Schriften des Vereins für Socialpolitik

Band 308

Development Cooperation – Evaluation and New Approaches

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Bibliografische Information Der Deutschen Bibliothek

Die Deutsche Bibliothek verzeichnet diese Publikation in
der Deutschen Nationalbibliografie; detaillierte bibliografische
Daten sind im Internet über <http://dnb.ddb.de> abrufbar.

Fremddatenübernahme und Druck:
Berliner Buchdruckerei Union GmbH, Berlin
Printed in Germany

ISSN 0505-2777
ISBN 3-428-11867-7

Gedruckt auf alterungsbeständigem (säurefreiem) Papier
entsprechend ISO 9706 ♾

Internet: http://www.duncker-humblot.de

Preface

This volume represents some of the Proceedings of the Annual Meeting of the Research Committee on Development Economics *(Ausschuss für Entwicklungsländer)* of the German Economic Association *(Verein für Socialpolitik)* held in Cologne, Germany, in July 2004. The meeting focused on the effectiveness of, and new approaches in, development cooperation. Both issues have become increasingly important in recent years in view of the declining volume of budget funds allocated to development cooperation.

The first two papers deal with the effectiveness of development cooperation. *Philipp Harms* and *Matthias Lutz* discuss the macroeconomic effects of foreign aid. At a crucial moment of the aid effectiveness debate where economists have begun to question the recent consensus that the macro-economic productivity of aid mainly depends on the recipient country's policy environment, the authors shed new light on the issue. After a discussion of the main theoretical arguments justifying the assumption of positive growth effects of foreign aid, Harms and Lutz examine the more recent econometric studies on the growth effects of aid, particularly those that focus on the role of policies and institutions in recipient countries. They interpret the (in many ways contradictory) results, question the above-mentioned consensus, and draw their conclusions with regard to the orientation of future, hopefully more conclusive research on the macroeconomic effects of foreign aid.

The paper by *Rainer Thiele* is devoted to the closely related issue of the "optimal" allocation of aid among recipient countries, aimed to ensure maximum efficiency with respect to poverty reduction. Giving an overview of the relevant literature, he shows that the application of different allocation criteria can lead to dramatic variations in the poverty-efficient allocation of aid. Against the background of his lucid assessment on the robustness of the empirical results underlying the specification of the allocation rules, Thiele stresses the high payoff of additional research aimed at providing donors with more robust guidance and also makes suggestions concerning the direction of such research.

The following four papers are centred on new approaches towards a closer integration of the private sector into development cooperation. *Tilman Altenburg* discusses the perspectives of joint action with so-called lead firms in production networks. He shows to what extent these firms and local stakeholders pursue both complementary and conflicting aims, and identifies areas that are most suitable for cooperation. Finally, the author draws some practical conclusions concerning the

creation of strategic alliances with lead firms and makes suggestions concerning critical aspects relevant for implementation, such as how to deal with the risks of corruption, abuse and windfall gains at the expense of the public purse, or how to minimize transaction costs.

Jörn Altmann discusses the paper by Altenburg and other ways of integrating the private sector into development cooperation. He highlights the impact of WTO agreements (GATS, TRIPS, TRIMS) on the future development of the private sector, both domestic and foreign, in low-income countries. Among the policies aimed to integrate the private sector into development cooperation, the author analyses the promotion of investment, co-financing, build-operate-models, capacity building via training, private capital funds, and micro-financing.

The paper by *Rainer Durth* focuses on the opportunities provided by tapping financial markets for bilateral development cooperation. In view of the ambitious and far reaching new approaches in development cooperation, as reflected in the Millennium Development Goals (MDG) or the Poverty Reduction Strategy Papers (PRSPs), the author emphasises that bilateral development cooperation should be reoriented with a view to consistently follow the criterion of complementarity to the activities of multilateral donors and private investors. In this context, he suggests that a particularly promising approach for bilateral development cooperation is to supplement the scarce concessionary funds by financial resources from the steadily growing international capital markets. Durth shows in some detail that the German government has already started on this path, with its new FC financing instruments that make it possible to provide the necessary financial basis, and at the same time to make the use of funds more individual and thus more effective.

Heiko Körner, in a comment on Durth's paper, expresses his doubts as to the basic philosophy underlying today's conception of poverty reduction programmes. He argues that the classical instruments of development policy are scarcely able to improve the situation of the poor in a sustained way unless the social processes are prevented which, in a kind of vicious circle, cause self-feeding and consequently persistent poverty in low income countries.

The last two papers deal with economic aspects of low and middle income countries' pension schemes from a human capital perspective. On the basis of theoretical models that make allowance for the fact that pension systems have an additional effect on the human capital of a society, *Oskar Gans* identifies economically viable pension systems and discusses potential ways of constructing efficient paths for adjustment. Against this background, he evaluates the real-world reforms of two emerging market economies, namely Chile and Malaysia, and deals with the need for human capital-based reform that may be derived from such an evaluation. In his analysis, he also takes into account German efforts at reform whenever this seems appropriate.

Rainer Marggraf discusses Gans' implicit microeconomic hypotheses regarding human capital formation. In his analysis of family decisions, he concentrates on

the fact that individuals invest in human capital through children. He presents a family decision model that makes due allowance for this fact, and discusses implications for positive analyses of pension schemes.

Halle (Saale), January 2005 *Heinz Ahrens*

Contents

The Macroeconomic Effects of Foreign Aid

By *Philipp Harms* and *Matthias Lutz,*
Gerzensee and St. Gallen

A. Introduction

Foreign aid flows from DAC countries to the developing world stagnated during the 1990s, reaching a low point in 1997 at $48.5bn (*World Bank* 2004).[1] As these figures are in nominal terms, the trend in real terms has been even worse, whether adjusted for inflation or calculated relative to recipient countries' populations. Particularly striking is the drop in aid flows relative to donor countries' GDP. On this measure, rich countries reduced their aid contributions from around 0.34 per cent to 0.23 per cent of their output between 1990 and 2002 (*World Bank* 2004).

The 'aid-fatigue' reflected in these figures can be traced back to a number of economic and political changes (*Hopkins* 2000, *Robinson* and *Tarp* 2000): changes in industrialised countries' foreign policy priorities after the end of the cold war, a further weakening of old colonial ties, lower pay-offs for special interest groups due to the changing regional focus towards the commercially less interesting African countries, tighter budgets in donor countries, and a growing distrust of governments and international organisations in industrialised economies.

In addition to these forces, a key reason for the drying up of aid flows has certainly been the perception – even among groups traditionally supportive of foreign aid – that aid has failed, at least partly. There have been reports of corruption and poor administration, with aid management tying up valuable resources in recipient countries (*Kanbur* 2000) and questionable aid allocation decisions among donors. Although many aid projects were deemed to be successful considered on their own (or better, with respect to their pre-defined objectives), there is the perception that the overall impact has been less than the sum of its parts, something that *Mosley* (1987) referred to as the 'micro-macro paradox'.

A very illustrative example of the observations that have fuelled aid scepticism is given by *Easterly* (1999). Predicting the impact that aid should have had on output on the basis of the still widely-used two-gap model he compared this with the actual performance of a large set of countries. In his paper and subsequent

[1] Due to a rise in 2002, they have just caught up with the levels seen in the early 1990s (at around $58bn).

book (*Easterly* 2001) he presents the corresponding figure for Zambia, a country where the prediction diverges from actual performance to a particularly striking extent. While we have not found it possible to completely replicate his figure with newer data, the visualisation of the gap between the supposed aid effect and reality is still striking (see Figure 1). By 2001 Zambian GDP per capita was only about a fifth of what would have been predicted had all aid gone into investment and all investment into growth.[2]

Such a blatant discrepancy is no surprise to those economists who have always been sceptical about the ability of aid to lift developing countries out of poverty. Thus, the late Peter Bauer kept emphasising the corrupting and counterproductive effects of aid: "Because aid accrues to the government it increases its resources, patronage, and power in relation to the rest of society. The resulting politicisation of life enhances the hold of governments over their subjects and increases the stakes in the struggle for power. This result in turn encourages or even forces people to divert attention, energy, and resources from productive economic activities to concern with the outcome of political and administrative processes and decisions" (*Bauer* 1991, p. 45).

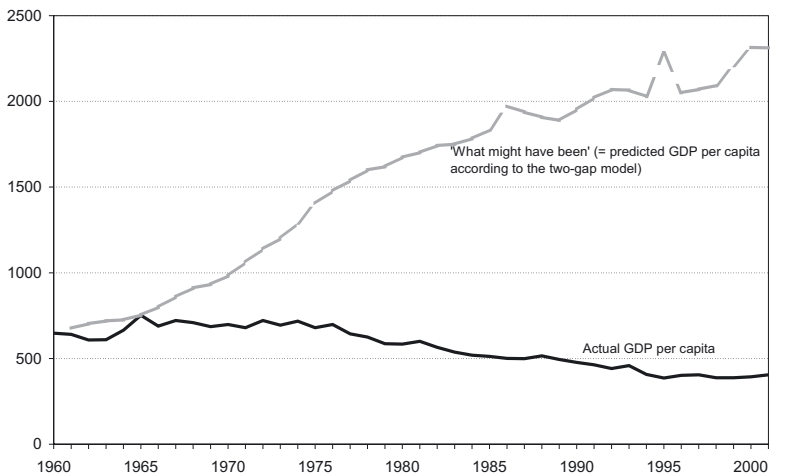

Figure 1: Zambia, GDP per capita (PPP-adjusted):
What might have been and what actually happened

[2] The 'what might have been' series was calculated by taking actual GDP per capita (in constant US$) in 1960 and projecting future values using a hypothetical growth rate equal to the sum of actual investment and aid inflow (as a share of GDP) divided by a presumed capital-output ratio of 3.5 minus the population growth rate.

So does recent aid experience prove Bauer right? To answer this question, one needs to assess whether the Zambian example can be generalised. Is the apparent failure of aid in this case an exception or does it apply to the average developing country? Is aid *per se* ineffective, or can we identify some fundamental forces that are responsible for the failure of aid in some countries and its success in others? These are the questions that we want to address in this survey.

The raison d'etre of our paper is that it summarises the state of knowledge at a crucial moment of the aid effectiveness debate: while the optimistic assessment of foreign aid among economists gave way to frustration as Zambia-style failures became increasingly visible during the 1990s, a new consensus seemed to emerge towards the end of the past millennium, which identified 'good policies' as a prerequisite for successful aid. This view, which was brought forward in a paper by *Burnside* and *Dollar* (2000) swiftly dominated conventional wisdom and became extremely influential in shaping policymakers' views and decisions. However, the consensus that "money matters – in a good policy environment" (*World Bank* 1998, p. 28) has started to unravel as more and more studies question the validity of the *Burnside-Dollar* paper. This makes it important to identify those insights that do not break down upon closer scrutiny and to identify the potential consequences.[3]

The rest of this paper is structured as follows: the next two sections summarise the main theoretical arguments that have been brought forward to justify the positive growth effects of aid. Section B contains a simplified version of the basic two-gap model which still forms the main motivation for aid employed by the multilateral institutions. Section C shows that aid may also be beneficial in helping a country emerge from a poverty trap. Section D looks at the evidence on the growth effects of aid leading up to *Burnside* and *Dollar* (2000). In Section E we survey the current research debate in the wake of the Burnside and Dollar paper, which focuses on the role of policies and institutions in recipient countries. Section F concludes this paper.

B. Using aid to overcome 'gaps'

I. Basic theory

The origins of the two-gap model are associated with *McKinnon* (1964) and *Chenery* and *Strout* (1966). Although no longer popular in the academic literature – *Easterly* (1999) calls it a 'dead model' – it is still widely used by policy-makers; in Easterly's words, the 'ghost of the financing gap' is still well alive in policy circles. One example is its use as part of the *Revised Minimum Standard Model*

[3] Other recent contributions that have addressed these questions are *Hansen* and *Tarp* (2000, 2001), *Easterly* (2003), *Roodman* (2003) and *Langhammer* (2004).

(RMSM) of the World Bank. Another example are the projections, formulated for the World Bank in *Devarajan* et al. (2002), of the future aid requirements to reach the Millennium goals.[4]

The basic two-gap model has two components.[5] The first concerns the link between investment and growth and determines the supply side.[6] In the Harrod-Domar tradition, gap models assume a linear relationship between output (Y) and capital (K),

$$Y = \frac{K}{v}, \tag{1}$$

where v denotes the capital-output ratio or ICOR (incremental capital-output ratio). This implies that output growth will be a function of the investment rate (I),

$$\frac{\dot{Y}}{Y} = \frac{\dot{K}}{vY} = \frac{I}{vY} - \delta\,, \tag{2}$$

where a dot over a variable denotes the change over time (e.g. $\dot{Y} = dY/dt$ is the change in output between now and the next period) and δ the depreciation rate. Note that current output is predetermined by past investments. As a planning framework, (2) allows policy makers to determine the minimum level of investment (I^*) required to achieve the desired rate of output growth (g^*):

$$\frac{I^*}{Y} = v(g^* + \delta)\,, \tag{3}$$

The second component of the two-gap model deals with the determination of investment. From basic national income accounting we know that

$$S_p - I = (G - T) + (X - M)\,, \tag{4}$$

[4] In their paper, *Devarajan* et al. (2002) acknowledge the criticisms the two-gap model has received, but nevertheless base their projections on it, arguing that it "... is a transparent and flexible framework for examining, for a large number of countries, the aid requirements of achieving the poverty goal" (p. 17, footnote 9).

[5] This subsection presents what amounts to the simplified textbook version rather than the more sophisticated versions in the original and subsequent two-gap papers. See, for instance, *Tarp* (1993, Ch. 4), *Gillis* et al. (1996, Ch. 6), *Basu* (1997, Ch. 5), *Nafziger* (1997, Ch. 16) and *Agenor* and *Montiel* (1999, Ch. 13). A further extension, the so-called 'three-gap model' which also includes a public investment constraint, was developed by *Bacha* (1990). The key results remain unchanged, however, and it is the simplified version presented here that has been used for policy purposes.

[6] The view that investment is the key to growth is characteristic to thinking about development during the post-WWII period. It is epitomised by the following well-known dictum of *W.A. Lewis* (1954, p. 155): "... the central problem in the theory of economic development is to understand the process by which a community which has previously been saving and investing 4 or 5 per cent of its national income or less converts itself to an economy where voluntary savings are much higher" (quoted in *Tarp* 1993, p. 82).

with S_p = private savings, G = government (current and capital) expenditure, T = taxes, X = exports and M = imports. This can be rewritten as

$$I = \underbrace{S_p + (T - G)}_{\substack{\text{domestic} \\ \text{savings}}} + \underbrace{(M - X)}_{\substack{\text{foreign} \\ \text{savings}}} = S + F. \tag{5}$$

In equation (5), private savings and the budget surplus have been aggregated into 'domestic savings' (S). The last term is referred to as 'foreign savings' (F), since the trade deficit (on goods and services) has to equal the sum of net current transfers (including foreign aid), net capital inflows (capital account plus financial account) and net factor payments. For the remainder of this paper, it is best to think of F as foreign aid, as we will abstract from private capital flows.

In the two-gap literature it is assumed that all the terms on the right-hand side of (5) are determined exogenously. The feasible levels of investment are thus given by

$$I^{SG} \leq S + F. \tag{6}$$

If the resulting investment level happens to be below the desired level I^*, the economy would be facing a *savings gap.*

To derive the *foreign-exchange gap,* assume further that imports consist of capital imports (M_K) and other imports (M_O):

$$M = M_O + M_K\,. \tag{7}$$

A fixed share m of all capital goods needs to be imported from abroad,

$$I = \frac{1}{m} M_K = \frac{1}{m}(M - M_O)\,. \tag{8}$$

Substituting $M = X + F$ into this equation gives

$$I = \frac{1}{m}[(X - M_O) + F]\,. \tag{9}$$

Again, the two-gap model assumes that the variables on the right-hand side are either exogenous or predetermined. The investment constraint due to this foreign-exchange restriction is given by

$$I^{FG} \leq \frac{1}{m}[(X - M_O) + F]\,. \tag{10}$$

There is a 'foreign exchange gap' (or 'trade gap'), if this investment level is below I^*, i.e. below the level required to achieve the desired level of output growth g^*.

Depending on the various exogenous and predetermined variables, either the savings constraint (6) or the foreign-exchange constraint (10) can be binding for a country. Note that neither implies that the economy is in a disequilibrium. Rather, there is a difference between the *ex-ante desired* and the *ex-post actual* investment rate.

The two constraints on investment are plotted as a function of foreign aid F in Figure 2. The savings constraint (6) is represented by the SG-curve, the foreign-exchange constraint by the FG-curve.[7] Investment I is bounded by either of the two curves. The feasible regions are depicted by the bold shading. To the left of F' investment is limited by the foreign exchange constraint FG, to the right of F' it is limited by the domestic savings constraint SG. From (2), it follows that these limits on investment translate directly to the feasible growth rates that can be obtained in an economy characterised by these features.

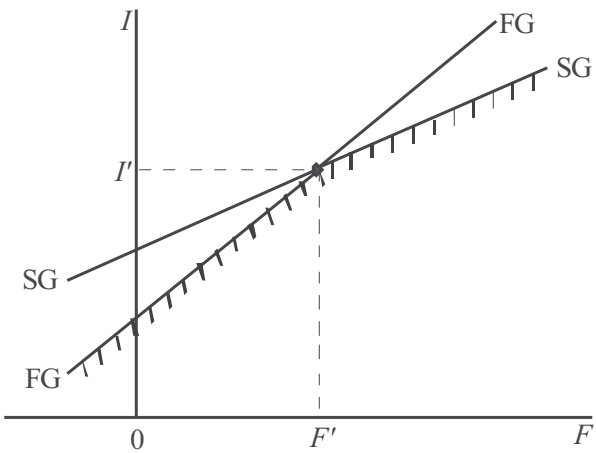

Figure 2: The savings and foreign-exchange gaps

An increase in foreign aid moves the economy to the right. This raises the feasible level of investment. Thus, independent of which of the two gaps applies, more aid increases the feasible growth rate of the economy. By how much it can rise, however, depends on which of the two constraints is binding. The effect will be smaller when the economy faces a savings gap.

[7] FG is steeper than SG since $1/m > 1$. The vertical positions of the two curves depend on $(X - M_O)/m$ and S. For both constraints to be relevant for positive values of F and I, the two curves have to intersect in the right quadrant, as in Figure 2. This requires $(X - M_O) < mS$.

II. Assessment

Gap models can be criticised on various grounds. First, and foremost, the two-gap approach is unsatisfactory methodologically, with prices fixed, no role for expectations, and static behaviour of agents and governments. Another major criticism relates to the link between investment and growth, specifically the assumption of a constant capital-output ratio. The Harrod-Domar model no longer features as a serious contender in growth theory, having been superseded not only by the neo-classical growth model but also by endogenous growth theory.[8] In these more recent frameworks, the role of physical capital investment is rather modest, as the focus shifts towards education and research & development as the ultimate determinants of growth.

The second major criticism addresses the relationship between foreign aid and investment. In a model with optimising agents, it is not obvious that all of aid should go into investment. From the point of view of private and public agents in the recipient country, an inflow of aid constitutes additional income. If agents behave rationally and prefer a smooth consumption flow, part of any additional income will be consumed and only part of it invested. The share to be saved depends on how transitory the additional income is. The longer the aid inflow is expected to last, the more of it will be allocated to current consumption.

Typically it is the government or part of the public sector that is the domestic recipient of aid. In this case it is possible that it alters its general expenditure pattern as a result of the aid inflow. For instance, resources previously earmarked for investment may get re-allocated to current expenditure. In any case, whether it is the private or the public sector that responds by raising current consumption / expenditure, the *fungibility* of aid makes it unlikely that all aid resources are devoted to investment. Empirically, it implies that as aid inflows rise, there will be a reduction in domestic financing of private and / or public investment. The negative correlation between aid and the aggregate savings rate implied by this does not mean that aid has a negative effect – just that there is unlikely to be a one-for-one rise in investment.

Finally, the two-gap approach appears rather naive in ignoring the disincentive effects of aid. For instance, countries that perceive donors to disburse aid according to financing needs have an incentive to artificially raise this need, e.g. by lowering their domestic investment efforts. In addition, there are a number of reasons why part of the aid disbursed by donors may 'be lost' in the aid delivery process. Most obviously there are the standard transaction costs. The resource costs of aid negotiations, delivery and administration may be high. Accordingly, *Kanbur*

[8] While it is possible to derive a similar aggregate relationship between capital and output in some endogenous growth models, the latter either require very specific assumptions on the production function, such as in the *Jones-Manuelli* (1990) model, or they rely on a broader definition of capital including human capital (*Lucas* 1988).

(2000, p. 419) argues: "In my view, the real cost to Africa of the current aid system is thus the fact that it wastes much national energy and political capital in interacting with donor agencies." In addition resources may get wasted directly by corrupt government officials and indirectly via rent-seeking activities.[9]

C. Using aid to overcome 'poverty traps'

I. Theory

The 'gap models' described in the previous section identified foreign aid as a way to raise investment and to move developing countries' growth rates closer to a desired level. An important implication of this framework is that investment and growth return to their initial levels if the inflow of aid dries up. In other words: the long-run growth effects of aid are only realised if the volume of aid disbursements is raised *persistently.* Proposing aid as a means to achieve higher growth in developing countries therefore requires quite heroic assumptions about donor countries' generosity.

This changes once we move to a theoretical framework in which growth is hampered by the presence of *poverty traps.* A poverty trap may have different sources, which can be traced back to population dynamics, agents' savings behaviour, the existence of complementarities, or properties of the production function. Regardless of the exact causes, the consequence is the existence of multiple steady states and the possibility that countries which start out with a low per-capita income find themselves in a vicious circle with poverty and low-growth reinforcing each other. Conversely, a temporary injection of foreign capital could help the economy to take off and to permanently reach a higher level of per-capita income.

The mechanics involved in such a setup can be illustrated with a simple example: suppose that all the assumptions of the Solow model are satisfied – that is, agents have access to a constant-returns to scale technology $F(K,L)$ with physical capital K and labour L as inputs, and there are no private international capital flows, so that domestic investment I has to be financed out of domestic savings S:

$$Y = F(K,L)\,, \tag{11}$$

$$\dot{K} = I - \delta K\,, \tag{12}$$

$$I = S\,, \tag{13}$$

where δ denotes the exogenous rate of depreciation. For simplicity, we assume that there is no exogenous technological progress.

[9] If aid inflows are large, they may also generate Dutch disease type effects which will adversely affect the foreign-exchange constraint through a real appreciation.

We depart from the Solow model by assuming that there are basic ('subsistence') consumption needs that agents have to satisfy, and that savings are zero as long as per-capita income does not exceed this level of subsistence consumption. Hence, the savings function is described by

$$S = \begin{cases} s[Y - \tilde{C}L] & \text{if} \quad Y > \tilde{C}L \\ 0 & \text{if} \quad Y \leq \tilde{C}L \end{cases}, \tag{14}$$

with $0 < s < 1$ and $\tilde{C}$ representing (per-capita) subsistence consumption needs.

Combining equations (11) – (14) yields a modified 'Solow equation':

$$\dot{k} = s\left[f(k) - \tilde{C}\right] - (\delta + n)k\,, \tag{15}$$

where k is the capital stock in per-capita terms and n is the exogenous population growth rate.

In Figure 3, the evolution of the capital stock (in per capita terms) $\dot{k}$ is depicted as the distance between the bold line and the dashed line. Apparently, the system has two steady states: one stable, Solow-type steady state k^{**}, to which the per-capita capital stock converges from below and above. And a second, unstable steady state k^{*} that determines the boundary of the poverty trap: if a country's initial capital stock (per capita) is lower than k^{*}, the dynamic forces of the model will drive it to an ever lower level.

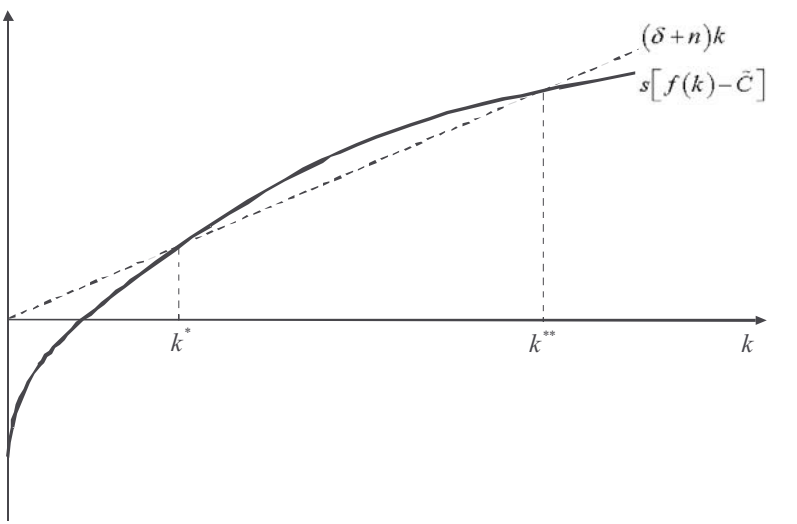

Figure 3: Poverty traps in a Solow model with subsistence consumption

The intuition behind this result is straightforward: when agents have a very low income, subsistence consumption needs prevent them from investing in the maintenance (let alone the expansion) of the capital stock. As a consequence, depreciation reduces the capital stock even further, reinforcing the process of poverty and decay in future periods. While our model focused on a particular source of the poverty trap – the presence of subsistence consumption needs which reduce agents' savings behaviour at low levels of income – alternative models that concentrate on non-convexities in production yield quite similar results.[10]

Against this background there is an obvious role for aid: since a one-time increase of the capital stock can propel a country out of the poverty trap, one does not need permanent inflows of aid in order to lift developing countries to higher levels of income and growth. Instead, a one-time injection could do the trick. In fact, this is precisely one of the remedies that *Nelson* (1956) proposed in his early contribution on growth in the presence of poverty traps: "Increases in income and capital achieved through funds obtained from abroad [...] can help to free an economy from the low-level equilibrium trap." (p. 904).

II. Assessment

The idea to use aid as an instrument to initiate the 'big push' seems so compelling and attractive that we rush to highlight the numerous caveats that need to be taken into account: first, and most importantly, the model above suggests that poverty is due to unfavourable initial conditions. While this may be part of the truth, over-selling the argument risks downplaying the role of current institutions and policies. In fact, the exaggerated reliance of developing country policymakers on the big-push idea and their neglect of the current policy environment may be one reason for the failure of this idea in many cases.

Second, while aid seemed to be the only way to alleviate a shortage of capital in the 1960s, this notion seems somewhat dated in times of massive private foreign investment in developing countries. There may still be a case for regarding aid as a substitute or catalyst for private capital flows – especially since many of the poorest developing countries are apparently shunned by foreign investors. However, unless one comes up with a compelling argument why private capital markets do not provide these countries with the volume of foreign investment that they 'deserve', aid is likely to provide a brief cure of symptoms rather than a contribution to sustained development.

[10] In *Murphy, Shleifer* and *Vishny* (1989) and *Acemoglu* and *Zilibotti* (1997), the adoption of a more productive technology is prevented if current income is too low. In *Azariadis* and *Drazen* (1990) as well as *Galor* and *Zeira* (1993), fixed costs combined with financial market imperfections hamper human-capital investment at low income levels. Surveys of this literature are provided by *Benhabib* and *Gali* (1995), *Azariadis* (1996), *Galor* (1996), *Basu* (1997) and *Ray* (1998).

D. Evidence on aid, investment and growth

I. Hypotheses

The positive view on the role of aid based on the models presented above rests on two testable relationships – that between aid and investment and that between investment and growth. In what follows we assume for expositional simplicity that these two relationships take a linear form and that the variables in question only vary along the time dimension. The two key relationships thus take the form of the following two simple regression equations:

$$\frac{I_t}{Y_t} = \alpha_0 + \alpha_1 \frac{F_t}{Y_t} + u_t \,, \tag{16}$$

$$\frac{\dot{Y}_t}{Y_t} = \beta_0 + \beta_1 \frac{I_t}{Y_t} + e_t \,, \tag{17}$$

The last term in each regression, u_t and e_t, may either be thought of as the stochastic error terms in a simple bivariate regression, or as a composite measure of any other variables that may influence the left-hand side variables *plus* stochastic error.

If aid works as presumed in the two-gap framework, the null hypotheses of i) no effect of aid on investment (i.e. $\alpha_1 = 0$) and ii) no effect of investment on growth (i.e. $\beta_1 = 0$) should be rejected in favour of the alternative that $\alpha_1 > 0$ and $\beta_1 > 0$.

Instead of proceeding in two steps, the two predictions may also be tested jointly in form of:

$$\frac{\dot{Y}_t}{Y_t} = \gamma_0 + \gamma_1 \frac{F_t}{Y_t} + v_t \,, \tag{18}$$

where $\gamma_0 = \beta_0 + \beta_1\alpha_0$, $\gamma_1 = \beta_1\alpha_1$ and $v_t = e_t + \beta_1 u_t$ is now a composite error term (or measure of all other influences). A rejection of H_0: $\gamma_1 = 0$ against H_1: $\gamma_1 > 0$ implies that aid (via its effect on investment) has a statistically significant, positive effect on growth. While this provides a direct test of the effect of aid on growth, it has the disadvantage over the two-step approach that, in case there is no significant aid effect, we do not know which (or both) of the two relationships in (16) and (17) is not supported by the data.

The remainder of this section is largely based on three previous studies:

– *Hansen* and *Tarp* (2000) summarise the results of 29 papers, published between 1968 and 1998, that estimate at least one of the above relationships. Their meta-analysis thus provides a summary statement of earlier research findings on the aggregate impact of foreign aid.

– *Boone* (1996) examines the effect of aid on a variety of macroeconomic variables and several development indicators. His study has been widely cited as final proof that there is no significant, positive influence of aid inflows on investment and growth in recipient countries.
– *Easterly* (1999) takes issue with the still widespread use of the 'gap model' in international policy circles and re-examines the evidence on the basic two-gap relationships for a large sample of developing countries.

II. The effect of aid on investment

Table 1 summarises the effects of aid on investment identified by the three studies listed above and some own estimates. The studies surveyed by Hansen and Tarp provide overwhelming support for the hypothesis that aid raises the level of investment in recipient countries, with 15 out of 16 regressions providing a positive and significant estimate. However, due to the limitations of the period in which they were undertaken, not all of them feature particularly large data sets or the more sophisticated econometric methods available today. The newer estimates in *Boone* (1996) and *Easterly* (1999) paint a much bleaker picture. The majority of the individual country estimates in Easterly are either insignificant or significantly negative. *Boone* (1996) only finds a positive and significant effect in one specification[11].

Our own estimates feature a re-estimation of the country regressions in *Easterly* (1999) based on the simple bivariate relationship posited in (16). The data are taken from the World Bank's *World Development Indicators 2003* on CD-Rom.[12] There are two differences to Easterly's work. First, we base our estimates on longer time-series (1960 – 2001) and include a slightly larger set of developing countries. For a country to be included, there had to be at least twenty years of consecutive observations available. Second, we use aid lagged by one period rather than the contemporaneous value as explanatory variable in an attempt to deal at least with some of the potential endogeneity of aid. Nevertheless, these estimates are purely meant as a crude summary of the basic correlation between foreign aid and investment.

The bottom row of Table 1 summarises the results from running individual country regressions and from using all observations in a fixed-effects panel regression. The individual country results are more favourable of the gap approach than Easterly's, but the positive and significant estimates are still in a minority. However, the panel estimate – included as a summary of the basic relationship across all countries – is positive and highly significant. The estimated coefficient is 0.25,

[11] Based on ten-year averages of the data and estimation with instrumental variables.

[12] The series used are 'Gross capital formation (% of GDP)', 'GDP (current US$)' and 'Official development assistance and official aid (current US$)'.

suggesting that, on average, a quarter of aid inflows translate into investment. This is not a large effect, and significantly below one (as suggested for the savings gap constraint by the very simple version of the two-gap model presented in section 2). However, at least in terms of this simple bivariate regression, there is support for the assertion that there is a positive relationship between aid and investment at the aggregate level.

The summary evidence in Table 1, though providing a benchmark, is not satisfactory in all respects. Many of the papers surveyed in *Hansen* and *Tarp* (2000) are outdated, and the simple regressions in *Easterly* (1999) as well as our own can at best inform on the basic correlation between aid and investment. Two papers that have recently looked at the effect of aid on investment using newer data, and more sophisticated econometric models and methods, are *Feyzioglu* et al. (1998) and *Hansen* and *Tarp* (2001).

Table 1

The effect of aid on investment (both relative to GDP)

	Number of estimates			
	Total	Negative significant	Not significant	Positive, significant
Hansen & Tarp (2000)	(taken from 7 studies published between 1972 and 1998)			
	16	0	1	15
Boone (1996)	(panel data, 10-year averages, 96 countries, 1971 – 90)			
	8	0	7	1
Easterly (1999)	(by country 88 countries, annual data, 1965 – 95)			
	88	36	35	17
Own estimates	(94 countries, annual data, 1960 – 2001, aid lagged by one period)			
By country	94	22	41	31
		Coefficient	t-ratio	
Panel (FE, $n = 3321$)		0.25	10.48	

Notes: The results are taken from: Hansen and *Tarp* (2000), Table 1; *Easterly* (1999), Table 1; *Boone* (1996), Table 4.

Feyzioglu et al. (1998) estimated the effect of aid on both public and total investment in fixed effects regressions with annual data for up to 38 countries during 1971 – 90. *Hansen* and *Tarp* (2001) base their estimates on a sample of 56 countries, using 4-year averages during 1974 – 93. Although the two studies differ with respect to the additional explanatory variables included, both *Feyzioglu* et al. (1998) and *Hansen* and *Tarp* (2001) reach the same conclusion: aid has a significant positive effect on investment.

III. The effect of aid on savings

In the simple two-gap model of section 2 the level of savings is determined exogenously. However, the fungibility argument suggests that aid may lead to a reduction in domestic savings, at least in relation to income. The focus of the early literature was partly on this issue, by estimating relationships like

$$\frac{S_t}{Y_t} = \delta_0 + \delta_1 \frac{F_t}{Y_t} + z_t \,, \tag{19}$$

with z_t as the stochastic error term (or as a composite measure of all other influences, including a purely stochastic term). Early sceptics of the two-gap approach appeared to view a rejection of H_0: $\delta_1 = 0$ against H_1: $\delta_1 < 0$ in (19) as evidence against its validity. However, as explained in the previous section, while it is to be expected that an increase in aid would at least partly be consumed, aid would be ineffective only in the extreme case where all extra income is used for consumption. As long as $\delta_1 > -1$, not all of aid is being consumed. In this sense, the estimate of δ_1 in (19) provides some indication of the use of aid. As *Hansen* and *Tarp* (2000) point out, the claim that aid has a negative overall effect requires the estimate of δ_1 to be significantly smaller than –1.

The results from *Hansen* and *Tarp* (2000) and *Boone* (1996), as well as summary indicators of our own results, are collected in Table 2.[13] The three columns on the right report the results for the standard test that $\delta_1 = 0$. The majority of the earlier papers surveyed in *Hansen* and *Tarp* (2000) reject this hypothesis in favour of a negative effect of aid on savings. The same is true for *Boone*'s (1996) results. Moreover, in both these studies in the majority of cases the hypothesis that $\delta_1 = -1$ cannot be rejected. There is a difference, though: in *Hansen* and *Tarp* (2000) there is a substantial number of estimates for which neither $\delta_1 = -1$ nor $\delta_1 = 0$ can be rejected due to the broad confidence intervals involved. The results in *Boone* (1996) are clearer and suggest very strongly that aid inflows are largely compensated by an equivalent reduction in domestic savings. This explains why he finds no effect of aid on investment, as seen in Table 1.

Our own exploratory analysis of the data is somewhat less supportive of such a strong response of domestic savings.[14] The majority of simple country-by-country estimates are either insignificant or positive and significant. Similarly, the hypothesis that $\delta_1 = -1$ is rejected in nearly half the cases in favour of the alternative hypothesis that $\delta_1 > -1$. Lastly, our fixed effects panel regression suggests an overall estimate of δ_1 equal to – 0.28. This is significantly different from zero, but also significantly above – 1. Thus, both the earlier studies and our own results

[13] *Easterly* (1999) does not contain estimates of the aid-savings relationship.

[14] The savings data, 'Gross domestic savings (% of GDP)', are again taken from the *World Development Indicators 2003*.

indicate that it would be wrong to presume that savings are not affected by aid inflows. However, there are differences in the extent to which these studies point to a serious problem because of this. Most negative on the potential beneficial impact of foreign aid are the results in Boone.

Table 2

The effect of aid on savings (both relative to GDP)

	Number of estimates						
	Total	Signif. < -1	Cannot reject $= -1$	Signif. > -1	Negat., signif.	Not signif.	Posit. signif.
Hansen & Tarp (2000)	(taken from 6 studies publiseh between 1973 and 1992)						
	24	1	13	8	14	10	0
Boone (1996)	(panel data estimates, 96 countries, 5 year averages, 1971 – 90)						
	8	0	7	1	8	0	0
Own estimates	(94 countries, annual data, 1960 – 2001, aid lagged by one period)						
By country	94	11	38	45	41	40	13
		Coeffi-cient	t-ratio				
Panel (FE, $n = 3321$)		– 0.28	– 7.07				

Notes: The results in *Hansen* and *Tarp* (2000) are taken from Table 1. Those in *Boone* (1999) are taken from Table 4, based on his results for total domestic consumption.

IV. The effect of investment on growth

Easterly (1999) estimates the simple bivariate relationship between growth and investment on an annual basis. Looking at each of the 138 countries in his sample separately, he only obtains a significantly positive relationship in 11 cases. Most estimates (117) are insignificant and 11 are significant and negative. Moreover, only four fall into the range *Easterly* (1999) considers to be realistic values for the ICOR. Together with his results on the link between aid and investment, he concludes that there is practically no support of the simple two-gap approach.

However, *Easterly*'s (1999) result on the relationship between investment and growth is a clear outlier, when the general empirical growth literature is considered. Practically all studies assessing the empirical relevance of potential growth determinants have found the investment rate to be one key influence. Moreover, in their seminal analysis of the robustness of the various potential explanatory variables, *Levine* and *Renelt* (1992) found the investment rate to be one of only a handful of variables to be robust to the inclusion or exclusion of other variables. A similar result was obtained in the less stringent robustness test of *Sala-i-Martin* (1997) for both equipment investment and non-equipment investment.

V. The effect of aid on growth

Regression specification (18) constitutes a joint test of the two key relationships of the two-gap model. It also forms the basis of much of the empirical literature on the aggregate effect of aid, in particular the new wave of research discussed in more detail in the next section. As with the earlier relationships, *Hansen* and *Tarp* (2000) perform a meta-analysis of the earlier literature on this link. They list 14 studies published between 1970 and 1998, containing a total of 64 estimates of the impact of aid on growth. 38 of these estimates are positive and significant and only one is negative and significant. The remaining 25 do not show a statistically significant correlation between aid and growth.

VI. The effect of aid on other aggregate variables

It is probably a fair assessment that *Boone*'s (1996) study constituted a watershed in the empirical analysis of the effectiveness of aid. One reason is that he was the first to examine the role of political and institutional variables in determining the effectiveness of aid, a topic we will return to in the next section. The second reason is that he provided a very careful empirical analysis of the aggregate impact of foreign aid with extremely dispiriting results for aid protagonists. His results have been so influential that *Burnside* and *Dollar*'s (2000) motivation of their own research, that "... foreign capital has not raised growth rates in the typical poor country" (p. 847), refers alone to Peter Boone's 1996 article and its 1995 working paper version, but not to any other studies.

Interestingly, *Boone* (1996) does *not* contain any estimates of the impact of aid on growth, but only on other macroeconomic and development indicators. Among these are consumption and investment, as reported above. In addition, he considers the effect of aid on private and government consumption individually, three measures of government-induced distortions (the black market premium, indirect taxes and the inflation tax) and on changes in three development indicators (infant mortality, life expectancy, and primary schooling). The sample comprises 96 countries and spans the 1971 – 90 period. The data are either averaged over five- or ten-year periods. Each regression is estimated using both OLS and IV estimators controlling for the possibility that aid may be endogenous. The additional control variables are per-capita GNP, its square and its growth rate, the rate of population growth, the terms of trade, and dummy variables for countries undergoing debt rescheduling, in Sub-Saharan Africa and in Asia.

The result in *Boone* (1996) – referred to in much of the debate on the effectiveness of aid that followed – is that aid does not matter for any of the indicators that are frequently used to justify aid programs: it neither increases public investment nor reduces distortionary taxation in developing countries, it neither lowers child mortality nor raises life expectancy or the level of education. The only statistically

significant consequence of aid is an increase in total consumption which, when split between private and public consumption, appears to be largely driven by the latter. This appears to be the case across different political regimes, with democratically legitimated governments being no less prone than autocratic regimes to squander resources. The disillusioning conclusion *Boone* (1996, p. 322) draws himself is that "... aid does not promote economic development for two reasons: poverty is not caused by capital shortage, and it is not optimal for politicians to adjust distortionary policies when they receive aid flows."

VII. Summary

It is interesting that *Boone*'s (1996) study, where aid fared particularly badly, has attracted such an extraordinary amount of attention in both the subsequent literature and the public debate. Similarly, it is somewhat surprising that *Easterly* (2003) in his recent survey refers to the death of the two-gap model on the basis of his 1999 results, even though these were obtained from a particularly simplified estimation procedure. As our own exploratory results on the link between aid and investment presented in this section show, there is little evidence that Easterly's results are robust. This is even more true when one considers other recent studies on the impact of aid on investment. And, as *Hansen* and *Tarp* (2000) show, it would be wrong to refer to the ineffectiveness of aid at the aggregate level as a stylised fact of the literature that preceded *Burnside* and *Dollar* (2000). The majority of studies they survey report a positive effect of aid on investment and growth.

E. Politics, policies, and institutions

I. *Burnside* and *Dollar* (2000)

Boone's (1996) approach to interact aid with a proxy for the political system in recipient countries was motivated by a political-economic model which suggested that different forms of government should differ in their use of aid. This explicit theoretical foundation distinguishes his work from the contribution of *Burnside* and *Dollar* (2000, henceforth BD), who also applied the empirical strategy of making the effect of aid dependent on some proxy for the 'political-economic environment', but who used a summary measure reflecting the quality of policies instead of Boone's index of political participation and civil liberties. In their view, a 'good policy environment' is characterised by low inflation, low budget deficits, and the absence of protection, as measured by the Sachs-Warner index of trade openness. To arrive at a composite policy variable, the authors first regress growth over 4-year periods between 1970 and 1993 on these three criteria (and a set of controls), and then use the resulting coefficients as weights. In a second step, BD use aid (as a share of GNP) as well as aid interacted with their policy variable in a

standard growth regression. The estimated coefficients are presented in column 1 of Table 3: the coefficient of aid by itself is not significantly different from zero, but the interactive term has a significantly positive effect, implying that "... the impact of aid is greater in a good policy environment than in a poor policy environment" (BD 2000, p. 859).

Table 3

Recent estimates of the effect of aid on growth

Source	Burnside Dollar (2000)	Collier-Dollar (2002)	Svensson (1999)	Hanssen-Tarp (2001)	Easterly et al. (2003)
aid / GDP	– 0.02	– 0.54	0.20	0.26	0.20
	(0.13)	(1.40)	(0.26)	(2.56)	(0.75)
aid / GDP squared		– 0.02		– 0.57	
		(1.60)		(2.20)	
aid / GDP* policy	0.19	0.31	0.29	0.05	– 0.15
	(2.61)	(2.94)	(3.32)	(1.26)	(1.09)
Table	*Table 4 Column 5*	*Table 1 Column 1*	*Table 3 Column 3b*	*Table 1 Column 4*	*Table 1 Column 2*
Policy measure	Weighted average of inflation, budget deficit and trade openness	Country Policy and Institutional Assessment (World Bank)	Democracy	same as Burnside-Dollar (2000)	same as Burnside-Dollar (2000)
Estimation method	OLS	OLS	2SLS	2SLS	OLS
Period	1970 – 93	1974 – 97	1970 – 89	1970 – 93	1970 – 97
Frequency	4-year averages	4-year averages	10-year averages	4-year averages	4-year averages
n	270	349	112	270	345
R-sq	0.39	0.37	–	–	0.33

This main result of BD's contribution, which started to be circulated as a working paper in 1996 and was eventually published in the AER in 2000, turned out to be extremely influential, and decisively shaped the World Bank's assessment of aid in the late nineties. The Bank's credo that "money matters – in a good policy environment" (*World Bank* 1998, p. 28) subsequently dominated both the debate on aid effectiveness and the allocation of aid.[15] The appeal of the BD message is easy to explain: first, their result seems to reconcile *Boone*'s (1996) rather frustrating finding with claims of donor institutions that individual aid projects successfully alleviate poverty. By digging somewhat deeper and by taking into account

[15] *Easterly* (2003) provides an impressive collection of quotations from press and politics echoing this view.

the policy environment, BD seemed to have found the missing link between the micro-success and the macro-failure of aid. Moreover, their paper offered a policy conclusion that is easy to grasp and that makes intuitive sense: it suggested that "…making aid more systematically conditional on the quality of policies would likely increase its impact on developing country growth"[16] (*Burnside* and *Dollar* 2000, p. 864). It is therefore not surprising that their prescription soon became the officially proclaimed guideline for the World Bank's and individual donor countries' allocation of aid.

II. Related studies

While the paper by BD was the most influential study that used an interactive term to highlight the dependence of aid effectiveness on some proxy for the 'policy environment', it was not the only one. In fact, the late nineties abounded with 'interaction results'. Thus, *Dollar* and *Easterly* (1999) demonstrate that "foreign aid leads to higher private investment in an environment of good policies, but not in an environment of poor policies" (p. 572) and argue that "…foreign aid to a *reforming government* [our italics] may improve the environment for private investment – both by creating confidence in the reform program and by helping ease infrastructure bottlenecks" (p. 573).[17] *Collier* and *Dollar* (2002) adopt a broader notion of 'good policies' using the World Bank's *Country Policy and Institutional Assessment* (CPIA). Their main finding, reproduced in column 2 of Table 3, reinforces the results of BD. Finally, *Svensson* (1999) comes back to *Boone*'s (1996) initial question whether the impact of aid on growth depends on political regimes in recipient countries. Surprisingly, he finds empirical support for the hypothesis that the effect of aid is not only greater in more democratic countries, but also positive and significant (see column 3 of Table 3).[18]

III. Critique

While policy makers were busy digesting the BD message, a number of researchers started to subject their analysis to closer scrutiny and to question the consensus that had just started to emerge. Their critique addresses different aspects of the BD study – econometric specification, data selection, and the policy vari-

[16] In the final section of their paper, BD demonstrate that past practice of aid allocation has largely ignored this healthy advice.

[17] In addition to the BD policy variables, *Dollar* and *Easterly* (1999) use *Knack* and *Keefer*'s (1995) measure of institutional quality to capture the policy environment.

[18] *Svensson* (1999, p. 276 – 77) argues that this deviation may be due to his consideration of economic growth (instead of investment) as a dependent variable, to the use of an alternative aid variable, a larger data set, and an econometric approach that allows the level of democracy to be endogenous.

able – but they share a general result: the BD finding is much too shaky to serve as a basis for policy prescriptions. In what follows, we will sketch the empirical strategies and results that support this conclusion.

Specification

Hansen and *Tarp* (2001, henceforth HT) mounted an early attack on BD by arguing that their result merely captured diminishing returns to aid. Referring to the Solow model as well as Dutch disease phenomena as possible reasons for a concave aid-growth relationship, they showed that the policy-interaction term is no longer significant once additional polynomials of aid – in particular, aid squared – are used as regressors (see column 4 of Table 3).[19] There are two conclusions to be drawn from HT: first, there is an optimal level of aid, beyond which additional aid flows are counterproductive – i.e. an abundance of aid may be too much of a good thing. Second, while this optimum may depend on country-specific characteristics, it does not depend on economic policies as captured by the BD index.

BD claim to capture cross-country differences by using a set of control variables as well as regional dummies. As *Jensen* and *Paldam* (2003) argue, this makes their results extremely vulnerable to omitted-variable bias. Jensen and Paldam therefore verify the robustness of the 'good policy model' (BD) and the 'medicine model' (HT) by using country-specific fixed effects instead of regional dummies (and other time-invariant control variables). Showing that the BD result breaks down while the coefficient on the quadratic aid term is still significantly negative if this alternative specification is used, they conclude that "... the medicine model is far superior to the good policy model when it comes to robustness in the within sample replications" (p. 12).

Finally, there is no clear reason for using four-year averages in a growth regression.[20] So an obvious robustness check is to test whether the BD result holds at lower frequencies. This is done by *Easterly* (2003) who reports that "... the coefficient on the interaction term between aid and policy no longer enters significantly for periods of 12 years and for the pure cross-section of 24 years" (p. 30).

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[19] This is surprising, given the BD finding that aid squared is no longer significant (while the policy-interaction term is) once five influential observations are removed from the sample. The explanation may be that – in contrast to BD – HT use both aid squared and policy squared as regressors. The HT model gets powerful support from *Roodman* (2003) who subjects it to a battery of robustness tests and states that "...the most robust and far-reaching conclusion to emerge from the testing is that of Hansen and Tarp, the sole proponents in the work examined here of the straightforward view that aid works on average, albeit with diminishing returns" (p. 35).

[20] The standard explanation for not using annual data is that averaging helps to "eliminate business cycle factors and measurement error" (*Boone* 1996, p. 304).

Sample size

Our belief in the validity of econometric results is based on the notion that they reflect a structural relationship which does not depend on the inclusion or omission of a few data points. However, exactly this presumption turned out to be wrong in the BD case: thus, *Roodman* (2003), *Easterly* et al. (2003), *Easterly* (2003), as well as *Jensen and Paldam* (2003) show that the policy interaction term is no longer significant when an additional four-year period (1994 – 97) is added to the original BD data set, and when some 'newly found' observations enter the sample (see column 5 of Table 3). Moreover, the BD result breaks down if official development assistance (ODA) instead of 'effective development assistance' (EDA) is used as a regressor.[21] Finally, as Jensen and Paldam emphasise, the result heavily relies on the inclusion of a large number of control variables and the sample reduction that results from limited data availability.[22] In fact, neither the 'good policy model' nor the 'medicine model' nor any other non-linear model with aid as a determinant of growth gets empirical support if one makes use of the maximum number of data points.

The policy variable

A third line of critique focuses on the policy variable used by BD. An obvious objection is that this proxy is extremely ad-hoc: why should good policies be reflected by a combination of low inflation, a low budget deficit, and trade openness and not, say, a low black market premium? Why is the Sachs-Warner index used instead of some alternative measure of trade openness like the sum of imports and exports over GDP? These points are raised by *Easterly* (2003) who reports that interacting aid with alternative policy variables, such as the black-market premium, does not yield a significant coefficient.

A related argument is brought forward by *Brumm* (2003) who emphasises that the BD policy variables are, at most, proxies for the quality of a country's economic policy, and that one needs to account for measurement error when using such proxies. Adopting an econometric approach that is more robust to measurement error and that treats economic policy as a latent variable, he comes up with the

21 "Effective development assistance" (EDA) as defined by *Chang* et al. (1998) is computed by isolating the grant component of concessional loans and adding it to the volume of outright grants. While EDA may give a more accurate impression of the sacrifices made by donor countries, the original ODA series covers a larger number of countries and time periods.

22 A carefully assembled table in the appendix of *Jensen* and *Paldam* (2003) singles out the countries that did not make it into the BD sample because either EDA data or some control variable were not available. It is quite disheartening that, to a large extent, these are countries with very low incomes to which the BD message was supposed to apply in the first place.

surprising finding that the coefficient of the interactive term is significantly *negative* – which suggests that aid is more effective in countries where it meets a bad policy environment.[23]

Quite related are the results of *Guillaumont* and *Chauvet* (2001) who find that the BD interactive term is insignificant in a regression focusing on twelve-year intervals, but that aid is more effective in countries which are characterized by an unstable economic environment.[24] Finally, *Harms* and *Lutz* (2005) test whether aid has an effect on the volume of private foreign investment, i.e. the sum of foreign direct investment and portfolio equity investment. Instead of the BD policy index, they use a set of *governance indicators* developed by *Kaufmann* et al. (1999). The first advantage of these data is that they carefully isolate different aspects of the 'political and institutional environment', distinguishing variables that refer to the political system ('voice' and 'political stability') from measures that reflect the quality of official government activity ('government effectiveness', 'regulatory burden') and from indicators that reflect the population's respect for laws and institutions ('graft', 'rule of law'). The second advantage is that the *Kaufmann* et al. (1998) data are based on a systematic aggregation of measures from different sources and thus represent a consensus view on countries' institutional and political situation. Regressing private foreign investment (in per capita terms) on aid per capita and an interactive term, *Harms* and *Lutz* (2005) find that, for countries with an 'average' institutional environment, aid has no impact. However, it becomes significantly positive in countries where investors meet a heavy regulatory burden. The explanation they offer for this puzzling finding is that the impact of (aid-financed) public infrastructure services on the marginal productivity of capital may be larger in countries where an oppressive regulatory environment prevents the private sector from providing these services.

IV. Endogenous institutions and conditionality

A further reason for criticising the BD policy variable is that it represents a set of policy *outcomes* which are very likely to be a function of both aid and growth. Of course, BD are aware of this problem, and they discuss it explicitly in their paper. However, despite their reassurances, the reader is left with the nagging feeling that the BD result reflects a combination of various causal effects. If one wants to isolate the direct effects of aid on growth, one is left with the question whether there are any 'deeper' structural variables that capture the policy environment and that are less likely to be a function of other endogenous variables. *Dalgaard* et al.

[23] *Brumm*'s (2003) analysis differs from BD both by using an alternative econometric method and by considering a pure cross section of 24-year averages.

[24] *Guillaumont* and *Chauvet* (2001) use the stability of agricultural added value, the stability of the real value of exports, the trend of the terms of trade and the log of initial population as proxies for economic vulnerability.

(2004) offer the fraction of land in tropical areas as a candidate, arguing that climatic differences are correlated with slow-moving variables that affect the business environment.[25] They show that an interactive term of aid with this 'institutional variable' has a significantly positive effect on growth, suggesting that "over the last thirty years, aid seems to have been far less effective in tropical areas" (p. 36).

Apart from forcing researchers to interpret their empirical results with caution, the discussion of the potential endogeneity of policy variables highlights another channel through which aid may affect investment and growth in developing countries: if massive aid inflows raise the extent of rent-seeking and corruption in recipient countries, the detrimental consequences on factor allocation and productivity may dominate the beneficial effects of a better infrastructure and rising education. This is exactly the point emphasised by *Bauer* (1991) in his fierce critique of the standard practice of aid allocation.

Again, it is an empirical question whether the perverse consequences of aid observed in some countries are systematic or exceptional. And, not surprisingly, the literature offers a wide range of – sometimes contradictory – results on this question: *Svensson* (2000) considers the *International Country Risk Guide*'s index of corruption and finds that aid raises graft in ethnically fractionalized countries. He interprets this as empirical support for a model in which windfall gains exacerbate the distributional struggle between competing interest groups. *Knack* (2001) uses the *change* of a composite measure of governance – comprising the ICRG's indicators of corruption, bureaucratic quality and rule of law. As in *Svensson* (2000), Knack's results suggest that aid dependency worsens governance. However the effect of ethnic diversity is dampening rather than exacerbating.

While the results of *Svensson* (2000) and *Knack* (2001) indicate that any beneficial economic effects of aid may be superseded by its negative impact on governance, *Tavares* (2003) defends the opposite point of view: his empirical findings suggest that aid *reduces* corruption. How can we explain these differences? And who is right? Closer scrutiny of the contributions by Svensson and Tavares reveals that they are strikingly similar with respect to their samples and empirical approaches. However, they differ in their choice of instrumental variables: while Svensson uses income, the terms of trade and population size as instruments for aid, Tavares focuses on variables that capture geographic and cultural proximity. Confronted with a choice between the two approaches, we believe that Tavares' set of instruments is better suited to address the endogeneity problem.

The possibility that aid affects the quality of governance and policies finally leads to the question why donor countries do not target these variables by making aid *conditional* on recipients' efforts in reform and their policy performance. Un-

[25] This line of argument goes back to *Hall and Jones* (1999) as well as *Acemoglu* et al. (2001).

fortunately, as *Dollar* and *Svensson* (1998) document, this approach seems to have failed in many cases: apparently, the threat to withhold future resources in case of poor reform performance has rarely been credible – either because of overruling strategic and economic interests (see *Alesina* and *Dollar* 2000 as well as *Alesina* and *Weder* 2001) or because of the mechanics of aid allocation within donor agencies (*Svensson* 2003).

F. Conclusions

Almost ten years after *Boone* (1996) first investigated the hypothesis that the effectiveness of aid depends on the policy environment in recipient countries, we seem to have gone full circle: for some time, Boone's result that aid is ineffective – even if one controls for the political system – seemed to be replaced by a new consensus that (aid) money matters in a good policy environment (*Burnside* and *Dollar* 2000). However, this consensus has started to unravel in recent years: some authors (*Hansen and Tarp* 2001, *Roodman* 2003, *Dalgaard* et al. 2004) argue that aid has a significantly positive and non-linear effect on growth, but that the non-linear relationship rather reflects diminishing returns or deep structural differences than the importance of "good policies" as defined by *Burnside* and *Dollar* (2000). Others (*Brumm* 2003; *Harms* and *Lutz* 2003) find that policy and institutions matter, but in a way that turns *Burnside* and *Dollar* (2000) on its head. A third set of papers (*Easterly* et al. 2003; *Jensen* and *Paldam* 2003) claims that one cannot find a robust effect of aid on growth unless one uses an artificially restricted sample.

Does this mean that we are back to square one, and that the past ten years leave us with nothing but a stack of empirical investigations that differ in their choice of data, specifications, and results without delivering any reliable policy recommendation? We believe that such a frustrating conclusion would ignore the important insights that can be gained from a more nuanced look at the recent research output.

In particular, it is surprising how little care and time has been devoted to a discussion of the question which component of a country's political, institutional and economic fabric one actually wants to capture by controlling for the policy environment. Is it the government's ability to control the budget deficit and the central bank's willingness to fight inflation? Is it the extent of red tape and corruption that hampers business activity? Or is it political stability, the transparency of the political process and the reliability of the legal framework? While these aspects of the 'political and institutional environment' are likely to be correlated – with a politically unstable country possibly favouring corrupt administrations who use seignorage for lack of a sound tax base – they are not the same. For some reason, these differences have been lost amidst the recent critiques of *Burnside* and *Dollar* (2000), and we argue that it would be wrong to conclude from the findings of, e.g., *Easterly* et al. (2003) that, in general, we can neglect the political, institutional, and economic framework in recipient countries when assessing the effec-

tiveness of aid. In fact, the BD policy variable may just fail to capture the aspects that matter most. Or the functional relationship between aid, macroeconomic variables, and policies may be more complex than suggested so far – involving, e.g., threshold effects or other forms of nonlinearities.

Moreover, we think that it is misleading to explore the effects of aid without accounting for the supply side of aid, i.e. without considering the criteria that are used to allocate aid or the composition of aid flows. It is hardly surprising that huge sums of mainly military support that were unleashed for strategic rather than humanitarian purposes during the cold war did not have much of a growth effect.[26] It is also not surprising that a variable as aggregate as official development assistance does not have a robust effect on growth. In fact, given that ODA comprises such diverse components as emergency food aid, the building of village wells, the construction of airports and the salaries of teachers, it is surprising that some researchers obtained any results at all.

Hence, we believe that the unravelling of the BD consensus is a starting point rather than an end of the aid-growth debate, and we emphasise the desirability of taking a more disaggregate view – both with respect to the various aspects of policies / institutions and with respect to the different components of aid. We are sure that, once these subtle but important differences are accounted for, future research will come up with important and robust results on the macroeconomic effects of aid.

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[26] See *Burnside* and *Dollar* (2000), *Alesina* and *Dollar* (2000) as well as *Alesina* and *Weder* (2003) for an empirical exploration of the determinants of donor countries' aid allocation.

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Aid Allocation and Aid Effectiveness

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A. Introduction

Philipp Harms and Matthias Lutz provide a comprehensive and very useful survey of the literature on the macroeconomic effects of foreign aid. They conclude their analysis with a fairly agnostic statement, arguing convincingly that robust empirical evidence on aid effectiveness has not yet been established, but that it may be forthcoming if aid is considered in a more disaggregated way than has been in the past.

This paper deals with the related issue of how empirical findings such as those discussed by Harms and Lutz might affect the allocation of aid among recipient countries and thereby help improve international development cooperation. It first discusses an allocation rule for aggregate aid developed by World Bank researchers, which has become very influential in the policy arena, and some possible extensions of this rule. Then the focus shifts to two specific areas of development cooperation, namely the role of pro-poor expenditures and of measures aimed at overcoming the geographical disadvantages of the tropics. The paper closes with some concluding remarks.

B. The Collier / Dollar allocation rule

Up to now, the most notable attempt to base recommendations concerning the reform of foreign aid allocations on existing empirical evidence has been made by *Collier* and *Dollar* (2001, 2002). Collier and Dollar first perform growth regressions along the lines of *Burnside* and *Dollar* (2000), with aid and various control variables entering as left-hand-side variables. Based on the estimated regression coefficients, they then simulate the poverty-efficient aid allocation, which maximizes the number of people pulled out of poverty worldwide. Under this allocation rule, the initial poverty headcount and the quality of governance are key determinants of aid flows to individual countries, where the latter is approximated by the World Bank Country Policy and Institutional Assessment (CPIA), which consists of 20 different components covering various aspects of macroeconomic management, structural policies, social policies and institutions. Changes in the poverty

headcount are not measured directly but derived from growth rates by simply assuming an identical growth elasticity of poverty reduction of 2 for all recipient countries.

Beside poverty and governance, country size also figures prominently as the small-country bias apparent in past aid allocations is retained.[1] In addition, it is assumed that there are diminishing returns to aid in order to account for limited absorptive capacities of recipient governments, and that aid does not affect governance. This latter assumption implies, among other things, that the conditions typically attached to structural adjustment loans are regarded as ineffective, which is mainly explained by the observation that it has hardly ever been possible to "buy" reforms from unwilling governments (*Dollar* and *Svensson* 2000). The policy consequence then is to adopt selectivity rather than conditionality as the guiding principle of international development cooperation.[2]

A strict application of the Collier / Dollar allocation rule would lead to a dramatic reorientation of international aid flows, as Table 1 illustrates for selected African countries. The first four countries listed in the table are characterized by high poverty incidence combined with reasonable governance and could thus absorb much higher levels of aid than they actually get. In Angola, the Republic of Congo and Sierra Leone, by contrast, governance is so weak that aid would have to be reduced markedly despite widespread poverty. Diminishing returns to aid explain why Cape Verde and Guinea Bissau, two exceptionally aid-dependent economies, would receive much less external assistance. Finally, the reduced inflows simulated for Gabon and Namibia reflect the proposition that aid should taper off as soon as countries reach middle-income status. All in all, a more efficient allocation of aid would make a big difference for Africa: whereas the baseline scenario projects the poverty headcount to fall from 72 per cent in 1996 to 64 per cent in 2015, the "poverty-efficient aid" projection yields a headcount ratio of 56 per cent for 2015, i.e., the decline in poverty doubles (*Collier* and *Dollar* 2001).

The analysis conducted by Collier and Dollar has already had a significant impact on development policy. Their allocation criteria are very close to the benchmarks now adopted by the World Bank for IDA funds, which rely heavily on the CPIA (*Collier* and *Dollar* 2004). The same is true for a number of bilateral donors. Most notably, the recently established United States Millennium Challenge Account explicitly bases its choice of countries eligible for assistance on poverty and governance, using a set of governance indicators that differs somewhat from the CPIA (*Clemens* and *Radelet* 2003).

[1] The main reason for making this assumption is that otherwise India, a poor and relatively well-governed country, would get the bulk of total aid.

[2] Selectivity may also be called ex-post conditionality as it honors past reform efforts, while conventional (ex-ante) conditionality builds on the promise of governments to carry out reforms in the future.

Given that the Collier / Dollar allocation rule is set to play a major role in international development cooperation, it is important to recall its weaknesses, which can be summarized as follows:

First, as Lutz and Harms stress in their survey, the regressions showing aid to be effective under favorable policy conditions lack robustness. It should be kept in mind, however, that all major sensitivity analyses refer to *Burnside* and *Dollar* (2000), who employ a rather crude governance variable. Whether more robust results can be obtained with more comprehensive indicators such as the CPIA remains an open research question.

Second, using the CPIA as a governance indicator is not without problems. In particular, being based on subjective assessments by World Bank staff, it risks to paint a too optimistic picture as the World Bank has an interest in remaining engaged in a large number of countries. This problem is reinforced by the fact that the CPIA is not publicly available and thus not open to external scrutiny.

Table 1

The Collier / Dollar allocation rule for selected African countries

Country	Poverty-Efficient Aid (per cent of GDP)	1996 Aid (per cent of GDP)
Ethiopia	7.52	2.90
Ghana	5.23	2.04
Senegal	7.07	4.03
Uganda	8.51	3.34
Angola	1.20	2.45
Congo, Rep. of	4.60	8.86
Sierra Leone	5.64	8.11
Cape Verde	5.95	15.49
Guinea-Bissau	5.86	15.85
Gabon	0.36	1.51
Namibia	1.27	2.27

Source: *Mosley* et al. (2004).

Third, governance may not always be exogenous to aid allocations. On the one hand, it appears to be overly restrictive to assume that conditionality never works. The experience of successful African reformers such as Ghana and Uganda, for instance, suggests that in the early stages of the reform process governments tend to welcome external conditions, which allow them to tie their hands and to signal their commitment to the domestic population as well as foreign investors (*Devarajan* et al. 2001). On the other hand, it cannot be excluded that additional aid to well-governed countries would weaken the incentive to sustain reform efforts in these countries (*Langhammer* 2004).

Fourth, growth elasticities of poverty reduction are not uniform. While the empirical literature shows that growth in most cases benefits the poor, giving rise to a positive elasticity of poverty reduction, the extent to which it reduces poverty appears to differ remarkably across countries and over time (e.g. *Ravallion* 2001), a finding that has motivated the ongoing search for "pro-poor" growth strategies.

Fifth, by focusing narrowly on the governance criterion, the allocation rule risks to leave out other factors that might also have a significant impact on aid effectiveness (see next section).

Overall, these weaknesses should caution against an indiscriminate application of the Collier / Dollar allocation rule. In addition, enforcement of the selectivity principle underlying the allocation rule will meet with difficulties, e.g. because strategic considerations will in all likelihood continue to play a decisive role in donors' decisions.

C. Some refinements of the Collier / Dollar allocation rule

Various empirical investigations have augmented the standard Burnside-Dollar aid-growth model by including additional variables. Among the factors taken into account in these studies, exposure to external shocks and coping with post-conflict situations turned out to be particularly important. *Collier* and *Dehn* (2001) show that in case of large negative trade shocks aid appears to mitigate the adverse growth effects, possibly by providing a cushion, especially for government revenue, enabling governments to survive revenue shortfalls with less disruption.

More broadly, the structural vulnerability of recipient countries and its impact on aid effectiveness is analyzed in *Guillaumont* and *Chauvet* (2001). Structural vulnerability is defined as a function of the size of shocks faced by countries and of their susceptibility to these shocks, where in addition to trade shocks climatic events such as droughts, floods, cyclones and earthquakes are taken into account. Inserting an index of structural vulnerability into the Burnside-Dollar aid-growth model, the authors obtain a highly statistically significant coefficient for the interaction term between aid and vulnerability, i.e., they find that the impact of aid on growth is higher when vulnerability is high.

The impact of aid on growth in post-conflict scenarios is examined in *Collier* and *Hoeffler* (2004). Their regression results show that, for given policies, aid is on average more than twice as productive in post-conflict episodes than otherwise, which arguably is owed to the distinctive economic circumstances of post-conflict countries such as the need to restore spoiled infrastructure combined with a collapse of domestic revenue.

Taken together, these empirical studies provide support for the decision taken by the World Bank to earmark a certain share of IDA funds for post-conflict countries

and for what it calls "low-income countries under stress" (LICUS). But again, it must be stressed that the regression results lack robustness.

D. Focusing on pro-poor expenditures

Another extension of the empirical framework has been suggested by *Mosley* et al. (2004), who address two of the above-mentioned criticisms directed at the Collier / Dollar allocation rule. First, they put forward the hypothesis that in one specific area of development cooperation, namely the enhancement of pro-poor (public) expenditures, conditionality works. To test this hypothesis empirically, they construct an index of pro-poor expenditures that encompasses spending on basic education, agriculture and social services (housing, water and sanitation, social security), with the weights being derived from a regression of the poverty headcount on the different expenditure categories.[3] Second, they account for the pro-poor growth literature by allowing growth elasticities of poverty reduction to vary across countries. In addition, they assume that poverty, aid, and pro-poor expenditures are simultaneously determined, which appears to be justified given that more aid, for example, may reduce poverty while deeper poverty may give rise to higher aid flows. Hence, the estimation of a system of three interdependent equations is required.

In the poverty equation, a higher index of pro-poor expenditures is associated with a drop in the headcount ratio, which indicates that successful conditionality in this area might bear fruit in terms of poverty alleviation. As expected, growth is found to be a significant determinant of poverty reduction, but the estimated growth elasticity of poverty reduction is markedly lower than the one assumed by Collier and Dollar. Being an inverse function of inequality, it takes on a value of about 0.30 at a Gini coefficient of 50 per cent, and a still rather low value of about 0.55 at a Gini coefficient of 30 per cent.[4] Two additional explanatory variables, inequality and corruption, also appear with the expected signs and are strongly significant.

The small-country bias, which is captured by the size of the population, turns out to be by far the most important explanatory variable in the aid equation. There is also weak evidence that past aid allocations have at least to some extent been based on poverty and governance, the two dominating criteria of the Collier / Dollar rule. This finding stands in contrast with much of the existing literature. *Nunnenkamp* (2002), for instance, cannot detect any statistically significant correlation between these two variables and the aid allocations performed by the World Bank.

[3] Basic health care was not included in the index as it did not turn out to be poverty-reducing in the underlying regression.

[4] It has to be kept in mind that this is a partial elasticity. Taking account of the indirect impact that growth has on poverty reduction through raising pro-poor expenditures yields a full growth elasticity of poverty reduction that is still slightly lower than one, however.

Estimation of the third equation yields that, as hypothesized, aid has a positive impact on pro-poor expenditures, albeit only in low-income countries, which is probably due to the fact that in low-income countries the generally large share of aid in public budgets limits fungibility and thus the opportunities to circumvent conditionality. The effectiveness of conditionality in the area of pro-poor expenditures can perhaps be further improved with the new instrument of poverty reduction strategy papers (PRSPs) where recipient countries are allowed to devise their own spending priorities, which are only afterwards scrutinized by donor agencies. Marked increases in pro-poor expenditures during the PRSP process in countries such as Bolivia and Uganda provide a first indication that this new, less intrusive form of conditionality might work. Beside aid, two other variables strongly affect pro-poor expenditures: higher income per capita raises them, which means that pro-poor spending may be characterized as a "luxury good", and increasing levels of corruption lower them.

Based on these estimations, Mosley et al. then simulate how the Collier / Dollar allocation rule would have to be modified if both variable growth elasticities of poverty reduction and the benefit incidence of pro-poor expenditures were taken into account. Again for selected African countries, Table 2 shows that in a number of cases the impact would be quite dramatic. Namibia and Botswana, for example, where inequality reaches Latin American dimensions, would no longer be eligible for aid. By contrast, more egalitarian countries such as Uganda and Ethiopia exhibit comparably high growth elasticities of poverty reduction and would thus realize markedly higher aid levels than under the Collier / Dollar rule.

When interpreting these results it has to be noted that Mosley et al. themselves regard their simulations as illustrative rather than prescriptive, among other things because they do not account for the impact of corruption, a variable that is only available for a subset of developing countries. The result that higher pro-poor expenditures alleviate poverty, which is obtained from a simple cross-country OLS regression, should also be regarded as highly preliminary, given that previous empirical evidence on the effectiveness of social expenditures is mixed at best.[5]

[5] *Wößmann* (2001), for instance, shows for the case of education that institutional characteristics of the school system constitute the main determinant of educational outcomes and that a link between expenditures and outcomes can hardly be established.

Table 2

The Mosley et al. allocation rule for selected African countries

Country	Poverty-Efficient Aid (Mosley et al.)	Poverty-Efficient Aid (Collier / Dollar)	1996 Aid
Ethiopia	11.30	7.52	2.90
Kenya	12.22	4.15	1.91
Malawi	11.14	7.00	7.09
Senegal	9.40	7.07	4.03
Uganda	15.00	8.51	3.34
Botswana	0.00	3.50	0.71
Cameroon	2.72	4.22	1.57
Namibia	0.00	1.27	2.27
Nigeria	0.98	2.71	0.19
Zimbabwe	0.00	2.48	1.45

Source: *Mosley* et al. (2004).

E. Accounting for geographical disadvantages

While the approaches discussed so far share a common characteristic in that they attribute differences in aid effectiveness at least partly to governance factors, a recent study by *Dalgaard* et al. (2004) casts doubt on this conclusion. Dalgaard et al. account for recent contributions to the empirics of economic growth, which stress that slow-moving, or even time-invariant, fundamental structural characteristics like institutions and / or climatic circumstances are the key to explain international differences in development levels. Specifically, they run an augmented Burnside-Dollar aid-growth regression, where the fraction of land in the tropics and an interaction term of this variable and aid enter as additional explanatory variables. The climate-related variable is consistent with two alternative interpretations: first, it may represent a direct link running from geography to economic performance, which was found to be significant e.g. by *Sachs* (2003) and *Gundlach* (2004); second, it may rather proxy for institutional characteristics, which is in line with *Acemoglu* et al. (2001) who emphasize the importance of climatic factors for the kind of institutions created by European settlers, or with *Easterly* and *Levine* (2003) who provide evidence that geographic endowments affect development only through institutions.

The main regression result is that the much-discussed interaction between aid and policy becomes statistically insignificant, while the interaction between the fraction of land in the tropics and aid is highly significant. Provided that it turns out to be robust, this result implies that by applying the Collier / Dollar allocation rule donors would tend to punish countries with unfavorable initial conditions instead of helping them, because the regression on which the allocation rule is based

confuses climate-related problems with poor governance. Since there is a very high probability that countries having a low CPIA rating are located in the tropics, an aid regime aimed at mitigating adverse initial conditions would lead to an allocation of funds that differs fundamentally from the one suggested by the Collier / Dollar rule.

Among the possible geographical disadvantages of tropical countries, a high susceptibility to diseases such as malaria and low agricultural productivity figure most prominently. Confronting these disadvantages would mainly involve additional efforts in international agricultural and health research. Since any breakthrough in these research areas, such as the development of drought-resistant grain varieties, finally has to be implemented at the country level, governance considerations are likely to come into play again. High-yielding grain varieties, for example, will arguably lead to substantial increases in farmers' incomes only if they are complemented by efficient input and output markets. In the same vein, healthier people will need access to efficient labor markets in order to capitalize on their appreciated human capital.

F. Concluding remarks

The overview provided in this paper has shown that the application of different allocation criteria can lead to dramatic variations in the poverty-efficient allocation of aid among recipient countries. A lack of robustness of the empirical results underlying the specification of the allocation rules renders it impossible to rank them properly so that the literature is currently of little help for practical development policy. The only general conclusion that can be drawn is that all allocation rules considered in the paper suggest that aid effectiveness is likely to depend on the quality of governance, albeit in very different ways.

The large impact that different allocation rules would potentially have on aid flows and aid effectiveness suggests a high pay-off of additional research aimed at providing donors with more robust guidance. As for the future research direction, it is necessary to analyze aid allocations in a more disaggregated way than most previous studies have done. This is particularly obvious with respect to the aid variable itself, which comprises a heterogeneous set of items ranging from military goods to basic social services, but it is equally true for governance, where an aggregate indicator such as the CPIA faces the problem that at least some of its elements may have a differential impact on aid, growth and poverty. In this context, the analyses conducted by *Mosley* et al. (2004) and *Dalgaard* et al. (2004) constitute useful first steps.

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Cooperating With the Private Sector in Development Cooperation: Strategic Alliances with Lead Firms in Production Networks

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A. Introduction

International cooperation in the field of private-sector development has recently experienced two important changes. The first relates to a *shift from supply-side to demand-side interventions.* Traditional development aid focused on equipping individual firms or local small and medium enterprise (SME) clusters with the competencies which donors perceived to be essential for them to serve international markets. Given the increasing diversification of demand, changing fashion trends and rising product standards, this approach was not very successful. Today, policymakers increasingly acknowledge the need for close cooperation with strategic actors on the demand side, e.g. private retail or brand-name companies which hold the key to market access. To make the most of such cooperation it is important to gain a thorough understanding of the way firms are participating in (international) value chains and production systems, for example to identify sources of strategic knowledge, to recognize barriers to entry and figure out what determines the appropriation of gains.

The second change is about modes of service delivery. While traditionally aid was delivered almost exclusively through public agencies, in the last 10 – 15 years development agencies have increasingly been looking for *private-sector participation in the delivery of development services.* Besides commissioning private companies to implement projects by order and for the account of public agencies, an increasing number of companies are getting involved in a variety of strategic alliances with development agencies. Strategic alliances differ from awards of contracts to private contractors in that partners in alliances share a common interest in achieving certain outcomes and are willing to share risks for this purpose.[1] Hence the private partners' interests go beyond earning a service fee, and the firms can be expected to have much more of the ownership needed to make the joint project successful. Strategic alliances allow development agencies to draw on complemen-

[1] The term "strategic alliance" covers a variety of different cooperative arrangements including e.g. franchise contracts and joint ventures. This paper focuses on temporary, non-equity alliances (public-private partnerships, PPPs).

tary expertise, benefit from the often superior efficiency of private partners, and leverage additional capital for the purpose of development (*Demtschück* 2004, pp. 14 f.).

The present paper argues that strategic alliances in development cooperation should focus on *lead firms* in order to maximize their impact and outreach. Lead firms are companies which provide strategic and organizational leadership beyond the resources that are directly under their management control and therefore determine the development opportunities of subordinate participants in their network. As production and trade are increasingly taking place in tightly coordinated forms, lead firms have become more important as innovators, coordinators and "governors" (*Humphrey* and *Schmitz* 2001, pp. 19 ff.) of production networks. They are the ones who hold control of key technologies and patents, who introduce brand names, who are capable of integrating product and service inputs efficiently, who determine the logistics parameters in the supply chain, or who set and enforce different kinds of product and process standards. Such standards are becoming increasingly relevant and diversified, ranging from quality issues to social and environmental characteristics of the production process down to procedures to assure traceability of products or to decide on issues of certification and auditing. As a result, lead firms have considerable influence on the barriers to entry for Third World producers, their opportunities for technological learning, and their share of gains in the value-adding process. If development cooperation aims to integrate poor producer groups in modern production processes and to improve environmental or social standards, partnering with lead firms is just about indispensable.

Given this relevance of lead firms and a growing number of partnering experiences with them, the present paper discusses opportunities and limitations for development cooperation with these firms. Section B describes the trends towards increasing integration of production networks and identifies the most relevant factors driving this process. Section C then elaborates on the increasing importance of lead firms, distinguishing their different roles as innovators, coordinators and governors of production networks. Section D discusses, from the perspective of developing countries, the risks and opportunities inherent in the increasing integration of international production systems. Section E deals with the topic of interests, highlighting the fact that lead firms and local stakeholders in developing countries pursue both complementary and conflicting aims and seeks to identify which areas are most suitable and promising for joint action. Finally, Section F draws some practical conclusions for strategic alliances in development cooperation, comparing places where the interests of lead firms and development agencies coincide and pointing to some additional aspects that are relevant for implementation, such as how to deal with risks of corruption, abuse and private windfall gains at the expense of the public purse, or how to minimize transaction costs.

B. Increasing integration of production networks

International trade is increasingly taking place in tightly coordinated forms, either as intra-firm trade or as trade between legally independent firms in quasi-integrated value chains and production networks. UNCTAD estimates that transnational corporations (TNCs) account for about two-thirds of world trade: One third is intra-firm trade, the other third is directly affected by TNC locational and sourcing strategies (*UNCTAD* 2001, p. 56). Pure spot market transactions, where independent producers manufacture without knowing in advance who their customers will be and which product and process standards they expect them to comply with, are no longer the prevalent way of doing business.

Different concepts are being used to describe the trend towards increasing integration and coordination of production processes. There is a long history of analyzing the interactive process of production in terms of *linear* processes, whereby different actors consecutively transform a raw material into a final good, involving different manufacturing stages as well as services (e.g. design, delivery). Following the seminal work by *Hirschman* (1958), a great number of terms have been coined to describe this linear process, including "value chains," "production chains," "commodity chains," "supply chains," and "filières."[2] In real life, however, production processes are usually not neatly arranged in one straight line of successive stages but ramify into a large number of different supply chains and overlap with processes in many related branches (*Kaplinsky* and *Morris* 2001, p. 4). Furthermore, production processes involve a number of relationships at the same stage of the value-adding process, e.g. joint ventures, strategic alliances and other forms of collective action among firms, with some such firms participating in other chains. And finally, value-chain participants receive complementary inputs from consulting firms, business associations, training and R&D institutions and the like, which are not part of the value-adding process. Thus the "chain" metaphor does not adequately mirror the complexity of the coordination processes involved here. Several more recent studies therefore propose replacements for the linear "chain" concept. For example, *Henderson* et al. (2001) suggest the term "global production network."[3]

In this study we use the term "value chain" when we refer to the value-adding process in the narrow sense, e.g. when we discuss the distribution of gains between assemblers and their suppliers, while "production network" is used to refer to the broader perspective of systemic, network-like production processes involving dif-

2 See *Stamm* (2004) for a critical discussion of these concepts.

3 In fact, already earlier versions of the chain approach have a more comprehensive understanding of chains in the sense of networks, emphasizing the role of firms that are horizontally linked to the chains. *Hopkins* and *Wallerstein* (1986, p. 159), for instance, use the following definition: "The concept commodity chain refers to a network of labor and production processes whose end result is a finished commodity. In building this chain we start with the final production operation and move sequentially backward. . .".

ferent kinds of "horizontal" inter-firm relations as well as complementary supporting firms and institutions that do not directly participate in the process of value addition. For example, a multi-stakeholder dialogue dedicated to enforcing social standards in the garment industry would usually involve many actors beyond those of the value chain.

The motivation behind make-or-buy decisions, i.e. whether a company prefers to integrate vertically (e.g. acquisition of intermediate producers), to establish contractual arrangements with its suppliers or to procure inputs on the spot market has long been a matter of debate in industrial economics. While traditional industrial economics explained vertical integration mainly as a strategy to erect entry barriers for competitors and build up monopolies or monopsonies (e.g. *Bain* 1956), *Williamson* (1985) showed that vertical integration may increase efficiency (improving the situation for both consumers and producers) if it saves transaction costs (more exactly: if the reduction of costs involved in market transactions exceeds a possible increase of organization costs related to in-house production) (see also *Grossman* and *Hart* 1986).

The empirical global trend towards more tightly coordinated production networks is mainly driven by the pursuit of efficiency gains and thus supports Williamson's emphasis on transaction costs. Two major market trends are decisive:

– First, mounting competitive pressure obliges companies to *increase efficiency* and *meet more sophisticated technological demands.* This in turn requires closer interaction with partners upstream and downstream in the value-adding process;
– and second, demand is growing for *compliance with social, ecological, hygiene and other standards* as well as for greater transparency of input-output relations, forcing firms to take tight control of the whole production process.

I. Increasing efficiency and meeting technological demands

Increased global competition is forcing firms to enhance the quality of their products, to improve customer orientation and to accelerate the pace of innovation while at the same time cutting costs. This makes competition more complex. "No individual firm, not even a dominant market leader, can generate all the different capabilities internally that are necessary to cope with the requirements of global competition. Competitive success thus critically depends on a capacity to selectively source specialized capabilities outside the firm that can range from simple contract assembly to quite sophisticated design capabilities." (*Ernst* 2001, p. 9).

Taking their embeddedness in networks of complementary firms and institutions into account, companies have basically four options to improve their performance:

1. To *improve their internal organization,* e.g. developing better products, streamlining work flows, introducing performance-based incentives, and improving quality management;

2. to *optimize make-or-buy decisions,* i.e. getting rid of low-margin activities and possibly developing or acquiring new capabilities which complement the existing core competencies;
3. to *exert influence on partners upstream and downstream* in the value chain, with the aim of boosting their performance. This pays off for a firm whenever these improvements lead to greater sales or lower input prices. Influence may be gained either by exerting pressure on or supporting network partners, or by a combination of both. To increase performance pressure, customer firms often place orders with several competing suppliers or present timetables for an incremental reduction of purchase prices. On the other hand, technicians are sometimes seconded to improve quality management and other aspects within supplier firms;
4. to *lower transaction costs* in the production network within which the firm is embedded. Adequate measures range from building trust to standardizing logistics tools at the interfaces where companies interact.

In most industries, competitive pressure has generated substantial organizational improvements *at the firm level.* For several decades, management tools have continuously been improved, and this has contributed significantly to increasing productivity. As a result of intense management consulting and benchmarking, transparency among firms has increased, average practice has been brought closer to best practice, and relatively homogeneous business models have evolved. Consequently, the scope for further productivity growth within companies is limited, and it is difficult to stand out from competitors on the basis of purely *internal* process improvements.

On the other hand, numerous sector studies reveal that considerable potentials for increasing productivity remain untapped *within supply chains.* The large car manufacturers were among the first to focus their attention on streamlining their supplier and distribution networks. In some cases car manufacturers force their suppliers to carry out value analyses together with experts seconded by the carmakers themselves. In complying, suppliers are obliged to disclose their cost structure to the customer. If the value analyses reveal possibilities to reduce costs, these savings are immediately converted into price reductions to the advantage of the car manufacturers (*Altenburg* et al. 1998, p. 41). In other branches value-chain integration is much less advanced, or at least has not been established as a common practice across the whole sector. In food retailing and in the garment industry, for example, international sourcing is often still far from being systematically organized, and some large corporations exert astonishingly little influence on what happens upstream in their value chain.[4]

[4] See *Weitz* and *Altenburg* (2001) for the food retailing industry and *Botzenhardt* and *Altenburg* (2001) for the garment industry. Interviews with purchasing departments revealed that – despite the possibilities afforded by the Internet – sourcing decisions for tropical fruits are still largely based on coincidental personal contacts with supplier firms; in the garment

These differences reflect sector-specific patterns of industrial organization.[5] On the whole, however, the most substantial productivity gains can be expected from improving relationships with supply chain partners and complementary service providers within the firm's production network (options two, three and four). This requires coordinated production planning, compatible logistic standards, and other agreements which go far beyond spot market transactions.

II. Compliance with standards

Stakeholders, especially critical consumers, are increasingly demanding compliance with social, ecological, hygiene and other standards and transparent procedures within the chain. Some consumers are willing to pay a price premium for goods with certain product or process characteristics, for instance food products which are free of pesticides or not genetically modified; meat and poultry products from farms that respect certain principles of animal welfare; assembled consumer goods from factories which do not employ child labor or which guarantee certain working conditions; wood products from sustainably managed forests; kosher and halal products, etc. While the main pressure comes from consumers, recently some ethical investors have started demanding compliance with certain social or ecological standards (see *Bartolomeo* and *Wilhelm* 2003).

Most of the attributes demanded by consumers and investors are not evident in the product itself. Goods therefore carry two types of information: the *natural* appearance of the product (which the consumer may easily verify at the point of purchase) and the *symbolic* information attached to it. In order to meet the increasing consumer demands for symbolic product properties (including image factors as well as characteristics of the production process), companies have to hold control of all upstream activities and sometimes introduce significant changes. In addition, this control has to be proven to the customer, because "symbolic information is detached from the thing to which it refers and its veracity may be corrupted either during production or transmission. Under such circumstances assuring the integrity of the product information chain becomes much more important than optimizing the efficiency of the physical product supply chain." (*Müller* 2001, p. 8). Consumers are not willing to pay a surcharge unless the information on product and process characteristics provided with the respective good is reliable. Standards and certification procedures designed to control, document and verify attributes of the

industry, different stages of the value chain do not have enterprise resource planning systems, or these systems are not compatible. As a result, multiple communication problems occur. For example, retailers place huge orders with their suppliers in Turkey transmitting Polaroid photos of the required samples rather than codified information on cuts, coloring etc.

[5] For instance, the strong influence car-makers have over their suppliers may be due to a high degree of market concentration and the relevance of specific investments that make suppliers highly dependent on certain customers (*Monteverde* and *Teece* 1982). In the food and garment industries supplier relations are often less captive.

production process are required, and sophisticated logistics concepts are being developed for tracing products back to the primary producers. Certification and auditing have become large industries worldwide. (*Reardon* et al. (1999) use the concept of "credence goods" for products with a high content of symbolic information.)

In many product markets new price segments have been introduced that are based on properties which are not directly verifiable by the consumer. Coffee sells at different prices depending on attributes such as "organically grown," "grown by smallholders" or "traded fairly"; prices of eggs differ according to the conditions under which the poultry has been kept, the type of feed used, etc. The ability to provide reliable information about production processes to the customer is thus an innovative way of adding value to products. The variety of product attributes to be certified and the number of standards is continuing to increase. Some of the standards are set by actors outside the production network, such as governmental and intergovernmental agencies or NGOs, while others are set by business associations or even individual firms (*Nadvi* and *Wältring* 2002).

C. The increasing importance of lead firms

The increasing integration of value chains and production networks enhances the importance of lead firms. According to *Rugman* and *D'Cruz* (2000, p. 84), the "flagship company" (lead firm) provides strategic and organizational leadership beyond the resources that lie directly under its management control. The strategy of the lead firm affects the strategic direction and development opportunities of subordinate participants in its network, while the latter do not have the same amount of influence over the lead firm Lead firms set the parameters for products, processes, and logistics to which other firms of the chain conform, thereby determining the conditions for lesser firms to participate in the chain, and they influence the distribution of gains along the chain (*Humphrey* and *Schmitz* 2002, see also *Messner* 2002, p. 21 f.). Lead firms derive their strength from three main capabilities:

– the capability to generate innovations;

– the capability to coordinate networks;

– the capability to set and enforce standards.

Today, the core competencies of many lead firms are in intangibles – ideas, information, and relationships – rather than manufacturing. All these are highly knowledge-intensive and often require considerable capital investment, e.g. advertising campaigns for the introduction of a new brand.

In contrast, subordinate firms in global production networks, and especially those in developing countries, tend to be restricted to the tangible and knowledge-

extensive stages of the production process, reflecting their specific factor endowment (*Humphrey* and *Schmitz* 2002, p. 5). This curtails their opportunities for industrial upgrading and for the appropriation of a larger share of economic gains, because we may assume that the above-mentioned intangible capabilities of lead firms add more value to the product, that global lead firms have more bargaining power, and that the terms of trade between intangible and tangible stages develop to the benefit of the former.[6]

I. Lead firms as engines of innovation

Lead firms control resources critical to generating innovations. Both on the input side (e.g. R&D expenditure, employment of engineering and scientific personnel) and the output side (e.g. patents), large, mainly transnational corporations make the largest contributions (for Germany see e.g. *Reinhard* and *Schmalholz* 1996). In addition, we have seen that the symbolic content, including intangible image factors, plays an increasingly important role in adding value to production processes. Physically identical items are sold at very different prices depending on whether they are no-name products or have a brand name associated with a fashionable image. As *Rifkin* (2000, p. 5) states, "concepts, ideas, and images – not things – are the real items of value in the new economy."

Lead firms have an important part in creating and advertising positive brand images. In many activities the amount of investment dedicated to market forecasting, R&D, design, development and advertising of brand images, and market support is increasing much faster than investment in tangible manufacturing processes.[7] Some firms (Dell Computers and Bennetton are famous examples) have outsourced manufacturing altogether. Lead firms thus have a crucial role in developing new markets or sustaining competitive advantages; at the same time, they generate opportunities for other companies – all kinds of service providers, parts and component manufacturers, spin-off companies etc. – and make important contributions to expanding the specialization spectrum of the associated business network.

II. Lead firms as coordinators of production networks

Lead firms coordinate production networks. Contemporary production networks are only partly based on market-based standard transactions. Rather, they imply

[6] In a similar vein, *Wood* (1997) shows that terms of trade for manufactured exports from Least Developed Countries – which are largely knowledge-extensive – deteriorate vis-à-vis exports of machinery, transport equipment and services from industrialized countries.

[7] Cf. *Korzeniewicz* (1994) for an excellent case study of Nike's shift from manufacturing athletic footwear to its new core competence in creating symbolic value and coordinating a global production network.

comprehensive information flows, joint planning, and homogenization of standards and other aspects of interface management. The lead firm's ability to master the logistic task of sourcing inputs from different producers with specific locational advantages, distributing merchandise through different channels and integrating all the firms involved in efficient production networks, while keeping transaction costs low, is decisive for the competitiveness of the respective production network. The two trends discussed in Section B – competitive pressure to *improve efficiency* and increasing demand for *compliance with social, environmental and related standards* – require increasing efforts to coordinate production networks.

With regard to *efficiency,* we have seen that increasing specialization implies a shift from in-house production to purchasing from external sources. Consequently, hierarchical control has to be replaced by new arrangements to secure fast and reliable availability of inputs in the right quantity at the right time. These include, among others, equity stakes, contractual arrangements, and trust-based informal agreements. At the same time, companies seek to compress time-to-market and avoid storage costs by applying management concepts such as efficient consumer response (ECR) and customer relationship management (CRM). These require substantial knowledge-intensive capabilities, ranging from enterprise resource management systems that facilitate the interchange of electronic information among firms to "soft" networking skills and tacit knowledge about the efficiency and reliability of potential partner firms. The ability to manage network relations is increasingly becoming a core competence of many lead firms.

III. Lead firms as standard-setters

Coordination is equally essential for *setting and enforcing standards.* Standards are gaining importance in global trade, and the range of topics for which standards are being developed and implemented is on the increase, including labor issues, health, safety and environmental norms, quality management procedures, standards for electronic data interchange, etc. Standards are being promoted by very different actors: individual firms, business associations and other non-governmental organizations, governments and supranational bodies. Some standards mainly serve to reassure consumers about product and process characteristics, while others mainly serve to increase compatibility between different actors of the production network, thereby smoothing interactions and reducing risks and transaction costs (*Nadvi* and *Wältring* 2002). We may distinguish standards for products, processes, and logistics (*Stamm* 2004, p. 19):

1. Product standards are necessary to guarantee homogeneous products, even if production is spread throughout many facilities worldwide;

2. Process-related standards cover an increasingly broad range of issues, including labor, hygiene and environmental standards, rules for packaging, etc. They are

intended to reduce risks (e.g. hygiene, chemical residues), to harmonize production processes of value-chain partners, but also to satisfy specific customer preferences which are often related not only to physical product characteristics but to the external effects of the production processes as well.

3. Logistics standards may include agreements on just-in-time delivery and homogeneous formats for electronic data interchange (EDI) or physical shipment (containers, pallets).

Lead firms are the main drivers for the implementation of different kinds of standards. Even if standards are developed by other actors, in many instances it is the lead firm that uses its market power to specify which parameters other network companies will have to conform to, how strictly they will have to be applied, what audits will be necessary, etc. This holds especially for brand name companies which are responsible for authenticating intangible properties of their products even if these properties are not directly verifiable by the client.

IV. Power relations and governance of production networks

As complex coordination procedures become crucial for competitiveness, the firms that are able to exercise the relevant functions – the lead firms – hold control of a strategic asset. It is only logical that firms will use this asset to augment their share in the distribution of gains vis-à-vis other firms in the process of value addition. For this reason, the introduction and enforcement of parameters is also a matter of power. The notion "governance of value chains" (*Humphrey* and *Schmitz* 2001) refers to the power relationships between actors and the possibility to appropriate profits. According to *Kaplinsky* and *Morris* (2001, pp. 67 – 73), governance of value chains encompasses four stages: setting rules; supporting other actors in the chain in order to be able to adhere to the rules; monitoring adherence to the rules; and imposing sanctions where rules are violated.

Firms may strengthen their competitive position within the respective production network if they manage to define and enforce standards that fit their needs. For example, lead firms may prompt others to adopt the enterprise resource planning (ERP) software they use internally. This saves considerable coordination costs for the standard-setter and shifts the burden of investing in new software standards to the standard-takers. What is more, technical standards can be used to tie suppliers to one's own firm, especially if the latter obliges a supplier to invest in specific factors which are only suitable for this business partner, e.g. production facilities for customer-specific intermediate goods or certification according to customer-specific standards. Changing the partner would then cause a complete loss of these specific investments. If the level of specific investments is high, the cost of dealing with several customer standards and of switching to

other partners may be unaffordable.[8] Specific investments therefore tend to restrict competition and enhance the dominance of lead firms.[9]

Altogether, the power relations between lead companies and ancillary firms largely determine the conditions for subordinate supply chain partners to gain access to global value chains and exploit opportunities to upgrade, especially in developing countries. Specifically, they affect

– the barriers of entry for participation in the production network;
– the share of the value added that subordinate firms from developing countries are able to appropriate;
– the partner firm's opportunities for technological and organizational learning.

D. Integration in production networks from the perspective of developing countries

Given the above trends, the sourcing and outsourcing strategies of large industrial and commercial corporations as well as their efforts to define and enforce more demanding standards are becoming key determinants for the integration of developing countries into the world economy. For companies from these countries, access to OECD markets increasingly depends on their ability to enter into global production networks of lead firms. For developing countries the increasing relevance of network integration, the growing power of lead firms and the generalized enforcement of different and often increasingly rigid standards entail both risks and opportunities.

I. Risks for developing countries

A first risk results from the fact that *lead firms rarely originate from developing countries.* With the exception of some emerging TNCs from newly industrialized Asian countries,[10] lead firms are almost exclusively based and embedded in OECD countries. If lead firms become more important as innovators, coordinators and governors of global production networks, and lesser companies become stan-

[8] In a similar case, international importers of garments define many different procedures to document social standards. Some subcontractors in developing countries who serve different international customers have to certify their production processes several times and incur substantial auditing costs in order to meet different, and sometimes even contradictory, customer standards (*Demtschück* 2004).

[9] On the problems of specific investments in vertical relationships see *Erlei* (1998), p. 40 f.

[10] For the emergence of Asian TNCs, see *Aggarwal* (2000) and *Lall* (1998); *Altenburg* et al. (2004) describe how a Thai-based TNC dominates the characteristics of the shrimp farming industry in several countries.

dard-takers which are excluded from important processes involved in creating intangible values, this process will shift power, and probably value added, away from developing countries.

Second, the growing importance of knowledge-intensive, intangible production factors may enlarge the imbalance between developing and developed countries because these advantages build on very specific demand conditions and cumulative experiences. In developing countries only very *few differentiated industrial clusters or "knowledge hubs"* exist that are able to provide strategic complementary service support for knowledge-intensive production sites of transnational lead firms.[11] Industrial structures are characterized by a lack of specialization, an incomplete set of domestic linkages, undemanding consumers, a lack of highly skilled technicians and engineers, and scarcity of capital (*Ernst* et al. 1998). Within global production networks, most developing countries specialize in "endowed" factors, especially low wages and incidental wage costs, low real estate prices and natural resources. This makes it difficult to catch up with mature industrial agglomerations in OECD countries, where transnational firms encounter a highly specialized business and institutional environment that serves to support knowledge-creating activities. Although a few (mainly Asian) locations have managed to incrementally upgrade towards more knowledge-based competitive advantages, this has been the exception rather than the rule. Integration into global production networks is no guarantee for successful economic development, unless developing regions succeed in embedding lead firms and exploiting the potential for technological spillovers.

Third, as lead firms impose more rigid standards even for the subordinate functions of the value-adding process, the is a *tendency for barriers to entry to rise.* Firms in developing countries have to meet ever higher and more costly minimum technological standards. To give a few examples, additional investments are required to establish software for electronic data interchange and traceability systems; to meet higher standards in terms of (depending on sector) hygiene, safety, electromagnetic compatibility etc.; suppliers have to bear the costs of compliance with social, environmental, hygiene and other standards plus the necessary certification procedures and customer audits. Crowding out of smaller, less competitive suppliers and locations is likely to occur.

Fourth, since most firms in developing countries are standard-takers, they *have less bargaining power* vis-à-vis lead firms. This is likely to lead to shifting margins from suppliers to lead firms. This problem is aggravated by the fact that cheap labor and natural resources are mostly in abundant supply, creating pressure to bring prices down, while innovation rents may be obtained for the knowledge- and network-based capabilities of lead firms which are very specific and thus difficult to be reproduced by newcomers.

[11] Famous exceptions are Bangalore's software and Penang's electronics clusters.

II. Opportunities for developing countries

As TNCs systematically subdivide their functions, reorganize their internal corporate structures, concentrate on core competencies, and outsource marginal tasks and functions, many new opportunities present themselves to developing countries which fulfill the minimum conditions for performing these tasks at lower costs. At the same time, trade liberalization and new transportation, information, and communication technologies facilitate the spatial division of value-added processes, enabling developing country firms to acquire contracts in new areas such as back-office services (e.g. data processing, electronic customer services).

Moreover, since lead firms are ever more interested in assuring smooth, error-free production flows and compliance with all sorts of standards, more knowledge transfer is required. Even though we have mentioned increasing entry barriers as a *risk,* they constitute an *opportunity* as well. If lead firms want to exploit factor cost advantages in less developed countries or regions, where "advanced" production factors – production factors which are not "inherited" by a nation, but must be created over time; such as testing facilities, standardization and certification bodies, consultancy firms etc. (*Porter* 1990, p. 77 f.) – are in short supply, the lead firms are likely to put more effort into the transfer of technology. Empirical evidence shows a variety of relevant learning processes among Third World suppliers in global production networks (e.g. *UNCTAD* 2000). For example, the dissemination of business concepts and standards such as ISO 9000, ISO 14000, "good manufacturing practice" (GMP) and "good agricultural practice" (GAP) among firms catering to international customers has largely been triggered by a combination of pressure and support from international lead firms.[12] Successful adoption of such standards is an important means of industrial upgrading, one that in part protects firms from lower-cost competitors who are not able to comply with these standards.

Although the development literature often paints a stylized picture in which trade takes place between factor-cost-based developing country locations and knowledge-based OECD locations, this dichotomy obviously does not hold in reality. Investment decisions in the real world have to bear in mind a number of different production factors that entail different economies of scale, externalities, and transaction costs, and this means that in selecting locations it is necessary to take into account a variety of different elasticities and trade-offs (*Storper* 2000, pp. 252 ff.). In order to exploit factor-cost advantages or gain access to product markets of developing countries, investors usually have to put up with certain deficiencies of the local production system. This is why some, especially larger, firms are willing to invest in creating and deepening local linkages. Every single investment in this direction helps the respective location to move up the technological ladder.[13]

[12] *Nadvi* (1999), p. 1606 ff., provides a detailed description of GMP adoption among Pakistan's exporters of surgical instruments.

Many transnational corporations have set up specialized organizational units and procedures to deal with suppliers. "A survey of TNCs in the automobile and electronics industries found that 16 out of 18 automotive TNCs had adopted a strategy for global supplier development, while the corresponding data for electronics TNCs was 8 out of 15 … For instance, in Malaysia four of eleven electronics affiliates surveyed had such programmes …; a survey of Northern Ireland found 38 per cent of foreign affiliates with similar programmes …" (*UNCTAD* 2001, p. 140, based on different sources). As a result, as *Dunning* (1992, p. 456) states "the findings of a large number of studies over the past 30 years are virtually unanimous that the presence of foreign-owned firms has helped raise the standards and productivity of many domestic suppliers, and that this has often had beneficial effects on the rest of their operations." (See also *Altenburg* 2000 for an overview.)

All in all, the enhanced role of lead firms has far-reaching consequences for developing countries, involving both risks and opportunities. Whether and on what technological bases developing countries achieve integration in global production networks, and whether they manage to exploit their potential benefits, depends on many factors: Technological characteristics of the respective branch, the corporate strategy of lead firms, the absorptive capacity of local firms and, last but not least, the wisdom of local policy-makers. As we shall discuss in the following section, lead firms and policy-makers from locations where these firms make investments (or where they source inputs) pursue largely congruent aims. This opens up interesting perspectives for strategic alliances. However, some conflicting interests remain.

E. Interests of lead firms versus interests of locations in developing countries

We may assume that there is a great deal of congruency of interests because both parties are interested in upgrading the local institutional and business environment. As noted above, gaining competitive advantages is increasingly a matter of coordinating and governing a corporation's upstream and downstream relationships more efficiently than one's competitors do. Consequently, the competitiveness of firms depends on factors lying beyond the boundary of the company and include the production system in which the firm is embedded. If lead firms "can procure inputs locally, particularly in host economies in which labour costs are low, they can lower production costs (some service inputs, for example, may be very expensive to import). If they can subcontract directly to local suppliers, they can increase their specialization and flexibility, and adapt technologies and products better and faster to local conditions. Technologically advanced suppliers can provide affiliates with access to a pool of external technological and skill re-

[13] *Rasiah*'s (1994) study of Penang's electronics industry describes one of the most convincing cases.

sources, feeding into their own innovative efforts." (*UNCTAD* 2001, p. 129). In short, having efficient complementary firms close by helps lead firms to sustain their competitiveness.

At this point a caveat is necessary: Although firms become increasingly reliant on linkages with value-chain partners and providers of complementary services, these linkages may not involve *local* firms. Instead, lead firms may import the overwhelming share of their supplies, and even if they source locally, their partners may be other foreign affiliates which may constrain technological spillovers into the region and hamper local accumulation of capital (ibid., p. 133). By and large, nevertheless, the level of development of the local business community and institutions is an important factor for the locational choices of firms. Firms will prefer those locations where relevant input factors are available at a low cost, where transaction costs are low and the general business environment is supportive. As we have seen above, lead firms are, to a certain extent, willing to invest in the quality of local clusters.

All this is in line with the public interest of the host country (or region) in enhancing locational spillovers and upgrading local competitiveness. Local policymakers and most stakeholders welcome spillovers from lead firms, especially the generation of employment and technological skills. Moreover, local stakeholders have an interest in local linkages because they help to embed investment in local business networks and make them less footloose.

However, even if lead firms, guided by their "enlightened self-interest", contribute to the upgrading of their local business environment, this is not likely to lead to the most efficient outcome in terms of public welfare. Additional public support may be required where companies underinvest in local capabilities because they are unable to privately appropriate the returns, and in some cases public interests even conflict with the lead firm's interests. Two kinds of market failure are likely to occur:

1. *Public goods and externalities:* As we have already argued, a diversified and competitive local network of supporting firms and institutions benefits both the large investors that build on these networks and the local population. However, for any individual corporation, building and upgrading all the complementary structures required – e.g. research facilities, human capital, specialized suppliers – would usually be too costly. Moreover, unless supplier relations are captive, it is often not feasible to exclude other (nonpaying) firms from using the relevant structures. This creates an incentive for free-riders and leads to situations where the public good "supportive enterprise structure" is likely to be undersupplied. Finally, firms may refrain from investing in complementary firms in order to avoid boosting their own competitors. Modern supplier relations or joint ventures increasingly involve sharing of relevant tacit knowledge about technologies and customers. This may imply leakage of strategic information and ultimately enable some of the supported firms to copy products that are

core competencies of the lead firm. Hence private-sector technology providers, while interested in enhancing the efficiency of their value-chain partners, will seek to keep their own strategic assets secret and limit knowledge transfer or even suppress learning processes that might endanger their own knowledge edge in the area of their core competencies. Where business partners have access to critical knowledge, lead firms will try to prevent them from cooperating with competitors. In the same vein, companies often try to externalize risks and costs. For example, they may take advantage of information asymmetries to shift the risks of fluctuating markets to their suppliers, or they may externalize environmental costs.

2. *Noncompetitive markets:* Firms have an interest in establishing monopolies in order to obtain rents. Lead firms are defined by their ability to set and enforce standards, to coordinate and control large production networks, and to advance product innovations. All this raises barriers to entry and hence lowers the degree of competition. If lead firms gain too much control of the market, they may prevent competitors from serving the market and completely subordinate and exploit their supply-chain partners.

Wherever firms seek to suppress technology transfer, to externalize social costs or to restrict competition, this creates a conflict of interests with governments and other local stakeholders. Further conflicts may arise with regard to the distribution of gains along the chain. Lead firms often try to diversify their supply base in order to weaken the bargaining power of suppliers and to be able to appropriate a larger share of value added. If they succeed in doing so, they restrict capital formation in local firms and may even drive local firms into bankruptcy. If local suppliers anticipate this opportunistic behavior, they may refrain from making technologically desirable specific investments. Both cases lead to underinvestment in the development of local clusters.

The public sector in a given location should aim at increasing allocative efficiency of resources. The allocation of resources is efficient when it is not possible to improve the situation of any economic agent without penalizing another one. Policy-makers must therefore try to find an adequate balance between supporting lead firms in their efforts to upgrade the local business environment and pursuing public interests that are not fully congruent with those of the lead firm, e.g. to capture larger rents for local producers and consumers. As we shall see further on, this a constant source of tension in public-private partnerships.

Finding the right balance becomes even more difficult when we consider that production networks compete against each other. Countries or industrial locations have an interest in increasing the competitiveness of those production networks which concentrate a considerable portion of value added within their boundaries. Take the example of a lead firm cutting costs at the expense of the margins of its local subsidiary or suppliers. While this obviously curtails local incomes in the short run, it may increase the competitiveness of the lead firm's production net-

work, increase its market share and spur future investments. Local industrialists hence have to consider whether to support such cost-cutting measures or not. If local stakeholders strongly advocate their interests, lead firms may consider moving (or at least threaten to move) to another location (although in practice high sunk costs often prevent firms from doing so).

All this presupposes a large measure of both *strategic competence* and *willingness to cooperate* on the part of key representatives of an industrial location. These are quite heroic assumptions.

With regard to *strategic competence,* we have seen that competitive success is increasingly dependent on systemic conditions, and this implies that it is impossible to have all the relevant information. Contemporary concepts of industrial policy seek to reduce this problem by involving a large number of informed stakeholders in the planning process, as well as by designing planning procedures based on regular performance measurement and feedback loops to readapt targets and policy instruments. Even so, it is by no means clear whether the cost of collecting and processing all the relevant information and of implementing policies to increase locational spillovers will be lower than the benefits of such correction of assumed market failures (*Chang* 1996, p. 25).

Even if policy-makers or other key representatives of the location have the informational means needed to take the right decisions, there can be no presumption that they will always be *willing* to serve only the public interest. Local stakeholder interests are heterogeneous, and local policy-makers obtain their legitimacy from representing different interest groups. The following points illustrate the diversity of specific stakeholder interests:

1. *Lead firms* may put pressure on the host country government to cut taxes and exempt them from certain requirements (e.g. mandatory national equity shares, compulsory contributions to skills development funds); if they fear competition they may lobby against the deregulation of markets;

2. Even within the *local business community* we may assume that interests diverge considerably. For example, some firms (especially less efficient competitors) may be threatened by new business models, while others (complementary specialist firms) may expect new business opportunities. Although these interest groups are usually less powerful than lead firms, they sometimes "have sufficient autonomy to develop and exercise their own strategies for upgrading, and they have the possibility of combining with other lesser firms to improve their collective situation within the network." (*Henderson* et al. 2002, p. 21).

3. *Civil society organizations* advocate a broad range of interests, e.g. environmental concerns, labor issues, and business interests. Some of them are conflicting, e.g. the interests of trade unions and business associations.

Governments represent these and other interests. The outcome of the policy process depends on patterns of how legitimacy is created in a specific government,

and this again may differ between local, provincial, and national governments (which in turn are superposed by regional and global institutions). It would be naive to assume that government institutions always take unselfish decisions in the optimally balanced public interest (as standard welfare economics is inclined to assume). First, government institutions provide an arena in which interest groups with different degrees of power vie to influence policy. As certain interest groups are better organized and more powerful than others, the outcome of this struggle will usually be biased towards them (*Chang* 1996, pp. 19 f.). It is likely that lead firms will be among the powerful actors, unless they are foreign and see themselves up against strongly nationalist governments. Therefore the possibility that individual interest groups will use their political connections to garner special favors, i.e. to pocket rents at the expense of consumers or taxpayers, is a real one. In some cases "regulation is acquired by the industry and is designed and operated primarily for its benefit." (*Stigler* 1975, p. 114). Second, bureaucrats may pursue their personal interests, e.g. in increasing their salaries or the budgets under their control rather than seeking to optimize public welfare.

Summing up, the optimal development of production networks may require some public action to maximize spillovers and embed lead firms in the local business environment, to improve the distribution of gains in favor of the host country and to avoid competition-distorting behavior and rent-seeking. This, however, requires considerable strategic competence and development orientation on the part of local decision-makers – neither of which can be taken for granted.

F. Opportunities for development cooperation

For about 10 – 15 years now, development cooperation has been undertaking efforts to involve private-sector companies in the delivery of services that are critical for Third World development. New initiatives range from compensating firms for delivering development services that go beyond their core business – as in the German PPP program (*Altenburg* and *Chahoud* 2002) – to "Build-operate-own" (BOO) and "Build-operate-transfer" (BOT) arrangements in the provision of infrastructure and multi-stakeholder initiatives designed to define and enforce social and ecological standards in supply chains. Most major donors, including the World Bank, Regional Development Banks, UNIDO, USAID and DFID, have recently initiated specific programs to support strategic alliances with private-sector companies (see *Demtschück* 2004 for an overview). Private-sector participation is most extensive in infrastructure projects, where it increased considerably during the 1980s and 1990s, but suffered a major decline in the wake of the Asian financial crisis (*World Bank* 2001, p. 152; for a discussion of the reasons behind this decline see *Wolff* 2004; *Krause* 2002, pp. 4 ff.).

What are the main arguments for entrusting private companies with the task of delivering development services?

1. The internal production efficiency of private-sector companies is usually higher than that of public enterprises. This can both be explained theoretically and confirmed empirically. In private firms incentives for cost reduction are stronger, since private shareholders are subject to hard budget constraints and, given their own risk, willing to control more thoroughly the parameters relevant for efficiency (*Shirley* and *Walsh* 2000 discuss this in detail and provide empirical support). Public service providers often lack customer orientation as well as incentives to improve performance, especially if they are fully publicly financed and not subject to competition (unless hierarchical governance succeeds in creating sufficient pressure to perform).
2. Involvement of private-sector companies leverages additional capital for financing development. Private-sector capital may substitute for official development aid in countries and sectors with access to international capital markets, hence freeing up scarce public resources that may be targeted towards poor countries where markets are in many cases threatened with failure.
3. Synergies and complementarities between public and private actors may create productivity gains. On the one hand, development agencies may build on existing private initiatives, e.g. supporting spillovers from private investment projects;[14] on the other hand, public action may be indispensable, or at least helpful, to render private investment possible, e.g. by insuring political risks, facilitating dialogue with governments and civil society, supporting improvement of the legal framework, or fostering organizational development of public and semi-public institutions.
4. Cooperation between development agencies and the private sector may contribute to mutual appreciation and learning. It may raise awareness for development issues within the private sector, while development administrations may gain knowledge about certain management aspects in which the private sector is generally believed to be more efficient. Moreover, by showing that large firms in fact cooperate with development agencies, the latter hope to overcome their sometimes negative reputation of being bureaucratic, in this way becoming more generally accepted within the business sector.[15]

The concept of lead firms is helpful to identify corporations with a specifically broad impact and outreach. As we have argued above, lead firms are the ones that are in command of technologies or brand names, control access to important markets, set sector-wide (or at least chain-wide) standards and influence other barriers

[14] This is the focus of the "PPP facility" in German development cooperation.

[15] This one of the main arguments for PPPs emphasized by the German Ministry for Economic Cooperation and Development: http: / / www.bmz.de / themen / Handlungsfelder / ppp / ppp10.html #eins

to entry, and that select and sometimes support partner firms. Public programs to promote the economy, and especially SME policy, have to take this into account. If such programs involve lead firms in the program design and establish partnerships with them, public support services may become better adjusted to the needs of the SME customers (because lead firms know best what is needed to achieve and sustain competitiveness) as well as more widely accepted and implemented (because lead firms have the market power to enforce certain changes). Partnering with lead firm may help to resolve a broad range of development issues, e.g. to develop new markets for local products, to establish sector-wide labor and environmental standards, to develop local suppliers, to introduce new management techniques, to provide infrastructure services for the poor and to raise awareness of HIV / AIDS prevention, to name just a few examples.[16] Supply-driven government programs for local economic development, in contrast, where government institutions provide the technologies or training courses *they* consider to be relevant, and where bureaucrats choose the candidates to take part in support programs, often have a poor record, especially when their aim is to develop a national supplier base for international firms (cf. *Altenburg* et al. 1998, pp. 84 ff. for the case of supplier development policies in Mexico. See also *Battat* et al. 1996).

Cooperation with lead firms will only succeed if these firms are willing to cooperate with the public sector on development issues. This raises the question why these firms should take any interest in strategic alliances. In fact, many companies are not willing to engage in cooperative arrangements with government institutions, pointing in particular to the high transaction costs involved. Those companies that do cooperate advance three main arguments (*Altenburg* and *Chahoud* 2002, p. 27):

1. *Cost sharing:* Public co-financing may cut the costs of necessary improvements in the value chain.
2. *Legitimacy:* The private sector (and especially transnational corporations) is often heavily criticized for exploiting Third World countries, for paying unfair prices, repatriating profits, evading taxes, bribing politicians, crowding out local competitors, etc. Criticism is especially pronounced in potentially polluting (mining, chemical, pharmaceutical) and labor-intensive industries (garment, footwear, toys, coffee). It is no coincidence that these industries are particularly engaged in corporate social responsibility, especially if they are associated with brand names. Working together with public development cooperation is seen as a mark of confidence and increases the legitimacy of the respective companies.
3. *Complementary specialization:* Among the specific competencies attributed to development agencies are their experience in dealing with governments and certain stakeholders (e.g. farmers or trade unions) and in supporting organizational development in different cultural settings.

[16] For more practical examples visit the websites of the German PPP program (http: / / www.bmz.de / themen / Handlungsfelder / ppp /) or USAID's Global Development Alliance http: / / www.usaid.gov / our_work / global_partnerships / gda /)

Consequently, there appears to be considerable scope for win-win-situations: Public-private partnerships are a promising way of combining the financial resources and expertise of both parties, and both may increase their legitimacy by gaining the support of a broader constituency. Development agencies should therefore consider such partnerships wherever the private sector is willing to take part. However, three limitations need to be kept in mind:

1. The lead firm's interest may not be in line with the public interest in the host country, especially where a lead firm may try to abuse of its market power to prevent local firms from upgrading into strategic business fields or to crowd out local competitors.
2. If obligations, cost sharing arrangements etc. are not well-defined, public-private alliances imply risks of abuse or waste of public resources, especially if considerable amounts of public subsidy are involved. The World Bank, for example, admits that "both in private infrastructure and contracting out of public services in general, there is a danger that the shift from public to private provision is associated with a breakdown of discipline and corruption", and goes on to note that as long as new rules of public-private coordination are ill-defined, "opportunities for abuse increase. Many private schemes have, indeed, been associated with corruption in a number of countries." (*Klein* and *Hadjimichael* 2003, p. 101.) Even if corruption can be excluded, there is always a considerable risk of creating windfall gains for the private sector, i.e. if the private partners receive public support for activities which they would have performed in any case.
3. Public-private agreements require additional processes involving transaction costs, e.g. for awarding projects, negotiating tariffs and monitoring performance. These costs may in some instances exceed the benefits of public-private cooperation.

While the first restriction relates to an essential conflict of interests (and has therefore been discussed in the previous section), the other two may apply even if public and private partners pursue complementary goals, and they reflect, rather, inefficiencies in managing the partnership. The following paragraphs deal with the question of how to keep these costs low.

To limit the risk of corruption, abuse and private windfall gains at the expense of the public purse, responsibilities among alliance partners need to be clarified and proper risk-sharing systems defined. Agreements should specify performance or outputs for which each partner can be held responsible, while partners from the private sector should be largely autonomous in choosing the best method for achieving the agreed goals (ibid.).

From the point of view of development agencies, partnerships with the private sector make sense only if the public contribution triggers an *additional* development impact that goes beyond the impact that the private partner – in pursuance of his own interests – would have had anyhow, or that he is legally obliged to comply

with. If a firm receives public financial support for activities that are not additional in this sense, this represents a *windfall profit* for the firm and a waste of public resources, taking into account the fact that the subsidy has not been necessary to catalyze the achieved outcome – irrespective of the size and quality of this impact.

The criterion of additionality is especially relevant, because many public private partnerships are being criticized for supposed violation of this principle. Even though no public program that aims at supporting the private sector can fully rule out unnecessary transfers, it is essential to clarify prior to every support program where the border runs between what, under the given market-based framework conditions, can be expected of the companies involved in terms of their own profitability calculations and where, accordingly, it would make sense to set additional incentives to induce the private sector to assume *additional* development-related commitments. The criterion of "additionality" is, however, difficult to define, because the transitions are fluid between the enlightened long-term, possibly even philanthropically motivated, interest of companies and the core areas of public goods, in which markets tend to fail. Furthermore, information is distributed asymmetrically, i.e. only the private partner knows what investments he would have made even without flanking support, and he may seek to gain as much support as possible for activities that lie in his own economic interest. In addition, public-private partnerships often give rise to interactive learning processes, the concrete results, costs, and risks of which are difficult to assess *ex ante.* Here there is no choice but to work with assumptions of plausibility. This, though, should not mean that the public partner is released from his obligation to weigh the cost-benefit relation as thoroughly as possible and to justify his decisions in this light.

Finally, the aspect of transaction costs needs to be considered. As we have discussed earlier, there are some good reasons for governments and development agencies to contract out public services or enter into strategic alliances with firms. Yet we have also seen that this implies a series of principal-agent problems, because public and private actors may pursue partly different interests, and the private partners (the "agents") have an incentive to maintain information asymmetries in order to negotiate favorable contract conditions, e.g. to maximize public support, to leave the expected outcomes relatively unspecific and to externalize risks. This again underscores the need to clearly define the contractual relationship, with the services, prices and the distribution of risks, etc. which it may entail as well as to reach agreements on targets and to monitor the extent to which such targets have been met. This causes costs – precisely under the conditions normally given bounded rationality and asymmetrical information.

Summing up, production and trade increasingly take place in tightly coordinated production networks, and some firms – the so-called "lead firms" – increasingly dominate the rules of the game. Whether and under what conditions a network integrates producers from developing countries, whether it establishes barriers to entry that are too high for small producers, and to what extent it supports technolo-

gical learning increasingly depends on the lead firms. These firms may therefore be important partners for development cooperation. Using public funds to involve the private sector as a contractor or strategic partner in the delivery of services in development policy makes sense on condition that

1. it creates a positive development impact that goes beyond the effects the respective corporate investment would have had anyway;

2. this additional impact exceeds the additional transaction costs of the public-private arrangement as well as potential windfall gains accruing to the private partner at the expense of the public budget; and

3. the net benefits of the public-private partnership (after discounting the above-mentioned costs) must be higher than the net benefits from an alternative public-sector intervention, i.e. opportunity costs have to be considered. "Value-for-money tests" should therefore be conducted to determine the price at which the public sector would be able to supply the service in question. In public tenders this would make it possible to define an upper price limit for which private suppliers would be permitted to offer the service (*Klein* and *Hadjimichael* 2002, p. 101).

All in all, public-private partnerships make high demands on development agencies. In order to achieve win-win situations, the latter have to be able to communicate with unfamiliar partners from the business world, understand their rationality and estimate the adequate degree of public incentives to stimulate additional private sector engagement and minimize the abuse or waste of public resources. If development agencies learn to cope with these challenges and professionalize alliances with the private sector, these may make substantial contributions to development cooperation.

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Integrating the Private Sector into Development Cooperation

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A. Comments on Altenburg's paper

In general, one has to distinguish between the private and the public sector (notwithstanding combinations of both). In this sense, the private sector and the civil society are congruent. It is, however, customary to define the private sector as that part of the civil society which corresponds to the commercial suppliers of goods, services and rights – in a nutshell: industry, agriculture, trade, banks, and other services. Based on this definition, non-governmental organisations (NGOs) are not part of the private sector.

In view of lacking public resources, but also for paradigmatic reasons, a change of strategy can be observed, shifting the focus from public development cooperation to private financing. The proportion of public to private capital inflows into developing countries has changed dramatically towards private funds (*Scott* 2003, p. 78). One would have to differentiate between commercial and non-commercial private transaction which I shall not pursue further. Private investments concentrate on a few newly industrialized countries (NICs) and cannot *per se* be classified as development cooperation but are profit-seeking investments (*Nielinger* 2003, p. 128).

In this context, Tilman Altenburg presents a comprehensive analysis of strategic alliances, within development cooperation, with so-called "lead firms". These are enterprises which within their network – above all production-oriented networks with vertical chains of value adding – play a leading role and are both innovators and "alpha wolves" as I would call them.[1] Altenburg deals elaborately with the increasing importance of such "governance power" and presents considerations as to how enterprises try to maintain their position as network leaders. He also includes problems faced by enterprises from developing countries when trying to participate in such value-adding chains. This management strategy-oriented part of the paper includes a comprehensive presentation of really sharp contributions to the behaviour of alpha-wolf enterprises.

[1] John *Humphrey* and Hubert *Schmitz* (2000) speak of *"governance of value chains"*, that is governance power and controlling.

It becomes apparent that the motives of *lead firms* are clearly shaped egoistically. Nonetheless, such behaviour can yield – mainly unintentionally – positive external effects in development policy, partly in form of direct spill-overs (stemming from innovations, transfer of technology, and the realization of ecological and social standards), partly due to measures of the host country governments relating to industry and investment policies. Altenburg does not miss to point out that this may imply positive or negative effects in the fields of development or environmental protection. Implicitly, this could be read as a call for a corresponding industry or investment policy of the host countries. I shall take up this issue further below in the context of WTO agreements such as TRIPS or TRIMs.

In the last section of his paper Altenburg concentrates more stringently on the contribution that strategic alliances between public actors and "lead-wolf" enterprises may make to the attainment of development policy objectives. According to Altenburg there are mainly four arguments that call for such cooperation:

– Initiatives of the private sector tend to be more efficient since they strive for a minimization of their own risks.
– Public-private cooperation can stimulate efficiency-enhancing synergies and strengthen performance orientation, cost efficiency, and risk management.
– The integration of private actors opens access to additional private sources of capital which may substitute public funds, releasing them for other purposes.
– And finally, such cooperation with – implicitly efficient – private partners may yield positive image effects for the public agents.

Of course the question arises as to why a private enterprise should take part in such a cooperation. Altenburg highlights the following three win-win aspects:

– The public partner also inserts capital into the project (which is a cost-saving aspect for the private partner) but in many cases shoulders the entire investment risk.
– The public partner legitimises the private enterprise while purely private investments are often viewed rather critically by the public in developing countries.
– A cooperation with a public partner may improve the relationship with important stakeholders such as trade unions or farmers, and make it easier to deal with them.

Concluding, Altenburg refers to two central points of criticism against public-private partnerships (PPPs). Firstly, a cooperation between systematically unequal partners – with generally non-congruent interests – can lead to additional transaction costs. In this context as well as in that of public failure one may ask whether a public actor in fact tends to operate more altruistically than a private actor.

The second objection is that the benefits of cooperations with public partners are often not to be classified as windfall gains for the private partner. Consequently, Altenburg calls for a necessary additional benefit. I completely subscribe to this,

also to the statement that this is really difficult to measure since only the private partner will know what he would have done anyway, in the absence of public support.

The concluding call for a sufficient return on investment – defined as the ratio of net additional benefit to the opportunity costs of the public funds invested – is quickly – and as I see it: realistically – qualified by Altenburg himself when he says that this makes high demands on development policy since one would have to be capable to evaluate the micro-economic rationality of private engagements (in order to identify windfall effects), it would have to anticipate and evaluate the impacts and to compare the cost-benefit-ratios of a PPP project with those of alternative institutional arrangements – really some challenge.

As to the realism of such criteria I am probably even more pessimistic than Altenburg is, but I am of the opinion that he presents a really good analysis. Nonetheless – and this is the noble task of a supplementary paper, I would like to add some issues to the topic.

B. Complementary aspects

In principle, it is assumed that activities of the private sector in development cooperation are profit-oriented. Micro-economically, this is easily comprehensible. It does not exclude altruistic motivation exceptions, but exceptions prove the rule. We are, hence, also looking for maybe positive external (development) effects of egoistically acting agents.

I. Private sector and poverty reduction

One contribution of private development cooperation to the global objective of poverty reduction rarely stands in the forefront of analyses. Poverty reduction is often associated with developing the social infrastructure. This tends to neglect the fact that the productive factors represent a really important element of development (*Radeke* 2003, p. 142): For example, the capacities of private health stations are often better utilized than those of public ones although they are more expensive; public schools frequently ‘silt up’ once external support has ended; private water supply often has less water losses than public nets (but tends not to serve all areas?). Commercial private activities may, hence, of course produce positive development effects. We shall touch on some negative aspects further below.

II. Dedication and commitment

I consider the following aspect as crucial. In order to explain what I mean let me refer to the BMZ's *Concept for Development Cooperation with Latin American Countries* (Bonn 2003), as a proxy for a variety of policy and position papers of the Ministry (BMZ = Federal Ministry for Economic Cooperation and Development). The Concept names as target dimensions the economic, social, ecological and political dimensions. Later, the same paper calls for mobilizing contributions of the private sector to social, economic and ecological development (p. 12). The political dimension mentioned above does not appear here, apparently leaving it to the state agents. Factually this can be considered realistic but in terms of development policy it is probably not meant since the comment of the *European Economic and Social Committee* on "The Role of Civil Society in the European Development Policy" states:

> "The political dimension of development is recognized within which the contributions of the public and private sectors, of civil society and the economic and social actors are equally indispensable. Only a close cooperation between all those social areas (what is meant is probably the different social actors, J.A.) can guarantee a coherent development policy and improve the efficiency of assistance" (EESC 2003, par. 3.2).

I am not going to discuss this rather palish statement but would like to underline the following: obstacles to development are predominantly not of an economic but of a political nature. Much more important than efficiency or capacity problems – which can in general be solved – is the political determination of a government to develop its own country, including the utilization of *all own* resources. Dedication and commitment are the customary terms that name the hubs very strikingly.

In this context let me quote a statement of Claudia Radeke. She is head of department of the Kreditanstalt für Wiederaufbau (KfW) and points out (*Radeke* 2003, p. 141) that – when she started working in development cooperation 20 years ago – the development level of Ghana was very similar to that of Thailand, South Korea or Malaysia. Today, the three Asian countries partly are donors themselves.

During the 30 years of my own involvement in development cooperation while I have worked in some 75 non-European countries I often looked in vain for convincing evidence of the dedication and commitment of the partner governments to really develop their country. Instead, I have come across a large variety of not really serious declarations of intent.

One aspect is the necessity of decentralization which is crucial for the private sector. Private investment is of course – and usually in large projects – also negotiated and influenced on the national level. But one strength of the private sector consists in the operations of small and medium enterprises (SMEs). I shall not expand on the well-known effects relating to employment, income, tax revenue, infrastructure, know-how transfer etc. My point is that private activities take place on the local level, and require local decisions. The basic environment for private

investments is usually very much improvable since also in this context the political dedication and commitment to *implement* decentralization is often not sufficient. Of course there are positive examples such as Mali.[2]

An increased integration of the private sector should, hence, not be burdened by unrealistic expectations. An efficient *management of expectations* implies considering the perception that private engagement cannot substitute the crucial and indispensable political engagement – in the sense of dedication and commitment of the government. Thus, concerning development policy, the contribution of the private sector can only yield lower ranking effects. This holds good even more so as the investment volume of public and private development cooperation taken as a whole is not apt to solve the serious development problems of the world. There are many external restrictions to development but I consider the internal restrictions usually to be much more important.

The following sections analyse some issues relating to the impact of international agreements on the integration of the private sector into development cooperation and summarize some of the approaches applied in practice.

III. WTO regulations and the private sector

The WTO rejects all attempts to credit it with mandate in the field of development policy. But it does link trade in goods with 'new' issues – GATS (General Agreement on Trade in Services), TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights), TRIMs (Agreement on Trade-Related Investment Measures), public procurements –, and this of course has significant effects on development policy in general and the role of the private sector in particular. In the course of the implementation of those agreements a massive strengthening of the private sector takes place worldwide, also – and in particular – in developing countries. As a tendency, enterprises in countries which are strong in exports or imports, will be able to enter sectors which where barred to them hitherto.

In the course of realizing the WTO agreements the private sector will take over tasks which so far were the domain of public agents. But also this coin has of course two sides: positive effects for export-oriented enterprises are off-set by predictable crowding-out effects in developing countries, together with apprehensions relating to a deterioration of the supply situation of poor population strata (*Altmann* 2004).

1. General Agreement on Trade in Services (GATS)

So far, in many countries the service sectors – among others water and power supply, education, or health care – were not open to foreign private suppliers be-

[2] See more extensive analyses of decentralisation policies in *Altmann* (2002) and (2000).

cause, for example, governments sought to ensure certain quality standards, or favoured local employment. The objectives of the GATS are market liberalization, (implicitly:) privatisation, creation and safeguarding of competition, and domestic treatment of enterprises and investors in all domains of services.[3] This would rule out, for example, to give preferences to enterprises with local personnel. Existing entry restrictions would have to be abolished, including monopolies in postal services; restrictions for foreign equity participation in local enterprises as well as subsidizing local competitors would have to be abrogated. The GATS radiates also onto negotiations on freedom of establishment of enterprises and the free movement of the working force.

The GATS excludes *public services* (which is a non-defined notion in the agreement) as well as air transport rights and directly related activities (except for maintenance and repair services). According to the GATS' philosophy also traditionally public sectors should be opened to private enterprises, such as railways, postal services, telecommunication, energy and water supply (not the water itself, but the related services such as pipe nets or water treatment), education (kindergartens, primary and secondary schools, adult education, universities, distant learning), health care (foster homes, homes for the aged) or the audiovisual part of culture. Also excluded are emergency provisions and public procurements.

According to the GATS, each state should decide on its own – by means of so-called *commitments* – which service sectors should be privatised and opened for international competition, and which ones should not. The latter may theoretically apply to all services, but above all to those areas which the country in question considers as core public competences. The WTO argues therefore that there was no coercion to privatise public services; the term 'privatisation' was not even included in the agreement's text; even public or private monopolies were tolerable. Hence, governments could continue to organize certain services via public agents.

This position stands on shaky grounds since the exemption clause is tied to two cumulative criteria (*Sander* 2003, p. 261 ff.): The service in question is neither offered commercially nor delivered in a competitive context. Should one of the two criteria not apply, the service is governed by the GATS, which implies to respect the MFN principle (and domestic treatment), a transparency liability[4] as well as an obligation of progressive liberalization (*"in-built commitment"*). Hence, the state has a covenant to facilitate market access in following negotiation rounds.

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[3] The service sectors also include tourism, leisure activities, transportation, communication of all sorts (incl. radio and television), commercial services (e.g. marketing and other consultancies), legal advice, trade, distribution, traffic, road construction, financial services (incl. electronic banking), insurances, construction, environment (waste and waste water disposal and treatment, audits), security, computer services, IT, and cardiac surgery.

[4] Transparency is understood by the GATS as the obligation to publish all relevant regulations and to establish information centres where foreign governments and enterprises can seek advice. In addition, the WTO has to be informed pro-actively on legal amendments in the domain of services.

In consequence, the GATS will foster a vast inclusion of the private sector – above all from industrialized countries – into service sectors relevant to development policy. A central point of criticism is that private suppliers cannot be bound to offer their services all-embracingly so that above all the supply of social services would probably be thinner and more expensive. Should a country identify unfavourable developments in the course of time this could not be corrected: a revision of once liberalized sectors is *de facto* not possible as it requires a consensus of all affected countries and enterprises – which might include compensations.

Consequently, many sectors might lose their political flexibility, and the decision structures of national, regional and local governments could be bypassed.[5] The history of origins of the GATS is marked by some not really democratic peculiarities on which I shall not comment here (*Altmann* 2004).

2. Agreement on Trade-Related Investment Measures (TRIMs)

A multilateral investment agreement – which would be relevant for private activities – does not (yet) exist. The original initiatives of the EU and the USA concerning a comprehensive investment and investment guarantee agreement within the OECD – the Multilateral Agreement on Investment (MAI) – could not be realized and were abandoned above all due to the resistance of the French government following massive public protests in 1997 and 1998. (The USA had incorporated rather similar regulations already in Chapter 11 of the NAFTA treaty.) The 'diluted' remains of TRIMs – as part of GATT '94 – comprehend merely five pages and do not introduce new rules or obligations, as opposed to GATS or TRIPS, but simply apply the existing GATT rules – however, only to goods and not to services. It goes without saying that this has far-reaching consequences as thus domestic treatment applies to investments in every economic sector. Herein lies the explosiveness of TRIMs. Given this, special regulations for foreign investors are not acceptable, notwithstanding the fact that several industrialized countries have exactly done this in the course of their own development, e.g. in form of capital controls (CCPA 2003, p. 6).

The TRIMs agreement does not define what is meant by *trade-related investment measures* but confines itself to an annexed list of examples including e.g. minimum investment sums, entry restrictions for certain sectors, compulsory employment of local personnel or enterprises, compulsory transfer of technology, local content regulations, import restrictions, restrictions on transfers of capital or profits, or stipulating binding export targets. According to the agreement, such regulations are not allowed (*Nunnenkamp* and *Pant* 2003, *Brooks* 2003). They would have had to be

[5] "GATS is designed to facilitate international business by constraining democratic governance" (*Sinclair* 2003, p. 68) and "In reality, the GATS is more of a governance agreement than a trade agreement" (*Lambert* 2002, p. 1).

abolished by 2000 already, but numerous countries have made use of the possibility to extend the time limit while the question has remained open as to which evaluation processes and criteria are to be applied (CCPA 2003, p. 8). Factually the EU, USA, Canada and Japan – as complainants against such extensions – have insisted that the countries in question negotiate bilaterally with them and seek a case-by-case consensus, drawing on the existing WTO threat-potential for breach of agreement. Most of the TRIMs-related complaints submitted to date to the WTO related to the automotive and the food processing industry.

The present discussion focuses above all on the question whether the TRIMs Agreement prohibits regulations concerning foreign investments (which is denied by the WTO) or whether it merely prohibits a discriminating treatment of goods in the context of foreign and local investments (which is maintained by the WTO). Opponents to an investment agreement defy the possibility that an investor might sue a country – by reference to a TRIMs or MAI agreement – for compliance with the investment regulations, and claim compensation for breach of agreement (investor-state lawsuit), as it is anchored in the NAFTA treaty.

Given the absence of a multilateral investment agreement one observes the conclusion of bilateral agreements. Germany has done so with more than 130 partner countries, worldwide there may be more than 2100 bilateral investment agreements (FUE 2003, p. 4). The investment issue will remain on the WTO as well as of the Doha agenda. Many developing countries want to treat foreign investors differently than local ones in order to influence local development processes and protect weak local industries against strong competition from abroad. Industrialized countries maintain that such discrimination and the lack of investment guarantees virtually render the investments required (and desired) impossible. It is well possible that the industrialized countries will prefer a system as in GATS, which offers the host countries a choice which sectors they would subordinate to an investment agreement. Since WTO agreements are *de facto* irreversible the governments then would have no possibility to revise taken decisions. Opponents of the TRIMs call less for a WTO investment agreement than for the establishment of binding international rules for transnational enterprises, e.g. a UN convention stipulating both the rights and obligations of investors: *corporate accountability including liability* (FoEI 2002).

C. Approaches to integrating the private sector into development cooperation

I. Investment promotion in the investing and in the host country

On the national level of investing countries flanking measures are necessary in order to promote the intended integration of the private sector into development

cooperation. I shall not expand on well-known instruments such as tax incentives, investment protection or investment guarantees by the investor's country, or institutions such as the the Multilateral Investment Guarantee Agency (MIGA; it is part of the World Bank group). Analogous measures in the host country and capital (re-) transfer agreements between the investor's and the host country increase the incentives for private investors. Also, an improved transparency of privatisation measures and tendering of international donors add to a positive investment climate. Many observers deplore the intransparency in advertising public tenders.[6]

It should be added that private investments, which are expedient in terms of development policy, may have a downside with regard to a dislocation of jobs from industrializing countries. Often there is a clear conflict of objectives. And also in this context there is a problem of delimitating incentives for new investments against windfall effects when investments would have been made anyway.

The World Bank, the IMF, and regional development banks propagate a privatisation of public enterprises, above all of municipal utilities. Such investments can also be co-financed. Quite often public institutions are cut down to their profitable components (Klaus Gihr of KfW has called this the "decoration of the bride" (*Hoering* 2003)), staff is reduced, liabilities are transferred off-balance or re-scheduled, and subsidized financing made available. As a tendency, this results in a reduction of employment, and in turn in rising prices of goods and services. This is the 'classical' conflict between pure market efficiency and income redistribution, which I shall not discuss further. According to the existing regulations of WTO – to be more precise: of GATS – it is practically impossible to call off privatisation measures, that do not live up to expectations.

II. Co-financing and build-operate-models

On several levels specific investment facilities are offered, e.g. by the European Investment Bank (EIB), the World Bank, the German KfW-DEG Group, the Agence francaise de Developpement (AfD), USAID etc. They are based on long-term loans, guarantees and equity, and are increasingly handled by the private banking sector.[7] This is meant to reduce the risk that external financial assistance will flow – via state banks – to politically suitable debtors. A corresponding structuring of the allocation criteria may foster sectoral or regional accents. But financial assistance is a monetary instrument. As pointed out above, however, the central and crucial problems are predominantly of a political nature (similarly *Radeke* 2003, p. 142).

It is primarily in industrializing economies that private enterprises have given impulses to economic development. As also Altenburg states in his paper, the activ-

6 See e.g. *Sow* 2002, p. 23 f. and *Hope* 2002, p. 29.

7 http://www.eib.org/news/press/press.asp?press=2597 (21. 6. 2004).

ities of the private sector in developing countries lead to barely surveyable positive development effects. This suggests bringing public and private actors together. Usually this takes place as a co-financing where the public partner partly, and often entirely, shoulders the investment. The concept of such PPPs is part of multinational, European, and since the mid-90s also of the German development cooperation – first called "development partnerships" and now "strategic partnerships for sustainable development". Both within the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) (on behalf of the BMZ), and on the level of the German Lander, PPP councils were established, above all for the infrastructure sector.[8]

The starting point is not the promotion of German enterprises but the mobilization of a private contribution to social, economic and ecological development, which would not materialize without public participation. Co-financing and PPP are instruments which can be used in different sectors, e.g. in environmental protection or social infrastructure, or give targeted support to medical, pharmaceutical or technical research.[9] Non-economically oriented co-financing, though, is much less frequent. As to investments in infrastructure, a variety of models of operation have been developed, e.g. the BOT (Build-Operate-Transfer) or the BOO (Build-Own-Operate) concepts, including leasing systems, while the delimitation between *contracting-out* and *outsourcing* is blurred.

The cost-benefit ratio of PPP is not always favourable in terms of development policy. The list of counter-arguments is long:[10]

– Critics maintain (e.g. *Hoering* 2003, p. 12, *Altenburg* and *Chahoud* 2003) that, given a scarcity of public funds, more and more tasks are transferred to private enterprises, but the benefit in terms of development policy is often non-existent, above all not for LDCs and for poor population strata.

– PPP projects concentrate in industrializing countries (threshold countries) (China, Brazil, South Africa) which are attractive for the participating enterprises in any case. PPP is above all successful where it is not that much needed: in economically appealing countries or sectors. On the other hand, PPPs are much less successful with regard to the ultimate task of development cooperation, namely poverty reduction.

– In some infrastructure sectors dualism develops: profitable sectors ("fillet steaks" such as water, electricity, education) are privatised, other sectors – on which the vast majority of the population has to rely – depend on public institutions, the financing of which becomes even more difficult as public funds are partly absorbed by PPP.

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[8] http: / / www.uni-weimar.de / Bauing / bwlbau / seiten / position / pos12200.htm (13. 5. 04).

[9] In 2003, the BMZ has supported an aids research project by DaimlerChrysler, also including infectious diseases and the development of antibiotics.

[10] Altenburg has named some of them in his paper. See more extensively *Altenburg* and *Chahoud* 2002 and 2003.

– Often the focus is on pure investment or economic promotion which results in the fact that the participating enterprises – not seldom large enterprises – can reduce their costs while transferring their risks to the public partner. In most projects the private share is small, and in German PPP projects the share of public funds is often 100 per cent (*Hoering* 2003, p. 4).
– Public funds "follow" private funds instead of being targeted on sectors where they would be required in terms of development policy.
– Many such measures would have been executed anyway – the well known free rider phenomenon.
– Few projects are oriented towards the requirements of poverty reduction; expensive high-tech approaches are dominant as opposed to low-tech / low cost approaches.
– Although in principle it would be appropriate to strengthen the political, economic and regulatory frameworks, PPP predominantly enhances the micro level. This is why one should prefer a grouping of activities, and PPP should focus more on large-scale cooperation with the private sector (*Altenburg* and *Chahoud* 2002) at the meso level of institution building in the host country, e.g. on chambers of commerce or crafts or governmental institutions.

Because of the cited methodological constraints and the relatively small absolute volume, the benefit of PPP in terms of development policy is in total considered to be of little relevance (*Altenburg* and *Chahoud* 2003).[11]

III. Capacity building by enterprises from industrialized countries

Very many staff from developing countries is trained and gains experiences when working in and for enterprises from industrialized countries. This holds good both for employments in enterprises residing e.g. in Germany and those operating in host countries. The extent of such capacity building and its impact on the development of the home countries of such staff is not obvious but cannot be valued highly enough. This entails a vast profile of qualifications, ranging from professional competences in the strict sense over transfer of technology and soft skills to intercultural competences. And those effects are to be considered win-win scenarios since both the home and the host countries (and enterprises) benefit largely; Altenburg, too, elaborates this aspect in his paper.

Staff placements themselves cannot be integrated into development policies since this is the sole responsibility of the enterprises. What is possible, though, is the integration of the preceding education and training in German universities.

[11] *Blank* (2003) is of a different opinion.

Although the latter is predominantly borne by the state, the ensuing professional training on the job takes place within the private sector and is a private contribution to development policies.

IV. Private capital funds

In capital funds of the type referred to here the investor buys a liability from the financial market. He excuses the debtor from the obligation to repay in hard currency. Instead, the debtor has to pay the equivalent of the title in local currency into a counter-value fund while the exchange rate is subject to negotiation.

The fund's capital is utilized for the objectives defined by the creditor. This may relate to a commercial investment project, a development or environment project (*debt-for-development* or *debt-for-nature swaps*) or others. In practice commercial swaps are by far the most important. Independently from a development enhancing investment of the funds, the major advantage of such a system lies in the reduction of the indebtedness and the corresponding debt service. The attractiveness for the private investor lies in a favourable exchange rate, besides other potential benefits in the context of his investment (e.g. tax incentives).

Also in cases where the capital investor is a public agent, a private component may derive from the capital management being contracted to private enterprises. Their efficiency advantage, though, is retrenched by the disadvantage that local capacity building is restricted accordingly.

V. Micro-financing by "people's banks"

An instrument which is known since long and applied successfully, is micro-financing. The Grameen Bank in Bangladesh is considered originator of this concept. It was founded in 1983 by Professor Muhammad Yunus who was nominated twice – but in vain – for the Nobel Prize. There is no need to expand on this well-known concept again, but it is a classical example of a private initiative. From the original 'gamete' several successful spin-offs have developed worldwide, both in industrialized and developing countries, and in many different sectors.[12]

VI. Integration of altruistic agents

- Altruistic foundations and funds

In many countries we can find impressive examples of private institutions which are successfully engaged in development cooperation. This includes the colourful

[12] See a comprehensive and innovative analysis in *Schmidt* and *von Pischke* (2004).

bouquet of NGOs and private foundations which are to be ranked – as opposed to the political foundations – among the private development agents. I shall not elaborate on the engagement of NGOs, only one sentence: the scene is not at all homogeneous as to the objectives pursued; NGOs are not always altruistically oriented, some are well influenced by large commercial enterprises or a government (also *Walk* and *Brunnengräber* 2001, p. 13 ff., *Brand* 2000, p. 16 ff.).

Private foundations come in Germany less to the fore, contrary to the USA, but there are many more than is vastly known. They usually pursue long-term programmes, quite often up to 10 or 15 years or more, which enhances the development of mutual understanding and respect (*Scott* 2003, p. 117). Their concept is not marked by *social engineering* but is based on own engagement and participation of the participating parties.[13]

Such concepts can be promoted by

– tax privileges (*Scott* 2003, p. 118), e.g. with regard to donations, or inheritance tax regulations fostering foundations;
– tax exemptions for interest from foundations' investments;
– issuing of ethically motivated soft loans, that is the investor subsidizes the raising of funds (*Lichtblau* 1999, p. 88 f.); such loans, however, exhibit only very small volumes.

• Sponsoring

A promising field is the sponsoring of development-relevant activities or projects – hospitals, kindergartens, sport clubs, orphanages, etc. As a rule, the objectives of the participating enterprises lie not so much in the issue in question rather than the sponsor-pursuing image or media effects. Such expenses reduce his income and profit taxes so that – theoretically – investment incentives could be enhanced by offering more tax incentives.

• "Fair trade"

Nobody knows exactly how many third world shops, action groups and initiatives exist in Germany alone. Generally they aim at guaranteeing higher prices to the producers than the emotionless commercial market would allow. The share of such initiatives in world trade – although well meant – is in total very small.

VII. Cooperations between the private sector and NGOs

In some respect the dividing line between altruistic and commercial concepts becomes blurred. NGOs (Greenpeace, Amnesty International, WWF, FoE, etc.) put

[13] I must say that I am very much surprised that one should attempt to depict something as qualitative as an altruistic motivation in a quantitative model (see e.g. *Calmette* and *Kilkenny* 2001).

transnational enterprises (Exxon, Shell, Nike etc.) under pressure to observe social and ecological standards. Malpractice is threatened by consumer boycotts and negative media effects; recruitment candidates are discouraged; suppliers and clients ask uncomfortable questions (*Fischermann* 2001). Many enterprises react with ethic projects and corporate good governance,[14] but voluntary self-control is not always sufficient to initiate a change from shareholder value to stakeholder value or to corporate social responsibility.

In reality, more and more cases can be observed where NGOs are contracted by enterprises as consultants in order to improve the development image of the company which is micro-economically very relevant (e.g. Chiquita or Rainforest Alliance; *Nielinger* 2003, p. 126, 129). This is certainly positive in terms of development policy but leaves open questions as to the independence of the consultants.

In spite of scarce resources the NGOs have developed into a countervailing power to private commercial interests (*Nielinger* 2003, p. 133). However, there are no standards or rules in this respect, there is no monitoring, and certainly there are no automatic sanctions for breach of rules. It is highly uncertain whether civil control of NGOs and self-control of the enterprises may be considered sufficient (*Bendell* 2000).

D. Concluding remarks

There are a large variety of private engagements in development cooperation, and many of them prove to be very flexible. As a rule, private initiatives can be surveyed rather easily in terms of their volumes, and they tend to have little follow-up requirements. They are usually commercially oriented, striving to minimize risks, and rarely have a political orientation; in this context PPPs face a variety of criticisms. Private development initiatives do enhance the sector of the host country, also in terms of developing compatible economic thinking. And the risk appears small that they will lead to a crowding-out of local NGOs. Because of their independence, they are difficult to be integrated systematically into development cooperation policies. There are not many coherent and operational strategies in this respect, both on the donor and the recipient side. And there is very little and no systematic monitoring and evaluation of such issues.

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Tapping Financial Markets for Bilateral Development Cooperation

By *Rainer Durth,* Darmstadt / Frankfurt[1]

A. Millennium Development Goals, Poverty Reduction Strategy Papers, and donor coordination

What is development? And what is the best way to support it? One of the greatest achievements of development policy in the last years is generally said to be the Millennium Development Goals (MDG), the result of an understanding reached by the international donor community under the lead of the United Nations. Today the following eight objectives form the global framework for what should be understood as development (United Nations 2001): (1) eradicate extreme poverty and hunger; (2) achieve universal primary education; (3) promote gender equality and empower women; (4) reduce child mortality; (5) improve maternal health; (6) combat HIV / AIDS, malaria and other diseases; (7) ensure environmental sustainability; (8) develop a global partnership for development.

To help track progress the United Nations has broken these 8 objectives down into 18 targets with 48 indicators to measure their achievement. In addition, the objectives have been defined by specific target levels that are to be achieved by the year 2015. Most widely known to the public is goal 1, which includes the target of halving the proportion of people living in extreme poverty by the year 2015. Extreme poverty means that these people's income is less than one US dollar a day based on the reference level of the year 1990.

The MDG marked the first worldwide consensus on what goals are to be achieved in development policy. This consensus is now being adopted by the recipient countries in that decision-makers themselves are developing a strategy to determine what measures and projects are best suited for achieving the objectives in light of the local restrictions and preferences. The policy instrument applied here has been developed by the World Bank and the International Monetary Fund in connection with the initiative for highly indebted poor countries (HIPC); it is the Poverty Reduction Strategy Papers (PRSP). The PRSP are designed to trigger and keep going a discussion process in the recipient countries on what specific

[1] This paper reflects only the author's personal opinion.

approaches are best to combat poverty. This process is to be supported by the government and the local civil society of the recipient country and accompanied by the donor community.

Beyond the discussion process, the PRSP, which are seen to express growing ownership in the recipient countries, at the same time are increasingly evolving into a management instrument for development policy measures. In many countries the PRSP – and the related instruments like the Country Strategy Papers (CSP) of the European Commission – today form the basis for the division of tasks within the international donor community. Accordingly, the bilateral donors' contributions are shifting from the original project approach towards programmes or participation in internationally coordinated sector-wide measures, and even budget financing in which development aid funds are remitted directly to the government of the recipient country. Progress reviews are then mostly based on the development of the indicators mentioned above or on the national procedures for setting up and implementing the state budgets to which the funds have been allocated.

B. Political challenges to the achievement of the MDG

The new development policy approaches that are associated with the keywords MDG, PRSP and donor coordination have doubtless been able to give many a valuable impulse. In the pursuit of the MDG, however, three types of political problems occur[2] which will be commented in more detail below:

– First, the question is what consequences the emphasis of the MDG on social targets and indicators will have; an emphasis that in my opinion not only directly implies greater focus on state and corporative forces in the development process but also considerably influences the allocation mechanism for the scarce resources mentioned above.
– Second, the achievement of the targets of the MDG requires substantial financial means for development cooperation; in other words, scarce resources are a problem here.
– Third, these trends prompt a shift in the relative weights and self-image of bilateral and multilateral development cooperation.

I. Consequences of focusing MDG and PRSP on social indicators

The MDG focus on social indicators and targets. In almost all countries, the responsibility for most of the goals listed – such as education, health, and gender

[2] More comprehensive are the evaluations performed by the World Bank (www.worldbank.org / oed / prsp / index.html) and the IMF (www.imf.org / External / NP / ieo / prspprgf / eng / index.html); see also *Elliesen* and *Dembowski* 2004, p. 390.

equality – lies predominantly with state institutions. So by defining what "development" is supposed to achieve, the issue of the state's responsibility for achieving targets moves back onto centre stage. It is therefore consistent to also apply the "local" debate to public institutions and to have development aid funds flow directly through the state budget, for instance in the form of budget support. The growing orientation of development policy towards social goals is also likely to encourage the rising global trend of providing more grants than loans in development aid. According to the OECD, the grant element of all ODA given in 2002 was 97.8%; the share of grants has risen in the last 20 years from 76% (1980) to 86% (2000) (OECD, 2004a, p. 17, 182).

In comparison with earlier approaches, however, it is striking that there are two groups of society that may be involved in the debate but are not generally required to – even though they have hitherto been seen as crucial to development. One of them is the privately organised players, who must seek to be profitable and will not gear their businesses primarily to the MDG. Even if economic growth is probably a necessary prerequisite for poverty reduction in most developing countries, the MDG themselves make no mention of the privately organised players – or of important preconditions for growth such as adequate infrastructure or a functioning energy supply. As the MDG are directed solely at social criteria there is the risk that "hard" economic targets and the possible contribution of private players to the MDG are relegated to the sidelines. In my view, this is a noteworthy implication of the MDG particularly for this year's Developing Countries Committee Meeting.

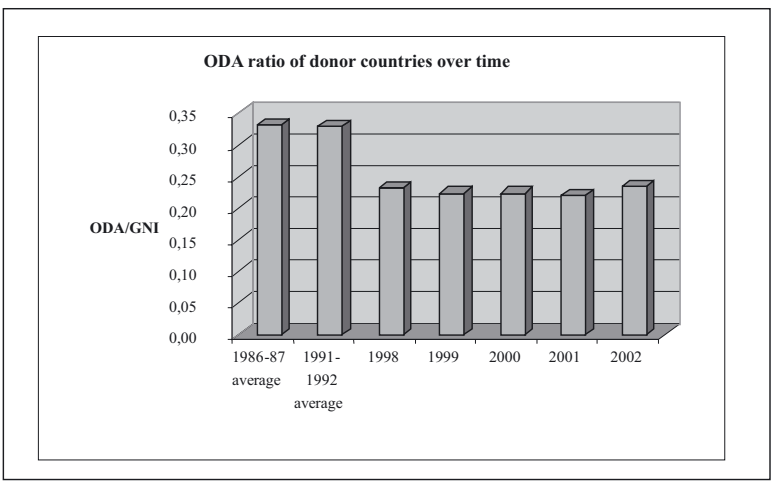
The second group is the local authorities. In many developing countries the "local" discussion process on national development strategies, which is to take place in connection with the PRSP, will be conducted primarily in the capital city because it is here that most discussants are based. This may make it increasingly difficult for municipalities and other territorial authorities to articulate and assert their interests. This way, precisely in developing countries that already tend to have a rather centralist structure, the new development-policy approach that is supposedly built on participation may help to further consolidate the power of the main towns and ethnic groups.

Besides, the focus of the MDG on social targets has a significant impact on the allocation mechanism for development aid funds. From an economic viewpoint, applying the price mechanism would basically permit an efficient allocation of the scarce resources. The market would give spontaneous incentives, generate all necessary information on a decentralised basis, expand the freedom of the participating players, and promote progress and change (*Frey* and *Kirchgässner* 2002, p. 83 ff.). But it is precisely in many developing countries that adequately functioning markets are just what is lacking; besides, these countries have obvious problems in terms of externalities and public goods. However, instead of using market forces as much as possible for the allocation of resources and designing existing structures appropriately, the new development-policy approaches rely on a diffuse

mixture of three alternative allocation mechanisms – democracy, bureaucracy and groups of economic interests. Whether bypassing market mechanisms will actually lead to an efficient use of resources, however, remains to be seen. Given the rather mixed past experience with mostly public development assistance, there is ample reason to be sceptical.

II. Scarce financial resources

The MDG are mostly directed at improving social indicators. Their implementation falls mainly under the purview of state protagonists – in line with the forum in which they have been negotiated and adopted. So it is proper to ask what public resources are available for the task. According to the OECD, development assistance funds disbursed by official donors in 2003 amounted to USD 59.1 billion, slightly more than the mean ODA figure for the past years (OECD, 2004a, p. 134). The ratio of ODA to Gross National Income has fallen significantly since the 80ies, and it is stagnating at a rather low level (see Figure 1).



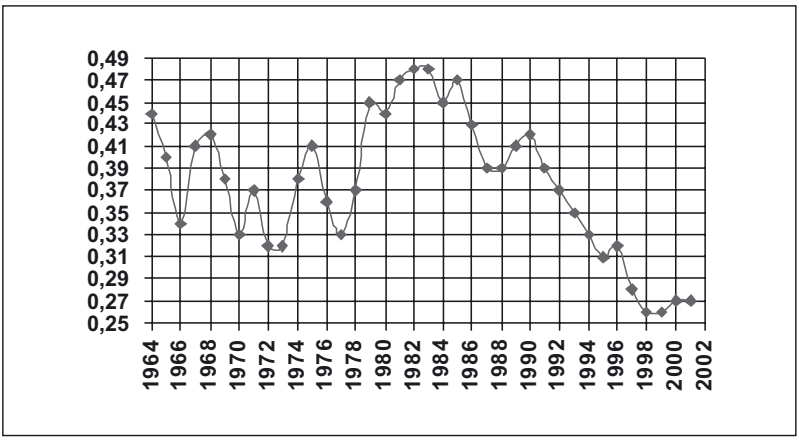
Source: OECD 2004a

Figure 1: Official Development Assistance (ODA)

The World Bank estimates that additional funds of around USD 50 billion would have to be made available each year to meet the MDG on schedule by 2015 (see also *Reisen* 2004, p. 5). The financial gap for the last four years thus only amounts to around USD 200 billion.

Given the obvious financing gaps the donors undertook explicitly at the March 2002 Monterrey Summit to adhere to the MDG and increase their financial contri-

butions. Thus, the Federal Republic of Germany, like the other EU states, has pledged to raise the share of German ODA in GDP to 0.33%. A look at the historical development of German ODA (Figure 2) shows that aspiring to this goal in only two years is very ambitious in the present and expected budget situation. For the next two years this would require an annual increase of roughly USD 1 billion, which is in contrast to the fact since the early 1980s the German ODA ratio has actually shrunk by around 0.01% per year!



Source: KfW

Figure 2: German Official Development Assistance (ODA), as a share of GDP

In other words, both at the national and the international level only a fraction of the funds regarded by experts as necessary to achieve the MDG will be available by 2015. At the same time the share of ODA in the capital flows to developing countries has declined continuously. In spite of all this, however, it must not be forgotten that around six times as much capital is being provided for investments from domestic savings in developing countries.

Considering this decline in the relative importance, it will become more and more urgent to define how ODA should be designed in the future to achieve the greatest possible developmental impact with the available scarce resources.

III. Relationship between bilateral and multilateral development cooperation

The new development policy approach is based on an ongoing local dialogue involving the local government, the local civil society and the other donors. Participation in the dialogue presupposes local presence, which typically can hardly be

managed by most bilateral donors. Multilateral donors that have developed new instruments like PRSP, in turn, benefit from scale effects in many developing countries. As a consequence, the relative importance of bilateral donors decreases while that of multilateral donors increases. What under the catchword "donor coordination" presents itself as a welcome process may have negative consequences as well:

– Donor coordination enhances the above trend towards grants and a development cooperation that is unrelated to the market but oriented towards state institutions and political processes.
– Development projects are less "visible" in the donor countries, and in the medium term this is also likely to influence the willingness of their populations and politicians to make payments. As a result of donor coordination, less ODA will then be available worldwide in the medium term.[3]
– The development cooperation landscape loses diversity, and an international development bureaucracy may arise that dominates national debates and players who inevitably lack critical mass. In the medium term this development bureaucracy could turn into a sort of supply monopoly on the implementation of development cooperation, and competition (among donors) as a discovery procedure could be eliminated, not least at the expense of many poor people and countries.

C. Complementarity as a criterion for designing bilateral German development cooperation

The new development policy approaches associated with the MDG obviously change the practice of development cooperation. In particular, they cause multilateral development cooperation to focus more on cooperation with public agencies and through the use of grants.

Bilateral development cooperation is then forced to decide whether it wants to pursue the same goals on the same path with fewer funds – for instance through closer donor coordination. Under the (bold) assumption that the path taken will make the greatest possible development impact and donor coordination will at minimal effort lead to a success that is comparable to that of multilateral development cooperation, there are good statistical reasons for taking this path. From a dynamic, long-term point of view, however, this decision causes problems: After all, the bilateral donors can, at best, be just as good as the multilateral ones, but at the same time they cannot achieve the formers' scale effects because of their smaller size; so the bilateral resources could then be utilised more effectively for development investments through multilateral channels if these have the necessary ex-

[3] This reflects the experience that has been gathered under the OECD Consensus, for example; see for instance OECD 2004b.

pertise. The result would be the multilateral development bureaucracy mentioned above which would have the character of a monopoly or, at best, an oligopoly.

To avoid such a developmentally obstructive monopoly, bilateral development cooperation could be deliberately positioned to complement multilateral development cooperation. This would mean stepping up the support for project executing agencies and projects that are no longer at the centre of attention or can no longer be supported under multilateral development cooperation. At first glance, this would particularly affect private sector and, in some cases, municipal executing agencies as well as infrastructure projects. But bilateral development cooperation could not only attempt to reach out to different types of executing agencies and implement projects that are necessary though of lower rank as measured against the MDG. It could also systematically seek to increase the resources for development investments by making it possible to tap not only the tight state budgets of the donor countries but also the steadily growing international capital markets. To achieve this, the classical financing instruments of bilateral development cooperation need to be expanded.

In this connection the complementarity of bilateral development cooperation acquires a double meaning. For one, it should complement the contributions of other donors and, for another; it should not distort the market and substitute purely commercial financings. In short, it must also be complementary or subsidiary to commercial financings. This means there must be a genuine demand for the financing that would exceed the capacities of the private players in such a way that they are incapable of achieving the necessary degree of goal implementation in the foreseeable future. The interventions made by bilateral development cooperation should then be aligned with the market as closely as possible, they should not weaken the initiative and responsibility taken by individuals, and they should strengthen the ability of individuals to solve their problems themselves as help towards self-help (see section D.V).

The influence of bilateral development cooperation on private economic activitites shows a second and more current direction: Whereas in the past the idea was to help German enterprises tap the markets of large developing countries, today it is possible to help developing countries and selected project-executing agencies access the international markets. This enables them to tap a new, large source of funding which cannot be left unutilised for the realisation of the Millennium Goals given the enormous financing gaps. Used intelligently, bilateral development cooperation funds can have a strong catalyst effect, making possible maximum development impacts at a comparably low financial cost.

D. The instruments of German bilateral financial cooperation

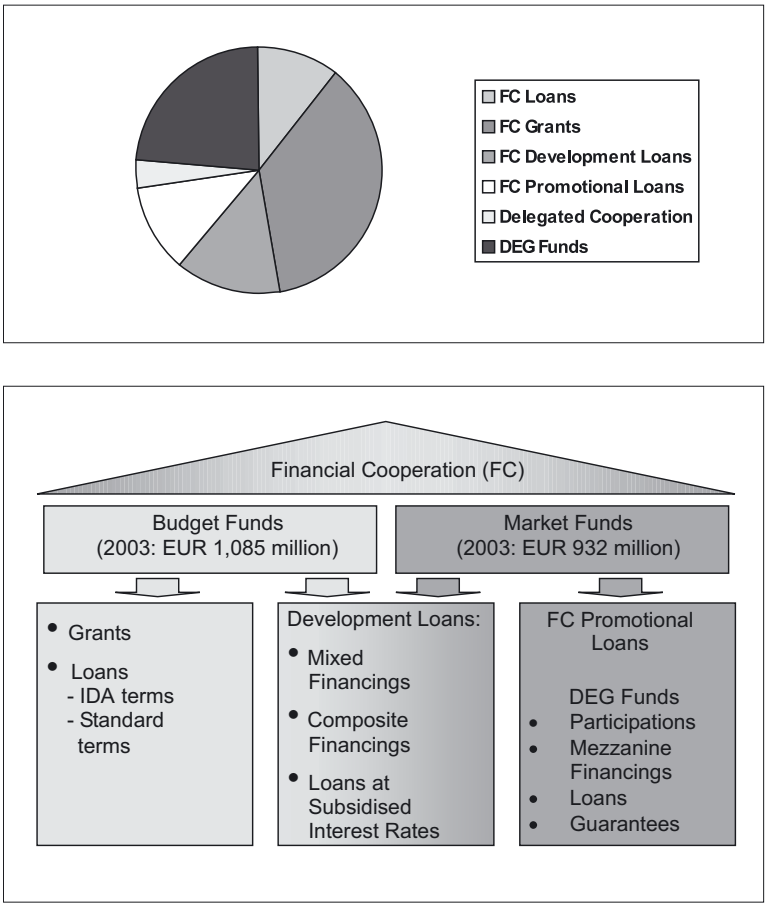
At the UN conference "Financing for Development" held in Monterrey in 2002 Germany promised to contribute towards realising the MDG by durably raising its ODA ratio. With budget funds for development cooperation declining and the year 2015 approaching ever faster, a significant increase of Germany's ODA contribution is currently feasible only if the scarce budget funds can be increasingly complemented by market funds. As discussed above, this approach is appropriate also in view of the international division of tasks in development matters, and it is a developmentally welcome approach because it permits "harder" infrastructure investments to be realised with private-sector actors. In particular, it opens up new possibilities for innovative approaches in the area of Public Private Partnership (PPP). To be able to take this approach, the financing instruments of German Financial Cooperation were thoroughly expanded in the last few years.[4] They range from traditional grants to loans with largely flexible terms that almost match those of commercial banks. This way the partner countries for the first time are offered a complete set of financing instruments under bilateral development cooperation. The "value added" for the recipients thus tends to shift from favourable financing terms to the offer of financing and implementing expertise for developmentally sound projects.

I. FC grants and FC loans: pure budget funds

Grants and loans are the classical instruments of German Financial Cooperation (FC) (see Figure 3). They employ federal budget funds only. Accordingly, the approval of specific projects lies exclusively with the German Ministry for Economic Cooperation and Development (BMZ).

– *Grants.* Grants are extended to the Least Developed Countries (LDC). Countries that do not belong to the LDC may receive grants as well if projects are to be supported in specific sectors, for instance self-help oriented measures for poverty reduction or social infrastructure.
– *Loans at IDA terms.* These loans have a maturity of 40 years with 10 grace years and an annual interest rate of 0.75%. The grant element of these loans is over 80% (untied loans). IDA terms are generally available to all countries that obtain funding from the World Bank subsidiary, the International Development Association (IDA) at these terms.
– *Loans at standard terms.* Loans at standard terms run for a term of 30 years with 10 grace years, at an annual interest rate of 2%. They are available to all countries that are listed in Section 1 of the DAC list and do not have access to more favourable terms.

[4] In addition, innovative financing instruments for the realisation of the MDG are also being discussed at the multilateral level. A current overview is offered by *Reisen* 2004.



Source: KfW 2004

Figure 3: Financing Instruments in German Financial Cooperation 2003

II. FC development loans: mixture of budget and market funds

German FC has known the possibility of mixing budget funds with market funds since as far back as the 1960s. The basic idea that applies to all mixing instruments is to augment the scarce but very favourable budget funds by adding commercial market funds. The result is a bigger loan with less favourable terms. In what way the funds are augmented depends on the project to be supported. However, since the Federal Republic bears only a portion of the loan-loss risk at best – unlike in pure budget funds – some of the risk remains with the implementing organisation for FC, Kreditanstalt für Wiederaufbau (KfW), which thus needs to give its con-

sent to a financing operation in each individual case. Overall, the harder loan terms and the commercial handling of loan-loss risks exact greater selectivity when it comes to choosing projects and borrowers.

– *Mixed financing.* Mixed financing combines budget funds earmarked for a specific country with market funds, with the economic and political risks of the market funds covered by an export credit insurance agency – such as *Hermes* – against a fee. Market funds are employed at market interest rates at full cost coverage. They usually run for a term of 10 years with five grace years. Mixed financing has been around since 1963; it is the classical market-mixing instrument. To what degree the loans must be tied to supplies usually depends on what export credit insurance company is providing the coverage.

– *Composite Finance.* Composite finance combines budget funds at IDA terms with commercial funds into a single loan (a "tranche"). The loan has a maturity of 25 years with 10 to 12 grace years. The risks for the market funds are not covered by an export credit insurance but by the Federal Republic, which created a coverage instrument specifically for this purpose in 1994, the Guarantee Limit for Composite Financings (volume in 2004: EUR 2 billion) administered by the Federal Ministry of Finance. Accordingly, there are no limiting country ceilings. This financing instrument, however, is available only for countries with a low to medium risk (currently up to *Hermes* category 5). Composite financings mobilised an investment volume totalling EUR 211 million in 2003.

– *Loans at subsidised interest rates.* Under the loans granted at subsidised interest rates, which were employed in 2001 for the first time, a purely commercial loan is given at an interest rate reduced to such an extent by subsidies from the federal budget that the loan acquires the quality of development assistance. The risks are borne 100% by KfW which, however, is able to insure itself by other means. The loan term is typically 10 to 12 years with 2 or 3 grace years. At present only *Hermes* category 2 – 3 countries qualify. Loans at subsidised interest rates were granted in a total of EUR 76 million in the year 2003.

All FC development loans can be granted untied to supplies and qualify as ODA without restriction so long as they achieve the grant element required. Adapting the blend of the loan funds and terms accordingly makes it possible to take accurate account of the profitability and eligibility of specific projects. This should make them interesting particularly for infrastructure projects that generate a positive cash flow. Besides, adding capital market funds significantly increases the possible volume of investment. In comparison with a simple grant, a loan extended at a subsidised interest rate, for instance, can provide an amount that is 10 times as high for development aid investments, with the same cost to the federal budget. In terms of development policy, there is a big, only partly developed potential for the combined utilisation of budget and market funds. The latter currently account for around 12% of German FC; the use of FC development loans is limited by the

availability of budget funds and the willingness of the federal government to assume more of the risks associated with market funds.

The natural area of operation of FC development loans is in developing countries which hitherto have no access to the capital market. Here they can be used to finance economic and social infrastructure projects. However, this requires the Federal Republic to assume the corresponding risks and, in some cases, the willingness to mix budget and market funds in a proportion that is more favourable for the recipient countries. But FC development loans are also an option in countries that already have access to capital markets. Particularly the various financial crises of the 1990s have shown that development setbacks still pose a threat to many industrialising countries. Here FC development loans offer a possibility for continuing development cooperation that is easy on the budget. A demand-based selection of cooperation priorities, however, is a precondition in these countries. This implies not only that loans at near market-level terms exact a greater sense of ownership of the partner but also that there must be a deliberate search for priorities where there may be win-win situations for the donors as well as the recipients. German expertise is in relatively high demand in the energy or environment sectors, for instance, suggesting that they may be focal areas in industrialising countries.

III. FC promotional loans: market funds for official development investments

Finally, since 2002 development investments may also be financed under FC with funds raised by KfW in the capital market and in which the Federal Republic neither assumes the risks nor provides a grant. Interest rates, maturities and grace years can be agreed freely; simple direct loans and structured financings are possible, but also complex project financing and even equity investments (for instance in micro banks). To be eligible for financing, however, a project must be regarded by KfW and the BMZ as deserving of support against development policy criteria and as an acceptable risk. FC promotional loans are not mixed with any budget funds so they do not qualify as ODA but merely as "other official flows" (OOF). In return, however, they are not subject to the establishment of priorities and the requirements of the BMZ on country limitations. They are nevertheless acknowledged to contribute to BMZ sector objectives, for instance in the promotion of renewable energies. Borrowers may be governments but also private entities; unlike for other FC instruments, a government guarantee is not necessary. In 2003 FC promotional loans were already granted in a volume of EUR 246 million.

The developmental advantages of the FC promotional loans are that they can mobilise additional capital for development investments. Presupposing that the projects have a corresponding innate effect, this makes an additional contribution to the realisation of the MDG. Besides, they give Financial Cooperation greater latitude.

In particular, existing executing agencies can be supported in the transition from concessionary to commercial financings, and new target groups can be included, for instance for the promotion of the private sector in developing countries.

Although budget funds are not available for FC promotional loans and the Federal Republic assumes none of the risk involved, meaning they are granted on KfW's own responsibility, there is an agreed procedure for this financing instrument that gives the BMZ the necessary political competence for intervening. It is based on the official mandate which the BMZ gave KfW in 2002. On this basis KfW identifies concrete projects in developing countries and involves the BMZ in the development rating and financial planning as early as possible. If both procedures are successful, a passage is introduced into the agreed minutes of the intergovernmental negotiations that secure the debt service towards KfW and demands KfW to be treated on a par with international financing institutions. Finally, KfW reports briefly to the BMZ once a year on all new FC promotional loans.

Adding FC promotional loans to the financing instruments of German FC is designed to close the gap between concessionary and commercial financings. However, FC promotional loans not only constitute a natural addition to the existing FC instruments; in return, they can also be strengthened by embedding them into the expertise and concessionary development cooperation instruments. Moreover, the diversification of the financing tools will help German bilateral cooperation better meet the criterion of complementarity to multilateral donors on the one hand and private-sector creditors on the other. In this discussion, two problem complexes always become apparent: subsidiarity and risks.

IV. DEG funds: market funds for development investment of the private sector

As part of KfW Bankengruppe (KfW banking group), DEG – Deutsche Investitions- und Entwicklungsgesellschaft mbH – is committed to promoting the private sector in developing countries. Its financing activities are specially tuned to the needs of private enterprises. DEG offers capital to companies for investments in developing and newly industrialising countries. This capital can take the form of private equity participations, mezzanine financing, loans, and guarantees at market-oriented conditions. It is used to finance sustainable, profitable, developmentally effective, and ecologically as well as socially viable projects in sectors such as manufacturing, agriculture, infrastructure and services. DEG invests in local financial markets to enable reliable access to investment capital in the partner countries.

To date DEG has cooperated with more than 1,100 companies. Financings were given in a total of EUR 5.6 billion, enabling an overall investment volume of EUR 37 billion. DEG pursues the objective of strengthening and expanding private-sector structures in developing and industrialising countries. This is intended to form

a basis for sustainable economic growth and a lasting improvement of people's living conditions. In the year 2003 alone DEG financed new investments totalling EUR 500 million.

V. What does subsidiarity mean for financial cooperation?

Bilateral development cooperation based on the criterion of complementarity must be defined against other donors as well as against possible private-sector players. While the more recent development policy approaches described above are rather designed to mend the failure of state mechanisms, bilateral cooperation that is also based on commercial resources should concentrate on identifying and palliating market failure. In the context of developing countries, this classical line of reasoning for economic policy action means an attempt at supporting projects that either produce sufficient positive external effects or public goods, or at mitigating information or adjustment deficits in existing markets. The leverage of official development assistance is likely to be particularly strong in the financial sector, which typically is susceptible to considerable distortions. Worldwide ODA is only less than 3% of total development investment channelled through this sector. But the development of a suitable financial sector infrastructure can raise the allocation efficiency substantially and far beyond the ODA volume in many countries.

The principle of subsidiarity is applied to FC promotional loans with the idea of consistently pursuing the goal of efficiency: FC may not intervene unless there is a need and unless this need demands too much of private players or unless their solutions are less helpful (Collin 2001, p. 47 ff.). The task demands too much of private players if their ability to solve it is inadequate from a general economic viewpoint. The latter could also mean that the private sector can be regarded as not being up to the job if it develops suitable activities yet is incapable of attaining the economically necessary degree of goal achievement over a measurable period of time. Consequently, promotional activities can also be carried out additionally to private-sector activities ("When").

Once a need has been established, and if public action is suitable for remedying the situation, the question arises by what means the assistance should best be provided. Intervention is subsidiary if it conforms to market mechanisms as much as possible, does as little as possible to weaken people's own initiative and increases as much as possible people's abilities to solve their problems themselves as help towards self-help ("How"). For bilateral development cooperation the insistence on market conformity means that development projects as well should be financed at market terms wherever their commercial profitability so permits. Funds at concessionary terms are necessary particularly when the market as a system fails because of external effects or public goods. Nevertheless, the financing instrument should always be chosen in accordance with the limitations of the individual case at hand. The creation of competition – for instance in the financial sector – directly

strengthens people's own initiative and sense of responsibility; catalyst effects and functioning market structures, for their part, allow help to turn into self-help.

For a donor, subsidiarity also means that it must increasingly examine at what point a market fails and how it can remedy a specific market failure. In addition to the actual conception of a project, in the future the whole range of financial design features could be placed at a donor's disposal (interest rate, currency, maturity, grace years, repayment modes, risk quantification and pricing, syndication, etc.).

VI. What role do economic risks play in development cooperation?

In international banking business, there are two major types of credit risk: political risks and economic risks. Political risks reflect the general political and social uncertainties of the host country, such as the risk of upheaval, limitations on currency movements or moratoriums on (government) payments. Economic risks describe the likelihood of the borrower not meeting his debt obligations. In German Financial Cooperation with budget funds the federal government so far has assumed both the political and economic risks to their full extent. However, this coverage does not apply to commercial funds, so that from a development point of view the management of economic risks becomes all the more important the more market funds are to be applied.

For every risk the question arises whether it should be avoided or taken. If it is taken, it must be reasonably quantified and priced. Finally, it must be decided who will assume it (against what fee). All three topics – risk avoidance, risk quantification and risk spreading – will inevitably become more important with the use of commercial funds. And every government that intends to make use of the above advantages of bilateral development cooperation based more strongly on market resources will soon recognise that their use is limited essentially by the risks associated with them. This strategic obstacle can be overcome only through the development of suitable risk management instruments for development and promotional loans.

With regard to risk management, it would seem helpful to draw on the expertise of internationally operating banks that have to deal with the same risks. However, where their resources for taking new risks are limited (or too costly), having the Federal Republic provide coverage for the risks might be developmentally practical for the use of market funds as well.

In this case the federal government should be involved adequately in the selection and design of projects financed with market funds. All in all this would mean that development finance would be adapted to the domestic promotional policy trends. This means that in the use of market funds the idea would no longer be to finance a project in full but only its materialisation, using market mechanisms to the greatest extent possible. Basically the assistance would no longer consist in

financing the project itself but in having the Federal Republic assume the risks which private players do not want to bear or only at excessively high prices. Financing of this sort presupposes the commercial profitability of the individual project and sufficient returns on the loans. However, as it unfolds its catalyst effect and saves scarce budget funds, the potential financing volume increases. The financing terms can be adapted flexibly to the viability of the individual projects promoted.

Market financings are relevant and necessary for achieving the MDG, for instance because there is probably no other way to provide the necessary infrastructure facilities. Nevertheless, they cannot be counted as official development assistance (ODA). To qualify, they must contain a grant element of at least 25%, which is measured by comparing them financings at a risk-free interest rate. If the loan is tied to supplies the interest rate is adjusted every six months, while loans not tied to supplies are consistently assured against an interest rate of 10%. The grant element therefore is established without regard for the specific risk situation of the country or the project and for the donors' readiness to assume part of these risks. Apparently, national donors face conflicting goals of either using resources as effectively as possible to achieve the MDG or having the funds used for this purpose acknowledged internationally as ODA. Thus, for instance, grants to countries with access to the capital market are fully counted as ODA while the assumption of risks for loans granted for economic and social infrastructure in high-risk countries without access to capital markets, which is just as costly from an economic point of view, does not qualify as ODA at all. Strangely enough, in their joint impact the international ODA rules and the international capital markets not only put the poorest of the poor outside the industrialising countries at a disadvantage. They also reinforce a trend that causes development aid today to be given practically only in the form of grants, for instance in Africa, giving up an efficient allocation of funds through market mechanisms – a sort of world welfare scheme, albeit, almost inevitably, with much too paltry a budget.

E. Outlook

Development cooperation is undergoing a fundamental redesign. Evidence of this is the genesis of new basic approaches like the Millennium Development Goals or the Poverty Reduction Strategy Papers, but it is also demonstrated by the attempts at involving private players more strongly or using commercial funds more intensively, as discussed in this paper. In the face of these developments, bilateral development cooperation in the long term will probably not be able to remain as it is today. At the same time it now has the chance to consistently follow the criterion of complementarity to multilateral donors and private investors. From the aspect of economic theory, development economics and budget policy, there are good reasons for this transformation, and with the new FC financing instruments described above the German federal government has the necessary financial

basis for the first time to make this change: it can complement the scarce concessionary funds with market funds, and it can make the use of funds more individual and, thus, more effective. This new approach is closely connected to some exciting questions for which a scientific response is still pending:

– What are the specific benefits and drawbacks of bilateral and multilateral cooperation? Or do the approaches associated with the MDG truly constitute a cure-all?
– To what extent are "hard" development projects needed as well to achieve the MDG? What chain reactions exist here and what type of financing is intended for the hard projects?
– How can the selection and design of a financing instrument generally be justified by market failure and how can it be identified and quantified in a specific case?
– Can the poor in the developing countries afford a development cooperation that works increasingly on a grant basis with a declining volume? Or is it more of a help for them if they receive larger sums at harder terms?
– Finally, what medium and long-term influence does the relevant international body of rules and regulations (ODA calculation, tying aid to supplies, assuming risks, MDG, etc.) have on the scope and quality of the financial resources made available? How should these regulations be designed from the perspective of the aid recipients?

Answers to these questions will be an important basis for the general redesign of development cooperation, which I believe will take place as it becomes ever clearer that the approach taken these days alone is not suitable for achieving the Millennium Development Goals.

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Towards a Re-orientation of Poverty Reduction Programmes

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I.

The following comment was prompted by Rainer Durth's remarks, made in Section B of his paper, on the low effectiveness of multilateral development cooperation. In particular, he suggests that this set of instruments has proved to be hardly adequate to attain the United Nations' so-called Millennium Objectives with respect to the reduction of poverty. To his mind the underlying reason is that the multilateral poverty reduction programmes are too bureaucratic and too centralist in nature to be able to contribute substantially towards improving the situation of the poorer groups of the population in the developing countries, and that as a rule they have an urban bias. This is why they hardly reach the target groups. For multilateral poverty reduction programmes mainly benefit those groups that are involved in the planning, financing and implementation of the relevant projects. In Durth's view, this kind of cooperation tends to discourage private initiative and competition.

I fully agree with him on this point. However, when he suggests that the situation can be remedied by a mobilization of additional resources within the framework of bilateral development cooperation – in particular by private capital transfers aimed to support local initiatives – , I have my doubts as to whether this instrument alone can bring about a substantial improvement. Therefore, I will discuss the question whether the basic philosophy from which today's conception of poverty reduction programmes originates has to be changed. This philosophy interprets poverty as a phenomenon of an inferior level of life of the relevant groups of the population – a phenomenon that can be described by means of quantitative indicators pertaining to the satisfaction of basic needs. Whenever there is a divergence between the actual data and the target figures, the difference has to be reduced by the use of appropriate tools, e.g. by investments in social infrastructure, the promotion of productivity in agriculture, the enhancement of private activities in the industrial sector, or the support of environmental projects (UNDP 2003, pp. 76 – 82). However, this kind of policy is hardly able to improve the situation of the poor in a sustained way unless the social processes that cause, and cement, poverty, are prevented. This, in turn, requires a different approach.

II.

The social processes, which, in a kind of vicious circle, cause self-feeding and consequently persistent poverty of large groups of the population in low-income countries, can be described on two levels. First of all, I will mention the group dynamic processes that are described by the theory of strategic groups. We have to face the fact that in many developing countries the economic and social systems are structured in such a way as to generate insufficient incentives for productive activities while greatly stimulating any distributive activities that are aimed to bring about transfers of income. For competition hardly exists, or is totally absent in important markets. The appropriation of rents (income not generated by productive activities; windfall profits) requires the existence of strategic potentials, e.g. in the form of tutelage relationships. However, this is exactly what the poor groups of the population are lacking while the dominating groups are abundantly endowed with such resources. It is from the latter that all major actors in the governmental, administrative and economic system are recruited.

Such differences in potential are the major cause of the systematic discrimination of the poor in the design and implementation of poverty reduction projects: They cannot bring to bear their interests, neither vis-à-vis the local project authority nor vis-à-vis the institutions of the donor countries – in particular with respect to the non-material ingredients of such projects, namely their participation in decision-making processes. This is also evidenced by a more recent study: Only a small part of European donor institutions' poverty reduction programmes featured a sufficient target group orientation, and only in few cases could the participatory ability of the poor be strengthened in a sustainable way (*Cox* and *Healey* 2000, pp. 78 – 92).

These defects are aggravated by the fact that as a rule those groups of the population that suffer from serious deficits in the level of life do not succeed in developing strategic potentials required to successfully safeguard their group interests on their own. For they display an idiosyncratic behaviour vis-à-vis potential modernisation opportunities: Thus institutional arrangements that are no longer in line with the new realities, are preserved and coexist with the newly emerged ones. It is in the framework of such incomplete cultural change that institutions come into being, which are viewed neither as efficient nor as just by the people concerned. As a consequence, any incentive for institutional change based on autonomous activity disappears; a "poverty trap" arises from which the people can not, and do not want to, escape on their own (*Bardhan* and *Udry* 1999, pp. 132 – 151).

It is these processes that push many of the poor into the so-called informal sector where, in cities as in rural areas, they join the underclass, whose fate is the eviction from the land, the exploitation of women and children, slavery and trafficking in human beings (*Kothari* and *Harcourt* 2004). This situation cannot be remedied by material transfers since it is only temporarily that they can make the lot of the poor more tolerable. The only way to redress the inequality is to endow

the relevant groups with the social competence that makes purposeful emancipatory action possible.

III.

Poverty reduction programmes, therefore, are successful only when, beyond the direct reduction of poverty via basic needs oriented support, there is the creation of fundamental socio-economic institutions that promote autonomous modes of life and economic activities in society. Thus the development of dynamic participatory ability is the most important ingredient of any policy that seeks to fight the problem of poverty not merely on the surface but at the root. If this succeeds, it will also be possible to solve the above-mentioned problems of marginalisation of target groups more easily, because then the poor can contribute their own competence to the design, the planning and implementation of projects.

Policy reforms which are limited to changing the conventional bureaucratic design of institutions, whether multilateral or bilateral, will not be of much help when the related decision-making structures and financing instruments are not sufficiently reoriented to guarantee competition regarding the optimal institutional solutions. Therefore, the ideas presented by Rainer Durth with a view to mobilising private initiative and private capital should clearly be welcomed but they cannot replace the necessary re-orientation of the poverty reduction policy.

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Economic Assessment of Pension Systems Based on the Human Capital Approach: The Outlook for Reform in Chile and Malaysia

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We will begin by asking to what extent economically viable pension systems can be identified and then discuss potential ways of constructing efficient paths for adjustment. Following this, we will consider how the real-world reform of government pension systems in Chile and Malaysia should be evaluated against this background, and deal with the need for reform that may be derived from such an evaluation. Where appropriate, German efforts at reform will also be taken into account (see also: *Sachverständigenrat* 2003, p. 216 ff.).

A. On the efficiency of alternative pension systems

The discussion will center around the two fundamental pension *procedures,* namely the pay-as-you-go (PAYG) system and the fully funded (FF) system. In order to describe *how* each system *functions,* the recommended approach is to start with an exogenous macroeconomic development. However, we can dispense with this approach in this paper (see e.g. *Homburg* 1988, pp. 13 – 29). Our primary interest lies in the macroeconomic effects of alternative methods, including those of the specific shape of each respective procedure. *The chosen economic model has a decisive impact on these effects.* This may seem self-evident but in political debates its meaning appears to get lost time and again.

I. Traditional lines of argument

The only adequate way to analyze the economic impact of pension systems is by using *multi-period* models. In actual fact, central theorems have been derived from traditional neoclassical growth models – either in rudimentary or in fully completed form – which fundamentally assume identical descriptions of supply conditions but differ considerably by the imputed *intertemporal preference function.*[1]

[1] The Solow model contains a "non-system" element – from a neoclassical perspective – by assuming an exogenously given savings ratio. By introducing an intertemporal preference function, the saving ratio is endogenized.

Despite these differences, they all have one thing in common: they *endogenize* the savings ratio and thus, with regard to inputs, exclusively *endogenize the formation of physical capital.* It is therefore not surprising that the economic effects of alternative pension systems can be defined precisely in terms of the formation of savings.

With regard to the intertemporal preference function, two extremes may be distinguished (for a clear explanation, see *Romer* 1996, p. 38 ff.). In the first case, households optimize their consumption decisions across a finite number of periods (for example: Period 1 as the working period and Period 2 as the period of retirement), and each generation is interested only in its own consumption (Diamond overlapping generations model). In the second case, there is a given number of identical households with an infinite life-span;[2] i.e., in contrast to the Diamond model, a household does not disappear after (e.g.) two periods; it therefore optimizes its decisions based on an infinite time horizon. What is decisive is that there are no intergenerational conflicts of interest in this model (Ramsey-Cass-Koopmans model, in the following: "RCK model").[3]

1. Efficient procedures

(1) Let us briefly explain the impact of the introduction of an FF or PAYG system in the *Diamond model* (see e.g. *Homburg* 1988, pp. 49 – 60). If an FF system is introduced, then private saving falls by exactly the amount of the unearned premium reserve, i.e. macroeconomic *capital formation* remains unchanged. This is because households regard private saving and saving credited to their FF system as perfect substitutes. Under certain conditions,[4] the PAYG has exactly the same effect on *private* saving because pension claims obtained in this system are also regarded as saving. The key difference between the two procedures lies in the fact that in the PAYG *aggregate saving* falls, as, in contrast to the FF system, the contributions paid to the pension fund do not represent a sacrifice in macroeconomic consumption; instead, they are disbursed to, and consumed by, the generation in retirement.

(2) The further-reaching question of *the efficiency* of the two procedures is of interest to us, although we must note that the amount of capital accumulated does not *per se* allow us to draw conclusions on the efficiency of an economic development path. In the context of the ideal model world which we have conceived here,

2 In such a model, pensions do not exist in the form of an intergenerational exchange of benefits between the working population and the retired population. Nonetheless, one can still analyse the extent to which the mandatory introduction of a PAYG or FF system impacts on the intertemporal allocation process.

3 One implication of this model is the validity of the *Ricardian equivalency theorem.*

4 The growth rate of wages must be equal to the interest rate.

however, the answer is clear: since a (Pareto) efficient state is being assumed for the initial situation and the FF system does not change this economy to any major extent, the FF system is then also *efficient.*[5] By contrast, the PAYG is *inefficient* because it creates incentives to accumulate less capital than in the initial situation.

Given these results, however, one is tempted to ask whether it may be assumed without any further ado that in the case of exclusively private pension provisions the path of growth is always efficient. In fact, for a *Diamond* economy, the *possibility* of an "excessively high" saving ratio and thus *dynamic inefficiency* can be demonstrated – and this despite the assumption of a completely competitive system (see e.g. *Romer* 1996, p. 81 ff.).

This outcome does not violate the fundamental welfare theorems because the latter are based on a finite number of agents while the possibility of dynamic inefficiency is based on the assumption of an infinite number of generations. In such a scenario, an adequately funded *PAYG* is *efficient* because it reduces the saving ratio to a level that corresponds to the Golden Rule and thereby benefits the present generation and all future generations despite less being saved (Aaron's Paradox). Numerous convincing arguments have been brought forth against this efficiency theorem (for more on this, see *Gans* 1996, pp. 55 – 60). It must also be noted that not even the establishment of a PAYG is necessary to reduce the saving ratio.

(3) In the RCK model there is no selection problem concerning the FF and PAYG systems because neither procedure, on balance, changes the intertemporal allocation process. In the case of the FF system, the same line of argument as in paragraph (2) may be applied. With regard to the introduction of a PAYG system, it behooves us to remember that such a procedure is equivalent to substituting government debt for taxes. If the Ricardian equivalency theorem holds (see footnote 6), the latter is, as is well known, ineffective. In the following, the RCK model is credited with having a reference function.

In the following we will assume a model of overlapping generations; however, we do not want to rule out the possibility that, borrowing from the RCK model, a generation might also be interested in other generations' well-being, which could be specifically taken into account by, for instance, introducing a hereditary motive.

2. Efficient adjustment paths

(1) For reform discussions which can revolve not only around *parametric* changes within existing systems but precisely also around a *transition* to an alter-

[5] The analysis is based on the simplifying assumption that a *private* and *voluntary* FF system is efficient. In addition, we will assume that, with the FF system imposed by the government, savings are generated which are not larger than those generated in the private and voluntary FF system. These assumptions do not fundamentally alter our line of argument.

native method, it is not enough to identify efficient procedures using a comparative dynamic approach. Rather, it must also be asked whether it is possible to construct (Pareto) efficient *adjustment paths.* Welfare economics suggests such a possibility because the criterion of the potential Pareto improvement, assuming no-cost redistribution in the post-reform stage, posits the primacy of efficient conditions before inefficient conditions (see *Gans* und *Marggraf* 1997, p. 56). Within the existing model framework, which allowed only *intertemporal* allocative distortions, such an efficient transformation path, however, cannot be derived (see *Breyer* 1989).

Homburg (1988, p. 87 ff.) presents a contrary view. He begins by showing that the losers of an introduction of a PAYG (= all future generations) are able to compensate the winners (= "introductory generation") for the PAYG *not* being introduced. According to Homburg's line of argument, the collective Equivalent Variation (EV) of the *introduction* of a PAYG is negative ((i) EV (1 → 2) = EV (FF system → PAYG) < 0) (see G*ans* und *Marggraf* 1997, p. 135) for a sufficiently large number of participating generations. From this undoubtedly accurate statement, Homburg concludes that, if an PAYG has already been introduced, the *abolition* of the PAYG would then be worth it. Accordingly, the (collective) Compensating Variation (CV) of this measure ((ii) CV (2 → 1) = CV (PAYG → FF system)) would be positive, which comes as no surprise because of (iii) EV (1 → 2) = – CV (2 → 1) (*Gans* und *Marggraf,* p. 136). However, *in that case* it would not be permissible to conclude from EV (FF system → PAYG) < 0 that CV (PAYG → FF system) > 0 if, in the second case, the negative effects emanating from PAYG on macro-economic capital formation have already cropped up. For now, EV (1 → 2) in equation (iii) refers to another economy than – CV (2 → 1), i.e. the latter has relatively little capital at its disposal. At best, the implicit debt inherent in the PAYG can be converted into an explicit government debt to be paid off by future generations, though that would not change anything about aggregate capital formation because the PAYG and the explicit government debt represent intergenerational transfer mechanisms that have the same impact; i.e. the PAYG is *actually* not surrendered at all by this transformation.

An argument against this "pessimistic view" is that the abolition of the PAYG and the introduction of the FF system create an efficiency potential which would, in principle, enable the Pareto efficient transfer from the PAYG to the FF system. It is argued, for instance, that the PAYG distorts households' *labor supply decisions* (*Breyer* 1989) something that the introduction of an FF system can help to avoid. It is also stated that, by *taxing capital gains,* the intertemporal consumption decisions are distorted in favour of present consumption, and that the FF system works against this distortion. The flaw in this and similar arguments is that the changeover from the PAYG to the FF system is generally neither necessary nor the first-best solution for eliminating distortions outside the pension system (for more see *Sinn* 2000, p. 398 ff.). For this reason, they are also not suitable as evidence of the existence of a Pareto optimal adjustment path.

II. The Human Capital foundation of pensions

Since the debate about the economic effects of pension systems is being conducted in the framework of conceptions of theoretical growth models, arguments for or against certain procedures have changed in line with advances in growth theory, as one could expect. Merely the explicit inclusion of *human capital* in the macro-economic production function invites one to conclude that the *capital foundation* of pension, in a departure from the traditional PAYG / FF system discussion, should not depend solely on physical capital. Furthermore, especially for the problem of *dynamic inefficiency,* one may suppose that it can be nearly ruled out if physical capital formation is accompanied by human capital formation, the latter therefore counteracting the potential decline in the marginal productivity of physical capital. And finally, one may simply be surprised at how the one-sided focus on physical capital could have prevailed for as long as it did.

A truly *rigorous* continuation of the debate on the efficiency of pension system is not possible without a link to a (new) growth model. *Endogenous growth theory* offers two basic versions: (for more, see the clear description given in *Frenkel* und *Hemmer* 1999, p. 173 ff.): A first version explicitly models the R&D sector, while a second, using the Uzawa-Lucas variant, includes not only physical capital formation but also explicitly the production and accumulation of human capital. Since we want to adhere to the concept of *capital foundation,* it seems appropriate to assume a human capital model.

1. Lucas' overlapping generations model

(1) The centerpiece of the *human capital model* developed by Lucas is the production function of the *educational sector,* in which human capital is produced:

$$\dot{h} = B(1 - u_t)h_t - \delta \cdot h_t \,. \tag{1}$$

In this model, h_t denotes the prevailing stock of human capital (per capita of the working-age population) and $\dot{h}$ is growth over time. u_t is the percentage of disposable working time deployed in the tangible goods sector, with the percentage $(1 - u_t)$ accordingly being accounted for by the education sector. B represents a technology parameter, δ a rate of depreciation. For a given u_t output $\dot{h}$ is a linear function of the extant human capital. To take account of *overlapping generations* in this model, discrete time intervals are introduced:

$$h_t - h_{t-1} = B(1 - u_{t-1}) \cdot h_{t-1} - \delta \cdot h_{t-1} \,. \tag{2}$$

If the human capital stock of the previous period is completely written off in each time interval ($\delta = 1$), this gives us:

$$h_t = B(1 - u_{t-1}) \cdot h_{t-1} \,. \tag{3}$$

(For this and the following, see *Wigger* und *v. Weizsäcker* 2003, pp. 437 – 459.)

Although the human capital stock available to the working population of the period $t - 1$ (= retirees of period t) is completely written off, the human capital endowments of the overlapping generations are coupled to one another. Generation t has an increased amount of human capital at its disposal as the deployment of human capital of the generation $t - 1$ in the education sector rises.

Let us ask, further, how high the *wages* of a worker of period $t + 1 (= w^*_{t+1})$ to be derived from the production of tangible goods is if a human capital unit is paid a wage of w_{t+1}. Let

$$w^*_{t+1} = u_{t+1} \cdot h_{t+1} \cdot w_{t+1} \,. \tag{4}$$

$u_{t+1} \cdot h_{t+1}$ gives us that human capital which the workforce offers to the tangible goods sector on the labor market in period $t + 1$; the rest is, as we know, used for human capital formation. To create a relationship between workers' wages in the period $t + 1$ and workers' human capital decisions of the period $t + 1$, we use the human capital recursion described in equation (3). This gives us:

$$w^*_{t+1} = u_{t+1}(1 - u_{t+1})(1 - u_t) \cdot B^2 \cdot h_{t-1} \cdot w_{t+1} \,. \tag{5}$$

The wages of workers in period $t + 1 (= w^*_{t+1})$ accordingly rise with increasing working time spent on human capital formation (measured as $1 - u_t$) by persons who are retired during the period $t + 1$. Apparently the *marginal product of investment in education*[6] in period t equals:

$$\frac{\partial w^*_{t+1}}{\partial(1 - u_t)} = u_{t+1}(1 - u_{t+1}) \cdot B^2 \cdot h_{t-1} \cdot w_{t+1} \,. \tag{6}$$

If one assumes that, in an overlapping generations model, each generation is interested only in its own income (its own consumption), then equation (6) describes a marginal return which does not accrue to those who created it (or to whom the creator would allow this return to be given). It is therefore an *externality* which is indicative of suboptimal human capital formation and therefore of inefficiency in competitive equilibrium.

[6] This marginal return falls as investment in education increases although human capital production itself shows constant marginal returns, for the change in w^*_{t+1} is derived from the production of tangible goods, into which human capital goes, with the production function of the tangible goods sector displaying the usual neoclassical features.

This must be separated from the question of whether this inefficiency can be eliminated *in a Pareto improving manner.* The elimination of inefficiency alone requires the payment of wages up to the marginal return on investment in education to the working population of period t ("Pigou subsidy"). Since in a neoclassical setting the yield of the human capital formed in period t that occurs in period $t + 1$ exceeds the subsidy to be paid in period t, every generation may be made better off through intergenerational transfers. It would be possible to finance the subsidy, for example, via government debt in period t which would have to be paid off by the working population of period $t + 1$. By establishing a PAYG system in which the workers of period $t + 1$ pay a pension equivalent to the subsidy amount (plus interest) from their increased wages – owing to human capital – to the pensioners of the same period, the same effect is achieved.[7] Apparently a PAYG system *of this type* is *efficient.*

(2) With regard to the reform debate in *Germany* it must be noted that a PAYG system already exists in this country, within which workers actually pay old-age pensions to retirees from their wages. The key criterion for evaluating this measure, however, is that, at the households' decision-making level, there is hardly any link between today's human capital formation and tomorrow's old-age pension.[8] It must, in addition, be explicitly noted that the (imputed) efficiency of a PAYG modified in line with the human capital approach must not be misinterpreted as a sign of *in*efficiency of an FF system! Rather, it follows from the human capital model that households, in their pension decisions, should include, *alongside* physical capital, also the formation of human capital, which seems attainable by eliminating the distortion *discriminating against* human capital. Just as was often indicated formerly that the FF system, too, is ultimately a PAYG system because the workforce always has to provide for retirees, now one could argue alternatively that the combination of a "classical" FF system and a modified PAYG is not different from an FF system with a tangible assets *and* a human capital foundation.[9]

(3) Finally, it is of special interest to discuss the extent to which the inclusion of the human capital approach into an overall reform in Germany increases the chances of constructing a Pareto efficient *transition path.* In a departure from the

[7] It is by no means necessary to impose the burden of financing a subsidy entirely on the working population in period $t + 1$ because the retirees of the same period benefit from higher interest income which is attributable to increased human capital formation (*Wigger* und *von Weizsäcker* 2003, p. 449 f.). To that extent, the intergenerational transfer that is associated with the PAYG is just one of many options.

[8] *Wigger* and *von Weizsäcker* regard the inclusion of vocational training periods in the calculation as an element of such a chain.

[9] From the vantage point of endogenous growth theory, however, it is not possible to speak of "symmetry" of the two types of capital because the only way to sustainably increase the growth *rate* of per-capita income is through an increased accumulation of *human* capital. This matter is not without significance for the long-term income *securing* function of capital as – conversely – the *destruction* of human capital is much more difficult to repair than the destruction of tangible assets.

examples given in Section A.I.2, the unused efficiency potential lies in the pension system itself. It is, therefore, possible in principle, too, to identify Pareto efficient adjustment paths which lead from the current system (traditional PAYG in pure form) to a *comprehensively reformed system* (an FF system in combination with a modified PAYG). The question of whether this can be used to actually justify the theory that substituting an FF system for the traditional PAYG actually enables a Pareto improvement will be discussed below.

2. The Becker / Murphy / Tamura model

(1) Additional information about how to design a pension system that is (also) human capital-based can be obtained by breaking down in greater detail the process of human capital production. It makes sense to take account of *children* as the carriers of human capital which becomes productive when the children have grown up. *Becker, Murphy* and *Tamura* (1990, pp. 512 – 537) describe a model with (identical) individuals who live for two periods. In the first period, namely *childhood,* individuals accumulate human capital, and in the second period, *adulthood,* they work in the tangible goods sector, devote part of their time to rearing children, and the rest of the time to forming human capital; at the end of this second period they die. From this model, which explains *fertility* and thus the number of children *endogenously,* multiple steady states can be derived, two of which are stable: one with economic underdevelopment and one with sustained growth of per-capita income.

(2) For our purposes, this model cannot be applied without modification, either. Although it contains overlapping generations, with each working parental generation providing for its children, it has no retirees, who likewise have to be supported from the incomes generated by the working-age population. For conceptual purposes and therefore without any additional explicit formalization, let us add a third (*retiree*) generation to this model and see what additional knowledge this gives us.

The central issue here is how the working age population's decision-making parameters, i.e. the *number of children* and thus the time needed to raise children[10] as well as the *time invested in forming human capital* (with working time spent in the tangible goods sector as a residual) can be applied for overall optimization, including the retirement period, if *externalities are ruled out.* Apart from minor modifications, this approach and the Lucas overlapping generations model share the production function of the human capital sector. The key difference, however, lies in the role that the number of children plays in the decision-making process, which means that we will largely confine ourselves to this factor.

[10] The time spent on educating *each child* is an exogenously given constant in the model.

In such a model the consequences for the selection of an efficient pension system are trivial if externalities are ruled out, because the various amounts of retirement paid to each retiree are the result of the optimization process. The only interesting thing is how to calculate, in such a model, those *externalities* that are not the result of internalized returns on the formation of human capital. And if one decides to go without a formal presentation of the mechanics of the model, what remains is the plain finding that, if a PAYG modified toward the human capital approach is introduced, pensions can also be defined in terms of the *number of children* because they play a key role in the amount of human capital formed.

In the interest of giving concrete shape to the PAYG, this makes it necessary to abandon the previous assumption of *homogeneous* generations because it is precisely the number of children that sets families apart. In order to compensate for external returns on human capital formation in a manner in line with the causes, it is additionally necessary to *differentiate* these compensation amounts according to the respective contributions of *the number of children* and the *per-child spending on education* toward the development of human capital.

(3) Before roughly outlining the concept of human capital-based pensions, let us conclude our theoretical explanations by asking how significant it is for the *extent of externalities* if the utility function of a generation *t* also contains, as arguments, the utility of future generations. The *RCK model,* into which human capital decisions are easily integrated, provides us with a helpful reference point. The intergenerational externalities disappear in such a model because the utility items of all generations are entered into the one intertemporal utility function without any differentiation. However, any attempts to influence individuals' decisions regarding the intertemporal and intergenerational allocation of resources are bound to fail because government intervention inevitably provokes compensatory counter-reactions by the private sector.

Although retirees do not occur in the model set forth by Becker, Murphy and Tamura, in this model an approach is used with the help of which the extent of the externality may be explained. The model distinguishes between an *egotistical* and an *altruistic* motive for child-rearing and human capital formation. According to this, it is clear that strong (weak) externalities may be expected when the egotistical (altruistic) motive predominates, i.e. child rearing and the associated human capital formation are primarily construed as investment (consumption) activity.

3. Questions regarding the concrete shape of an efficient overall system

(1) A number of different shapes of pension procedures can be derived from the concept of human capital foundation. Box 1 outlines such a possibility.

Box 1

Acquisition of pension claims in the human capital approach

Childless:

- *Pay-as-you-go:* "Repayment" to parents; no claims to pensions obtained in this manner
- *Fully funded procedure:* Obtained through pension claims through full contributions

Parents:

- *Pay-as-you-go:* "Repayment" to parents; pension claims are not acquired in this manner
- *Pay-as-you-go:* Acquisition of pension claims in the form of child rearing and human capital formation
- *Fully funded procedure:* Acquisition of reduced pension claims at a reduced contribution rate (due to child rearing and human capital formation)

Source: Fuentes Iriarte 2003, p. 56

The general approach here is that every working person must pay into the PAYG system but does not acquire any claims in this manner; rather, he *satisfies* the claims obtained by the parent generation. The model sketched in Box 1 contains an extreme version of this approach: childless persons in the parent generation accordingly do not have the opportunity of obtaining a claim on human capital-funded pension. This is not a necessary consequence of the general human capital approach. *Werding* (1999, p. 500), for instance, proposes establishing a *human capital fund* to which the childless can contribute. Another conceivable approach is also to *merge* a government "classical" FF system with a modified PAYG system in the sense of an extended capital foundation of the FF system (see above). And, finally, claims of the childless can also be justified by *public* expenditure on education.

(2) In addition, a decision is necessary on which *financing model* the intergenerational relationship should be based, i.e. on a credit relationship ("repayment" as a redemption) or a participatory model ("repayment" as the parent generation's contribution to participation in the return).

These and other specific design problems should be placed within a *regulatory policy* framework within which it needs to be decided, in particular, to what extent the *state* should take over the *organization* of pension or – basically irrespective of the question of organization – exert *force* on individuals. These decisions are not isolated from specific requirements that could refer, for example, to the *equivalence principle* or *compensation of risks.*

In addition, there is a need for coordination with other policymaking areas, especially with policymakers responsible for *tax policy* and various subsystems of *social policy.* This is evident when we look at the provisions made for equalizing the burdens on families contained in these subsystems. Another example concerns the need for coordination with a possible tax reform. It would be appropriate, within the context of the system, to link a human capital-based reform of the pension system with a reform according to the consumption tax concept in such a manner that, at the household level, human capital investment is tax deductible whereas the return (old-age pensions) are taxed downstream.[11]

(3) Lastly, let us discuss the *political viability* of a reform which is closely linked to the question of winners and losers and ultimately to the possibility of a Pareto efficient transition (for more see *Blankart 2003,* p. 385 ff.).

If we take the German case as a starting point, we have to look at the long-term transition from the existing PAYG system to an *overall system* as is sketched in Box 1, for instance. If we follow the theory behind the model presented by Wigger and v. Weizsäcker, it follows that basically an efficient transition is possible.

A deeper insight may be gained by dividing the adjustment path into two *partial paths:* the first of these is that of the replacement of the traditional PAYG system with a "classical" FF system (in conformity with the traditional line of argument) and the second one describes the *"rebuilding"* of the existing PAYG to a "repayment procedure" (by internalizing the return on private human capital formation). This decomposition is by no means only a figment of theory; the partial paths provide real options for reform which may be pursued independently of one another. This results in a key consequence for welfare economics: *efficiency gains* by internalizing external returns have nothing to do with the changeover from a traditional PAYG system to a "classical" FF system. Although the efficiency gains are obtained within the pension system *in toto,* it is apparently not possible to construct a (Pareto) efficient transition from the PAYG to the FF system.[12]

(4) If one confines oneself to perceiving the *second reform option,* then the traditional PAYG is to be combined with the "repayment" procedure, the simplest method of which is by *renovating* the existing PAYG. It appears appropriate – if the method of making *contribution* payments is fundamentally left unchanged – to stagger the *pension* claims according to the number of children.[13] Those that have

[11] On the downstream taxation of old-age income in a consumption tax concept, see *Rose* 1998, p. 251, and on an approach for tax exempting spending on the formation of human capital, see *Rose* 2003, p. 293.

[12] It should be noted here that the transition from the PAYG system to the FF system can also be meaningfully justified if it does not fulfill the strict Pareto criterion or the criterion of potential Pareto improvement. For instance, the change may appear acceptable if the advantages accruing to later generations overcompensate for earlier generations' welfare losses owing to a relatively high capital stock, even if redistribution is not possible.

[13] Additional indicators of private human capital formation are also conceivable here.

not contributed, or not contributed sufficiently, to the formation of human capital, are referred to the capital market (see the proposal made by Sinn in: *Sinn* 2000, p. 402 ff.). Such a proposal, which we have justified solely in terms of efficiency analysis thus far, can probably also be communicated to the public as "equitable". The system changeover does not result in any transformation-related financing problems; however, the question arises as to the extent to which the claims of participants, past and present, in the PAYG but who have not contributed in sufficient measure to the PAYG[14], should now be recognized. Given an autonomous system for financing the PAYG, the transformation process, *ceteris paribus,* lasts all the longer the more generously this group of persons is treated.

If the *first* ("classical") *reform option* is pursued to the exclusion of all else, this initially places a double burden on all employees because they have to establish a capital stock for their own pension but must also still satisfy the claims obtained in the old system ("fulfilling the intergenerational treaty").[15] The Chilean example shows how this may present itself in real life.

If the two partial reforms are merged to form an *overall reform,* there are groups of people who have a multiple burden to bear in comparison to the old system. We will not address this issue any further in this paper.

This brings us to the end of our theoretical and conceptual considerations. Now we will turn to the pension systems of two emerging market economies. As before, what interests us here is not only how the age-related income and longevity risk is secured but precisely also their impact on macro-economic capital formation and thus also economic growth. With the (re)discovery of human capital as a motor of growth, the human capital approach of pension has gained a special new degree of topicality, particularly because focusing on the reduction of human capital scarcity is increasingly being seen as a necessary condition for *growth path convergence* of countries at different levels of economic development.

B. Chile's government pension system[16]

We will begin by characterizing the starting situation, then sketch the new pension system which is currently still in the development[17] stage, as well as its performance to date, and then study, on this basis, options for a human capital-based reform.

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[14] Here one could also speak of an implied government debt.

[15] However, the latter could also be "streched" out infinitely by, for instance, converting the implicit debt into an explicit government debt and spreading out its redemption over numerous future geenrations.

[16] On this see, in addition, *Queisser* 1993. The data in sections I and II are largely based on: *Fuentes Iriarte* 2002, pp. 86 – 104.

[17] This is to say that the old system has not been completely replaced yet.

I. Complex starting situation

The 1979 pension reform, which harmonized the pay-as-you-go old-age pension system, may be regarded as the precursor of comprehensive reform measures. The decisive changes that led to a breakthrough in the *transition* from the PAYG system to an FF system was made in 1980.

The way the reform was designed was for the new FF system, in a long *transitional stage* which is expected to end in the year 2050, to replace the old PAYG. Those members of the workforce still involved in the old statutory pension insurance system at the beginning of the reforms were given the right to choose, whereas entrants into the workforce since that time are insured statutorily. We call this a "complex starting situation" because two systems (still) exist side by side at present.

The *implicit deficit* of a PAYG system at the time the system was changed is a result of the claims obtained within this system during the past. These can, in turn, be divided into those claimed by persons still working and those claimed by persons already in retirement (retirees). In Chile, when the system was changed, the former were changed into so-called *bonos de reconocimiento* and allocated to all working contribution payers regardless of whether they had opted for the new insurance or to stay in the old system.[18] A key feature of the Chilean pension reform is that the redemption of the implied deficit is done out of the *government budget,* i.e. it is apparently regarded as a task for society as a whole.

II. The new pension system

1. Characteristic features

Some important features of Chile's new pension system are compiled in Box 2 below.

Naturally, its conception as an *FF system* is of major importance. We do not need to go into any further depth on participants, contributions and benefits at this juncture.

In our context, the type and extent of government influence are of fundamental interest. This is, in the first place, apparent because the FF system is enforced by *government decree,* which may be interpreted as saying that the government suspects *market failure.* In this connection, the setting of contribution rates by the government may be regarded as a necessary consequence. However, a *market* has been organized on which *private-sector* companies offer their services as pension

[18] The value of a bono, which is calculated according to a new procedure, bears an annual real interest rate of 4% and is deposited into the pension account at the time of entry into retirement (or death) as a lump sum (*Fuentes Iriarte* 2002, p. 65).

Box 2

Features of Chile's new pension system

Procedure:

- FF system

Participants:

- Non-self-employed persons since 1983: mandatory insurees
- Other non-self-employed persons + self-employed: voluntary insurees
  1998: 53.8% of workforce insured

Financing (contribution rates):

- Old-age pension: 10% of gross monthly income
  Pensions for invalidity or persons left behind: 2.5%-3%
- Voluntary contributions possible

Benefits:

- Early retirement possible (Percentage of pensions in 1997: 35.2%)
- Different disbursement procedures

Government rules:

(*Privately* managed procedures: AFPs)

- Fixed contribution rates
- Guaranteed minimum pension
- Guaranteed minimum yield
- Supervision: "Superintendencia de Administradores de Fonds de Pensiones" (SAFP)

fund managers (Administradoras de Fondos de Pensiones: AFP[19]), i.e. they *compete* for participants in the pension system as potential customers. The parameters of competition are administrative costs, services, and – last but not least – the profitability of the pension fund. This competitively organized market is flanked by a supervisory authority (Superintendencia de Administradoras de Fondos de Pensiones: SAFP) that, among other things, enforces compliance with the investment regulations issued by the central bank.

In addition, the system contains some weighty *welfare state* elements. The primary such element is the government guarantee of a *minimum pension.* This

[19] These institutions were specifically established for this purpose.

means that the pension is replenished from public funds if the minimum pension level is not reached after at least 20 years of contributions to the fund. In addition, the government guarantees a *minimum yield* on privately managed funds. For AFPs, however, it is not possible to derive continuous subsidies from this because they are to be dissolved if they are not able to achieve a minimum yield.

2. Microeconomic and macroeconomic performance

The annual average *real net yield*[20] of privately managed funds was between 6.6% (= lowest yield) and 8.4% (= highest yield) in the 1981 – 1999 period, which seems quite considerable. The achieved *pension levels* (average old-age pension divided by average real wages) are perceived as less satisfactory: in 1983 the figure of 32.6% was attained, rising to 50.9% in 1989 and going back down to 42.3% by 1997. These results should be viewed in light of the relatively low contribution rates (see Box 2).

To capture the macroeconomic performance, it is necessary to ask to what extent the system change was associated with an acceleration of *capital formation.* In actual fact, the empirical studies do not permit a clear and unambiguous answer.

III. Possibilities of Human Capital – based reform

(1) Considering the radical change in the system at the beginning of the 1980s, it is hardly a surprise that at present only *modified* rules are being discussed, though the system itself, including its structural change (growing FF system + shrinking PAYG system), is not being called into question. This includes the financing of implicit government debt of the old PAYG system, the level of fees charged by AFPs, the investment opportunities offered by AFPs and the contribution rates and pension levels.

(2) If one compares the outlook for reforming the system by changing it to a human capital-based system in Chile with that in the Federal Republic of Germany, for instance, then, with regard to *overall* reform, Chile seems to be at an advantage because the dismantling of the traditional PAYG system has already made great progress, whereas in Germany the PAYG system is still the dominant pension system. What such considerations fail to note, however, is the *acceptance* of such a reform. In fact, the acceptance of a *renewed* reform in Chile seems to be currently at a low level. It is surely an important factor that the reason given for the current change was, and still is, the touted superiority of the FF system over the PAYG system, despite the fact that a PAYG, even in a modified form, is or would be part of a human capital-based overall system.

[20] Net yield = Gross yield minus administrative costs.

In Germany, the *debate* surrounding reform (on this see, e.g., *Fehr* 1999, pp. 175 – 214) points both towards strengthening the fully funded pension as well as taking into account the number of children within the existing PAYG system. Such a strategy is unlikely to be transferable to the Chilean case, especially as the possibility of "revitalizing" the old PAYG system through restructuring is likely to be a non-starter. It might be possible to sell a reform strategy in which the progress already made in dismantling the old PAYG system is, in principle, continued in unchanged fashion, with the human capital-oriented reform measures being launched in the new FF system. It might help to view an FF system as an overall system which is funded by both tangible assets and human capital (see Section A.II.1). If one assumes given benefits and autonomous financing of such an institution, then the *contribution rates* need to be differentiated by number of children and / or other human capital-related features.[21] What this means for childless contribution payers, for instance, is that the return on their capital would be relatively low.

C. Pension system in Malaysia

As in the case study for Chile, we begin by describing the starting situation followed by a brief outline of the extant government pension system, including its performance. Then, on this basis, we will study options for a human capital-based reform in a third part of this section.

I. Starting situation

The *formal* pension system in Malaysia is based primarily on a type of (statutory) pension insurance composed of the Employees Provident Fund (EPF), the Pensions Trust Fund, the Armed Forces Fund, the Malaysian Estates Staff Provident Fund and the Teachers Provident Fund *(Fuentes Iriarte* 2003, p. 106). Of these, the EPF is by far the most important element; and it is for that reason that we will discuss only this element in further detail.

The second pillar of the pension system is based on an *informal* intra-family system in which the old are provided for by younger members of the family. It can be called an intra-family PAYG. This type of social security is considered more significant than the statutory pension insurance scheme *(Peng* and *Chang* 1994, p. 217 f.; *Jones* 1993, pp. 282 – 286).

[21] Particular significance is to be attached to the latter in developing countries and emerging market economies with relatively high fertility rates in order to avoid misincentives. In addition, the intensity of parents' reactions, or ability to react, to such signals depends on government educational policy.

II. The "Employees Provident Fund"

1. Characteristic features

In Box 3 we have compiled some key features of the EPF.[22]

Box 3

Features of the Malaysian EPF

Procedure:

- FF system
- More of a compulsory saving system than a pension insurance system

Participants:

- All non-self-employed persons compulsorily insured

Financing (Contribution rates):

- 2000: 21% of labor income (Employees' share: 9%, employer's contribution: 12%)
- Voluntary contributions possible

Benefits:

- Disbursements: Mainly as lump sums upon retirement, invalidity, death
- Pre-retirement withdrawals are significant
- Different disbursement modalities

Government regulations:

- Government organization
- Government payments to AFP only as loans

What the EPF has in common with Chile's new pension system is that it also works according to the *funding principle.* However, the insurance elements are so insignificant that one can more closely describe it as a *compulsory saving system* than a pension insurance system (*Gans* 1996, p. 53). The insurance against the income and longevity risk is additionally impaired by the fact that a considerable percentage of the saved amounts may be withdrawn from the fund for certain purposes (e.g. house building, children's university education) before the contribution payer enters into retirement.[23]

[22] Information based for the most part on *Fuentes Iriarte* 2003, pp. 107 – 111.

[23] This contrasts, however, with the use of these funds for purposes that also include pension.

The interesting element from a *fundamental policy* standpoint is that, unlike in Chile, private institutions are not competing to manage money in funds; instead, the EPF is a *governmental organization.* However, the rules for government payments to the AFP are a reflection of skepticism of the "western-style" *welfare state* arrangements. Although the government assumes the task of paying benefits if the fund is unable to, these payments are made only as a credit.

II. Microeconomic and macroeconomic performance[24]

Comparisons for the 1980 – 1999 period show that the *yield* on fund money was at least as high as that on investments having a similar level of risk. The fund, however, is unable to sufficiently insure against *income and longevity risk* if one takes as a basis the *actual* amount of average EPF savings at the time that the insuree person insured enters into retirement, as, among other things, it is necessary to factor in the pre-retirement withdrawals that have often been made. Since benefits are usually disbursed as lump sums, a *notional pension* has to be calculated for comparative purposes. In 1990 this pension was far below the poverty line.

Regarding the impact of the EPF on *aggregate capital formation,*[25] there are some signs of a violation of the so-called law of neutrality, according to which savings with the fund only substitute for private savings. Potential positive effects of the EPF may, among other things, be attributable to the fact that for some groups of persons the *compulsory* saving with the fund exceeds saving that would otherwise have been *voluntary.*

III. Possibility of a Human Capital – oriented reform

(1) The aim of the debate on reform in Malaysia (*Fuentes Iriarte* 2003, pp. 122 – 123; *Tan Sri Lee Siow Mong* 1986, pp. 35 – 49) is – not surprising considering the starting situation – a change in the current system that goes much further than in Chile. The centerpiece is the *transformation* of the compulsory payment system towards a "real" pension insurance system with insurance against income and longevity risk.

(2) The starting situation in Malaysia appears to be extremely favorable regarding potential starting points for a human capital-based reform. For one thing, since there was never a statutory, collective PAYG system, there is no past "mortgage" in the form of an *implied government debt* that needs to be paid off. Moreover, as

24 Information based on *Fuentes Iriarte* 2003, pp. 111 – 119.

25 In a departure from the Chilean case, a comparison with a PAYG system is not possible as such a system never existed in Malaysia.

Asian societies have private *intra-family* "pay-as-you-go" procedures, precisely the idea of human capital-based pension is not foreign. In addition, the following arguments in favor of a *collective* system can be derived from the disadvantages of such individual solutions:

- high *risks* through death, disease or lack of professional progress of the children;
- loosening of family *ties* and the gaps in the system they produce and the increasing perception of financial dependency of the elderly.

However, resistance to reform is to be expected. The fact that, if one assumes the idea of an overall FF system covered by tangible assets *and* human capital, the *equivalency principle* is simply more difficult to operationalize for human capital than for financial / physical capital, is likely to be significant here. Moreover, one cannot dismiss the political argument that collective systems are vulnerable to *redistribution policies* that can put the equivalency principle in grave danger.

D. Summary

(1) Using a traditional analysis of pension systems, i.e. based entirely on *tangible assets,* it may be shown that an FF system is efficient whereas a PAYG system is inefficient. What does not follow, however, is that, if a PAYG system already exists, a (Pareto)efficient *transition* to an FF system is possible. Attempts to construct efficient transformation paths that would counteract distortions on other markets with the introduction of an FF system ("opening up of efficiency potential") have been unconvincing.

(2) In economies with endogenous *human capital* production, the latter is associated with *externalities* and thus suboptimal. The resulting inefficiency of competitive equilibrium may be eliminated by a PAYG system that complements the FF system if it is designed as a system for remunerating investment that has been made in education.

Models with *endogenous fertility,* modified adequately, provide further indications of ways to design the system. The assumption of homogeneous generations has to be sacrificed because families differ from one another in the number of children, which in turn has a key impact on the individual contribution to human capital formation. In addition, the Becker / Murphy / Tamura model uses an approach with the help of which the *extent* of the externality can be explained.

(3) Even if one decides to adopt a *total system* in which a traditional FF system is combined with a PAYG system that internalizes externalities, there is further scope for concrete *design features.* Moreover, coordination with other policymaking areas is necessary.

If one, on the basis of the German situation, assumes that a PAYG system exists, then an overall reform can be divided into two *separable* partial reforms (PAYG system → FF system and establishment of a modified PAYG system respectively). Since efficiency gains only occur in the second partial reform, it is impossible to construct a (Pareto) efficient adjustment path from the PAYG to the FF system here either. If, in actual fact, one confines oneself only to the second reform, this amounts to *a "revamping"* of the traditional PAYG system.

For *acceptability* of a reform to society, group-specific patterns of burdens are significant; these, too, are dependent on the extent and the speed of reform. If one chooses, for instance, an overall reform in the above sense, this subjects certain groups of persons to multiple burdens.

(4) In *Chile* the changeover in government pension insurance from a PAYG system to an FF system was launched in 1980. According to estimates, the PAYG system will be extinct by the year 2050, i.e. up until then two different schemes will exist side by side. The implicit deficit of the *old PAYG system* still existing when the system is changed will be paid off out of the government budget.

In the *new* pension system, all non-self-employed persons are compulsorily insured. The capital stocks are managed by *private* institutions ("Administradores de Fonds de Pensiones") that *compete* against one another; the "Superintendencia de Administradores de Fonds de Pensiones" acts as a supervisory authority. The system contains *welfare state* elements: there are (conditioned) government guarantees for a minimum pension and for a minimum yield on fund capital.

Compared with Germany, the outlook for the success of a *human capital-based system reform* appears to be favorable because the dismantling of the old PAYG system has already made major progress. In the light of the thorough reform launched in Chile in 1980, the given reason for which was precisely the superiority of an FF system against an PAYG, the acceptability of additional reform is likely to be very low. Unlike Germany, the old PAYG system as a basis for a reform ("revitalization") would not come into question anyway, i.e. the (new) FF system would have to be designed as an overall system in which a human capital foundation exists alongside a tangible capital foundation.

(5) *Malaysia's* statutory pension insurance is dominated by the *"Employees Provident Fund".* Although the procedure on which this system is based can be called an FF system, it is more of a *mandatory saving system* than a classical pension insurance scheme. The *fundamental policy* characteristics differ from those of the new FF system in Chile, too: the capital is managed by a single *government organization,* whereas the *welfare state* elements of the Chilean system are not present, either.

The conditions in Malaysia appear exceptionally favorable for a *human capital-based* reform. For one thing, there is no *statutory* PAYG system, which means that, in a total reform, it is not necessary to pay off a "mortgage" in the form of an *implicit government debt.* In addition, the Malaysian society is supported in great

measure by intra-family transfers between generations. In this so-called second (and most significant) pillar of old-age insurance, which may be termed a voluntary *private* PAYG, the human capital foundation plays a key role, i.e. thinking in such categories is not foreign to this society. Based on the *disadvantages* of such a system (risks through death, disease or lack of professional progress of children; loosening of family ties), it is only one step toward a collective PAYG system organized by the government. *Resistance to reform,* however, is still to be expected, especially if many are afraid that the equivalency principle will be severely impinged upon.

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Family Decisions Affecting the Formation of Human Capital

By *Rainer Marggraf,* Göttingen

In his article Oskar Gans assesses pension systems making due allowance for the fact that such systems have an additional effect on the human capital of a society. His analysis is conducted with respect to the macroeconomic perspective. Since the formation of human capital is based upon decisions made by members of the society every macroeconomic analysis is based on how individuals would react to the implementation or a change in a pension system.

Therefore, in order to understand and evaluate the results of the macroeconomic analyses, one must examine the microeconomic hypotheses upon which the results are based. Oskar Gans' article is based on microeconomic ideas regarding human capital formation developed by the Chicago School, which is presented and discussed below.

Individuals invest in human capital through their own and their children's education and continuing education.

The effects of pension systems are especially important with respect to investing in human capital through children. Therefore, I will concentrate on this aspect in the following discussion. In Section A, a family decision model in the Chicago School tradition is presented, which includes the number of children and the human capital formation of each child as endogenous variables. Implications for a positive analysis of pension systems are discussed in Section B. Section C examines the question of how normative analyses can be conducted if human capital, and thus also the population, are endogenous variables.

A. A rational choice model of family economics

The systematic economic analysis of the family in the Chicago tradition began in the late 1950's with articles by *Harvey Leibenstein* (1957) and *Gary Becker* (1960). Particularly, Gary Becker has written numerous articles (e. g. *Becker* 1991, 1992) that have contributed to further development of the economics of families.

The core of family economics is formed by a one-period comparative static framework in which a couple has agreed upon a mutual utility function. This uti-

lity function is defined by a vector of non-marketable commodities produced in the home (Z^0) such as good health, nutrition and entertainment.

$$U(Z^0) \tag{1}$$
$$Z^0 = (z_j^0) \qquad j = 1, \ldots, m$$

The parents act as if they want to maximize (1) given their limited capacity to produce the household commodities. These commodities are produced with inputs of a vector of market goods and services (x_j) and a vector of time inputs (t_j) of the family members.

$$z_j^0 = f_j(t_j, x_j) \qquad j = 1, \ldots, m \tag{2}$$
$$x_j = (x_j^k)$$
$$t_j = (t_j^k) \qquad k = 1, \ldots, r$$

The input of purchased goods is limited by the lifetime monetary income of the family which, in turn, is equal to the lifetime market earnings of the family (the product of market wage (w) and labour time) and of non-labour income (V). The amount of the family's time available for household productivity is equal to the life span of the family members (T) minus labour time. Both restrictions can be combined to the following restriction:

$$p_Z Z^0 = w\,T + V = I \tag{3}$$
$$p_Z = (p_{z_j} \quad j = 1, \ldots, m$$

In equation (3) p_Z represents the vector for the marginal costs of the household commodities. The sum of the total value of the life span of the family members and of non-labour income is usually called full income (I).

Parents take care of their children. Their utility depends positively on the well-being of the latter. Therefore, the well-being of the children is included in the household commodities. Parents can influence the welfare of their children by investing in the children's human capital as well as by legacy (l). It is generally assumed that parents do not discriminate between their children. The amount of planned human capital h per child is the same for all children. Assuming that parents are able to compare the utility of their children, we get the altruistic parental utility function

$$U(Z, U_i(n, h, l, d))\,. \tag{4}$$

In (4) Z represents all of the household commodities not related to children, n the number of planned children and U_i the aggregated level of utility of all children. Even though the parents do not know the exact preferences of their children,

they do know how current social and political decisions will affect the well-being of their children. In (4) d represents these factors. If the parential decision variables h, l and n are also to be explicitly considered in the full income restriction, one must take into account that some of the costs (c_n) and revenues (r_n) are based only on the number of children (e.g. maternity costs, child allowance), that costs (c_h) and revenue (r_h) exist which are only dependent on the children's human capital (e.g. magazine subscriptions, the quality of family discussions), and that there are costs (c) and revenues (r) which depend both on n and h (e.g. tuition fees, scholarships).

$$p_z Z + c_n n + c_h h + c\, n\, q + p_l l = I^0 + r_n n + r_h h + r\, n\, h \tag{5}$$

In (5) I^0 represents the non-child related portion of the full income and p_l the costs of inheritance (e.g. attourney expenses).

If we combine (gross) costs and revenues to net costs (p_n, $p_h\, p$), we get

$$p_z Z + p_n n + p_h h + p\, n\, h + p_l l = I\,. \tag{6}$$

Decisions made by parents are the result of maximizing (4) given restriction (6). Parents determine the optimal values (according to their view) for the number of children and the transfer of human and real capital to their children. However, they do consider the net costs of raising the children and the dependence of their own utility on their children's utility.

B. Implications

In this model children influence the parents' level of utility directly as well as indirectly. Directly because the well-being of the children is included in the bundle of home produced commodities. The indirect effect of children on the utility level of the parents is due to the fact that children have an effect on the supply of the remaining household commodities. These effects can be negative or positive. Raising children costs time and money, but children can help with housework, support their parents as they become older, etc.. Thus, children have a 'consumption value' and a 'production value'.

The effect of social security systems on p, p_n or p_h depends on their arrangement and on whether they represent a substitute for the support of the children. If the children are called upon to finance the social security systems, then there is a change in the value of d. The decision-making model does not predetermine how the parents' reaction to a change in the above mentioned exogenous variables will affect the decision variables n, h and l. Just as in the traditional household model, only the sign of some income-compensated reactions is determined.

In contrast to the traditional model this is not true for all own price effects. When there is a change in p, then the sign of the income-compensated reaction of the total human capital investment in children ($n\ h$) is indeterminate. From the total differentials of the first order conditions for utility maximization we get

$$(\partial nh/\partial p)^c = h(\partial n/\partial p)^c + n(\partial h/\partial p)^c \tag{7}$$

and

$$(\partial n/\partial p)^c = h(\partial n/\partial p_n)^c + n(\partial n/\partial p_h)^c \tag{8}$$

$$(\partial h/\partial p)^c = h(\partial h/\partial p_n)^c + n(\partial h/\partial p_h)^c.$$

From (8) we see that the income-compensated own price effect (7) is indeterminate. This is due to the fact that the level curve relating human capital and quality of children is convex to the origin. In addition, the curvature of this level curve increases as p increases. Thus, changes of p induce not only income and substitution effects but also changes in the magnitude of these effects.

An economic explanation for this fact is that the shadow prices of n and h (s_n, s_h) are functions of the choice variables.

$$s_n = p_n + p\,h \tag{9}$$

$$s_h = p_h + p\,n$$

Therefore, changes in parameters have a direct and an indirect effect (through variations of the choice variables). Additionally, since the indirect effect depends on p, the income and the substitution effects also depend on p.

Without any additional assumptions (e.g. about the shape of the parents' utility function or the ratio between the consumption and production value of children) no clear conclusion can be drawn with respect to the consequences of pension systems on the decision of parents such as the number of children or the investment of human capital per child.

A popular specification of the utility function (4) is the following additive-separable parental utility function

$$U = u_1(Z) + u_2(n, h, l, d) \tag{10}$$

If one assumes a diminishing marginal utility, the effects of social security systems are obvious: social security systems and other intergenerational transfers to the older generation partly financed by children reduce the demand for children and increase the human capital investment per child as well as per capita savings (*Becker* 1988, 1992; *Becker* and *Murphy* 1988).

C. Normative analyses

The microeconomic decision model presented in Section A has two characteristics with implications that require commentary for normative analyses. It assumes altruistic parental preferences and it includes the number of children endogenously.

It is sometimes maintained that altruistic preferences should not be included in normative analyses, or that the utility effects of the person upon which the altruism is based should not be considered. "The reason is that counting one person's willingness to pay for another's happiness in a benefit-cost calculation amounts to a double (or triple or . . .) counting of the beneficiary's benefits." (*Milgrom* 1993, p. 418).

The simplest way to examine this claim is by implementing the usual Lagrange approach for determing the Pareto efficient allocation within an exchange economy. (Maximizing the utility function of an altruistic individual under the constraints of constant utility levels of the other individuals.) One immediately notices that the problem of maximizing the utility of an altruistic individual (when the altruist would like to consider the actual preferences of other people) is equivalent to the problem of maximizing the utility of an egoist. Therefore, the optimality condition does not contain any altruistic terms. For this case of the so-called "pure" (or non-paternalistic) altruism the double-counting argument is correct.

If people are not altruistic with respect to other peoples' preferences but only to specific elements of their utility functions, a different result is obtained. In such cases the constraints no longer imply that the altruistic component of the utility function of the altruist is constant. When such a paternalistic altruism (*Archibald* and *Donaldson* 1976) occurs, the conditions for optimization contains the total marginal utility of the altruist, i.e. it also includes the term that is attributed to a change in utility of the individual upon which the altruism is based.

Therefore, willingness to pay motivated by paternalistic altruism must be considered in benefit cost analyses. In family economic analyses the parental altruism is limited to the dependence of the children's welfare based on current political decisions, the status of human capital and inheritance. This is an example of a paternalistic altruism variation, i.e. the preferences of the parents and their children must be considered in normative analyses.

In welfare economic analyses an endogenous number of children can lead to the evaluation of alternatives with varying population figures. If a choice exists between two alternatives A and B and if in A, A_n and in B, B_m individuals exist, then a comparison of these alternatives is problematic. The fundamental utilitarian axiom that "everybody counts and nobody counts more than one" requires that in both alternatives the number of individuals is the same. Yet, the sums of the compensating variation $\sum_{i=1}^{n} CV_i(A)$ and $\sum_{i=1}^{m} CV_i(B)$ each have a different number of in-

dividuals for their basis. In such cases, what possibilities exist for defining a number of individuals that agrees for both alternatives?

An obvious way would be to falsely assign each individual that lives in *A* a preference in *B* and vice versa: all individuals in *B* are falsely assigned a preference in *A*. Then one has the following choice: either a preference from the world in which they do live is assigned in the world they do not live in; or a utility value of 0 is assigned in the world in which they do not live. In the first case, the fact that different worlds lead to different preferences is omitted. In the second case, one assigns the individuals different preferences according to whether or not they exist. Another possibility is to only consider the preferences of individuals that live in both alternatives. This means that a conscious decision is made to omit the interests of some of the people.

The most workable alternative seems to be the one proposed by population ethics: In both alternatives all possible individuals are considered. The possibility of different worlds having different individuals is considered to be a risky situation. Therefore, the compensating variations are weighted with probabilities. The probability value is either 0 or 1. With this method one can formally consider all individuals in both alternatives, although factually only the individuals that exist are relevant for the evaluation.

Thus, it is clear that when measures are being evaluated which could lead to a change in the number of births, the interests of the additional children must also be considered. This is not as speculative as it sounds because one can implement the knowledge about family economy. For example, if the number of children is the result of a utility maximization process, then the parental compensating variation for the birth of additional children gives the upper limit of the compensating variation of unborn children for their birth. Therefore, one knows that the interfamily value for the increase in births is negative.

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