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## AID'S INCOMPLETE TRIAL: RECONSIDERING THE AID-GROWTH PARADIGM IN THE MACRO AID EFFECTIVENESS LITERATURE

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# WORKING PAPER

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**Abstract**

The Macroeconomic Aid Effectiveness Literature (Macro AEL) has had a resounding effect both within the academic community and within the policy arena where its policy recommendations carry substantial weight. Although the empirical aspect of this literature has received substantial scrutiny, the fundamental practice of assessing the effectiveness of aid by measurement against its impact on macroeconomic growth, referred to here as the Aid-Growth Paradigm, has escaped a similar fate. Consequently this paper will focus on an analysis of the theoretical foundations upon which the empirically dominated Aid-Growth Paradigm is constructed and show that the lack of consensus that plagues the Macro-AEL could be a symptom of the underlying underdeveloped theoretical framework. Through an analysis of the theoretical growth models and the implicit assumptions on the causal channels connecting aid and growth this paper illustrates that the Aid-Growth Paradigm suffers from two correlated oversimplifications. The first is the implicit assumption that the only causal channel that connects aid to growth is simply and directly through consumption and investment and the second is the reduction of the purpose of aid, namely development, to the promotion of macroeconomic growth. A more comprehensive approach, Rigorous Impact Evaluation, is then outlined based on the shortcomings of the Aid-Growth Paradigm that will allow a more multidimensional and exhaustive evaluation of aid's effectiveness.

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# 1   INTRODUCTION

For decades the flagship approach to the evaluation of the effectiveness of Official Development Assistance (ODA), a term coined by the Organization for Economic Cooperation and Development's (OECD) Development Assistance Committee (DAC), has been the Aid-Growth Paradigm. The latter evaluates the effectiveness of aid based on its impact on macroeconomic growth indicators measured through panel data regression analysis. This approach was popularized by a yet growing literature pool often referred to as the Aid Effectiveness Literature (AEL) (see *inter alia:* Doucouliagos & Paldam, 2008, 2009, 2010). After over half a century of research and a vast publication list, the AEL has so far failed to produce unanimity on the fundamental question underlying the motivations of the various studies and researchers, namely whether or not ODA is indeed effective in promoting macroeconomic growth.

This paper suggests that the reason for the lack of a consolidated opinion on the nature of the aid-growth relationship, specifically on whether it is negative, positive or altogether insignificant, lies in the underdeveloped theoretical foundations upon which the empirical work is constructed.  This will be done through an analysis of the causal channels proposed in the predominant theoretical models implemented by the Aid-Growth Paradigm, namely the aging Harrod-Domar model and the currently more popular Solow model; due to the current prevalence of the neoclassical model in the literature's more influential publications (see *inter alia* Burnside & Dollar, 2000; Dalgraad & Hansen, 2001).

The critical analysis of the causal channels within the growth theories will illustrate the lack of ability of the theoretical foundations of the AEL to cope with the vast heterogeneity of ODA projects and sectors. In other words it will show that the myopic causal channels between aid and growth contained in the theory are unable to cope with the reality of aid efforts. Following this it will be argued that not only is the theory unable to explain the reality but the very idea that aid's effectiveness is to be measured by its influence on macroeconomic indicators is tantamount to placing vast restrictions on the activities of ODA; restrictions that by no means reflect the reality of ODA. Consequently, this paper suggests a paradigm shift away from the Aid-Growth Paradigm towards an evaluation

mechanism that allows for heterogeneity in firstly the subject of interest, i.e. the subject that the intervention is supposed to influence. Secondly the mechanism should allow for the heterogeneity of causal channels within the model in order to understand what is occuring whithin the interventions and how it is occuring rather than simply measuring the correlation of two arbitrary indicators: national ODA flows and macroeconomic growth.

Section two of this paper will present an overview of current global ODA activities focusing on the composition and purpose of said flows, additionally the concept of aid will be tackled. Section three will then critically review the theoretical foundations of the AEL and section four will elaborate on the theoretical myopia regarding the defined causal channels. Based on the defined characteristics of ODA activity, in section two, and the shortcomings of the flagship Aid-Growth Paradigm section five will briefly outline a more feasible theoretical approach for the evaluation of aid's effectiveness. It is beyond the reach of this paper to provide an exhaustive illustration of the proposed methodology; however it will indicate that a superior alternative to the Aid-Growth Paradigm, which is gaining support in the literature, can be found in Rigorous Impact Assessment (RIA).

## 2 ODA: COMPOSITION AND PURPOSE

Before tackling the main argument of this paper it is essential to specify what exactly is to be understood by the term *aid effectiveness*. The generally accepted definition of aid is the one established by the OECD's Development Assistance Committee (DAC):

> *"ODA (Official Development Assistance) consists of flows to developing countries and multilateral institutions provided by official agencies [...] each transaction of which meets the following test: a) it is administered with the promotion of the economic development and welfare of developing countries as its main objective, and b) it is concessional in character and contains a grant element of at least 25%"* *(OECD DAC, 2006)*

The definition only specifies that the main objective of ODA is to promote both economic development and welfare development. This implies that secondary objectives of non-economic nature are also included, for example various capabilities and freedoms as understood under Sen's (1999) capabilities approach to development. This begs the question of the validity of judging aid only by its influence on economic factors, let alone merely macroeconomic growth.

The term that is less well defined within the AEL is that of *effectiveness*. Noteworthy here is the often omitted distinction between *effectiveness* and *efficiency* and subsequent implicit confusion of the two terms in the literature. Whilst the concept of *efficiency* includes a weighing of costs and benefits, to determine whether the inputed resources are producing enough benefit to cover the costs of inputting them; the concept of *effectiveness* is much more binary in nature and merely entails a measurement of the impact that aid has. The Oxford English dictionary definition is that "effectiveness is the adequacy of accomplishing a purpose; producing the intended effect". Therefore within the development aid framework the most general definition that could be given to aid effectiveness is the adequacy of aid in promoting economic, welfare and human development (Kaufmann, 2009); or as Morissey (2002) suggests, simply the attainment of ex ante specified objectives.

The concepts of aid (ODA) and development are irrevocably entwined and the conceptual discussion of aid effectiveness as well as the empirical testing of it requires an

understanding of the development process. Initial development efforts presumed that the main hurdle to development was the deficit of savings available for investments, the financing or two-gap theory based on the Harrod-Domar model (Easterly, 1999), and as such aid was administered through appropriate channels and judged by it's influence on savings and investments data; however the modern understanding of the development process has evolved considerably. The 1998 Nobel laureate in economics, Amatya Sen, established an understanding of development based on "freedoms" or "capabilities" (Sen, 1999). Within this framework the measurement of increased income alone does not constitute development; development requires the improvement of what a person can be and can do, in essence a removal of *unfreedoms* (Sen, 1999).

Recent international efforts such as the Paris Declaration (2005), the Accra Agenda (2008) and the Busan Agreement (2011) all specify with increasing precision and complexity the building blocks of effective global development cooperation. Objectives like transparency and accountability are naturally vital to the improved efficacy of development assistance and are essential building blocks of any aid efforts; however, the end point measure of effectiveness remains the extent to which development objectives are achieved or supported by aid. The proper yardstick for efficacy assessment should be the indicator that aid is supposed to influence, economic development and welfare of developing countries; consequently this paper will proceed with the Kaufmann (2009) interpretation of *aid effectiveness*.

Equally important to defining what is meant by *Aid Effectiveness* is the understanding to the current state of ODA efforts, in other words the composition and distribution, across recipient sectors, of ODA. This is crucial if the theoretical foundations, as well as the empirical methods, are to be tailored to what is both empirically observed and relevant. Noteworthy at this stage is that both the definition of *Aid Effectiveness* and the understanding of the reality of ODA are mutually reinforcing in the respect that one requires the other.

For these means Figure1 provides a dissection of total ODA flows in 2011 into the 7 major aid sectors, decided by the OECD's Development Assistance Committee (DAC) Creditor

Reporting System (CRS) codes. The Annex contains a table of total ODA flows between 2005 and 2011 divided into the 31 total categories and sub-categories.
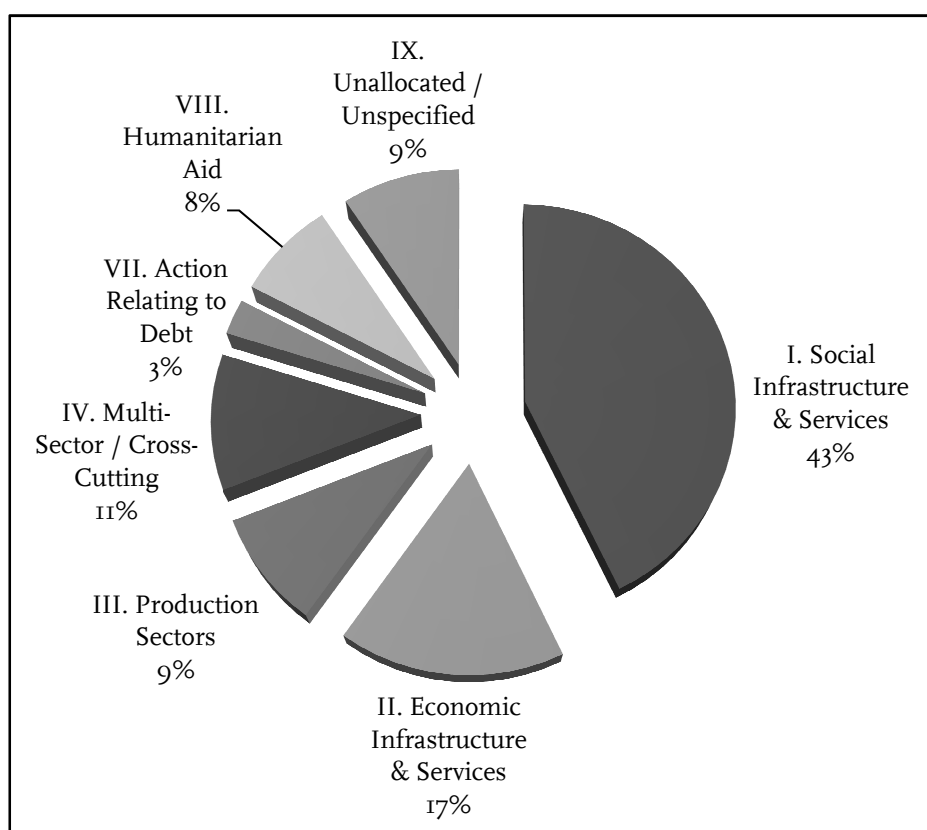


Fig. 1:    2011 ODA by Sector
          Source: OECD DAC Aid Statistics

In order to highlight the immense heterogeneity of ODA activity it is helpful to visualize each sector individually instead of simply the sectorial headers as in Figure 1; however a description of the total composition of ODA provides little added value to the purpose of this paper beyond what is provided by using sector I: social infrastructure and services as a representative sector. For additional information the Annex contains the whole composition of Aid as mentioned above.
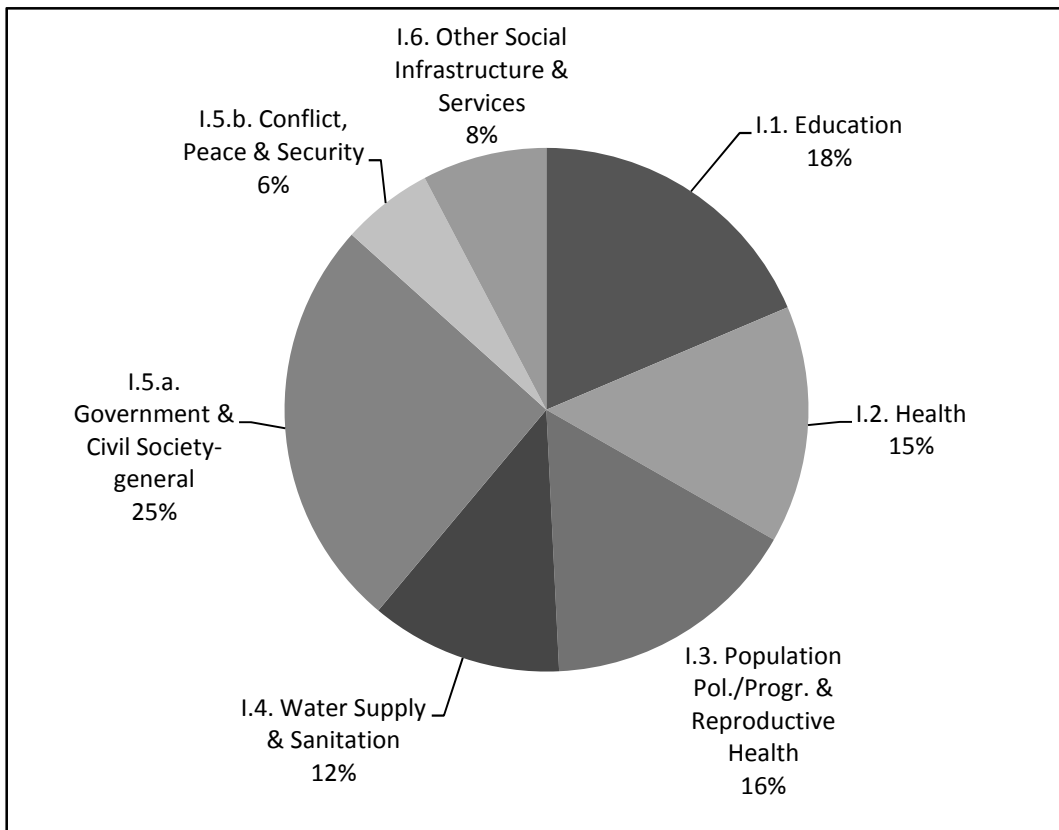
Fig. 2:     2011 total ODA "Social Infrastructure and Services" Subcategorisation
            Source: OECD DAC Aid Statistics

As we can see from the sample of ODA allocation depicted by figure 2, not only do seven vastly different parent categories exist (figure 1), each of which with extremely different characteristics such as production sectors and humanitarian aid, but each also is subdivided again into specific sectors which in turn can hardly be argued to be similar, for example education and conflict, peace and security the effectiveness of which is currently being measured in the amalgamated generalization of macroeconomic growth (Burnside & Dollar, 2000, Hansen & Tarp, 2001, Doucouliagos & Paldam, 2010).

This extreme heterogeneity of target sectors for ODA is an empirical manifestation of the multidimensional understanding of development that has evolved recently. If, for example, the aid community were still labouring under the financing gap style models and their understanding of the development process there would only be one target sector, namely savings.

Section four will return to the measurement of the extent to which the theory implemented in the AEL coincides with the empirical characteristics of aid. Suffice it to say that the test by which the adequacy of a theory is to be measured is its appropriateness to model reality, and the reality of ODA is a highly heterogeneous one with respect to both composition and intended sector of impact. The theoretical understanding of aid effectiveness should reflect this state of affairs through a mapping of causal channels between various forms of aid and various components of development.

# 3 THE AID-GROWTH PARADIGM

In order to understand both the prevalence of the aid-growth paradigm and the reason for said prevalence it is necessary to present a brief rendition of the general underlying theories upon which the empirical research is based. Paramount to this analysis is the identification of the proposed causal channels within the theory between aid and macro-economic growth. We set aside, for the moment, the above critique of using macroeconomic growth as the sole indicator of development and assessing the theories' ability to explain the link between aid and macroeconomic growth.

Accumulation studies, which lost popularity within the literature at the latest in the 1990s, are based on the Harrod-Domar growth model:

(EQ3.1)
$$g = \frac{I_t}{Y_t} \cdot \frac{1}{v} \quad \text{where}$$

(EQ3.2)
$$I_t = \emptyset S_t \ ; 0 \leq \emptyset \leq 1$$

(EQ3.3)
$$S_t = s(Y_t + ODA)$$

Where (g) is growth, $I_t$ is investment at time t, S denotes savings, s the savings rate and Y the income. $\emptyset$ is the conversion parameter of savings to investment, essentially it can be interpreted as institutional efficiency with more efficient financial institutions being represented by a $\emptyset$ closer to one.

According to this theoretical basis the role for aid was one similar to a cash infusion to boost savings which in turn boosts investment and hence GDP growth; also known as efforts to alleviate the poverty trap (Easterly, 1999). Consequently the empirical model specifications were usually some variation of the following:

(EQ3.4)
$$\frac{S_{it}}{Y_{it}} = s_{it} = \boldsymbol{\alpha_1} + \beta_1 a_{it} + \boldsymbol{\gamma}_{j_1} \boldsymbol{x}'_{it} + u_{it_1}$$

(EQ3.5)
$$\frac{I_{it}}{Y_{it}} = i_{it} = \boldsymbol{\alpha_2} + \beta_2 a_{it} + \boldsymbol{\gamma}_{j_2} \boldsymbol{x}'_{it} + u_{it_2}$$

Where both the savings rate ($s_{it}$) and the rate of investment ($i_{it}$) are functions of aid ($a_{it}$) and a vector of control variables ($x'_{it}$) which are assumed to have an impact on economic growth. Hence the effectiveness of aid was a test of growth promoting influence, i.e., of the statistical significance of the $\beta$s, and thereby constitutes a test of correlation between aid flows and both savings and investment.

The second and third schools of thought, the direct and conditional growth studies, can be understood within the same theoretical framework as the major difference between the two rests in the empirical model specification, more precisely in the inclusion of an aid interaction term. Since the Burnside and Dollar (2000) paper is arguably the most influential paper in the literature, a rendition of their theoretical model is presented without loss of generality.

Instead of relying on the Harrod-Domar model, Burnside and Dollar (2000) implement the neoclassical growth model as the theoretical foundation of their empirical analysis. Within the neoclassical model the planner attempts to maximize consumer utility which is defined as follows in EQ3.6:

(EQ3.6)
$$\sum_{t=0}^{\infty} \beta^t \frac{\left(C_t/L_t - \overline{C_t/L_t}\right)^{1-\gamma} - 1}{1-\gamma}$$

Where $C_t/L_t$ is the per capita consumption at time t, $\overline{C_t/L_t}$ is the subsistence level of per capita consumption, $\beta$ is the inter-temporal discount factor and $\gamma$ is the coefficient of relative risk aversion. The budget constraint faced by the government is given by:

(EQ3.7)
$$\frac{C_t}{L_t} + \frac{I_t}{L_t} \leq y_t + \frac{ODA_t}{L_t}$$

Where $C_t$ and $I_t$ are consumption and investment respectively, converted into per capita terms, $k_t$ is capital per worker, $y_t = Y_t/L_t$ which is per capital GDP and ODA is official development assistance, i.e. aid. A is assumed to be greater than zero and $0 < \alpha < 1$. Also note that capital evolves as follows:

(EQ3.8)
$$K_{t+1} = (1 - \partial)K_t + I_t$$

Thus, whereas the Harrod-Domar model provides a place for aid in the savings equation the neoclassical model allows aid to subsidize government, national, expenditure, more precisely modelled by the Barro (1990) model, and to accordingly alter the budget constraint and improve consumption and utility maximization.

However, the role for aid remains, partially, to influence consumption, just not through savings as in the Harrod-Domar model, and partially to boost investments. To understand more fully the role that is played by aid within this theoretical framework let us extend its analysis a little further than simply the basic assumptions. The foundation for the neoclassical model is the popular Cobb-Douglas production function:

$$(EQ3.9) \qquad Y_t = K_t^\alpha (AL_t^{1-\alpha}); 0 < \alpha < 1$$

An important suggestion of the Solow model is the hypothesis for unconditional convergence which proposes that poorer countries should have higher growth rates (Carlin & Soskice, 2006). This convergence can be shown through manipulating the fundamental equation of neoclassical growth:

$$(EQ3.10) \qquad g_k = \frac{sf(k)}{k} - (\delta + n + \tau)$$

Where $\tau$ is technological change, $\delta$ and $n$ are capital depreciation and population growth respectively and $k$ is the capital labour ratio. Differentiating with respect to $k$ yields:

$$(EQ3.11) \qquad \frac{dg_k}{dk} = \frac{ksf'(k) - sf(k)}{k^2}$$

This, through some manipulation, becomes:

$$(EQ3.12) \qquad \frac{dg_k}{dk} = \frac{s}{k}(MPK - APK) < 0$$

$$(EQ3.13) \qquad MPK = f'(k)$$

$$(EQ3.14) \qquad APK = \frac{f(k)}{k}$$

This suggests that at lower initial levels of capital per worker (k) the average productivity of capital (APK) is larger leading to a higher growth rate. If this convergence behaviour predicted by the Solow model is correct, as argued to be the case by (Mankiw, et al., 1992), then the simple Harrod-Domar model would be biased when estimated due to its inability to account for the existence of such a non-stochastic process.

Burnside and Dollar (2000) argue that the convergence result has been difficult to identify due to the persistence of subsistence consumption and subsequent low average propensity to save, which is the same proposition upon which the Harrod-Domar type accumulation studies were based, namely the poverty trap. This low propensity to save is thus the theoretical foundation for, and the causal map of, aid's effect on macroeconomic growth.

The presence of policy and institutional distortions in such a growth model would naturally reduce the productivity of capital which in turn diminishes growth and hampers aid's effect on growth. Consequently Burnside and Dollar (2000) base their growth model on this economic growth theory whilst the ground-breaking innovation consisted of the introduction of an aid-policy interaction term ($a_{it}\boldsymbol{p}'_{it}$) to account for the above mentioned institutional distortions.

For their empirical analysis Burnside and Dollar (2000) used a panel of 56 countries and six time periods of each four year averages from 1970-1973 until 1990-1993. Their specified model contained two equations in order to analyse both the effect of aid on growth and to model the allocation of aid. This was an attempt to account for the endogeneity of aid, the allocation of which was thought to be highly correlated with growth itself:

(EQ3.15) $$g_{it} = y_{it}\beta_y + a_{it}\beta_a + \boldsymbol{p}'_{it}\boldsymbol{\beta}_p + a_{it}\boldsymbol{p}'_{it}\boldsymbol{\beta}_1 + \boldsymbol{x}'_{it}\boldsymbol{\beta}_z + \varepsilon^g_{it}$$

(EQ3.16) $$a_{it} = y_{it}\gamma_y + \boldsymbol{p}'_{it}\boldsymbol{\gamma}_p + \boldsymbol{x}'_{it}\boldsymbol{\gamma}_z + a_t + \varepsilon^a_{it}$$

Various permutations of this theoretical model were estimated using OLS and 2SLS in order to test the robustness of the results. The primary finding, and the reverberating contribution, of the Burnside and Dollar (2000) paper was that the coefficient on the aid-

policy interaction term ($\beta_1$) was positive and statistically significant across a number of alternative specifications whereas $\beta_a$ was not. This led to the policy recommendation that although aid may have a minor impact on growth across the board this impact is greatly improved, and consequently the efficiency of aid is also enhanced, if donor resources were allocated to countries with a sound policy environment.

Now that both the theoretical foundations and the empirical approaches that constitute the Aid-Growth Paradigm have been illustrated the next section of the paper will investigate the causal channels. Causal channels have been mentioned above as the mechanism through which the theory dictates aid is to have an effect on macroeconomic growth.

## 4  THEORETICAL MYOPIA HIGHLIGHTED

The causal channels of interest to the macro-AEL are the theoretical channels through which aid is explained to influence macro-economic growth. These causal channels of interest will be brought forward, within both the Harrod-Domar growth model and the currently more popular Barro growth model. What is noteworthy is the implicit nature of the concept of causal channels within the AEL, there is little to no reference to them due to the prevalent lack of theoretical focus beyond the statement of implementing, more often than not, the neoclassical model (see *inter alia* Burnside and Dollar (2000); Easterly, Levine, & Roodman, 2004; Doucouliagos and Paldam (2008, 2009, 2010); Rajan & Subramanian, 2005). Recall the national accounting identity which defines GDP, the most popular indicator of macroeconomic growth, as:

(EQ4.1) $$GDP = C + I + G + (X - M)$$

Where C is consumption, I is investment, G is government expenditure and X and M are exports and imports respectively. The two theoretical models discussed, the Harrod-Domar for accumulation studies and the neoclassical model for (conditional) growth studies, provide rather clear causal channels between aid and macroeconomic growth, although within the literature these are more implicitly discussed as such rather than explicitly[1].

In the case of accumulation studies, i.e. the Harrod-Domar model, the purpose of aid, and hence the channel of causation, is to supplement savings in order to assist in the escape from the poverty trap; consequently aid enters the system in the equation that defines savings, see EQ 3.3. It is then assumed that, through financial institutions, some part of these savings is converted to investments. It is assumed that not all savings turn into investments due to some financial market imperfections and inefficiencies, as explained by EQ 3.2.

Investments are therefore increased through two causal channels; one is the improved efficiency of the financial institutions leading to an increased Ø and the other is through

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[1]  The list of perpetrators in the subdual of theoretical models in the empirical Aid-Growth work is vast, see inter alia Burnside and Dollar (2000), Dalgraad and Hansen (2001) Hansen and Tarp (2000, 2001).

and augmented pool of savings. The latter is where, within the accumulation literature, aid plays its part. Implicitly assumed within the literature is the rather obvious, theoretical, link between investment and GDP, of which investment is a constituent part.

(EQ4.2)
$$Y = GDP = C + \emptyset(s(Y + ODA)) + G + (X - M)$$

It is important to mention that the implementation of these Harrod-Domar type models in academic work has died out since the appearance of the neoclassical type growth models, so more focus will be laid on the latter.

Within (conditional) growth models the theoretical causal link is a little more evolved when compared to their older brother. Recall that the purpose is to maximize utility according to EQ3.6 and that this is done according to the budget constraint in EQ3.7. Make the assumption of efficient conversion to consumption and savings, although the simple addition of an inefficiency parameter on the left hand side can relax this assumption, to get the following identity:

(EQ4.3)
$$y_t + \frac{ODA_t}{L_t} = \mu \frac{(C_t + I_t)}{L_t} \quad ; \quad 0 \leq \mu \leq 1$$

The $\mu$ here can be interpreted as institutional efficiency, the whole branch of institutional economics is compressed here into this once parameter. As institutions become more efficient at converting capital into both consumption and investment the effect of aid on consumption and investment, and consequently on macroeconomic growth, becomes greater in magnitude. Specifically to the aid debate this may include variables such as corruption and donor operational efficiency. For the sake of simplicity, and because institutions are not the centre of this paper, it will be assumed here that $\mu = 1$ without loss of generality of the analysis below.

What is clearly stated here is that aid supports production ($A^{1-\propto}k^{\propto}$) in its ability to increase both consumption and investment both of which are constituent parts of GDP. Interestingly Burnside and Dollar (2000) make the following definition:

(EQ4.4)
$$y_t = A^{1-\propto}k_t^{\alpha} = \frac{GDP}{L_t}$$

This is in itself a justifiable, and necessary, assumption due to the fact that the neoclassical macroeconomic growth model is an attempt to explain macroeconomic growth, of which GDP is the principle measure. However this assumption has an interesting repercussion on the proposed causal channel between aid and growth. Although it is argued that the place for aid is to provide capital in a situation of low marginal propensity to save, which in turn increases growth, the actual causal channel within the theoretical model simply states that aid directly increases consumption and investment which together are GDP, as stated in EQ 3.25. What this means for the macro-AEL is that the sole manner in which aid can influence macroeconomic growth is through the direct support of consumption and investment. Whilst the two concepts are inarguably intertwined at a rather fundamental level this confusion illustrates a discrete lack of a clearly defined causal channel to be tested empirically and highlights and oversimplification of how aid and growth, and more importantly development, are connected. Without such fundamental knowledge about the underlying causational mechanisms knowledge about how aid works and why it works the way it does cannot be accumulated.

So far two things have been established; firstly that the theoretical model upon which the empirical work within the macro-AEL is based is lacking in explanatory power with regards to the establishment of sound and plausible causal channels between aid and macroeconomic growth. Secondly, that it may be more accurate to investigate aid not as an aggregate effort but to judge aid's efficacy to increase macroeconomic growth based on which sector receives aid due to the vastly differing types of aid and the plausible inter-sectoral alteration in influence on growth.

Thus far the use of macroeconomic growth as a precise and complete proxy for growth has been side-lined in the attempt to focus on the extent to which the theory of macro-AEL explains what it sets out to explain, within the parameters set implicitly by the literature. However, now this paper wishes to draw attention back to the definition of aid provided at the beginning of the paper by the OECD, specifically to the following section on the purpose of aid:

*"[Aid] is administered with the promotion of the economic development and welfare of developing countries as its main objective" (OECD DAC, 2006)*

The Aid-Growth Paradigm assesses only the effectiveness of aid in the promotion of economic growth; which may be argued to be interpreted as economic development but by no means does economic growth necessarily mean welfare increases much less would it be able to measure capability increases such as the right to vote, the right to freedom from persecution, or access to clean water. This is an essential expansion on the role of aid that arrives due to our ever increasing understanding on the interdisciplinarity of the development process. That is to say that GDP should be complemented, not replaced, by the inclusion of non-income dimensions of the development process.

This view was taken also by the European Commission in their recent communication about the UN's sustainable development summit Rio+20 (European Commission, 2007/2009). Building upon the EU's Beyond GDP (European Commission, 2007/2009) innitiative the Commission suggests the establishment of a system of social, policital and environmental progress accounting to complement the current system of economic accounting in order to establish a global and comparable system of multidimensional progress accounting (European Commission, 2011).

Another example of our understanding of the development process expanding to the inclusion of factors beyond mere macroeconomic growth is the work of Amartya Sen who in his book, "Development as Freedom" (1999), explained the development process as being the systematic eradication of "unfreedoms" or capability deprivations which went well beyond the lack of opportunities to save. Robert Kennedy summarises the notion of GDP as a measure of success poigniently:

*"GDP does not allow for the health of our children, the quality of their education, or the joy of their play. [...] GDP measures everything, in short, except that which makes life worthwhile" - Robert F. Kennedy, speech at the University of Kansas March 18, 1968*

As a result of the deficiencies of the Aid-Growth Paradigm this paper suggests future research into the effectiveness of aid to proceed based on two observations. First of all, aid

is a highly diverse tool which is deployed in multiple, vastly heterogeneous, sectors. Consequently it is paramount to deal with this heterogeneity by explicitly establishing individual causal channels, between aid and development, based on the characteristics specific to the situation. Only in this way does it become possible to not only obtain a clear picture on what the specific effects of aid are but how and why these effects are occurring. The second observation is largely an extension of the first one, namely that the yardstick against which the effectiveness of aid is to be judged should evolve in tandem with our understanding of what the end goal is; namely development. Whilst development has been synonymous with economic growth in the past this is no longer the case in most literatures outside of the AEL and this should be acknowledged if the AEL is to move towards a consensus regarding the issue of whether or not aid is at all effective or under which conditions it is effective.

# 5 RIA: A MORE THOROUGH APPROACH

Based on the criticism of the Aid-Growth Paradigm and the subsequent broad suggestions for the continued relevance of the AEL this paper will now briefly outline a more comprehensive and convincing theory based approach to empirical aid effectiveness analysis; namely Rigorous Impact Assessment (RIA). A number of authors have begun tackling the concept of RIA within the development setting, from the work of Baker (2000) and White (2009, 2010) it is possible to outline the broad strokes of what constitutes a RIA. Specifically a RIA contains three major stages with a number of basic principles woven in.

Stage one maps out the causal chain from inputs through outputs to impacts implementing program theory. Here it is essential to acknowledge the distinction between outputs and impacts and to clarify said distinction with an example. Assume an aid project aiming to reduce Malaria infection rates. This project will have various inputs *inter alia* medical personnel, vaccines and equipment. The output that the project produces is vaccinated people whereas the intended impact is a reduction of Malaria infection rates. In the case of our simplified Malaria Vaccination project the first stage of a RIA would have to create a theoretical map of how the program converts vaccines to vaccinated people and subsequently how the vaccinated people cause a lower Malaria infection rate. A central principle of the mapping of causal chains is to understand the intended objectives of the project as well as possible side effects, either positive or negative. For example, assume that a person receiving a Malaria vaccine is required to travel to the vaccination site as well as that the vaccination causes a loss of three working days following the vaccination due to unwanted side effects. This needs to be mapped so as to be able to carry out the factual analysis and counterfactual analysis stages.

By comparison the measurement of the success of the vaccination project through its impact on GDP would require further linking the reduction of infection rates to macroeconomic growth and to correct for all heterogeneity and shocks when constructing the counterfactual; this is a task that is not only extremely difficult to say the least but completely inefficient within the context and characteristics of the aid being provided.

Two principles that can be considered to apply to all stages of the RIA but even more so in the causal mapping stage are what White (2009) calls *understanding the context* and *anticipating heterogeneity*. The first of these two principles can best be explained as follows:

> *"Context means the social, political and economic setting in which the program takes place, all of which can influence how the causal chain plays out. The impact of an identical program can differ in different contexts" – White (2009; pp. 281)*

Specifically this contextualization of the effectiveness and impacts of a project is a consideration that is entirely ignored by the Aid-Growth Paradigm which implicitly assumes that all aid is identical. The principle of *anticipating heterogeneity* can be thought of as complementary to Baker's (2000) third step of RIA, namely exploring the data availability. White (2000) explains that the impact of a project can be highly differential depending on relevant heterogeneity of the environment and population. The anticipation of heterogeneity often emerges from the contextual understanding of the project and is extremely relevant in the creation of a credible and robust counterfactual; this will be clarified in the explanation of the second stage. White's (2010) data exploration phase links in here as the context and heterogeneity will influence the data availability. The data availability will naturally influence the implementable methodologies when it comes to measurement of impacts.

Stage two of any RIA is the establishment of a credible counterfactual; this counterfactual represents the yardstick against which the impacts of the project are to be measured. Essentially the counterfactual represents the state of the world[2] had the project not taken place. The difficulty here is to completely isolate the impacts of the project correcting for any external or structural changes that might have occurred independent of the project, that is assuming we are conducting an *ex post* evaluation. In an *ex ante* evaluation the counterfactual would be the world with the project and the difficulty would be to adequately simulate the precise effects of the project and hence the world without the project.

The counterpart to the counterfactual analysis is the factual analysis: stage three. The factual analysis represents the analysis of the world with the project in an *ex post* analysis

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2    World being the defined area of impact evaluation.

and the world without the project in an *ex ante* analysis. It is beyond the scope of this paper to review any deeper the methods in which to achieve robust (counter)-factual analyses; however White (2009, 2010) provides an illuminating discussion of both the strengths and the problems of these two stages of RIA.

# 6 CONCLUSIONS

This paper argued that the lack of consensus in the AEL regarding the fundamental question of whether or not aid is effective can be traced to the theoretical foundations on which the empirical research is constructed and conducted; this framework was referred to here as the Aid-Growth Paradigm. The Aid-Growth Paradigm consists of a collection of empirical literature that tests the effectiveness of aid on some variation of GDP growth based on various permutations of either the Harrod-Domar growth model or more recently the Barro growth model.

It was put to the reader that the Aid-Growth Paradigm suffers from two fundamental yet correlated issues. The first is that the empirical research done is not based on a mature theoretical model; however is built around one that myopically reduces the role of aid down to solely increasing consumption and investment in order to further GDP growth rates. The second is a related generalization of the issue by equating development to GDP growth and implicitly assuming that all aid projects are intended to target macroeconomic growth rates, an assumption that is inaccurate when faced with the sectoral allocation data of recent years as well as recent discussions on the concept of development beyond GDP.

The reduction of aid's effects to merely one causal channel and a singular impact is a simplification of the socio-political context and economic system in which both aid and the development process operate. In order for our understanding of the effectiveness of aid to progress beyond the theoretical framework of the Aid-Growth Paradigm the establishment of clear causal channels between inputs, outputs and impacts are required in tandem with extensive empirical testing of said rigorous models. It was argued that Rigorous Impact Evaluation forms a promising foundation upon which to build future research within the AEL.

Through the implementation of more rigorous theoretical models combined with empirical testing it may be possible not only to acquire the consensus that has eluded the Aid-Growth Paradigm for many decades but to understand how aid works, where it works and why it works of fails to work in specific situations. Future research should thus focus

on the establishment and testing of clear causal channels between aid and appropriately chosen yardsticks.

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# ANNEX I

| | Table 1: Total ODA Flows per Sector (2010 USD Millions) | | | | | | |
|---|---|---|---|---|---|---|---|
| **Year** | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| **Sector** | | | | | | | |
| I. Social Infrastructure & Services | 47306,02 | 51668,79 | 55992,05 | 60939,81 | 66046,3 | 64326,47 | 64604,41 |
| I.1. Education | 9157,06 | 11393,46 | 11962,11 | 12052,2 | 13564,83 | 13413,52 | 12019,55 |
| I.1.b. Basic Education | 2786,33 | 3264,01 | 2907,9 | 3614,27 | 3365,68 | 3891,76 | 3442,25 |
| I.2. Health | 6461,29 | 7913,77 | 7290,05 | 8486,08 | 8903,42 | 9849,61 | 9467,84 |
| I.2.b. Basic Health | 4281,92 | 5012,24 | 5484,56 | 6406,71 | 6555,17 | 6863,57 | 6481,48 |
| I.3. Population Pol./Progr. & Reproductive Health | 4466,23 | 5495,25 | 7506,74 | 9283,93 | 9244,95 | 9773,91 | 10323,84 |
| I.4. Water Supply & Sanitation | 6844,24 | 6592,99 | 6997,38 | 7552,14 | 8302,65 | 7584,75 | 7664,85 |
| I.5. Government & Civil Society | 14576,99 | 14643,78 | 16614,47 | 17645,65 | 19082,33 | 18691,11 | 20156,04 |
| I.5.a. Government & Civil Society-general | 12300,2 | 12479,34 | 13360,13 | 13836,93 | 14591,01 | 14849,74 | 16503,46 |
| I.5.b. Conflict, Peace & Security | 2057,9 | 2088,67 | 3097,94 | 3808,73 | 3845,91 | 3841,38 | 3652,57 |
| I.6. Other Social Infrastructure & Services | 5800,11 | 5629,56 | 5621,34 | 5919,76 | 6948,04 | 5013,63 | 4972,36 |
| II. Economic Infrastructure & Services | 17423,01 | 18019,57 | 20561,65 | 27786,92 | 25975,07 | 29047,57 | 25451,31 |
| II.1. Transport & Storage | 8429,84 | 8253,88 | 8132,39 | 14066,36 | 13211,16 | 13053,28 | 11128,86 |
| II.2. Communications | 541,85 | 520,16 | 598,01 | 427,31 | 644,71 | 453,54 | 645,93 |
| II.3. Energy | 5216,64 | 5855,76 | 6981,38 | 8085,85 | 6868,92 | 11029,75 | 9122,88 |
| II.4. Banking & Financial Services | 1937,91 | 1778,05 | 2672,88 | 3161,73 | 3719,04 | 2537,85 | 2489,19 |
| II.5. Business & Other Services | 1296,79 | 1611,65 | 2177,05 | 2045,62 | 1531,19 | 1973,12 | 2064,4 |
| III. Production Sectors | 8615,09 | 9162,22 | 9515,47 | 11388,65 | 12741,62 | 13408,96 | 13807,19 |
| III.1. Agriculture, Forestry, Fishing | 5291,43 | 5296,5 | 7157,8 | 7451,57 | 9378,94 | 9806,16 | 9889,25 |
| III.2. Industry, Mining, Construction | 2537,03 | 2170,54 | 1368,12 | 2845,2 | 1962,87 | 2175,36 | 2468,52 |
| III.3.a. Trade Policies & Regulations | 624,23 | 1130,69 | 883,46 | 1024,07 | 1224,8 | 1280,95 | 1335,08 |
| III.3.b. Tourism | 162,44 | 564,49 | 106,02 | 69,99 | 174,66 | 146,52 | 114,37 |
| IV. Multi-Sector / Cross-Cutting | 8998,13 | 9676,1 | 10944,89 | 11667,4 | 13862,61 | 21074,35 | 16368,58 |
| V. Total Sector Allocable (I+II+III+IV) | 82342,22 | 88526,63 | 97014,14 | 111782,79 | 118625,54 | 127857,38 | 120231,37 |
| VI. Commodity Aid / General Prog. Ass. | 5457,14 | 5476,04 | 6258,63 | 10054,1 | 10125,35 | 6935,35 | 6112 |
| VI.1. General Budget Support | 3813,97 | 3472,53 | 4782,35 | 7738,23 | 7430,77 | 4985,27 | 4136,68 |
| VI.2. Dev. Food Aid/Food Security Ass. | 1530,13 | 1476,86 | 1458,66 | 2122,34 | 2244,97 | 1680,1 | 1497,5 |
| VII. Action Relating to Debt | 29463,55 | 25887,97 | 14525,45 | 11235,27 | 2684,23 | 5942,61 | 4269,29 |
| VIII. Humanitarian Aid | 11424,78 | 9403,78 | 9175,52 | 10874,37 | 11443,05 | 13372,61 | 12032,92 |
| IX. Unallocated / Unspecified | 11430,81 | 15129,65 | 11936,89 | 13063,73 | 12979,71 | 12137,95 | 14032,58 |
| Total (V+VI+VII+VIII+IX) | 140118,5 | 144424,07 | 138910,63 | 157010,26 | 155857,88 | 166245,9 | 156678,16 |
| (OECD.Stat, 2013) | | | | | | | |