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The Concept of Absorptive Capacity: Origins, Content and Practical Relevance

by Felipe Berger, Düsseldorf*

Ever since the end of the Second World War there have been regular calls for a comprehensive and extensive "Marshall Plan" for Third World countries. One of the most popular lines of counter-argument is that developing countries do not even possess the necessary absorptive capacity to make effective use of larger international transfers of purchasing power. On the strength of this "Low Absorptive Capacity Thesis", as S.P. Schatz called it in 1961¹, a politically unpleasant problem, yet one which represents a question of principle in development policy, has for years been dismissed or passed on to the fundamental planning departments of development aid institutions and to the representatives of science and research. What exactly lies behind this problem?

The concept of absorptive capacity became part of economic terminology during the 1950s. During this period many politicians and economic experts directed their interest away from the post-war process of reconstruction towards the problem of the economically underdeveloped countries in the Third World. The rapid recovery experienced by the previously belligerent countries raised hopes that developing countries, too, might be able to establish a sustained and self-supporting growth path with the aid of Marshall-type development plans. The ensuing development policy discussion was characterised, on the one hand, by basic agreement on the fact that increased capital formation is a necessary (though perhaps not a sufficient) prerequisite for the desired economic growth; on the other hand, there was a definite lack of immediately accessible projects in many of the developing countries in question. This apparent contradiction and the persistent demands for increased development aid led to the formulation of the basic question as to how much foreign capital can in fact effectively be made use of by a given developing country, and which factors determine its absorptive capacity.

Absorptive Capacity and the Transfer Problem

The question of unilateral international transfers of purchasing power (donations, reparations, long-term development loans, etc.), which is of relevance to the problem of absorptive capacity, was the subject of lively debate – though from a somewhat different angle and

under the catchword of "Transfer Problem" – in the framework of the theory of international economic relations. This can be traced back to an article by Keynes on "The German Transfer Problem", published in 1929, which dealt with the technical problems of effecting the reparations Germany was obliged to pay as a result of the First World War, and with the implications for the international economy. There were undoubtedly points of contact between the questions of transfer and of absorption, which could prove fruitful for the further clarification of the concept of absorptive capacity. However, discussion of the problem of absorptive capacity remained limited to a relatively narrow field of development theory, with hardly any attempt at theoretical extension. The only exception was the conference on "Capital Movements and Economic Development", organised by the International Economic Association and held in Washington in 1965.

The latest case of international transfer of purchasing power – the inundation of oil-exporting countries with foreign-exchange reserves – brought about a definite easing in the rigid delineation of the two problems which had until then been discussed on a strictly separate basis. Whereas the World Bank, which had itself played a large part in developing the concept of absorptive capacity, regarded the absorptive capacity of OPEC countries as a decisive component in the recycling problem, a number of new publications on the transfer problem explicitly dealt with the case of the oil-exporting

¹ S. P. Schatz: The American Approach to Foreign Aid and the Thesis of Low Absorptive Capacity, in: Quarterly Review of Economics and Business, Vol. 1 (1961).

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countries². One can of course question whether capital transfers as a part of development aid can be equated with revenue from oil exports when it comes to the problem of absorption. However, as pointed out by McKinnon, for example, "the oil industry is much like a small enclave in terms of the almost negligible direct reliance on domestic labor and capital in OPEC ... Hence, the effect of an increase in taxation is similar to a pure capital inflow"³.

As, in this sense, the price-induced increase in revenue from oil exports acts as "a kind of international taxation", the unconditional benefits of which flow towards the oil producers in the form of "untied capital aid", the reaction of the oil-exporting countries to such unilateral transfers of purchasing power ought to be analysed so as to provide valuable empirical data for greater insight into the problems associated with absorption. However, it should be pointed out straight away that an undifferentiated use of the concept of absorptive capacity in the case of the OPEC countries –

as, for example, during the recycling discussion in the mid-70s – would not seem expedient. Seen from the point of view of development policy, the concept is only useful in connection with the *productive* utilisation of the capital transferred. For, as Kindleberger put it, "... if capital consumption is permitted, there is no question but that the sky is the limit"⁴. Therefore, as regards the problem of absorption, attention should be focussed on those oil-exporting countries which, no matter for what reason, primarily use their additional oil revenues for investive purposes. The sudden elimination of the classical *foreign-exchange bottleneck* means that the real bottlenecks – the so-called determinants of absorptive capacity – come to the fore.

Conceptual Content

The proposition that a developing country is not in a position to absorb an unlimited amount of foreign capital, i. e. has a limited absorptive capacity, leads us to two central questions:

- a) Which factors limit the useful absorption of foreign capital?
- b) Due to which interrelations do these factors, in the course of increasing capital absorption, lead to a situation in which the continuation of the absorption

² Cf. e. g. D. M. Leipziger (ed.): The International Monetary System and the Developing Nations, Washington 1976.

³ R. I. McKinnon: International Transfer and Nontraded Commodities: The Adjustment Problem, in: D. M. Leipziger (ed.), op. cit., p. 163.

⁴ C. P. Kindleberger: Economic Development, New York 1958, p. 263.

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process appears to become ineffective or indeed damaging?

Literature on this subject refers to a whole series of determinants for absorptive capacity: the limited domestic demand in developing countries; the scarcity of the central factors of production, qualified labour, technology, management and intermediate production inputs; and the lack of an adequate developmental framework such as developmental efforts on the part of the government, education, health, economic and tax morale within the population. These determinants can be classified into the following main groups: demand, stability requirements, factors of production, governmental policy framework and socio-cultural conditions.

If the last three groups are combined under the heading of "macroeconomic production function", the following three interpretational approaches towards the problem of absorption can be found.

The *thesis of complementarity* is undoubtedly the dominant theoretical interpretation. It is based on the assumption that the absorption of money capital for implementing investment projects is slowed down, and finally limited, by the lack of certain factors essential to the production process. The theoretical paradigm for this thesis is therefore the "Law of Diminishing Returns" in classical production theory.

The *thesis of stability*, which is relatively rare and usually only implicitly referred to in the relevant literature, regards the expansion in money supply together with a continuing excess demand, both factors which accompany absorption, as dangers which could induce high inflation and/or substantial increases in balance-of-payments deficits.

The third approach is the *thesis of lack of demand*. It would seem to contradict the thesis of stability, since it assumes quite the reverse of a sustained excess demand. This contradiction, however, need not necessarily occur. Two successive phases of development may well be characterised by reverse bottlenecks: the early stage of economic development by insufficient demand, and, once the "equilibrium of underdevelopment" has been overcome, a later stage by a development in demand which exceeds the capacity of the young economy.

Let us take a look at the mechanism contained within the three interpretational approaches.

Taking the latter first, there are two basic elements. The demand for capital – as pointed out, for instance, by Stevens⁵ – is always a derived demand, "... derived from the demand for output". Capital, therefore, can

only be effectively absorbed, if the thus induced increase in production corresponds to effective demand. Demand, however – as underlined by the well-known advocate of balanced growth, Ragnar Nurkse –, primarily depends on the productivity of the gainfully employed. "Capacity to buy means capacity to produce"⁶, a statement which explains why Nurkse expects nothing but inflation from a policy geared to nominally raising purchasing power.

The mechanism would seem more interesting at a later stage of development, in which the minimum productivity of the decisive factors of production has been reached, the required mutual complementarity, however, is not guaranteed by the accompanying process of growth. The various supply elasticities – which are much lower in developing countries than in industrialised countries – in connection with the expansion in demand induced by increased capital absorption, soon lead to the first signs of scarcity and/or factor-price increases. Ignoring the short-term supply elasticity, which primarily depends on the extent of unused capacities, the most important determinant of long-term supply elasticity is the duration of the process of investment maturation. If we were dealing with a closed economy, the "maturation lags" would undoubtedly be the pacemakers of an induced process of growth. However, in an open economy the low supply elasticity of the bottleneck factors need not be taken into account, since for the individual developing country the supply elasticity of the international market is "infinite". If a factor of production cannot keep up with the pace of changing levels, it is imported so as not to restrict – as the weak link in the chain of expansion – the process of growth and absorption.

This could be continued if it were not for the inherent stability risk. At least three factors suggest a risk for price stability during the course of the absorption process. First of all, not all goods can be imported. A whole set of so-called "non-tradables": land for agricultural use; roads, ports and airports; electricity, telephone and water utilities; various public services; and services in the banking sector, transport firms and importing companies; all play a decisive part in the process of economic expansion. Since they cannot be imported, they are all determined by the national maturation of supply. Secondly, the process of capital absorption automatically, via a monetisation of the foreign-exchange earnings, involves an increase in the

⁵ W. J. Stevens: Capital Absorptive Capacity in Developing Countries, Leiden 1971, p. 34.

⁶ R. Nurkse: Problems of Capital Formation in Underdeveloped Countries, Oxford 1960, p. 9.

domestic money supply. Thirdly, there are a number of "structural" inflationary impulses during the process of expansion, such as the changing emphasis placed on various sectors, the integration of new factors of production which have yet to be adapted, and the imported increase in goods prices, determined by the extent of domestic tariff barriers.

From the point of view of economic policy, the process of absorption can quite easily be seen to endanger the stability of both money supply and foreign trade under such circumstances.

Practical Relevance of the Concept

The present significance of the concept can be split into two questions:

a) Does the concept describe a phenomenon which is relevant to development theory? If so, what are the implications for development policy?

b) Can conclusions regarding the usefulness of earlier research approaches be drawn from the empirical evidence of the past years or, to put it another way, how close is the concept to the phenomenon actually witnessed in reality?

Usefulness Empirically Confirmed

The latest empirical evidence confirms the unanimously accepted usefulness and basic relevance of the concept. Up to now, all oil-exporting countries have to a greater or lesser extent come across considerable difficulties in coming to terms with the process of absorption, particularly following the subsiding petro-dollar euphoria. This even applies to certain oil-exporting industrialised countries, for example, Norway⁷. In some countries, such as Iran, the stability risk has taken on political proportions. In other countries, for example Venezuela, the phase of high surplus balances on current account was fairly rapidly succeeded by a situation of increasing net indebtedness.

Further Clarification Required

The concept of absorptive capacity still requires considerable clarification of its content to avoid misunderstandings. One of the most common misunderstandings with regard to the problem of absorption is the confusion or non-differentiation between *money capital* and *real capital*. The capital to be absorbed, in the context of our theoretical discussion, can consist of either plant, machinery, roads

and buildings or financial resources. Although Mikesell explicitly pointed out this source of misunderstanding in 1962, a large part of the present discussion on this issue is either based on the assumption of real capital or omits any clarification of the exact difference. The first case is based on the assumption prevalent during the first development decade, now recognised as having been erroneous, that real capital is the decisive bottleneck in developing countries, and therefore the be-all and end-all of development aid. Whereas development aid which sees its sole objective in the provision of the production factor real capital would indeed come up against limits (lack of co-operant factors, and thus diminishing returns to a single factor), this does not apply to the same extent to the absorption of financial resources. The latter, namely, can be either used to mobilise and provide the factor real capital or to provide any other important factor of production. Adler's assumed "constancy of all complementary factors"⁸ (which after all had a decisive influence on the literature on absorptive capacity) would therefore seem neither realistic nor theoretically helpful.

Another catch in the conceptual definition relates to the question of investive versus consumptive absorption. There is agreement on the fact that absorptive *capacity* only makes sense in connection with the productive use of foreign capital or of the successive real transfer. When trying to differentiate between the two categories, however, it does not do to rely on the conventions of national accounting. "The definition of capital is arbitrary under any circumstances but somewhat more arbitrary in underdeveloped than in developed countries. Education, for example, is classified as consumption, though . . . it is increasingly regarded as 'investment in human capital'. Research and development are defined as intermediate goods which enter into the cost of the final product, and they, too, could be capitalized as investment."⁹ On the other hand, one could well ask at what stage "investments" such as grandiose airports or splendid governmental buildings begin to become consumptive due to their low level of productivity. Therefore, a serious attempt to operationalise the concept would have to start by examining the reality content of macroeconomic data with regard to the division into consumption and investment.

Two further reasons underline that macroeconomic aggregates are complicated constructions and that the macroeconomic production function is more than an

⁷ Cf. e. g. H. Handler: Oil revenues – their implications for an industrial economy, in: Finance & Development, December 1976, p. 16.

⁸ J. H. Adler: Absorptive Capacity, The Concept and its Determinants, Washington 1965, p. 5.

⁹ C. P. Kindleberger, B. Herrick: Economic Development, New York 1977, p. 81.

attempt to conceive of all of the economy's production units as one huge enterprise. One reason is to be seen in the fact that the sum of the durable means of production of all firms in the economy is lower than the capital stock of the economy as a whole, which includes the – physical and non-physical – infrastructure. Since its use is only insufficiently reflected in the microeconomic production function, even though it is essential to the production process, the microeconomic production function presents a factor productivity which is higher than the actual one. If private investment activities are not adequately supplemented by public investments, this results in an apparent lack of profitable projects.

The second reason is connected with technological progress in its various forms. Investment activities usually, but not always, adopt a physical form. Although immaterial investments can result in both productivity and durability – i. e. the characteristics of capital –, due to the considerable difficulties associated with measurement and quantification they are not "recognised". Particularly in the macroeconomic sphere the problem of immaterial capital becomes important. For that which can be described as knowledge, experience and organisational talent with regard to the handling of the means of production within an individual firm, adds up to form the macroeconomic framework for the existing economic system – whether it is organised as a free-market or as a planned economy. Who would question that for economic management on a national level investments are required just as much as they are on an individual firm level? Or who would claim that a country's economic policies have no effect on the productivity of the economy as a whole? In this respect, the implementation of an optimal absorption policy depends a great deal on the general economic management of a given country. A delicate category, but one which can indeed be encouraged by development aid.

Important Aspects Still Ignored

The literature available on absorptive capacity only partially does justice to the actual phenomenon as observed in reality, ignoring important aspects. Some of the aspects neglected in the literature dealing with the problem of absorption – as well as the confusing approach of partial factor variation – have already been mentioned. In addition, it is surprising that those authors who have been dealing with the problem of the absorptive capacity of developing countries have not up to now made use of the formalised theory formation from the neighbouring field of the "Transfer-Problem".

Particular emphasis should be placed on the importance of those goods which are not traded internationally – a category well-known also from cost-benefit analysis. These "non-tradables" are the final reason why the macroeconomic production function must necessarily follow the law of diminishing returns. They form the limit to development aid, and their investment maturation lags form the critical path for absorption planning. As shown unmistakably in the literature dealing with the transfer problem, larger imports of capital are associated with substantial adjustment problems, and contain a number of dangers. A correspondence between the planned and the actual real transfer is in no way guaranteed, in fact there is a great probability of deviation. Particularly if there are distortions in the production structure and the planned capacity effects are not realised, there will probably be an "overdraft" of real transfer (and the corresponding disequilibria on current account).

"Marshall Plan" Not Impossible

It would seem unjustified, or even irresponsible, to make a sweeping statement maintaining low absorptive capacity in developing countries. From the point of view of development policy, the "Low Absorptive Capacity Thesis" must be regarded very sceptically. What is particularly questionable is above all the fact that the problem of coping with the absorption process, which can be established scientifically and empirically, may be used to conceal the perhaps politically convenient excuse of an *incapacity* to absorb capital in developing countries. Admittedly, anyone who has studied the empirical cases of developing countries which had to come to terms with massive real transfers is not likely to paint a rosy picture of success, but rather to recommend caution and greater consideration of the absorptive capacity. However, on the other hand, nowadays there is very much more know-how regarding how to handle large capital transfers, and how to extend the absorptive capacity at the right time and as far as the existing limitations allow. The difference between a "good" and a "bad" absorption policy – which can also become a subject of international cooperation – should certainly not be neglected, and also explains why some countries, which were underdeveloped countries only 30 years ago, are now among the world's most dynamic newly industrialising countries.

The "Marshall Plan for Third World countries" is not impossible; if such a plan were to be carried out, however, it would not only be more difficult than, but completely different to, the plan which put Europe back on its feet after the Second World War.