to reach a situation of global equilibrium. Such an equilibrium can only be attained if zero population growth becomes a reality. The possible level of wellbeing will then depend on the careful utilisation of the truly scarce factors: the limited capacity to produce food, the limited raw material supply, and the limited absorptive capacity of the environment for pollutants. According to the authors, even the prudent use of available resources—what includes widespread recycling—will allow for all mankind at best a standard of

living which is equivalent to the present level of consumption of the highly developed European nations, and quite possibly even this standard cannot be reached by all people. If, for social reasons, a fair distribution is also desired, this necessitates a reduction of levels of consumption in some of the already industrialised countries.

It is the thesis of the study that this predicament of mankind can only be solved by conscious action to bring about this equilibrium. The sooner a determined effort is made, the better are the chances to reach the equilibrium state, and the higher will be the then possible standard of living for all mankind. An attitude of complacency, on the other hand, will result in disaster.

Interest to General Public

Although little of the arguing is new, the study deserves credit for having aroused the interest of the general public on a much larger scale than any other similarly apocalyptic vision that could be compared to this book. It is quite possible that a more sophisticated approach could have made the study useless for this important purpose. Even more refined methods would only have confirmed the resulting message of the book: To use Boulding's famous illustration—mankind has outgrown the time of the prairie-economy and has reached the period of spaceship economy—,there is a need to adjust universal behaviour to these facts.

If one agrees with the objectives and the general conclusions of the study, criticism is difficult. There are, however, a few points that seem to require comment.

It can be argued that two of the basic difficulties—environmental pollution and exhaustion of indus-

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trial raw materials—could be solved, or at least be very much alleviated, by utilising more energy. This leads to the problem of energy supply. Again there is a question of a possible exhaustion of the existing sources of energy. But here one can argue that nuclear fusion reactors are “just around the corner”. And that could mean an end of the world-wide shortage of energy. An optimist may then conclude that this changes everything: With abundant energy the limits of growth can be extended.

But it is widely recognised that even this development would take the world only to another limit — given not any longer by the exhaustion of the energy supply, but by the fact that amounts of energy which reach the order of magnitude of the incident solar energy cannot be absorbed by the environment without endangering the universal ecological balance. Even an increase of temperature of 10° Centigrade would change living conditions intolerably. Although this issue is still being debated, there is a distinct possibility that we have here a more fundamental limit to growth than the ones suggested in the study for the Club of Rome. Of course this argument supports the main thesis of the book. But there is the danger that some people see only the possibility of extending the limits further by the utilisation of energy. Because they do not realise that this takes mankind to another limit they may dismiss the important conclusion of the book—the call for action—as premature because it is based on unjustified pessimism.

Ecological Dangers

The study gives the impression that the limits to growth can be determined by computer calculation. Such a view loses sight of another immediately imminent danger. This is the problem that we are now exposing ourselves and our environment to over half a million different chemicals, all of which must eventually be imposed on the earth environment. And this number is estimated to be increasing by 400–500 new chemicals per year. These new substances include since World War II synthetic pesticides, plastics, antibiotics, radio isotopes, detergents and industrially made hormones.

For most of these things the possible effects on the ecology are unknown, and many of them may be new DDT cases or may have even stronger destructive effects. The situation has been described by the American ecologist Cole as “playing russian roulette with biogeochemical cycles”. There can be no doubt that the possibility of unforeseen, sudden and total disruption of eco-

logical equilibrium means another limit to growth. This, however, is a limit of which we only know that in all probability it exists, but we do not know where it is. The apparent calculability of the limits given in the study has exactly this shortcoming: that it cannot take into account this limit which evades calculation, but which nevertheless could become effective before any one of the other calculated limits is reached. The fact that this point is barely touched upon in the book can either be attributed to the assumed irrelevance of the argument—in which case this should have been stated—or it is a major and dangerous neglect.

Necessary Self Restraint

It is one of the main arguments of the book that the equilibrium state can only be reached if mankind exercises a certain amount of self restraint. With other words, the present standard of living of the most highly developed countries is the absolute maximum thinkable if we envisage also a fair distribution. This argument leads to a remarkable characteristic of the book — which is, on the one hand, its strength and presumably responsible for its success but which can also be considered a weakness. This is the basically “technological” reasoning without many social considerations. At least to the ordinary reader the logical link between the limitation of industrial production and the impairment of the standard of living seems obvious enough. Apart from the shift in emphasis to services in the future pattern of consumption, which is dealt with in the book, there appears to be a definite possibility that a different supply of products—which in costs (raw material and energy consumption, environmental pollution, etc.) may be equivalent to the present supply—may result in a much higher standard of living.

To substantiate this reasoning: There is no question that increasing environmental pollution induces the production of certain items whose only purpose is to protect against the effects of pollution. Typical examples are a considerable proportion of expenditures for cleaning devices, most of the non-corrosive facade-coverings, traffic that is generated by the desire to escape into healthier surroundings, etc. Similar effects can be observed in the sphere of production: Pollution of surface waters leads to higher costs of water purification and necessitates the construction of swimming pools, although before it was possible to swim in the river, etc. Since the production and operation of these protective devices results again in pollution there is a positive feedback. The argument cannot be pursued here, but there is a good

chance that the satisfaction derived from the present volume of production could be much higher if only things were produced which are "originally" wanted, against so many things the demand for which is only induced. This phenomenon is, in the final analysis, a consequence of shortcomings of the economic and social system.

Investigation of Social Conditions

Along the same lines it can be argued that the connection between industrial production and environmental pollution is less stringent than one may derive from the book. With appropriate social controls (e.g. the internalisation of social costs) much of the present pollution could be avoided even with existing technologies without impairing the general level of production. The policy to reach the general equilibrium is more likely to find popular support if the edge is taken from the acute conflict between individual wellbeing and universal equilibrium; this in particular because it is primarily the people who enjoy the advantages of the present state of affairs from whom action to effect the necessary adjustment is expected.

In general, the investigation of social conditions is of crucial importance for the whole issue because the clear insight into the deficiencies of the social organisation and the recognition of the need for reform are presumably prerequisites for the accomplishment of the other changes advocated in the book.

Aim and Strategy

The first and most important objective of the study—to get the message of the existence and of the relevance of limits to growth across to the general public—has been accomplished. The main thesis cannot be invalidated, even if pedantic criticism begins to analyse the detailed description of the methods which will be published in the final technical report. The demonstration of these limits could have been even more impressive if the authors had given more emphasis to the fact that limits to growth have already been reached in certain regions (overpopulation in some underdeveloped countries, environmental pollution in heavily industrialised areas). But it is obvious that this idea of the existence of limits to growth cannot be new today, more than 170 years after Malthus' "Essay on the Principle of Population".

The second question has to be whether the actual nature of the limiting constraints has been sufficiently clarified. This identification is needed as a basis for any strategy to deal with the problem. In this field the suggestions given in the

study—to curb population growth, to question economic growth as an end in itself, to use prudently the existing nonrenewable resources—are possibly incomplete, and certainly somewhat trivial for a person who does not have to be convinced of the relevance of the first point. But one may expect that in this respect the approach used by the group will yield more surprising results in further studies. Future investigations may produce a list of "essentials" that have to be done. But even if the nature of these material adjustments is not very controversial, the main difficulties begin when real actions are considered. The reluctance of some developing countries to subject in the interest of the whole world to certain measures of environmental protection is only one example; the little understanding that developed countries have for the needs of the less-developed countries is another case.

Reforms of Social Systems

This leads to a third point — the question of the adjustment required in the social/political field to allow actions on issues located in the upper right hand corner of the time/space graph: decisions with a global perspective extending for several generations into the future. The critical problem, which reforms of the social systems of the whole world are needed to give the necessary material changes a chance of realisation, seems to be the most important one. This fundamental issue is of course well beyond the scope of the study. But if—after reading "The Limits to Growth"—a good number of people realise that in this world the decision not to act has consequences which are comparable to those of any particular action, this may also help to solve this third problem.

Finally, the argument that the limits to growth will be extended further by new technologies, in the same way in which Malthus' predictions were invalidated, is a shaky one. It should be a question of morale and responsibility towards future generations not to rely on and not to anticipate in our actions discoveries and inventions before they have been made. The only honest behaviour seems to be an acceptance of the limits of growth as they exist to the best of our scientific knowledge and technological capabilities. One may hope for a future extension of these limits, but it would be nothing less than gambling with the wellbeing of future generations to take such extensions for granted. Therefore the attitude of complacency has to be abandoned in favour of rational planning. The publication of "The Limits to Growth" has apparently helped in the spreading of this message.