8. Conclusions and Future Research

8.1 INTRODUCTION

In this concluding chapter we shall summarize the results obtained in the preceding chapters and discuss the subjects to be tackled by future research in order to fill some of the gaps in our present knowledge and understanding. Our results are partly of a scientific character and partly consist of concrete policy proposals. The scientific results will be discussed in the present section, subdivided into the subjects dealt with in the preceding chapters. In Section 8.2 we shall discuss what proposals on security policy we may derive from our analyses. In Section 8.3 our proposals on development co-operation policies will be dealt with. As a starting point for our discussion of desirable future research we shall indicate in Section 8.4 a number of lacunae in our present knowledge and understanding. Future research will then be discussed under two headings: how to fill the gaps in the theories developed and how to fill the gaps in empirical data needed to apply the theories. The theoretical gaps will be dealt with in Section 8.5 and the empirical gaps in Section 8.6.

Our analyses apply to very large areas as units of policymaking: in Chapters 2, 3 and 4 even as large as the First, Second and Third World, with occasionally China as the Fourth World . This highly 'macro' economic type of analysis enables us to describe worldwide policies with the absolute minimum of variables and with correspondingly simple models. Although this is an advantage for expository purposes, it is a source of errors common to all macroeconomic models, and we shall encounter some very obvious errors of this kind. Some of these disadvantages are avoided in the 'less macro' models of Chapters 5 and 6, where twenty units of analysis or policymaking are considered. In particular, in Chapter 6 these units are close to the most important policymaking governments, and in Section 6.4 the actual governments of 1988 appear . In a sense our analyses apply to a future structure of more integrated areas, of which the best example is the European Economic Community. We believe that our analyses help to develop what has been called 'a helicopter view', which is considered to be an important characteristic for managers of large –

mostly transnational – enterprises. It should also be a characteristic of statesmen: that is, great politicians.

Our models deal with some essential features of the two greatest world problems, the East-West or security problem, and the North-South or development problem. Alongside the main instrument of co-operation between North and South, development assistance, we introduce a comparable instrument of security co-operation, called security assistance. But the latter is much less important than other forms of co-operation in security policy, such as the creation of international authorities.

In most of our models the amounts found to be optimal for both development and for security assistance are very large, much larger than today's real figures. In a sense they may be considered unrealistic: in part, correctly so. But in another sense they are a 'token on the wall': their message is that the majority of mankind is underestimating to a dangerous degree the intensity or size of the problem. One way of showing this is that a doubling of the incomes of the Third World relative to the First World would take more than a century if the present rates of growth remained as they have been over the last two completed decades, the 1960s and the 1970s. This means that, humanly speaking, there is no perspective for the Third World. A critic of this formulation may ask why relative incomes of the two Worlds are taken: the absolute figures of Third-World incomes are increasing and may double in the coming two decades. Our answer is that in an increasingly interdependent world, relative incomes rather than absolute incomes are how the poor countries will judge their position. By considering total incomes we are already neglecting the fact that population growth is larger in the Third World than in the First World and that the comparative situation is worse for *per capita* incomes than for total incomes. We are already implicitly assuming that the reduction of population growth will be taken care of by the Third World to a sufficient extent.

The very high figures of development and security assistance which we find to be optimal are an overestimation for various reasons. They are the result of models where no account is taken of differences in productivity and where consequently equity in income distribution is taken to be equal incomes for all. A better criterion of equity must take into account that more productive individuals deserve higher incomes to the extent that they make a bigger effort – but only to that extent. If they work with more physical capital and so are more productive, equity does not entitle them to a higher income. Too little is known of these phenomena, but presumably equity does not require that *per capita* incomes are equal in all parts of

the world. So some overestimation of productivity in the Third World may be one reason for the high amounts of development assistance.

Another reason for the high amounts we find to be optimal is the undeniable fact that the total population of the Third World is so large. So even if a modest improvement of per capita income is desirable, the total amount may be – and in fact is – high because of the large numbers of people at stake.

The high amounts of security assistance found in a number of cases is due to the inability to make any distinction between goods and services for general consumption and investment and the particular goods and services used for security aid, such as grain and high-tech goods. This suggests that the optimum implies a sort of income redistribution between the First and the Second World comparable to internal redistribution as a social policy and to the income transfers of the First to the Third World. The communist countries do not want such a form of security assistance – it might be interpreted as a recognition that their social order makes for lower productivity (which is the case). One of Gorbachev's reforms is indeed aimed at eliminating such lower productivity, and he rightly does not want 'charity' from the First World. The cases where this assistance is low are to be preferred.

In Chapter 2, two types of welfare functions are presented, the logarithmic and the parabolic welfare functions, the latter being in two versions and introducing the phenomenon of satiation. It is interesting that the results obtained with the three types of welfare function do not differ greatly, somewhat against our expectations. In fact this supports our results. An interesting feature of the second type of parabolic welfare function – where the satiation levels of the variables are chosen so as to maximize world welfare – is that they leave a number of parameters to be chosen freely. This means that there is a multidimensional infinity of ways to maximize world welfare. This is one of the many subjects for future research.

The main problem dealt with in Chapter 3 is whether there is a relation between armament expenditures and development assistance. This relationship was denied in 1986 by the Reagan administration in their argument for not participating in the conference organized by the United Nations on that relationship. There appears to be a clear relation between armament expenditures and development assistance, as could be expected. The method used in Chapter 3 is to consider security expenditures as the result of negotiations between the First and the Second Worlds, development assistance to be the result of negotiations between the First and the

Third Worlds and to test the hypothetical relationship by imagining negotiations of all three Worlds in which simultaneously both types of transfers would be negotiated. If both types were unrelated, the same amounts should have been arrived at in the simultaneous negotiations as were obtained in the separate negotiations. In fact, in the simultaneous negotiations lower amounts of development assistance were found. Since each dollar of government revenue can only be spent once it seems rather obvious that higher security expenditures lead to lower development assistance. The only theoretical possibility of the contrary view is that citizens would be prepared to pay more taxes to finance the additional expenditures, even as much as 100 per cent. According to our analysis they are not prepared to be so generous.

A not-yet-clarified result of the three-worlds models is that security assistance of the First World to the Second World is positive only if China is considered part of the Second World and not if it is considered part of the Third World. Presumably adding China to the Warsaw Pact countries makes the average income of the Second World so low and the marginal welfare of income so high that this attracts valuable spending assistance to the Second World. In several of the cases studied, security assistance was unrealistically high, as noted before. In various other cases that transfer was small or even nil, and these must be considered to be more realistic. One of these is the model in which armament reduction is 'bought' by a type of demand function for armament reduction dealt with in Section 4. 4.

This brings us to Chapter 4, whose main content is that China is introduced as a 'world' of its own. China's size and particular problems are sufficient reasons to treat it as a 'world' of a particular type, but these particular problems are not represented by new variables, which may be the reason that this model does not eliminate our problem of a negative security assistance. For this reason we assumed here that the maximum of world welfare was a boundary maximum and we chose the value of 39 bn $ for security assistance (1% of GNP of Wl).

As noted, Chapters 5 and 6 are somewhat less macro-economic. In Chapter 5 we introduced twenty 'worlds', but these worlds do not coincide with twenty areas. The inhabitants of the First and the Third Worlds are arranged according to income level and subdivided into ten 'deciles' each, that is, groups of one-tenth of total population. As could be anticipated, income inequality between these deciles is larger in the Third World than in the First World, where social security as well as more education have reduced the previous inequality. We estimated the decile inequality of the

combined First and Third Worlds and from it the transfers necessary to reduce that inequality to the First-World inequality. These transfers amount to 29 per cent of First World real income. Its order of magnitude is about half of the development assistance necessary to attain maximum world welfare and may be considered a mid-way station on the path to that final goal. As a theoretical exercise it may have its value, but it cannot be translated into a policy advice: there are no decile authorities. Chapter 6, also dealing with a twenty world model, is more appropriate for policy recommendations. Thanks to work done by Kravis *cum suis* for the World Bank, the non-communist world is subdivided into seven areas each about 5 per cent or a multiple of 5 per cent in size, and world welfare maximum is described by the transfers needed from the four donor areas to the three underdeveloped areas. Again, the high about 60 per cent development assistance flows are found to be optimal if *per capita* income is equalized to characterize the optimum. But if incomes in areas with higher productivity are chosen which are higher than incomes in less productive areas, as a *quid pro quo* for higher efforts, more realistic figures can be obtained. As long as the differences in effort are not known we cannot recommend the optimal policy and transfers. They may fall to the 0.7 level, but we don't know. What we do know is that a 0.7 average must not be uniform for all donor country groups, but must vary between 0.83 for North America, 0.66 for the European Community, 0.57 for the donor countries outside America and Europe and 0.28 for the European countries outside the Community. A model with the individual donor countries or, better, with 1 per cent (percentile) areas is shown in Section 6.4.

Chapter 7 specialized in some features of a dynamic model. Although we returned to two 'worlds' (the First and the Third, respectively) again, we introduced consecutive time units of three different sizes: one year, five years and decades. These units are the gestation periods of the investments made. Growth of production in the two worlds was assumed to have two determinants: investments and technological development. Increase in employment was supposed to be negligible. In areas with a labour surplus it is indeed equipment capacity which determines production.

An alternative model in which population growth is, in the developed countries, a co-determinant of production was added in Section 7.7. In Chapter 7 the central relations derived are those which link the values of the main variables x_t^i and y_t^i ($i = 1, 3$ for the First and the Third World) for any time t to those prevailing at $t-1$. The policy variable entering in these relations is the portion d which the First World makes available for development assistance. The coefficients linking the variables mentioned

depend on the impact of technological progress, for which two extreme values are taken, derived from Denison's work. They also depend on the output–capital ratios in both worlds. Since we are accustomed to think in terms of their inverse, the capital–output ratio, in Table 8.1 the latter are shown for the various values of the gestation periods. In fact, the capital–output 'ratios' are no ratios without dimension; they have the dimension time and are expressed in years in Table 8.11.

Table 8.11 Capital–output 'ratios' in years found for three gestation periods and two coefficients c of technological development

Gestation periods:		1 year	5 years	10 years
$c = 0.0076$	World 1	6.4	5.8	5.1
	World 3	5.6	4.5	3.8
$c = 0.015$	World 1	8.2		
	World 3	6.6		

A figure of 6.4 in this table means that the capital needed to increase annual production by one unit requires a capital investment of 6.4 years of this additional production. The table shows that the capital–output ratio is larger for World 1 than for World 3, smaller for longer gestation periods than for shorter, and larger for higher technological progress than for lower. With the aid of the dynamic equations we estimate the development assistance needed (d, as a portion of First World income x^1) for different 'horizons' and different gestation periods. By the horizon we mean the period over which world welfare is considered. The results were discussed in Section 7.5 and also compared with the results of the static models (Table 7.52). For short horizons and gestation periods lower values for d have been found (21 to 25 per cent), but for longer horizons and gestation periods values of the same order as found with the static models resulted. Partly the same interpretation applies here too.

The material prepared for the dynamic models enabled us to estimate the application of a third interpretation that may be given to the criterion of optimality, again more concrete than the maximum world welfare criterion. Would it not be a good idea to set as a goal for development the doubling of World 3 income relative to World 1 income in a period of about twenty years? That would give a real perspective, as already noted.

8.2 CONCRETE PROPOSALS RELATING TO SECURITY

In some of our analyses we assumed that military expenditures will be reduced; in others such reduction was part of the result of optimizing world welfare-cum-security. Whereas five years ago such assumptions or recommendations would have been considered too optimistic, today they are considered by many to have a reasonable probability of being realized. The enormous waste of the armament race as well as its dangers are now better understood than before. The heavy burden of military expenditure, especially to the Soviet Union and its allies, keeps down the level of living of these countries and reduces the attractiveness of a socialist society far below what it could be. The low level of unemployment and of income inequality – both of them advantages of a socialist society – are now accompanied by a low level of the quantity and quality of consumer goods supply and Secretary-General Mikhail Gorbachev's reforms will raise both quantity and quality.

Other concrete recommendations on security policies are those about security assistance, and more generally non-military instruments. They have been somewhat over-emphasized because in our models they cannot be separated from income redistribution in general and such a redistribution is not aimed at by either side. But they remain an important part of conceivable security policies. In the few models where a distinction is made between offensive and defensive weapons, a shift to the latter is part of the optimal-welfare solution. In an evaluation of this recommendation it should not be overlooked that research in favour of as yet unknown defensive weapons only contributes to more security if it is done jointly by the two parties, that is, in today's situation, jointly by the superpowers. Otherwise the danger of one of the parties obtaining first-strike capability will remain a threat.

Another way of formulating this need for thorough co-operation is that our models' search for optimal world welfare-cum-security has a 'structural' aspect with regard to the decision-making structure that is implied. A real optimum situation can only be obtained by the existence of world authorities in the fields where world-wide decisions are needed. Such fields are international trade policy and international monetary policy, and a more recent, very important, field is environmental policy. In the first two fields authorities exist: GATT and UNCTAD in the field of trade and the IMF in the field of monetary policy, although their power is not yet adequate. With regard to environmental policy UNEP has no power at all.

For security the situation is hardly any better. This means that the conditions to carry out optimal policies are not fulfilled and the creation of adequate authorities is an implicit proposal following from our analyses. The creation of such authorities is the most important task of our generation. So far we only have a few supranational authorities such as the High Authority of Coal and Steel in the European Community.

8.3 CONCRETE PROPOSALS ON DEVELOPMENT CO-OPERATION

Our analyses clearly confirm what has been said by all experts on the subject since 1961: the situation of the Third World in comparison to the First World remains as unsatisfactory as it was in 1950. No change in world income distribution has occurred. The figure of 0.7 per cent of the First World national income to be spent on public development assistance has only been attained by a few donor countries, and the average attained is about one-half of the 0.7 recommended. Moreover, the 0.7 per cent is lower than any 'optimal' figure we tried to derive from criteria that might appeal to the citizens of the First World and their politicians. In an attempt to avoid criteria that are felt to be too theoretical two other more concrete criteria are proposed. One is to let income inequality in the world at large be reduced to income inequality within the First World itself, and the other is to let relative income of the Third World compared with the First World be doubled in a period of twenty years. In both cases clearly more development assistance than 0.7 per cent is needed: the lowest 'optimal figure' we arrive at being 2 to 5 per cent. Pioneers in this subject have been Dr S. Mansholt, the ex-chairman of the European Commission, and the Swiss churches who suggested 3 per cent – much at variance with what the Swiss government has done so far.

Leading politicians seem blind to the danger of poverty in an increasingly interdependent world. If the burden of armament becomes lower they will hopefully revise their negative attitude. Happily, a new wave of 'Voices in Defence of AID', in Hans Singer's words (Singer, 1988), was under way in 1987 and our findings are in full agreement with this wave. Moreover, the percentage needed is of the same order of magnitude as the reduction in military expenditure discussed today. What results as the best slogan, therefore, is 'reconversion from security to development goods'!

8.4 LACUNAE IN SCIENTIFIC APPROACH

In the last three decades an intensive effort has been made in the study of development by a number of scientific disciplines. Important new knowledge and understanding has been added. Many of the data used in this book are examples of this effort and have enabled us to make a start with the subjects we are dealing with.

In the last decade the study of security policy has picked up pace as a consequence of the acceleration of the armament race. The study and furthering of peace is much older, and traces of it in modern form were visible about a century ago. An important event in this development was the establishment of the International Committee of the Red Cross (1863) by, among others, H. Dunant. Dunant was honoured with the first Nobel Peace Prize in 1901, and the Committee itself received the Prize in 1917. Then there were the Peace Conferences of 1899 and 1907 in The Hague, followed by the building of the Peace Palace. Countervailing forces unfortunately were stronger: World War I started almost immediately after the Peace Palace was finished! Even a Second World War had to be fought before the peace forces began to increase in strength. Scientific activities focusing on peace also found support from the Nobel Foundation when in 1982 Alva Myrdal, whose book 'The Game of Disarmament' (1976) was a beacon, was awarded the Peace Prize. In the meantime, the International Committee of the Red Cross had again been awarded the Peace Prize in 1944 and 1963.

Interest in means of encouraging peace received a considerable boost with the discovery of nuclear energy, which brought a quantum jump in the destructive power at mankind's command. Not only did it increase the volume of scientific work needed to strengthen peace policies, but it also contributed to the scientists' feeling of responsibility in the struggle against warfare as a threat to mankind. The first group of scientists to act was the medical profession. In 1980 International Physicians for the Prevention of Nuclear War, Inc. was established and in 1985 this organization – with about 150000 members – was awarded the Nobel Peace Prize. Both the American and the Russian chairmen spoke on that occasion: Bernard Lown of Harvard University School of Public Health, and Yevgeny Chazov of the USSR Cardiological Institute. The latter, in particular, reminded the audience that physicists, including Albert Einstein, who were the discoverers of nuclear energy, had quickly perceived the disastrous consequence of nuclear war and had warned both

people and politicians that a 'new way of thinking' was needed, particularly in international decision-making.

Other scientists have followed the example of their medical colleagues. Economists too have a responsibility. The central problem of economic science is to design an economic policy that maximizes human welfare. Such a policy, as a matter of course, includes the avoidance of nuclear war and, in this author's opinion, of all war. Armed forces should remain as a UN World Police. Since, in the past, economists accepted wars as exogenous phenomena they did not put much research effort into finding out how war may be avoided. With the recognition of their responsibility for human welfare – which includes security – an agenda of research becomes evident and constitutes an enormous lacuna to be filled. A number of good examples for such an agenda is given in the first document addressed to the profession by the organisation Economists Against the Arms Race (ECAAR) in its membership appeal.

The modest attempt in this book to add to this new body of research also produces a number of lacunae, which will be listed and commented upon in Sections 8.5 and 8.6.

8.5 LACUNAE IN RESEARCH: THEORETICAL LACUNAE

The list and the comments will be presented under the headings 'theoretical' and 'empirical'. No attempt to outline an exhaustive programme will be made. It is too early for such an ambitious setup.

Perhaps the most important lacuna is the definition of the concept of security. Authoritative sources such as the handbook on international law by B.V.A. Röling (1985) or the Report of the Palme Commission (1982) barely define the concept or comment on it. Security is a 'feeling' or a 'state of mind' about the possibility of a sovereign nation being attacked and occupied. At opposite extremes would be, on the one hand, the situation in a completely integrated world community of nations in which conflicts between nations are solved in a legal process before a World Court of Justice – 'complete security' – and, on the other hand, the situation where one nation is occupied by another nation and disarmed – 'complete insecurity'.

Between these extremes a large number of intermediate situations are conceivable, and the set of these intermediate positions may be multidimensional. The number of dimensions depends on the number of mutually

independent characteristics of the conceivable situations. This applies to the extreme as well as to the intermediate situations. The extreme of complete security is characterized by the organizational structure of the world community; for instance, the number of decision-making levels and the procedures of decision-making. The structure also depends on the number of problem categories for which a 'world ministry' exists or on the number of 'ministries' at lower levels, such as the European Community or the United States of America. In the situations between the extremes some of the dimensions of security mentioned by Röling may come in, indicated by him as economic, ideological, enemy and weapon security; the latter two together are also called military security. What we need in principle is, of course, a list of security components satisfying the two conditions that together they constitute the totality of components and that each item on the list excludes all other items. Such lists may either be kept simple and work with a small number of items (macro approach) or try to be complete and work with a large number of items (micro approach). An appropriate scientific strategy is, in this author's opinion, to start with few items and gradually refine the analysis. As an example, armaments may be subdivided into two components – nuclear and conventional, or offensive and defensive – as a macro approach, or be subdivided into all existing and conceivable types, a micro approach. If some weapons are neither completely offensive nor completely defensive, a third category can be added.

Next to security, the concept of instruments of security-aimed policy shows lacunae. In our macro approach we first made a list by distinguishing between military and non-military instruments. Both may be specified by a further listing of components. Some examples on listing armaments were given above. Non-military instruments can be subdivided into existing and non-existing instruments. An existing component is to submit a conflict to the International Court of Justice. A non-existing, but desirable, component is to submit the conflict to the International Court and empower the Court to make a mandatory decision. This example illustrates the thesis that a complete list of instruments should contain all conceivable instruments in order to formulate a complete theory of the solution of conflicts, with the obvious aim of finding the optimal policy of conflict resolution.

8.6 LACUNAE IN RESEARCH: EMPIRICAL LACUNAE

By empirical lacunae we understand lacunae in the measurement of variables and coefficients used in our, or other, models for finding optimal policies. A first example is the measurement of security in the situations studied, with, the aim, among other, of testing the assumptions made on the security, or rather welfare-cum-security, functions: testing, that is, whether logarithmic or parabolic functions give a better fit. A second example is the measurement of the coefficients α_{ii} and α_{ij} in the welfare-cum-security functions used. These are concrete examples meant to illustrate the empirical lacunae in our setup and the future research programmes they entail.

Alongside the subjects of empirical research arises the question about the method or type of empirical research. It may consist of the collection of data, as performed by Ruth Leger Sivard, Kravis and Denison. An important additional method is the public-opinion poll method. We mentioned the research done by Van Praag *cum suis* about the welfare brought about by an individual's or a family's income. Their method will be useful – and, in fact, necessary – for the measurement of welfare-cum-security. The interviews must be preceded by an explanation of the concepts used. The international security of a country as experienced by the interviewee may be defined as in Section 8.5, followed by a proposed scale from 0 to 10, or from 0.0 in ten steps to 1.0, where the highest number stands for complete security and the lowest for complete insecurity. The levels between might be indicated by the usual terms: from very bad, bad, insufficient and so on, to good, very good and excellent (which would mean completely secure); but it is also conceivable that words more adapted to the jargon of security or even military experts could be used. Apart from the aspects (dimensions) of the security concept mentioned in Section 8.5, the circumstances in which, at the time of the interview, the country finds itself will also be relevant. Thus, a citizen of a NATO member country may not feel completely secure because she or he anticipates, with a certain probability and within some future time span, an invasion by a member of the Warsaw Pact. (In 1956 or 1968 one member of the Warsaw Pact was even invaded by other members, but that was long ago.) An example of a different kind is that a citizen of a Central American country may fear an invasion by US-assisted 'contras'. Or a citizen of any country may anticipate a negative judgment from the International Court

of Justice. The reasons why an interviewee feels relatively secure could also be the subject of one or more questions.

It goes without saying that the date of the interview must be included. Interviews may be repeated at regular intervals and additional interviews may be carried out after important changes in circumstances. Among the latter could be the signing or the ratification of a new treaty, such as the INF treaty. Hypothetical changes may also be the subject of a security interview.

Again, a factor to be considered about public-opinion polls is whether the participants are experts in the subject dealt with – scholars, or military experts, experts in international relations – or whether they are voters or parliament members, or government members. Sometimes it may be particularly relevant to seek discrepancies between these alternative groups. The scientific strategy to be followed in attempts to fill the lacunae in our research should be the general strategy of scientific development: developing, step by step, a theory of the subject chosen and the necessary empirical information; using the information collected for the verification of the theory and adapting the theory so that it agrees with the empirical information.

The main direction in which this process of scientific development must be extended is to search for a world decision-making structure which will enable mankind to attain complete security and so guarantee the continuation of a living, human society, which is the goal of all attempts to improve and embellish that society.

At the moment of completing this book the author discovered Professor James A. Yunker's article 'A World Economic Equalization Program: Refinements and Sensitivity Analysis', *World Development*, vol. 16 (1988) pp. 921–33. In it he estimates the consequences, for six geographical areas, of a programme in which the countries whose *per capita* consumption is more than half the American figure contribute to a Fund (comparable to the World Bank). Their contribution is a fixed ratio of their surplus of national income over consumption plus military expenditure. Countries whose *per capita* consumption is less than half the American figure receive an amount from the Fund the size of which is determined by the size of their population weighted by the difference between the American and their own *per capita* consumption.

All that remains after the donor countries have paid consumption, military expenditures and development assistance is invested in 'general-

ized capital', that is, physical and human capital. The amounts received by the poor countries are also invested. The production function for each country is a CES-function, the same for all areas. The capital output ratio is 3 years for all areas. The areas considered are (1) the USA, (2) the other developed countries, (3) upper-middle-income economies plus East European non-market economies, (4) lower-middle-income economies, (5) China and India, and (6) other low-income economies.

The development of all regions is estimated for a 35-year period, both without the operation of the Fund and with it. Without it, *per capita* consumption in the developed countries roughly doubles in 35 years: American *per capita* consumption increases by 91 per cent and the other developed countries show an increase of 129 per cent. With the Fund these figures become 70 per cent and 105 per cent. Without the Fund *per capita* consumption of the poorest countries barely increases in contrast to what is attained – according to this model – by the introduction of the Fund: the poorest region will then attain a level equal to 89 per cent of the USA or 91 per cent of the other developed countries. World inequality would have almost vanished.

The amounts to be transferred by the United States – according to this model – are 3.2 per cent to begin with and, for the 25th year, 4.0 per cent. For the other developed countries these percentages are 2.3 and 5.2 respectively. It is striking that the order of magnitude of these figures is equal to what our 'pragmatic' interpretations of optimal development assistance amount to. The base has been laid for a thorough dialogue between economists and politicians.

Yunker's results compared with ours are considerably more optimistic when we look at the developing world. This is partly due to the production function he chooses for all regions, and probably also to the value of only 3 years given to the capital–output ratio. This and similar discussions may be a useful field of further research.

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