Seventy Years of Official Development Assistance: Reflections on the Working Age Population

Hassan, Sherif

Center for Near and Middle Eastern Studies (CNMS), Philipps Ünversität-Marburg, Suez Canal University (Ismailia, Egypt)

2016

Seventy Years of Official Development Assistance: Reflections on the Working Age Population

Sherif Maher Hassan

Center for Near and Middle Eastern Studies (CNMS), Philipps Ünversität-Marburg
Germany & Suez Canal University (Ismailia, Egypt)
Email: sherif.hassan@staff.uni-marburg.de

Abstract

We contribute to the aid-development debate by investigating how official development assistance shapes the ability of developing countries to efficiently utilise their demographic capital. We measure the effect of aggregated and sectoral disaggregated foreign aid on the Human Development Index and other social indicators for 139 developing countries from 1995 to 2014. Our results provide robust evidence against the development effects of aid. The prior effects are robust regardless of the level of working age population in the recipient country and after removing the biases of aid aggregation. In light of these findings, we introduce a new setting for aid disbursements that aims to resolve common pitfalls and improve the efficacy of existing systems.

1. Introduction

After 70 years of Official Development Assistance (ODA), today it is believed that this tool is misused, badly targeted, and weakly linked to human development (Williamson, 2008; United Nations Development Program [UNDP], 2004). As shown in Figure 1, aid flows have been increasing with a steady and slow pace since the 1990s, reaching its highest value of 189 billion US$ in 2013. The current hike in aid is matched with attaining the largest ratio of working age population (age 15–64) to world population around 60% (7.2 billion) reaching a historic high record, with the majority residing in developing countries (World Bank, 2016; United Nations Population Fund [UNFP], 2015).
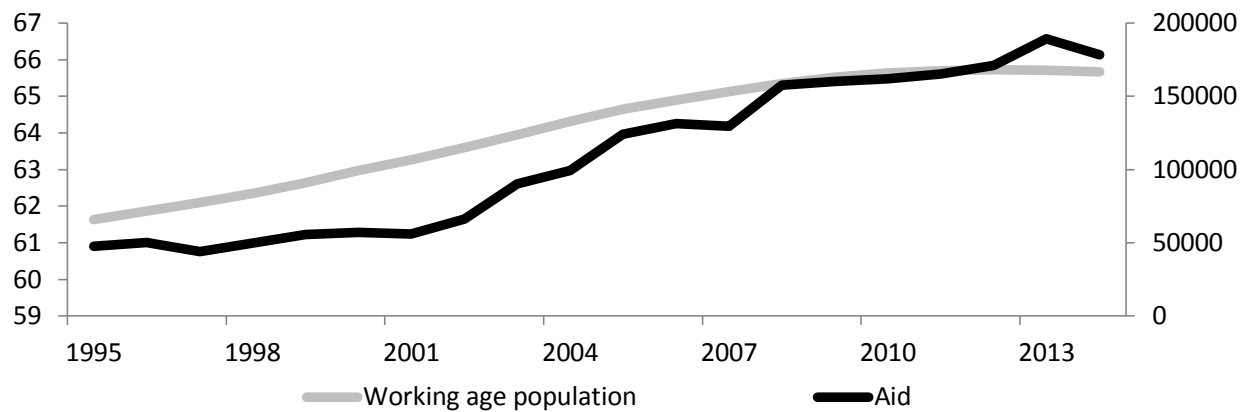
Figure 1: working age population (% total population) and aid flows (millions US$), (1995–2014)

Source: Organization for Economic Cooperation and Development [OECD], (2015) and World Bank, (2016)

It is estimated that about 1 billion poor people live in developing countries on ≤1.25 US$ a day in 2014; this compares to 1.36 billion in 2005, and 1.91 billion in 1990. These numbers reveal the slight progress in reducing poverty levels in spite of the immense aid flows (World Bank, 2016; Food and Agricultural Organization [FAO], 2014). Additionally, the FAO estimates that almost all the hungry people, around 13.5% of the world population, live in developing countries (FAO, 2014).

The ability of developing countries to reap the benefits of their young working age population is not always attained. The key determinants of whether a country is able to utilise its demographic endowment are the flexibility of the economy and the presence of proper and effectively implemented educational and social safety policies (Bloom and Canning, 2003). According to Bloom and Canning (2003) and Bloom, et al., 2007) for the sake of a successful integration of the nation's demographic capital, the country needs a) flexible economy with less restrictive labour laws and generous social services that are able to absorb and utilise the extra labour suppliers; b) a solid educational system that fosters the ability of young generations to learn new skills, adapt to new circumstances, and contribute to the growth of industries and firms; andc) well-chosen and effective policies in areas of family planning that lower fertility rates to speed up the emergence of the demographic bulge.

Our research opts to quantify the effects of foreign aid on developing countries' capabilities to create sound social and economic environments towards integration of their demographic capital. We challenge the key premise in earlier studies that the developmental effects of different aid flows are uniform (Radelet, 2008). Therefore, we disaggregate aid channelled via the four sectors that are tightly linked to utilisation and integration of the countries' working age population (Bloom and Canning, 2003; Bloom, 2005). These are the education, population policy, production, and social infrastructure sectors. Accordingly, we opt to evaluate both aggregate and sectoral-disaggregated aid effects on the Human Development Index (HDI) that captures a broader—compared to income measures—manifestation of the quality of human life for a group of 139 developing economies during 1995–2014.

We follow Burnside and Dollar (2000), Easterly and Levine (2003) Bräutigam and Knack (2004) and others, and conditionalise the development effects of aid to the quality of governance and the policy environment in recipient countries. In turn, we control for Heritage's economic freedom index that reflects the degree of economic flexibility and the quality of pursued governance for realising favourable developmental effects of foreign aid.

There is a large body of literature on assessing the income and growth effects of foreign aid flows (See Roodman, 2004 for a review of the literature) and few attempts focused on evaluating the human welfare effects of foreign aid (Boone, 1996; Nourou, 2014). However, most of these studies only examined aggregate aid, while hypothesising that different aid types have a similar impact on growth and development.

Growing literature has examined the growth impact of disaggregated aid flows. Minoiu and Reddy (2009) were among the first to distinguish between developmental and non-developmental aid based on the recipient sector. The authors found robust evidence that aid offered for development purposes (irrigation projects, rural roads, bridge, health clinics, and schools) have significant positive growth effects compared to aid offered for other purposes (politics, military, and budgetary support).

Another attempt of disaggregating aid by the source was conducted by Masud and Yontcheva, (2005) who examined the social effects of two disaggregated sources of foreign aid, NGO and bilateral aid flows. They found that NGO flows have a higher robust positive development impact compared to bilateral flows.

However, we depart from these studies by three fold. First, we investigate the development effects of aid instead of growth effects using HDI and other non-monetary social variables. Second, we analyse disaggregated aid that is channelled within those sectors that are essential for properly integrating the young working age population of developing countries and realise their demographic advantage. Third, we investigate whether the developmental impact of aid is influenced by the size of the working age population in the recipient country by including an interaction term between the working age population and aid variables.

Our cross section ordinary least square (OLS), seemingly unrelated regression (SUR) and panel Fixed Effects (FE) results are in line with Boone (1996), Williamson (2008), Hartford and Klein (2005), Heckelman and Knack (2008) and others, which indicate that aid is ineffective in influencing HDI, health, and education variables. However, we provide extra evidence that the sluggish social effects of aid remain regardless of the level of working age population in the recipient country, even when we disaggregate the channelled aid across selected sectors that promote a developing country's ability to utilise its demographic endowment.

2. Foreign aid prospects

In the past two decades, the debate of aid selectivity has intensified and gave rise to the approach of "policy and poverty selectivity". This approach encourages donor communities to become more biased towards allocating aid to poor countries that have good economic governance. The growth impact of aid is limited when the policy environment is poor; on the contrary, it exercises a negative impact. While for countries with good policies, more aid seems to have a positive impact on growth; China in the 1980s, as well as Uganda and Vietnam in the 1990s are good examples (Dollar and Levin, 2006; Isham and Kaufmann, 1999).

High aid levels channelled towards governments with clear development agendas could a) improve the quality of the civil service, b) remove low revenue constraints, c) strengthen domestic institutions, and d) provide financial resources, training, and technical assistance to enhance the efficiency and effectiveness of governance (Bräutigam and Knack 2004).

Moreover, foreign aid can increase resources devoted to the improvement of labour productivity and quality of human capital by financing a wide range of public services like health, social infrastructure, and education. However, it is argued that aid is highly volatile; thus, higher aid-dependence could bring in more volatility in the supply of these services (Nourou, 2014; Radelet, 2008). Similarly, aid could lead to more inequality because corrupted government officials and other administrative agents could exercise large efforts in capturing ODA for their private benefits; in countries like Somalia, the dispute over controlling this financial assistance might initiate civil wars and induce political instability (Maren, 1997).

According to Masud and Yontcheva (2005), as well as Redelet (2008), the literature has introduced three main reasons for the counter-cyclical effects of aid. First, misallocation of aid, wherein donors use different strategic and political criteria for aid allocation rather than promoting development and/or reducing poverty. Second, misusing of aid by means of poor quality of governance, corruption, and absence of a clear development agenda of recipient countries. Third, GDP growth is not the right measure for aid effectiveness.

The majority of foreign aid literature focused exclusively on the macroeconomic impact of aid on economic growth, savings, and investment (Masud and Yontcheva, 2005). Early literature concluded that aid had no significant impact on growth, savings, or investment. On the contrary, it increases unproductive public consumption (Mosley, et al., 1992). Subsequently, Hadjimichael et al. (1995) and Burnside and Dollar (2000) postulated that this negative relation is not conclusive; rather it depends on the receiving countries' policies.

Boone (1996) was the first to empirically investigate the non-monetary effects of foreign aid. He found no significant social impact of aid on basic indicators of human development, such as infant mortality, primary schooling ratios, and life expectancy during 1971–1990 for a large

group of developing countries. Masud and Yontcheva (2005) followed Boone's approach; however, they assessed the social effects of NGOs compared to bilateral aid flows. They find that NGO aid reduces infant mortality more effectively than official bilateral aid while its impact on illiteracy was less significant for 58 developing countries during 1990–2001.

Gomanee et al. (2005) reported the favourable impact of aid on the level of human development among developing countries, but these social effects are conditional on the extent of democracy. Addison et al. (2005) and McGillivray (2000) postulated ambiguous results about the impact of aid on social public expenditures mainly in the provision of health and education services. Because aid is shown to increase public expenditures in social sectors but it is also shown to decrease tax revenues and increase public debt.

Nourou (2014) concluded that foreign aid worsens social development, because first, aid tends to increase uncertainty and volatility in the recipient countries, which forces people to smooth their consumption levels by altering their health- and educational-related consumption expenditures. Second, the incurred substitution effects crowd out public expenditures on developmental goals.

Foreign aid may also distort governance levels, according to Bräutigam and Knack (2004) due to the fragmentation and high transaction costs of multiple aid projects that are hardly handled by weak governments. This forces donors to manage their projects by setting independent units with their own budgets and implementation plans away from the regular bureaucracies. This, in turn, hinders the ability of these governments to learn new skills. In addition, aid can instigate inflation and cause an appreciation of the real exchange rate, which diminishes the profitability of tradable goods, causing "Dutch disease" effects (Adam, 2005).

A key assumption in the vast literature is that the growth and developmental effects of aid are uniform. We challenge this premise by questioning whether aid offered for one purpose, for example, political support, will have the same effect on economic development as aid spent on another, for example, education, social safety services, health clinics. In this research, we explicitly focus on aid channelled toward four sectors that provide essential prerequisites for a country to utilise and integrate its demographic capital. In other words, this is sectoral

decomposed aid that is generally classified by Minoiu and Reddy (2008) as "developmental aid". Figure 1 shows the sectoral decomposition of ODA to all developing countries during 1995–2014. The largest share of ODA goes to the government and civil society sectors, while the lowest goes to other social infrastructure and services.

The sectoral aid in our research is defined as aid allocated to, 1) total education (this includes basic education, secondary education, post-secondary education, teacher training, education policies, and facilities); 2) population policy and reproductive health (this includes population policies, reproductive health, and family planning); 3) other social infrastructure and services (this includes, welfare services, employment policy, housing policy, low-cost housing, and cultural and recreation); and 4) total production (this includes agricultural, fishery, forestry, mineral, industry, and construction). The share of ODA devoted to these four sectors represents around 28% of total ODA received by all developing countries.

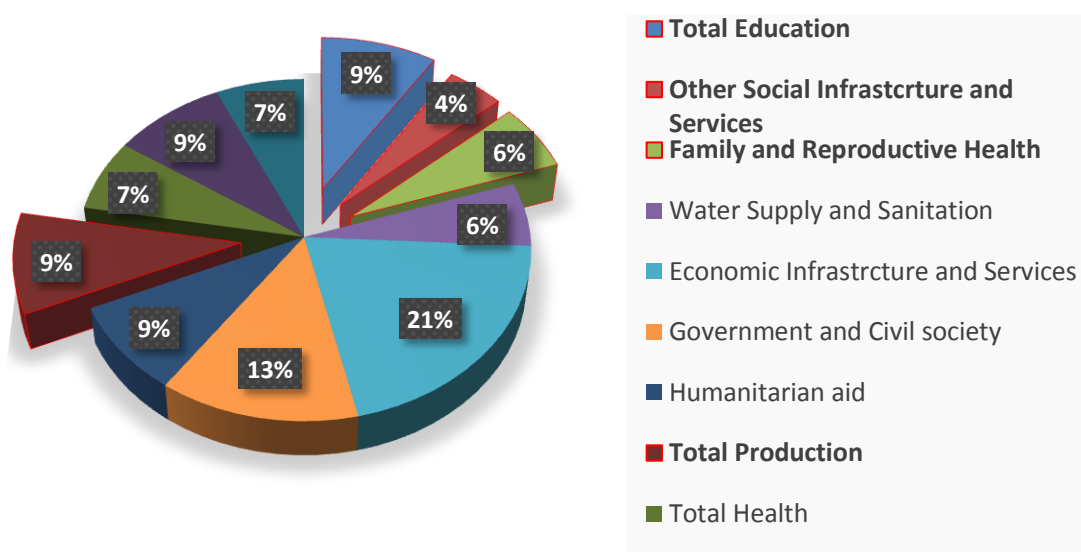**Figure 2:** Disaggregated ODA to selected sectors from all donors to all developing countries (average 1995-2014)

Notes: These flows are in a form of commitments, reported in US$ Millions in constant prices
*Source: (*OECD, 2015)

Table A1 reports selected developing countries from our sample and their conforming average levels of HDI, Heritage's economic freedom index, working age population during 1995–2014.

We observe that the majority of these countries are highly dependent on aid and have large stocks of working age population exceeding the world average of 60% of total population. Their economies are either repressed or mostly un-free, while their HDI exhibits that most of them are medium developed.

3. Model specifications and data

Since the introduction of the concept of human development in 1990 and the publication of the first Human Development Report (HDR) by the UNDP, HDI has become one of the commonly used measures of a country's development status (Anand and Sen, 2000). HDI intends to proxy three important dimensions of well-being: life expectancy represented by the dimension of a long and healthy life, the dimension of knowledge is represented by the indicator of education, and the dimension of income is proxied by per capita GNI[1]. Over the years, HDI was subject to major revisions until the most recent formula since 2010, which is expressed as the geometric mean of the component dimension indices:

$$HDI(l, \varepsilon, y) = \sqrt[3]{\left(\frac{l - 20}{83.4 - 20)}\right) \left(\frac{\varepsilon - 0}{0.971 - 0}\right) \left(\frac{\ln y - \ln 100}{\ln 107721 - \ln 100}\right)}$$

where l is life expectancy at birth measured by life expectancy index, ε is an index of education, composed of two indices: mean years of schooling and expected years of schooling, and y is GNI per capita (PPP US$). Minimum and maximum values are used to create indices of 0 and 1. These values are the highest and lowest observed values in the time series (1980–2012). The minimum values for life expectancy are 10 years, with both education variables of 0 and 100$ for gross national income (GNI) per capita[2].

---

[1] There have been a number of critiques of the HDI, this criticism and responses are reviewed by Raworth and Stewart (2005).

[2] HDI on various counts is not the same as GDP, especially in terms of adjustment and how it is affected by changes in the macroeconomic policies (Binder and Georgiadis, 2010). For detailed information about HDI calculation and data sources, see UNDP (2013).

We use *(hdi)* as our dependent variable and fetch its data from the UNDP (2016). Our main independent variables are economic freedom index *(eco)* and aid. *eco* is sourced from Miller and Kim (2016) as a measure of the level of governance in the country, as well as the degree of freedom and flexibility of economic laws. While for aid, we start with an aggregate measure of net ODA to all sectors *(aid).* Then we use four disaggregated aid variables denoting "developmental aid", which is defined as aid channelled towards any of the following four sectors: total education *(edu_aid)*, population policy & reproductive health *(pop_aid)*, other social infrastructure and services *(infra_aid)*, and total production *(prod_aid).* Data of these disaggregated variables are sourced from the OECD (2015). These data are reported in millions US$ (constant prices) and are in a form of commitments, not disbursements.

Based on Masud and Yontcheva (2005) and Binder and Georgiadis (2010), we include a set of control variables that influence the country's level of development: a) rural development proxied by agricultural value added per worker as a percentage of GDP *(rural)*; b) poverty headcount based on 1.90 US$ a day *(poverty)*; c) trade openness measured as imports plus exports as a percentage of GDP *(trade)*; d) Government expenditures on education and health as a percentage of total government expenditures *(health) (education)*; e) the size of the working age population captured by the ratio of working age population to total population *(working)*; f) rents measured by total natural resource rents as a percentage of GDP *(rents)*; g) inflows of remittances as a percentage of GDP *(remittances)*; and h) net enrolment rate in secondary education as a percent of relevant age group *(secondary)*. Data are sourced from the World Bank (2016). Variables' descriptive statistics and definitions appear in Tables A2 and A3.

Our sample includes 139 developing economies based on the IMF classification[3]. It contains 17 out of the 22 Middle East and North Africa (MENA) countries. The MENA region is known to be the most youthful in the world with a median age of 22 years compared with a global average of 28 (Youth Policy, 2016). We include a dummy *(MENA)* and an interaction term between aid variables and MENA *(aid*MENA)* to capture whether the development impact of aid behaves differently in the MENA region compared with other world regions. We include a second

---

[3] The IMF uses a multidimensional classification system that considers (1) per capita income level, (2) export diversification (so oil exporters that have high per capita GDP are categorised as developing economies, because their exports are dominated by oil), and (3) degree of integration into the global financial system (IMF, 2016).

interaction between the working age population and each of the aid variables *(aid*working)*. To capture the effect of the working age population size on realising the development impact of aid, we write our equation in the form of the following ln-ln specfication:

$$\ln hdi_i = \ln[\alpha_1.aid_i + \alpha_2.eco_i + \alpha_3.working_i + \alpha_4.MENA + \alpha_5..(aid * working)_i + \alpha_6.(aid * MENA)_i + \sum(X)_i] + \varepsilon_i$$

where X is a set of control variables. The subscripts i denote the country (139 countries) and ε_i is an error term. We estimate five equations using *hdi* as the dependent variable, while replacing *aid* with each of the sectoral disaggregated aid variables: *edu_aid, pop_aid, infra_aid,* and *prod_aid.*

4-1. Methodology

First, we estimate each equation individually using OLS, while using whites' cross-sectional clustered errors that are robust to heteroscedasticity and serial correlation. Then we take advantage of the heteroscedasticity nature of the error components that suggest that these equations are contemporaneously correlated, and re-estimate this system of equations jointly using SUR. The SUR estimator is more efficient than the OLS estimator, because it introduces information that exceeds that of considering each equation individually (Fiebig, 2001). In addition, using SUR fits the nature of our analysis that investigates the development of *hdi* across countries, while these countries are likely to be subject to spillovers from worldwide shocks (Creel and Farell, 1996). We test the existence of correlation among the equations' errors using the Bersuch Pargan test of heteroscedasticity. Rejection of the test null hypothesis reflects the statistical jointness of the equations (Table 1).

Another concern is the reverse feedback from *hdi* on our key independent variable, namely aid, as HDI is one of the major determinants of foreign aid disbursements (Alesina and Dollar, 2000). One strategy for reducing the problem of reverse feedback is to use the lag of the right-hand side variables (RHS). The past values of foreign aid, economic freedom, and other control variables can affect the HDI at the current time but not vice versa (Bjorvatn and Farzanegan, 2015; Minoiu

and Reddy, 2009; Farzanegan, 2014; Bhattacharyya and Hodler, 2010). Therefore, we regress the average of dependent variable *hdi* (2008-2014) over a deeper lag for all explanatory variables (1995–2008). The averaging methodology is also appropriate to account for slow-moving variables similar to *hdi* (Binder and Georgiadis, 2010; Bjorvaten and Farzanegan, 2013).

Other concerns are collinearity and misspecification. We report Regression Specification Error (RESET) and Variance Inflation Factor (VIF) tests of omitted variables and collinearity in Table 1. Failure to reject RESET tests' null hypothesis implies that the equation is correctly specified (Ramsey, 1969). The correlation between predictors (collinearity) is a concern only when the mean of VIF is ≥10 (Gujarati, 2003).

We use ln transformation to account for the presence of outlying observations and various measurement units in our dataset. Such strategy reduces the influence of outliers and converts possible existing non-linear relations into linear ones. Furthermore, it limits data variations over different magnitudes and measurement units via squeezing together the larger values and stretches out smaller ones (Gujarati, 2003).

For heterogeneity and time-invariant country characteristics that are not captured in our cross section equations, we construct a panel dataset that contains 139 developing countries over 1995–2014 and re-estimate our equations by using country fixed effects methodology in Tables 2 and 3. According to Baltagi (2008), country fixed effects assist in controlling for unobserved heterogeneity that is constant over time and correlated with independent variables. There are several time-invariant country characteristics that affect human development, which increase the risk of omitted variable bias, for example, geography, history, and other time-invariant determinants of human development. Moreover, fixed time effects capture shocks common to all countries such as global business-cycle effects (Bjorvatn, and Farzanegan, 2013). Furthermore, we use white cross-sectional clustered errors that are robust to heteroskedasticity and serial correlation.

5- Results and discussion

Table 1 reports OLS and SUR pooled cross-section regressions for 139 developing countries over 1995–2015. *aid* and the four sectoral disaggregated aid, *edu_aid, pop_aid, infra_aid,* and *prod_aid* are insignificant in explaining *hdi* developments across countries. The significant positive effect of *eco* is robust across all models. In Model 1.1, a 1% increase in *eco* increases *hdi* with 0.248% at 95% confidence level. This result is in line with common findings in development-related studies that the level of pursed governance and quality of institutions is an important catalyst for human prosperity (Miller and Kim, 2016).

The two interactions in Models 1.11 and 1.12 are insignificant, which implies that the relation between aid and development is neither altered by the ratio of working age population in the recipient country nor with the inclusion of the MENA dummy. Both interactions have been tested with each of the four sectoral disaggregated aid variables but not reported. Nevertheless, their insignificant effects stay the same. Rural value added, working age population, and the rate of secondary school enrolment are the robust human development triggers among our control variables.

Tables 2 and 3 report the panel fixed effects regressions. And in order to test the sensitivity of our results to the change of the dependent variable, we replace *hdi* with individual social variables that reflect advancements in the health and education sectors. We use infant mortality rate as a ratio of 1000 live births as a proxy for the quality of health services *(mortality)* in Table 2. While for signalising the quality of education we use gross enrolment rate in tertiary education *(tertiary)* in Table 3[4]. Data are sourced from the World Bank (2016). We regress our new dependent variables over the full set of control variables while using cross-sectional clustered errors that are robust heteroskedasticity and serial correlation. Only the key independent variables are reported in the Tables. We follow the ln-ln specification of our initial estimations.

---

[4] The international and regional PISA, TIMSS, PIRLS learning assessments provided by World Bank's education statistics would indeed make a better indicator for quality of education, but data on these tests are limited for our sample of developing countries to construct a panel dataset.

After controlling for countries' heterogeneity, the results are similar to our cross-section regressions. All aid variables have no significant impact either on mortality rate or tertiary enrolment in Tables 2 and 3. Except Model 3.3 in Table 3, *pop_aid* has a significant positive sign, implying that aid channelled within the population sector tends to promote tertiary enrolment rate through its effect on reproductive health and family planning policies. This prior finding corresponds with the research line suggesting that aid fosters population growth rate via alleviating household's financial constraints of having more children (Azarnet, 2008). Correspondingly, more children are translated into larger demand for education, including tertiary education. We test the robustness of this result in Table A4 by regressing *pop_aid* over various indicators of primary and secondary enrolment rates, while using the same set of control variables in the initial estimation. Nevertheless, the significant coefficient of *pop_aid* does not seem to hold. The two interactions, *aid*working* and *aid*MENA*, are insignificant, which is similar to our initial estimations. Both interactions have been tested with each of the four sectoral disaggregated aid variables, but not reported[5].

---

[5] Results available upon request.

Table 1

OLS and SUR regressions

	Dependent variable: Logarithm of human development index											
	(1.1) **OLS**	**(1.2)** **SUR**	**(1.3)** **OLS**	**(1.4)** **SUR**	**(1.5)** **OLS**	**(1.6)** **SUR**	**(1.7)** **OLS**	**(1.8)** **SUR**	**(1.9)** **OLS**	**(1.10)** **SUR**	**(1.11)** **OLS**	**(1.12)** **OLS**
aid	-0.007 (-0.59)	-0.000 (-0.19)									-0.004 (-0.37)	0.339 (0.65)
edu_aid			-0.004 (-0.35)	-0.000 (-0.34)								
pop_aid					-0.002 (-0.23)	-0.000 (-0.02)						
infra_aid							-0.002 (-0.15)	-0.00 (-0.08)				
prod_aid									-0.008 (-0.98)	-0.000 (-0.20)		
eco	0.248* (1.70)	0.161** (2.01)	0.240* (1.71)	0.161** (2.06)	0.240* (1.75)	0.161** (2.03)	0.242* (1.66)	0.161** (2.04)	0.267* (1.78)	0.169** (2.05)	0.281 (1.63)	0.245* (1.70)
working	0.538** (2.34)	0.345* (1.67)	0.529** (2.34)	0.345* (1.70)	0.518** (2.39)	0.344* (1.67)	0.524** (2.48)	0.345* (1.67)	0.530** (2.46)	0.345 (1.68)	0.537** (2.06)	1.04 (1.41)
*MENA*aid*											-0.004 (-0.18)	
*working*aid*												-0.084 (-0.67)
MENA											0.311 (0.17)	
rural	0.351* (1.73)	0.034** (2.33)	0.037** (2.09)	0.03** (2.35)	0.037** (2.10)	0.034** (2.33)	0.038* (1.92)	0.034** (2.33)	0.035* (1.96)	0.034** (2.34)	0.036* (1.64)	0.034* (1.71)
poverty	-0.021* (-2.07)	-0.018* (-1.73)	-0.02** (-2.08)	-0.018* (1.76)	-0.02* (-1.88)	-0.017* (-1.73)	-0.020* (1.95)	-0.017* (-1.73)	-0.019* (1.96)	-0.017* (-1.74)	-0.020* (-1.83)	-0.020** (-2.02)
trade	-0.011 (-0.39)	-0.007 (-0.35)	-0.009 (-0.29)	-0.008 (-0.37)	-0.004 (-0.19)	-0.007 (-0.34)	-0.006 (-0.18)	-0.007 (-0.35)	-0.010 (-0.39)	-0.007 (-0.35)	-0.003 (-0.12)	-0.008 (-0.35)
health	-0.037 (-1.17)	-0.023 (-0.89)	-0.038 (1.16)	-0.023 (-0.90)	-0.035 (-1.04)	-0.022 (-0.88)	-0.035 (-1.00)	-0.02 (-0.88)	-0.038 (-1.14)	-0.023 (-0.89)	-0.404 (-1.06)	-0.404 (-1.15)
education	0.009 (0.02)	0.032 (0.83)	0.014 (0.30)	0.032 (0.85)	0.014 (0.30)	0.032 (0.83)	0.012 (0.22)	0.031 (0.83)	0.004 (0.09)	0.031 (0.83)	-0.001 (-0.002)	0.007 (0.14)
rents	0.015 (1.28)	0.012 (1.24)	0.014 (1.31)	0.012 (1.25)	0.014 (1.37)	0.012 (1.24)	0.014 (1.27)	0.012 (1.24)	0.014 (1.34)	0.012 (1.24)	0.012 (1.17)	0.012 (1.17)
remittances	-0.002 (-0.31)	-0.008 (-1.29)	-0.003 (-0.45)	-0.008 (-1.30)	-0.003 (-0.48)	-0.008 (-1.29)	-0.003 (-0.45)	-0.008 (-1.29)	-0.002 (-0.32)	-0.008 (-1.29)	-0.002 (-0.33)	-0.003 (-0.40)
secondary	0.230*** (6.89)	0.216*** (5.39	0.22*** (6.86)	0.21*** (5.46)	0.23*** (6.71)	0.21*** (5.38)	0.231*** (6.55)	0.216*** (5.39)	0.231*** (6.94)	0.216*** (5.41)	0.224*** (5.90)	0.233*** (6.95)
RESET (p-value)	(0.488)		(0.468)		(0.478)		(0.456)		(0.525)			
Mean VIF	2.36		2.31		2.29		2.46		2.28			
Bresuch-pagan (p-value)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		
Adj. R2	0.900	0.921	0.899	0.921	0.899	0.921	0.899	0.921	0.899	0.921	0.901	0.901
Obs.	61	56	61	56	61	56	61	56	61	56	61	61

The method of Ln-Ln estimation is OLS and SUR. The constant term is included (not reported). t statistics are shown in parenthesis are based on cross section clustered robust standardized errors. Significantly different from zero at *90%, **95%, and *** 99% confidence. *lnhdi* is averaged over 2008-2014, while explanatory variables are averaged over 1995-2008. Rejection of RESET test null hypothesis implies the absence of omitted variables bias. The low Mean VIF shows that the correlation among predictors is small and collinearity is not a problem in our calculations. Rejection of Bresuch-Pagan test null hypothesis shows that errors of the system of equations are correlated.

Table 2

Panel fixed effects regressions

	Dependent variable: Logarithm of mortality						
	(2.1)	*(2.2)*	*(2.3)*	*(2.4)*	*(2.5)*	*(2.6)*	*(2.7)*
aid	0.028					0.219	0.009
	(1.64)					(0.36)	(0.63)
edu_aid		0.003					
		(0.33)					
pop_aid			0.002				
			(0.41)				
infra_aid				0.012			
				(1.03)			
prod_aid					0.008		
					(0.70)		
working	-3.224***	-3.073***	-3.15***	-3.483***	-3.014***	-3.07***	-3.36***
	(-5.83)	(-5.01)	(-4.82)	(-6.01)	(-4.92)	(5.10)	(-6.05)
eco	0.552***	0.617***	0.633***	0.556***	0.644***	0.552***	0.558***
	(4.42)	(3.53)	(3.51)	(3.30)	(3.71)	(4.42)	(4.51)
MENA							omitted
MENA*aid							-0.030
							(-1.07)
working*aid						0.215	
						(0.712)	
CONTROL	YES	YES	YES	YES	YES	YES	YES
Countries	139	139	139	139	139	139	139
R-sq (within)	0.852	0.829	0.830	0.843	0.832	0.836	0.836
F statistic (Prob-value)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

The method of panel estimation is fixed effects (xtreg). The constant term is included (not reported). t statistics shown in parenthesis are based on cross section clustered robust standardized errors. Significantly different from zero at *90%, **95%, and *** 99% confidence.

Table 3
Panel fixed effects regression

	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)	(3.7)
Dependent variable: Logarithm of tertiary							
aid	0.045					-1.54	0.002
	(0.81)					(-0.86)	(0.03)
edu_aid		0.136					
		(0.38)					
pop_aid			0.069**				
			(2.29)				
infra_aid				0.011			
				(0.21)			
prod_aid					-0.046		
					(-1.27)		
working	0.662	-1.297	-0.148	-1.40	-2.09	1.284	1.772
	(0.24)	(-0.40)	(-0.05)	(-0.42)	(-0.66)	(0.44)	(0.64)
eco	0.087	1.112	0.976	1.14	1.004	0.087	-0.003
	(0.21)	(1.58)	(1.45)	(1.63)	(1.46)	(0.21)	(-0.01)
MENA							omitted
*MENA*aid*							2.450
							(1.70)
*working*aid*						1.530	
						(0.87)	
CONTROL	YES	YES	YES	YES	YES	YES	YES
Countries	139	139	139	139	139	139	139
R-sq (within)	0.672	0.646	0.718	0.644	0.665	0.679	0.672
F statistic (Prob-vlaue)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

The method of panel estimation is fixed effects (xtreg). The constant term is included (not reported). t statistics shown in parenthesis are based on cross section clustered robust standardized errors. Significantly different from zero at *90%, **95%, and *** 99% confidence.

6. Conclusion

Countries are no different from individuals; those who are competent and self-sustaining are more likely able to confront challenges, invest in their aptitude, and stimulate intrinsic growth and development relative to others who rely on extrinsic sources of support and finance.

Our research provides extra evidence against the development impact of foreign aid for our sample of 139 developing countries over the period from 1995 to 2014. We investigate the developmental impact of aid both aggregated and disaggregated to sectors that are essential for creating sound social and economic environments towards integration of these countries' demographic capital.

Our cross-sectional ordinary least square and seemingly unrelated regression, as well panel fixed effect results show that foreign aid is a poor developmental tool, which is insignificant in influencing HDI or other individual social variables, like infant mortality and tertiary enrolment rates. Our results are robust for different model specification and the inclusion of different control variables. Our interaction term between aid variables and the ratio of working age population is insignificant in all our models, implying that the sluggish social effects of aid remain regardless of the level of working age population in the recipient country.

References

Adam, C. (2005). Exogenous Inflows and Real Exchange Rates: Theoretical Quirk or Empirical Reality?. In Isard, P., Lipschitz, L., Mourmouras, A, and Yontcheva, B. (Eds.), the Macroeconomic Management of Foreign Aid: pp. 171-197. IMF: Washington.

Addison, T., Mavrotas, G. and McGillivray, M. (2005). Aid, Debt Relief and New Sources of Finance for Meeting the Millennium Development Goals. *Journal of International Affairs, 58(2); pp. 113-127.*

Anand, S. and Sen, A. (2000). Human Development and Human Rights. Oxford University Press: Oxford.

Azarnert, V. (2008). Foreign aid, fertility and human capital accumulation. *Economica 75(300): pp. 766-781.*

Baltagi, B. (2008). Econometric Analysis of Panel Data, 4th ed. Chichester: Wiley: UK.

Bhattacharyya, S., and Hodler, R. (2010). Natural Resources, Democracy, and Corruption. *European Economic Review, 54(4): pp. 608-621*

Binder, M. and Georgiadis, G. (2010). Determinants of Human Development: Insights from New State-Dependent Panel Models. *United Nations Development Programme (UNDR), Human Development Research Paper No. 24*

Bjorvatn, K. and Farzanegan, M. (2013). Demographic Transition in Resource-Rich Countries: Blessing or a Curse?. *World Development 45(c): pp. 337–351*

Bloom, D. (2005). *Education* And Public *Health:* Mutual Challenges Worldwide: Guest Editor's overview'. *Comparative Education Review, 49(4): pp. 437–51.*

Bloom, D. and Canning, D. (2003). How Demographic Change Can Bolster Economic Performance in Developing Countries. *World Economics, 4(4): pp. 1-14*

Bloom, D., Canning, D., Fink, G. and Finlay, J. (2007). Realizing the demographic dividend: is Africa any different?. *Program on the Global Demography of Aging Harvard University (PGDA) Working Paper No. 23*

Boone, P. (1996). Politics and the Effectiveness of Foreign Aid. *European Economic Review, 40(2): pp. 289-329*

Bräutigam, D. and Knack, S. (2004). Foreign Aid, Institutions, and Governance in Sub-Saharan Africa. *Economic Development and Cultural Change, 52 (2): pp. 255-285*

Burnside, C. and Dollar, D. (2000). Aid, Policies and Growth. *American Economic Review, 90(4): pp. 847-68*

Creel, M. and Farell, M. (1996). SUR Estimation of Multiple Time-Series Models with Heteroskedasticity and Serial Correlation of Unknown Form. *Economic Letters, 53: pp. 239-245*

Dollar, D. and Levin, V. (2006). The Increasing Selectivity of Foreign Aid 1984-2003. *World development 34(12): pp. 2034-2046*

Easterly, W. and Levine, R. (1997). Africa's Growth Tragedy: Policies and Ethnic Divisions. *Quarterly Journal of Economics, 112(4): pp. 1203-50*

FAO (2014). The State of Food insecurity in the World. Food and Agricultural Organization: Rome.

Farzanegan, M. (2014). Can oil-rich countries encourage entrepreneurship?. *Entrepreneurship & Regional Development: International Journal Volume 26(9-10): pp. 2-20*

Fiebig, G. (2001): Seemingly Unrelated Regression. In Baltagi, B. (Eds), A Companion to Theoretical Econometrics: pp. 0101-121, Backwell Publishers: UK.

Gomanee, K., Girma, S. and Morissey, O. (2005). Aid, Public Spending and Human Welfare: Evidence from Quantile Regressions. *Journal of international development, 17(3): pp. 299-309*

Gujarati, D. (2003). Basic Econometrics, 4th Edition. McGraw Hill: Columbus.

Hadjimichael, T., Ghura, D and Muhleisen, M, Nord, R and Ucer, E. (1995). Sub-Saharan Africa: Growth, Savings and Investment, 1986–93. *IMF Occasional Paper No. 118*

Hartford, T. and Klein, M. (2005). Aid and the Resource Curse. *The World Bank Group No. 291:* Washington.

Heckelman, J. and Knack. S. (2008). Foreign Aid and Market-Liberalizing Reform. *Economica, 75(299): pp. 524-548*

IMF, (2016). World Economic Outlook. *Frequently asked question: How does the WEO categorize advanced versus emerging and developing economies?.* Washington.

Isham, J. and Kaufmann, D. (1999). The Forgotten Rationale for Policy Reform: The Productivity of Investment Projects. *Quarterly Journal of Economics 114(1): pp. 149-184*

Jones, S., and Trap, F. (2015). Does foreign aid harm political institutions?. *Journal of Development Economics, 118: pp. 266-281.*

Kamel, N., Cholst, A., Funna, J., Guerrero, P., Hilton, R., Mitchell, J. and Nishio, A. (1998). Partnership for Development: Proposed Actions for the World Bank . The World Bank discussion paper: Washington. Retrieved from http://documents.worldbank.org/curated/en/1998/05/11349073/partnership-development-proposed-actions-world-bank-discussion-paper

Kanbur, R., Sandler, T. and Morrison, K. (1999). The Future of Development Assistance: Common Pools and International Public Goods. *Oversee Development Council (ODC) publication No. 25:* Washnigton.

Knack, S. (2001). Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests. *Southern Economic Journal, 68(2): pp 310-329*

Maren, M. (1997). The Road to Hell: The Ravaging Effects of Foreign Aid and International Charity. The Free Press: New York.

Masud, N. and Yontcheva, B. (2005). Does Foreign Aid Reduce Poverty? Empirical Evidence from Non-governmental and Bilateral Aid. *IMF working paper WP/05/100*

McGillivray, M. (2000). Aid and Public Sector Behavior in Developing Countries. *Review of Development Economics, 4(2): pp. 156-163*

Miller, T. and Kim, A. (2016). 2016 Index of Economic Freedom. The Heritage foundation: Washington.

Minoiu, C. and Reddy, S. (2009). Development Aid and Economic Growth: A Positive Long-Run Relation. *IMF working paper WP/09/118*

Mosley, P., Hudson, J., & Horrell, S., (1992). Aid, the Public Sector and the Market in Less Developed Countries: A Return to The Scene of Crime. *Journal of International Development, 4(2): pp. 139-150*

Nourou, M. (2014). Foreign Aid and Development: Looking Beyond the Growth Effect. *Journal of Economic Development, 39(4): pp. 100-115*

OECD (2015). Credit Reporting System (CSR). Organization for Economic Cooperation and Development: Paris.

Radelet, S. (2008). Foreign Aid. In A. Dutt and J. Ros (Eds), international handbook of of development economics: pp. Edward Elgar: London.

Ramsey, B. (1969). Tests for Specification Errors in Classical Linear Least Squares Regression Analysis. *Journal of the Royal Statistical Society,* 31(2): pp. 1969, S. 350–371.

Raworth, K. and Stewart, D. (2005). Critiques of the human development index: A review. In S. Fukuda-Parr, S., and Kumar, A. (Eds.), Readings in human development: Concepts, measures and policies for a development paradigm: pp. 164–176. Oxford University Press: Oxford.

Roodman, D. (2003). The Anarchy of Numbers: Aid, Development and Cross-country Empirics. *Centre for Global Development (CGD) Working Paper No. 32:* Washington.

UNDP (2004). The Reality of Aid 2004. The United Nations Development Programme: New York.

UNDP (2013). Human development report. Technical notes of calculating HDI. The United Nations Development Programme: New York.

UNDP (2015). How Changing Demographics Can Power Human Development?. The United Nations Development Programme: New York.

UNDP (2016). Human development report. The United Nations Development Programme, Various issues: New York

UNFP (2015). State of World Population 2015. United Nations Population Fund: New York.

Williamson, C. (2008). Foreign Aid and Human Development: The Impact of Foreign Aid to the Health Sector. *Southern Economic Journal, 75 (1): pp. 188-207*

World Bank (2016). World development indicators. The World Bank: Washington.Youth Policy, (2016). The Middle East and North Africa: Youth facts. Berlin. Retrieved from http://www.youthpolicy.org/mappings/regionalyouthscenes/mena/facts/

Appendix

- **A new blended system of aid disbursement**

There has been an intense debate in the literature over the reasons behind the loose developmental effects of foreign aid. Away from the straightforward reason that majority of aid flows follow political rather than development objectives (Kanbur et al., 1999). Further, several reasons have been introduced in the literature see for example (Radelet, 2008; Bräutigam and Knack, 2004, and others). However, these reasons can be condensed into two core causes, a) *Lack of clear development agenda* by the recipient countries which result in misallocation of aid and establishment of various simultaneous individual projects that even if successfully completed will have limited impact on the development of the target sectors; and b) *The mismatch between donors, recipients, and target beneficiaries' priorities and needs* that create an aid system that is incapable and inadequate of achieving the entailed goals.

In response to common pitfalls of the aid system, a new setting for aid disbursements based on sector-wide approaches instead of individual projects was introduced by Kamel, et al. (1998) and was later modified by (Kanbur, et al. 1999) and evolved into a system entitled the 'common pool approach'. Our following policy suggestions will build on these, however, we bring in some modifications for the system implementation and evaluation.

The basic rationale behind the common pool approach is that a pool of donors—instead of one—allocates unconditional funds to a recipient country's nationally representative reform plan and its implementation strategy, instead of individual projects. Such a system would increase the recipient country's sense of ownership and commitment while enhancing the achievability of developmental and reform goals relative to individual uncoordinated projects approach. The major drawback is the minimisation of aid received because many donors – besides political lobbies and private sector firms – might not agree to fund national plans instead of individual selective projects. In addition, donors' ability to pursue their own interests, conditions, and opinions will dwindle. Anyhow, detailed discussion for the common pool system and sector-wide approach is found in latter cited articles. Subsequently, we introduce a new system which

combines both approaches, sector-wide and common pool, whilst including our personal reflections that will hopefully alleviate the expected drawbacks of these approaches.

Figure 3 provides a basic graphical representation of the new blended system. The graph is elaborated in the following points,

a) The recipient country starts to move in the direction of prohibiting all forms of aid transferred to individual uncoordinated projects, but rather allows only aid channelled towards sectoral reform plans.

b) The governmental authority with the cooperation of civil society, the private sector, policy makers, and citizens, formulate a reform plan for the target sector.

c) A series of round table meetings are held in the recipient country capital that involves potential donors (single and multilateral), international experts, and other national parties in order to receive feedback on the preliminary proposal (sponsoring the meetings in the recipient country would ease national parties' involvement and cooperation, which reflects in a higher sense of belonging and ownership).

d) A final neat version of the proposal is then reformulated along with its implementation strategy that involves foreign and domestic shares. For instance, technical and human resources in the implementation strategy are distributed as 70% domestic and 30% by the donor's side. One major drawback of the common pool approach is the lack of donor involvement in the implementation, which in essence is a good thing to increase the sense of ownership by the recipient. However, this is reflected in lower lobbying by the private sector and political parties in the donor country to step forward for similar approaches. We, therefore, propose a cooperative share of interests, however still managed and authorised by the domestic country and in the framework of the domestic strategy.

e) The donor authority in this phase lies in accepting or rejecting the plan and the amount of fund provided, based on credibility and achievability of the plan.

f) Donors together with the recipient responsible authority would agree on a set of quantifiable and measurable assessment measures that are monitored and reported by the authority itself, though donors are also allowed to intervene in the monitoring and evaluation of these measures. This is an incentive for the authority and other parties involved in the strategy to abide by the rules and the plan. Also, in the case of system corruption, which is the likely case in the majority of developing and poor countries, it is well known that foreign assessment might intervene anytime to inspect and evaluate. In addition, donors will be more relieved and secure when they have a hand in the evaluation process, unlike the common pool approach which prohibits any form of foreign intervention in the process unless requested by the recipient.

g) Finally, a renewable annual funding plan is offered based on the realisation of these measures; failure to abide by the authority results in a violation of the contract. By doing this we eliminate any chances of aid misallocation, corruptive activities, and other illegal traits because the recipient knows for sure that failure will hinder any future possibilities of funding for other reform plans. Moreover, the ex-ante participation of civil society and citizens makes the government accountable to the public, which also affects their political popularity.

Eventually, let me conclude with this phrase from Kanbur, et al. (1999) "The possibility of the decline in aid will require a substantial amount of confidence on the part of recipients who adopt the approach. It requires a government with the willpower to say to donors: 'Here is my program in this sector: if you wish to help me implement it, you are most welcome. If you wish to do something different, I regret that you are not welcome in this sector in this country." The foremost outcome of the proposed blended system, common pool, and sector-wide approaches, is filtration of aid received as the recipient, by adopting these approaches, will be able to locate donors that endeavour no hidden, political, or ideological agendas but only support the recipient country's development efforts.

Recepient sectoral reform

Preliminary proposal with cooperation and integration of policy makers, civil society, private sector and citizens

Series of meetings with potential donors (multilateral or single) to present the proposed plan, receive feedback and suggestions

The recipient country will provide bi annual report on the donor consensus, while defining quantifiable assessment measures to be monitored by the donor

The donor's authority lies within accepting or rejecting the proposed plan, and the amount of funding provided. However, no direct intervention is allowed

The fund is provided on basis of a renewable annual plan. Fail by the recipient to meet the specified assessment measures, will result in violating the contract
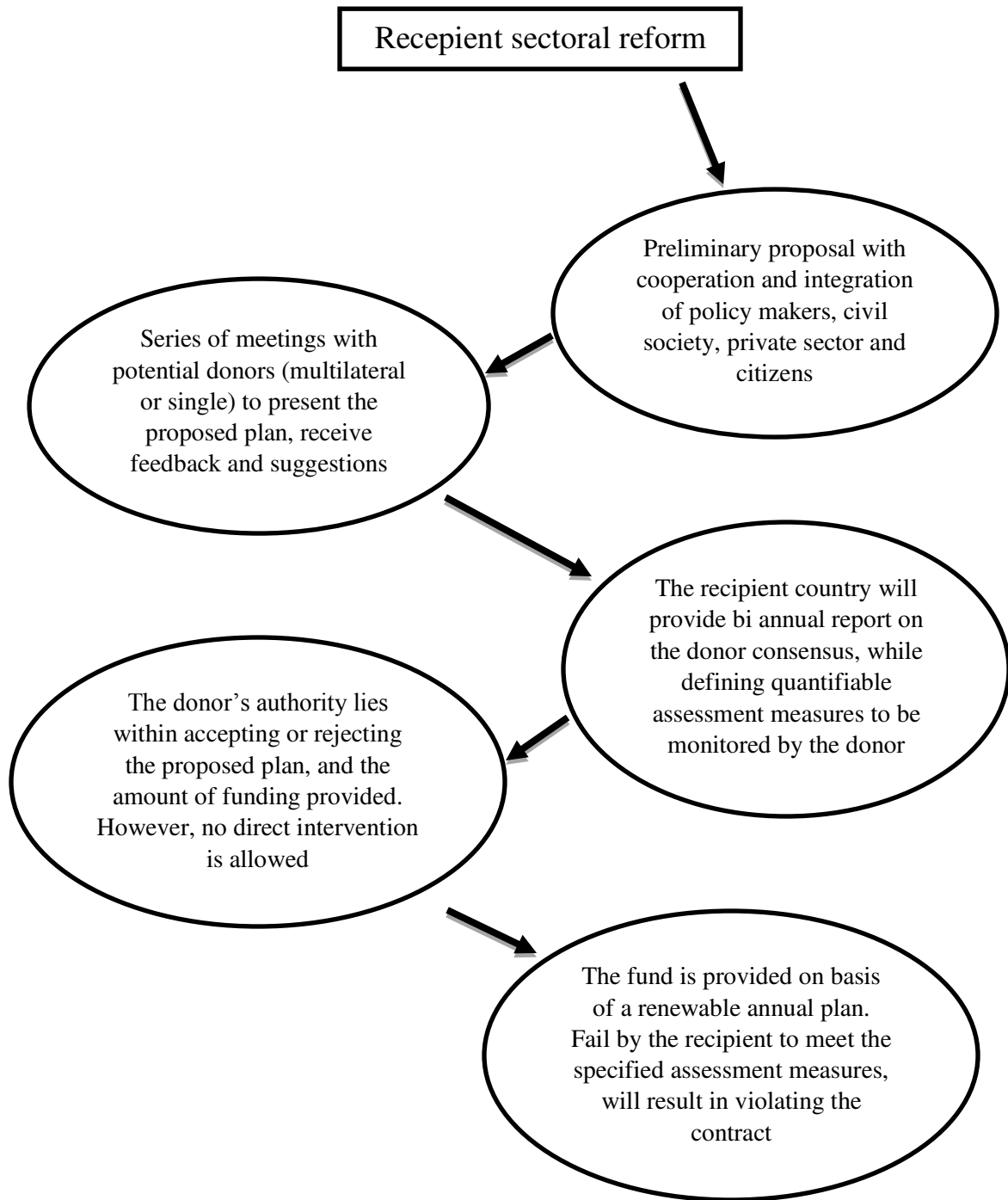
Figure A1: Graphical representation of the blended system of aid

Table A1

Selected developing countries and their corresponding chosen indicators, average (1995-2013)

Country	Working Age Population	Aid Dependence	Economic freedom	HDI
Bangladesh	62.3	High	50.0	0.54
Kyrgyzstan	63.6	High	58.5	0.62
Moldova	70.2	High	56.8	0.66
Mongolia	67.1	High	59.8	0.68
Egypt, Arab Rep.	62.0	Low	55.6	0.68
Dominican Republic	61.9	High	62.9	0.69
China	71.8	Low	52.75	0.71
Algeria	66.5	Low	55.6	0.71
Albania	65.8	High	58.9	0.71
Tunisia	67.9	Low	58.8	0.72
Armenia	67.3	High	68.6	0.72
Ukraine	69.8	Low	49.7	0.73
Iran, Islamic Rep.	68.7	Low	42.5	0.73
Georgia	67.3	High	64.2	0.74
Brazil	66.8	Low	59.2	0.74
Mauritius	70.0	High	70.5	0.76
Lebanon	66.5	High	58.6	0.76
Panama	63.5	Low	66.1	0.76
Malaysia	66.1	High	63.3	0.77

Notes: According to Knack, (2001), we classify countries that have ODA (% GNI) above 4% or ODA (% government expenditures) above 15% as high aid dependence countries. For the economic freedom index, countries score of 50-59.9 are categorized as mostly unfree and countries score below 50 are categorized as repressed. HDI below 0.5 represent low developed countries, and a score between 0.5-0.79 represent medium developed countries.

Source: Calculated by author from data provided by UNDP (2016), World Bank (2016) and Miller and Kim (2016).

Table A2

Key variables' descriptive statistics

	aid	*Edu_aid*	*Infra_aid*	*Pop_aid*	*Prod_aid*	*eco*	*hdi*
Mean	5.780	3.364	2.545	2.090	3.257	3.980	-0.516
Median	5.899	3.517	2.663	2.255	3.499	4.017	-0.444
Maximum	8.594	6.098	6.222	5.743	6.473	4.328	-0.179
Minimum	0.401	-1.319	-1.194	-4.268	-3.080	2.831	-1.119
Std. Dev.	1.500	1.363	1.366	1.886	1.593	0.201	0.239
Observations	104	104	104	104	104	104	104

Table A3

Variables definition and sources

Variable	Definition and sources
aid	Net aggregate ODA received as a percent of central government expense (OECD, 2015).
edu_aid	Education sector decomposed aid (reported in CRS as total education) reports ODA transferred by all donors via all channels reported in constant US$ prices of 2013 and in the form of commitments (according to CRS, this type of flows infer obligations on the recipient to perform a specific purpose during a predetermined period). Total education contains aid transferred for the advantage of all levels of education from primary to post-secondary education, as well vocational education, teacher training, and education policies (OECD, 2015).
pop_aid	Population policy and reproductive health aid (reported in CRS population policy and reproductive health) report ODA transferred by all donors via all channels reported in constant US$ prices of 2013 and in the form of commitments. This aid support reproductive health, and family planning policies (OECD, 2016).
infra_aid	Social infrastructure and services decomposed aid (reported in CRS as other social infrastructure and services) reports ODA transferred by all donors via all channels reported in constant US$ prices of 2013. Social infrastructure and services' aid finances social welfare services, employment laws, low-cost housing policies, and cultural and recreation policies (OECD, 2015).
prod_aid	Production sector decomposed aid (reported in CRS as total production) reports ODA transferred by all donors via all channels reported in constant US$ prices of 2013 and in the form of commitments Total production comprises aid transferred for the advantage of agricultural, fishery, forestry, industry, mining and construction sectors. These transfers finance various segments related to productivity enchantment techniques, services, training, research and development, exploitation and discovery (OECD, 2016).
hdi	Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The index scale is from 0 to 1 (UNDP, 2016)
eco	Heritage's economic freedom index is based on 10 quantitative and qualitative factors, grouped into four broad categories, or pillars, of economic freedom: <u>Rule of Law</u> (property rights, freedom from corruption); <u>Limited Government</u> (fiscal freedom, government spending); <u>Regulatory Efficiency</u> (business freedom, labor freedom, monetary freedom); and <u>Open Markets</u> (trade freedom, investment freedom, financial freedom). A country's overall score is derived by averaging these ten economic freedoms, with equal weight being given to each on a scale from 0 to 100 (Miller and Kim, 2016)
trade	Sum of exports and imports as a percentage of GDP as an indication of the degree of the country's trade openness (World Bank, 2016).
rural	Agriculture value added per worker is a measure of agricultural productivity. Value added in agriculture measures the output of the agricultural sector that comprises value added from forestry, hunting, and fishing as well as cultivation of crops and livestock production. Data are in constant 2005 U.S. dollars (World Bank, 2016).
poverty	The percentage of the population living on less than $1.90 a day at 2005 international prices as a percent of total population (World Bank, 2016).
education	General government expenditure on education as a percentage of GDP. It includes expenditure funded by transfers from international sources to the government (World Bank, 2016).
health	Total health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities and nutrition activities but does not include the provision of water and sanitation (World Bank, 2016).
secondary	Gross enrollment ratio in secondary education is the ratio of total enrollment, regardless of age, to the population of the age group (World Bank, 2016).
rents	Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents as a percentage of GDP (World Bank, 2016).
remittances	Personal remittances consist of all current transfers in cash or in kind made or received by resident households to or from nonresident households (World Bank, 2016).
working	Population ages 15 to 64 is the percentage of the total population that is in the age group 15 to 64 (World Bank, 2016)

Table A4

Panel fixed effects regressions of *pop_aid* over set of education indicators

Dependent variables	Ln gross primary	Ln primary completion	Ln gross secondary
pop_aid	0.006	-0.011	0.007
	(0.44)	(-0.63)	(0.75)
CONTROL	YES	YES	YES
R.sq-within	0.419	0.464	0.707
Countries	139	139	139
F statistic (Prob-value)	(0.00)	(0.00)	(0.00)