

# Studien und Materialien



## THE TRADE IMPLICATIONS OF AID INSTRUMENTS AND TYING PRACTICES

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**Part A**

**The trade implications of aid instruments and tying practices:  
Overview**

July 2009

**Edward J. Clay, Matthew Geddes, Isabella Massa, Luisa Natali and  
Dirk W. te Velde**

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## **Glossary**

CRS	Creditor Reporting System (of the OECD)
DAC	Development Assistance Committee (of the OECD)
EU	European Union
FDI	Foreign Direct Investment
HIPC	Highly Heavily Indebted Poor Country
IDA	International Development Association (of World Bank)
LDC	Least Developed Country
MFI	Multilateral Financial Institution
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PDE	Paris Declaration Evaluation
TC	Technical Cooperation
WTO	World Trade Organisation
W&SS	Water and Sanitation Sector

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## **Executive Summary**

*This study contributes to the debate on aid-effectiveness by analysing a prominent, under-researched policy question: do bilateral grants and loans distort trade in different ways? Focusing on this 'gap' in policy analysis, the study first reviews the theoretical arguments and after finding little evidence embarks on a fresh empirical investigation into the possible links between levels of concessionality and trade distorting effects of aid.*

*Phase One of the study (Clay and Turner, 2007) found no direct evidence and few a priori reasons to expect the choice of aid instrument, grant or loan, would have differential trade distorting implications. Rather, as aid policy analysts and the exiguous literature suggest, it is whether or not aid is tied that is likely to determine the differential trade distortion effects. Formal tying is self-evidently a distortion, except where the funder is the most competitive source. Some de facto tying is intentional. Some distortions may occur that are unperceived, possibly because they are unintended outcomes of donor-recipient relationships and information asymmetries.*

*In Phase Two three follow-up research activities were undertaken: first, a global econometric analysis of the relationships between levels of bilateral aid flows and exports from DAC member countries (Massa and te Velde, 2009) and second, an exploratory country study of Ghana looking at use of instruments, aid modalities, tying practices and links to possible intended and unintended distorting outcomes (Clay and others, 2009a). As members of the ODI have also been acting as core group for the OECD-DAC-PDE thematic study on the untying of aid, it was agreed that the Ghana study would also act as the pilot for a set of country recipient studies undertaken in Phase II of the OECD study. Accordingly the third activity, the sectoral and project-level methodology developed in the Ghana study has been used in these recipient country studies. Accordingly the methodology for sectoral level analysis of aid disbursement, sourcing and cost-effectiveness developed during the Ghana study is being used for a set of investigations focused primarily on the water and sanitation sector in these studies. The commitment of donors to cooperate with the OECD study link has considerably facilitated this investigation, and its report in December 2009 will provide further evidence on this previously relatively under-researched subject.*

*The consistent finding of the whole study is that there is no significant difference as between grant and loan ODA in terms of trading distorting effects. In view of a widespread view that bilateral loans are in practice more distorting than grant aid, that is an interesting result. Nevertheless it is also stressed that this finding should be regarded as provisional. The global econometric analysis was constrained by serious data limitations and the country study by time and resource. But encouragingly the findings of the literature review in Phase One now complemented by the Phase Two global econometric results and the Ghana country study are highly consistent and a justification for the eclectic approach is adopted. Total aid flows and sourcing, as reflecting formal and informal de facto tying practices are the main aid-related sources of trade distortion. The choice of instrument (grant or loan) is per se not an influence on trade.*

*The provisional findings point to the need for further research, especially at a country and sub-sectoral level, of the relationships between use of instruments (extended if possible to include FDI and export credits), tying practices, sourcing of goods and services and aid-effectiveness.*

## **1. Objectives and scope**

This study contributes to the debate on aid-effectiveness by analysing a prominent, under-researched policy question: do bilateral grants and loans distort trade in different ways? Whilst there has been discussion within the OECD over whether concessional loans distort trade, there is no equivalent examination of the impact of grants. The study focuses on this ‘gap’ in policy analysis and provides empirical evidence on the possible links between levels of concessionality, tying practices and trade distorting effects of aid. Because of the wide range of possible trade effects of aid flows, the study focuses more narrowly on trade distortion as an export competition issue, the object of both OECD monitoring and WTO trade negotiation processes.

## **2. Context**

This study relates to the debate within the OECD around two voluntary and non-binding commitments by member governments: the 1992 ‘Helsinki Agreement’ on disciplines for tied concessional loans and the 2001 recommendation of the OECD DAC to untie all aid (loans and grants) to Least Developed Countries (LDCs). Following these decisions, first the share of bilateral aid provided as loans and then tied official development assistance (ODA) reported has decreased significantly both as a proportion of total ODA and in real terms. The concessional multilateral lending also declined with the HIPC debt reduction initiative. Empirical evidence is needed on the consequences of these shifts in the structure of aid and to compare the trade distorting potential of the remaining tied aid in relation to untied flows and loans with grants.

The study is also timely because there is a renewal of interest in the relative merits of grant and concessional lending because of three major developments in the policy environment. First, the global financial crisis is leading to a re-examination of ways of leveraging additional resources; both because of the contraction in ODA and short-term crisis related funding requirements of developing countries. Second, longer term innovative funding is going to be required for climate change initiatives. Third, there is also an element of competition from the loans provided by non-DAC donors.

## **3. Phase One Findings Updated**

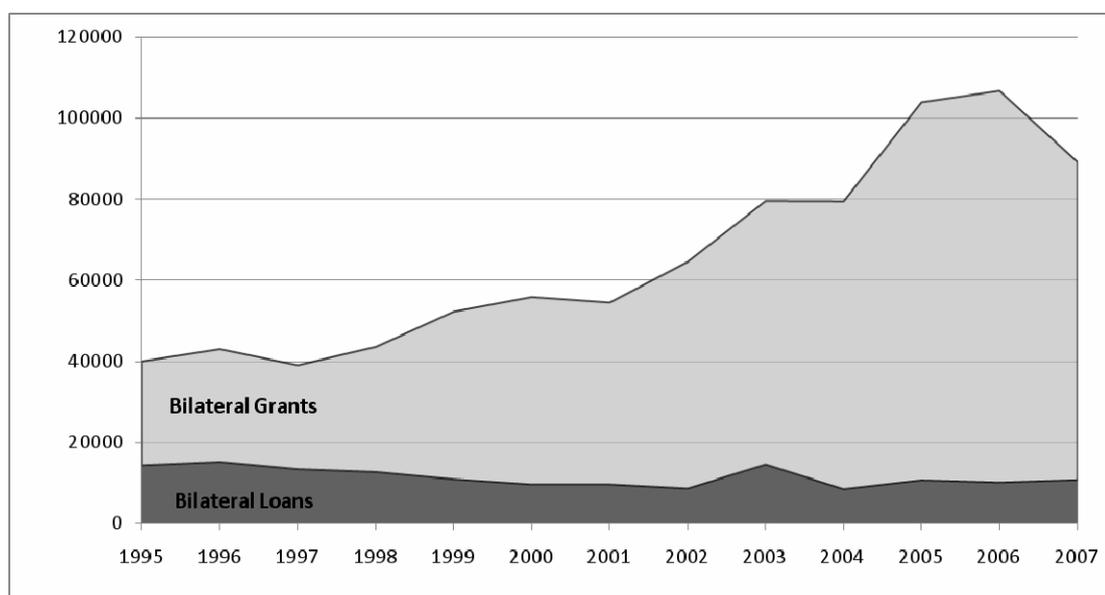
The first phase considered trends in aid focusing on the roles of grant and loan ODA using the OECD statistical data up to 2005, and reviewed the extant published and grey literature. This overview offers an opportunity to update the aid picture and also look more closely at what

type of aid donors have continued to provide, to which recipients, and in more detail for what sectoral uses. Particularly with respect to tying practices, it is necessary to look closely at the detail to provide an informed understanding of the broader picture.

The study has quantified the growing dominance of grant aid within ODA or “aid”. Bilateral loan ODA and multilateral lending fell by 21% and 5% respectively between 1994-5 and 2004-5. The shift from loans to grants was general, including all DAC donors and multilateral agencies, different sectoral uses and recipient country regions, excepting East Asia and Europe. These trends relate, as official views confirm, to the 1992 Helsinki Agreement and the HIPC debt reduction initiative as well as to the modified guidance for IDA and concessional and wholly grant funding under IDA14. During 2005-7 loans accounted for 10% of bilateral ODA, 39% of multilateral ODA and 17% of total ODA (Annex Table 1).

But 2007 may have been a turning point: longer-term lending commitments held up and became relatively more important. Bilateral grant aid with the ending of many debt relief actions is proving to be volatile in the global financial crisis despite commitments to increase ODA (Figure 1). Between 2006 and 2007 DAC members’ bilateral grants fell by 16% whereas loans increased in real terms by 1%.

**Figure 1 Bilateral Loan and Grant ODA, 1995 to 2007**  
(Commitments in Constant 2007 US\$ mn)



Source: OECD CRS database,

There are also large and growing differences amongst DAC members with respect to both uses of concessional loans as aid modalities and in different sectors, and importantly with respect to their tying practices. During 2005-7 only six DAC members provided a significant proportion

of ODA in loan form: Japan - 49%, Portugal - 39%, Spain - 18%, France - 16%, Italy - 15%, and Germany - 12%. Only three donors, namely Japan, France and Germany, accounted for 89% of loan ODA (Annex Table 2).

Bilateral lending is largely focused on infrastructural investment: during 2005-7 transport accounts for 25% of lending, water and sanitation for 19%, and energy for 17% (Annex Table 3). Japan in particular uses loan instruments very widely. A closer examination within sectors indicates also some concentrations of lending in areas where donor countries have established export industries (e.g. France, Japan and Spain in rail transport) (Annex Table 4). Both bilateral and overall loan ODA is concentrated in a relatively small number of countries. The most significant of these countries during 2003-2008, accounting for some 50% of bilateral loan ODA, were China, India, Indonesia, and Vietnam, which are LICs but neither HIPC nor LDCs. Most LDCs have been supported almost entirely with grant bilateral ODA. However there are some LDCs for which loans have been perhaps a surprisingly high proportion of ODA, e.g. Bangladesh and the Democratic Republic of the Congo (Annex Table 5). The rationale behind this allocation of concessional loan aid perhaps merits further investigation.

Formal and *de facto* tying can have significant trade distortion implications, as reflected in divergences of views within the OECD membership and within the WTO Doha Development Round. In particular, one form of ODA, food aid, which was exempted from the Export Credit and DAC untying commitments as well as disciplines on export subsidies in the 1994 WTO Agreement on Agriculture, became the focus of negotiation concerning export competition in the WTO Doha Round.

How might grants and loans differ? The near absence of any serious discussion of possible links between concessionality and trade distortion in the aid literature reflects a near consensus that: concessionality per se is unlikely to have trade distorting implications. Rather the literature suggests that it is aid-tying practices, both intentional and unintentional, which are the main sources of trade distortion. The 'gap' in the literature is seen to justify further investigations. The evidence for food aid, the only form of ODA for which tying practices have been subject to more systematic investigation, confirms that robust findings on trade distorting effects are obtainable by adopting an eclectic approach, employing a combination of complementary quantitative statistical analysis and scrutinising budgetary practices and the highly specific uses of assistance at a sectoral level.

#### **4. Phase Two Findings**

In order to address the gap, further research has been undertaken in two areas:

- Global level econometric analysis of the relationships between aid and bilateral trade flows of recipients and DAC donors;
- Exploratory country case study of donor and recipient practice for Ghana.

The country study has also been used to develop a methodology for analysis of grants and loans funding and tying practices, and trade at a sectoral level.

##### **Global econometric analysis**

This component study examines whether there is any trade distorting effects of grants or loans at an aggregated level, and whether grants or loans are more trade distorting. The analysis considers bilateral exports between 15 DAC donor countries and 74 recipient countries over the period 1980-2006, but only where the donor is providing both grant and loan aid. It then examines whether bilateral aid from a particular donor to a recipient country affects trade between that donor and recipient pair differently from aid from other donors. If this is the case, bilateral aid might be trade distorting. Distinguishing between grant aid and loans in the same regression tests whether either of these aid categories is trade distorting, and if so whether they have similar or different trade effects.

Using several econometric methodologies, both loans and grants were found to have trade distorting effects on export flows from donor countries, and perhaps surprisingly grants were, if anything, more trade distorting than loans. This evidence suggests that grants by donor countries can create even stronger economic links with recipient countries than loans, e.g. by fostering the environment for trade, or encouraging recipient countries (perhaps inadvertently) to buy their goods. This finding also holds after controlling for pre-existing cultural and linguistic links, and provides the context for exploring these issues at country level.

##### **Ghana Country Study**

The study undertaken between November 2008 and February 2009 includes statistical analysis, a survey of current donor practices on use of aid modalities and on sourcing and procurement practices with government and the country offices of 10 DAC members, and two project case studies focusing especially on the water and sanitation sector (W&SS).

The role of different aid instruments in Ghana reflects its LIC status, no longer a LDC and moving toward middle-income status. Oil revenue is also about to come on stream. Loans represented around a third of ODA, but only 9% of bilateral aid. As a HIPC Ghana has benefitted from extensive debt reduction, largely financed with grant aid. However, the trend

from grants to loans within ODA is expected to or is already reversing. There is also an element of competition from the tied loans provided by non-DAC donors.

An econometric analysis modelled on the global analysis, but with a more complete data set for 2002-2007 including tying status, indicates that loans do not have a significant impact, whereas grants provided by the donor, and to a lesser extent grants from other bilateral donors, are important determinants of a donor's exports flows to Ghana. Donor tying of aid has a significant but quantitatively modest influence.

The qualitative and project case study evidence is consistent with the econometric results. The normal practice of MFIs is to require international competitive bidding for the management of projects through primary or head contracts and in the provision of technical assistance that is widely considered as likely to result in successful tenders by internationally registered companies. Bilateral aid contracts, especially where TC is involved, are more likely to be won by organisations registered in the donor country.

Overall, the key determinants of likely trade outcomes appear to be first the providing of aid and the procurement process. This process concerns not just formal procedures but the way these are institutionalised for goods and services procured under both the head contract and also subcontracts. The W&SS case studies showed how the use of the country procurement system makes it more likely that goods and services will be sourced locally, or by importation in a broadly competitive way. There is no *prima facie* evidence for assuming distorting effects of different aid instruments. The provisional conclusion is that sourcing rules and the culture of the implementing agency, the latter partly a consequence of highly imperfect information, are important influences.

Different aid instruments are not found to be a significant influence on trade outcomes. The lack of observable association between loans and donor exports in the econometric analysis might partly reflect the quantitative unimportance of loan ODA. A further factor may be that almost all those DAC members providing loans, excepting Japan, were EU states and procuring under EU procurement rules, and so any trade effect may be spread across the whole EU single market.

This study, in acting as a pilot for country studies that are part of the OECD 'Thematic study on untying of aid', has provided insights and suggested further hypotheses to explore, and ways to investigate how untying and tying practices are interconnected with uses of aid instruments and modalities. For example, it is important to consider

procurement and sourcing not only at the primary contract level, which determines an activity's formal tying status, but also in terms of sub-contracting and the practices of contracted agencies. Finally, the country study confirms the value of adopting an eclectic approach, bringing together findings from different forms of analysis in a carefully considered way.

### **Sectoral and project-level methodology**

The third component of Phase II, was the development of a methodology for sectoral level analysis of aid disbursement, sourcing and cost-effectiveness developed during the Ghana study. This methodology is being used for a set of investigations focused primarily on the water and sanitation sector in five country studies being undertaken as part of the OECD thematic study on untying of aid. The commitment of donors to cooperate with the OECD study link considerably facilitated the Ghana investigation, and its report in December 2009 will provide further evidence on this previously relatively under-researched subject of the relationships between aid instruments and the sourcing of goods and services and so trade.

## **5. Implications for further research and possible follow-up**

Global analyses with data whose deficiencies are unknown, especially going back beyond the immediate past, are a source of hypotheses for further exploration rather than robust findings. The study shows that it is very difficult to find a significant and robust difference as between grant and loan ODA in terms of trading distorting effects. This result is very useful in itself and a key element in the overall approach to this study. It is now our judgement that the accumulation of carefully designed and patiently completed country level studies adopting an eclectic approach will provide the basis for more robust conclusions in future research. For some donors such as Australia and Canada the moves to formal untying are very recent. So it is probably too soon to infer what the full implications are of such policy changes.

Much of what has been learnt so far in the Ghana pilot study about methods of analysis is set out more fully in the third companion paper on sectoral analysis. The usefulness of the approach requires more extensive testing. The OECD study will provide an opportunity to explore the usefulness of the approach adopted in the Ghana study.

Some of the issues, which the Ghana study addresses, will also be considered again in the light of findings from the wider OECD thematic study expected in December 2009. This

includes a series of further country level econometric analyses of the relationships between donor exports and different development finance instruments also including export credits as reported by members to the OECD. Because of the renewed interest in the relative merits of loans and grants funding, it might be an opportune moment in early 2010 after the OECD report has been accepted for a stocktaking workshop, both on the policy and research implications of recent investigations including this study.

## Statistical Annex

**Table 1 Bilateral Grant and Loan ODA 1995-2007 (Commitments in constant 2007 US\$ millions)**

Year	Bilateral Loans	Bilateral Loans (% of total)	Bilateral Grants	Bilateral Grants (% of total)	Total Bilateral ODA
1995	14370	36	25673	64	40286
1996	15190	35	27822	64	43598
1997	13432	34	25656	65	39317
1998	12719	29	30863	70	44021
1999	10958	21	41340	79	52658
2000	9692	17	46176	82	56482
2001	9681	18	44836	82	54736
2002	8686	13	55899	86	64899
2003	14567	18	65016	81	80362
2004	8535	11	70944	89	79651
2005	10729	10	93229	89	104968
2006	10183	9	96578	90	107387
2007	10802	12	78403	87	89952

Source OECD CRS database

**Table 2      Loan and Grant ODA by donor (2005-2007)**

Donor	Total Bilateral ODA (US\$ mill)	Grants (% of donor ODA)	Loan (% of donor ODA)	Donor loans as % of Total Bilateral Loan ODA
Australia	5,391	97	3	0
Austria	3,725	100	0	0
Belgium	4,710	98	2	0
Canada	8,454	100	0	0
Denmark	4,394	99	0	0
Finland	1,941	97	0	0
France	26,080	84	16	13
Germany	28,404	83	12	11
Greece	652	100	0	0
Ireland	1,948	100	0	0
Italy	6,667	85	15	3
Japan	41,882	51	49	65
Luxembourg	670	100	0	0
Netherlands	18,595	100	0	0
New Zealand	875	100	0	0
Norway	7,500	98	0	0
Portugal	1,066	61	39	1
Spain	8,390	82	18	5
Sweden	8,078	99	0	0
Switzerland	4,182	98	0	0
United Kingdom	26,033	99	0	0
United States	76,758	100	0	1
Bilateral DAC donors	302,307	89	10	20
Multilateral donors	96,061	60	39	80
Total ODA	398,368	82	17	100

Source: OECD CRS database

**Table 3 Sectoral Distribution of Bilateral Loan and Grant ODA (3 year total 2005-2007)**

Sector	Total Bilateral ODA (US\$ mill)	Grant ODA (% of total)	Loan ODA (% of total)	Sector share of Total Loan ODA (%)
110: I.1. Education	21,832	97	3	2
120: I.2. Health	13,473	97	3	1
130: I.3. Population & Reprod. Health	14,306	100	0	0
140: I.4. Water Supply & Sanitation	13,048	53	47	19
150: I.5. Government & Civil Society	29,110	99	1	1
160: I.6. Other Social	11,296	98	2	1
210: II.1. Transport & Storage	13,686	42	58	25
220: II.2. Communications	963	76	20	1
230: II.3. Energy	10,933	50	50	17
240: II.4. Banking & Financial Services	3,976	53	27	3
250: II.5. Business & Other Services	3,609	90	5	1
310: III.1. Agriculture, Forestry, Fishing	10,542	79	20	7
320: III.2. Industry, Mining, Constr.	3,202	82	11	1
331: III.3.a. Trade Policies & Reg's	1,500	99	0	0
332: III.3.b. Tourism	593	18	79	1
400: IV. Multi-sector / Cross-Cutting	17,771	83	13	8
510: VI.1. General Budget Support	7,956	89	11	3
520: VI.2. Dev. Food Aid/Food Sec. Ass.	3,009	98	2	0
530: VI.3. Other Commodity Ass.	725	37	63	1
600: VII. Action Relating To Debt	58,068	97	3	6
700: Viii. Humanitarian Aid	22,471	98	2	1
910: Ix. Donor Administrative Costs	9,313	100	0	0
920: X. Support To Ngo's	5,556	100	0	0
930: Xi. Refugees In Donor Countries	5,750	100	0	0
998: Xii. Unallocated/Unspecified	3,705	98	1	0
Total Bilateral ODA	286,393	88	11	100

Source: OECD CRS database. Commitments, US\$mn

Note: Total ODA also includes two minor types of flow: Grant-like and Equity Investment therefore is greater than the sum of Grant ODA and Loan ODA for a few donors.

**Table 4 Top 5 Bilateral Loan ODA: Five largest donors in Transport Sector between 2003 and 2007**

Sub-sector	France Bilateral loan ODA	Germany Bilateral loan ODA	Italy Bilateral loan ODA	Japan Bilateral loan ODA	Spain Bilateral loan ODA	Other DAC Bilateral loan ODA	Total DAC Bilateral loan ODA US\$ mill	Loans as % of bilateral sub-sector ODA	Bilateral loans as % of total sub- sector loan ODA	Bilateral loans as % of total sub- sector ODA
21010 Transport policy & admin.	100%						0.1	<0.5%	<0.5%	<0.5%
21020 Road transport	9%	2%	3%	77%	3%	5%	3008	41%	31%	16%
21030 Rail transport	21%	8%	2%	55%	13%	1%	5947	97%	92%	87%
21040 Water transport	3%	8%	4%	82%	2%	1%	1123	75%	83%	57%
21050 Air transport	7%	0.1%		90%	3%		1223	74%	90%	66%
21061 Storage							0	-	-	-
21081 Transport education & training							0	-	-	-
21000 Transport Sector ODA (US\$mn)	1631	645	244	7628	918	234	11301 <sup>a</sup>	19209 <sup>b</sup>	19501 <sup>c</sup>	33249 <sup>d</sup>
(Bilateral Loan ODA as % Transport Sector Total)	(14%)	(6%)	(2%)	(68%)	(8%)	(2%)	(100%)	(59%)	(58%)	(34%)

Notes: Source OECD DAC and CRS databases, commitments in current US\$mn, between 2003 and 2007 inclusive.

'Other' comprises Belgium and Portugal. 'Bilateral' comprises DAC members only.

a. Total Sector Loan ODA; b. Total bilateral sector (grants + loans) ODA; c. Total Sector Loan (Bilateral + multilateral) ODA; d. Total Sector (Bilateral + Multi\lateral) ODA

**Table 5: Bilateral DAC member Loan commitments by individual recipient partner (2003-2008)**

Recipient Country	Bilateral loans (US\$ mn)	Bilateral loans as % of bilateral ODA	Bilateral loans as % of total loan ODA	Bilateral and Multilateral loans as % of total ODA
<b>LDCs</b>				
Bangladesh	669	18	21	46
Bhutan	30	20	30	35
Cambodia	76	6	27	17
Cape Verde	276	41	81	42
Djibouti	7	4	14	16
Laos	34	6	24	17
Maldives	29	31	43	41
Samoa	39	24	65	27
Solomon Islands	0	0	1	1
Yemen	93	15	33	28
<b>LDC HIPCs</b>				
Afghanistan	30	0	8	4
Burkina Faso	41	3	7	27
Burundi	16	2	12	10
Comoros	2	2	25	5
Congo, Dem. Rep.	387	11	48	14
Ethiopia	273	7	15	24
Gambia	1	1	4	9
Guinea	5	1	7	9
Madagascar	3	0	0	24
Malawi	5	0	3	7
Mauritania	35	8	24	19
Mozambique	36	1	5	15
Rwanda	40	3	22	9
Sao Tome & Principe	1	1	12	7
Senegal	43	2	11	16
Sierra Leone	35	5	30	11
Sudan	1	0	2	1
Tanzania	93	2	5	27
Uganda	39	2	3	30
Zambia	51	1	16	7
<b>Non-LDC HIPCs</b>				
Bolivia	17	1	4	18
Cameroon	125	3	27	10

Recipient Country	Bilateral loans (US\$ mn)	Bilateral loans as % of bilateral ODA	Bilateral loans as % of total loan ODA	Bilateral and Multilateral loans as % of total ODA
Congo, Rep.	259	14	82	15
Cote d'Ivoire	18	3	100	2
Ghana	247	8	20	28
Haiti	15	1	4	16
Honduras	71	4	13	24
Kyrgyz Republic	76	18	64	18
Nicaragua	60	4	12	24
<b>All Developing Countries</b>				
Total	31559	11	47	18

Source: OECD DAC and CRS databases, commitments.

Notes: Bilateral here includes only DAC member countries.

This table includes all LDCs and HIPC countries which received ODA loan commitments between 2003 and 2008.

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## **Part B**

### **The trade distortion implications of loans and grants**

*An econometric examination*

July 2009

**Isabella Massa and Dirk Willem te Velde**

#### **Abstract**

This paper examines whether there is any trade distorting effects of grants or loans at an aggregated level, and whether grants or loans are more trade distorting. We estimate a gravity model on bilateral exports between 15 OECD donor countries and 74 recipient countries over the period 1980-2006, and test for the effects of loans and grants on trade flows, taking into account other standard explanatory variables.

Using several econometric methodologies, we found that both loans and grants have trade distorting effects on export flows from donor countries, and perhaps surprisingly that grants are, if anything, more trade distorting than loans. These results are in contrast with recent discussions that grants should be preferred to loans since they have no trade distorting effect. We interpret this evidence as an indication that grants by donor countries create even stronger economic links with recipient countries than loans, e.g. by fostering the environment for trade, or encouraging recipient countries (perhaps inadvertently) to buy their goods. And this finding holds after controlling for pre-existing cultural and linguistic links.

## 1. Introduction

According to the OECD Development Assistance Committee (DAC), Official Development Assistance (ODA) consists of grants and concessional loans. The nature of these two types of aid varies: grants are transfers with no obligation to repay, while loans are transfers for which repayment is required, even though on concessional terms. Historical trends show that loans were dominant between 1960 and 1980, but then the situation has reversed more recently: the share of grants has risen continuously and most ODA currently takes the form of grants. In 2006 the share of grants was more than three quarters of total net ODA flows from DAC countries.

But is there a reason why grants should be preferred to loans or *viceversa*, and will they have differential effects on trade? The literature on whether aid to developing countries should be given in the form of grants or loans dates back a long time. Some argue that loans are used more effectively than grants, while others suggest grants are likely to promote growth in poor highly indebted countries. Recently some have argued in favour of grants over loans as grants would have no trade distorting effects. However, the relationships between aid and trade are complex (Page, 2006) and there is no empirical evidence on whether it is possible to find any trade distorting effects of grants or loans at an aggregated level, and whether grants or loans are more trade distorting, or simply similarly (non) distortionary. The present study focuses on these unexplored issues. In particular, it suggests a test for trade distortion of bilateral grants and loans which is applied to bilateral trade and aid data at the macro level.

This study is part of a larger study and is being done in conjunction with two other studies. One study examines the trade distortionary effects of loans and grants in a single country, Ghana, and another study examines one sector, water and sanitation, in detail.

The remainder of the paper is structured as follows. In Section 2 we provide a brief overview of the literature on the relationship between aid and trade, and highlight that there exists a gap on the understanding of the different trade distorting effects of loans and grants. Section 3 and Section 4 describe respectively the specifications and data used in the empirical analysis. The main results are presented in Section 5. Section 6 concludes.

## 2. Theoretical Background

Foreign aid and its interaction with trade have garnered a lot of attention in the theoretical and empirical economic literature (e.g. Page, 2006; Cali and te Velde, 2008). A substantial amount of research has investigated the causality between aid and trade pointing out to contradictory evidence.

On the one hand, a few arguments support the hypothesis of a positive causal relationship running from aid to trade. In particular, aid may affect trade directly, when it is tied to the exports of donors by a formal agreement. Aid can also affect trade indirectly through different channels. First, aid might increase income in the recipient countries thus leading to an increase in their imports (see, e.g., Lahiri and Raimondos-Moller, 1995; Lloyd *et al.*, 2000). Second, it may be linked to the implementation of specific structural economic reforms — such as liberalisation — in recipient countries, which reduce trade barriers and so increase donors' access to markets and consequently their exports (Morrissey, 1995). Third, aid may affect indirectly trade by creating links between donors and recipients. For example, aid may make recipient countries feeling more disposed to buy goods from the donors (see Wagner, 2003; and Lloyd *et al.*, 2000). Donor countries may also decide to finance development projects that require goods and services provided by industries in which they are particularly strong — the so-called aid induced trade dependency (Wagner, 2003). Moreover, tied aid enhances recipients' exposure to donors' good and services which may encourage future exports (see, among the others, Osei *et al.*, 2004).

On the other hand, a number of studies favour the opposite causal relationship running from trade to aid. The rationale behind this idea is that donors, due to the influence of lobby groups, prefer to allocate aid to countries with which they have the greatest commercial links (Morrissey *et al.*, 1992). The hypotheses of no relationship or bilateral causal relationship between aid and trade have also been raised by, for example, Osei *et al.* (2004).

Whatever the direction of causality, the relationship between aid and trade may also be negative. This happens, for instance, when untied aid generates an increase in the income of recipient countries that is used to buy goods provided by countries different from the donors (Morrissey, 1993). Moreover, if trade is used as an indicator of recipients' prosperity, donors may want to reduce aid when trade increases. A negative relationship between aid and trade also originates when donors use aid to promote trade in countries in which they have a smaller market share (McGillivray and Oczkowski, 1992). Finally, aid may lead to Dutch disease effects which occur

when aid is used to finance consumption or unproductive investment, thereby pushing up the real effective exchange rate and hence the price of exports.

In the present study, we do not examine the nature of the causal relationship between aid and trade, but we focus on the trade distorting effects of different types of aid (see Box 1 for a definition) using different specifications. The literature and anecdotal evidence suggest that the main sources of trade distortion are aid tying practices, both intended and unintended, which advantage donor country suppliers. Untied aid has also recently come under scrutiny for trade distorting effects since the volume of untied aid has significantly increased as a consequence of two OECD-based voluntary agreements: the 1992 ‘Helsinki Agreement’, which established disciplines for aid tied to procurement from donor countries that had a significant potential to be trade distorting, and the 2001 recommendation of the OECD Development Assistance Committee (DAC) to untie all aid (loans and grants) to the Least Developed Countries (LDCs).

**Box 1: Aid and trade distortion practices**

A non-trade distorting aid transaction is understood to offer bias-free choice between suppliers. Therefore, a distorting aid transaction has the intended or unintended effect of biasing the choice between suppliers, often favouring those in the donor economy. This would lead to either the displacement of commercial exports that would have occurred without the aid transaction or, assuming a higher level of imports, a disproportionate increase in the donor’s exports compared with competitors.

So far there has been no study which examines whether different types of aid have different trade distorting effects and hence no evidence on the differential impact of grants versus loans on trade distortion. Our study aims to fill this gap. In the economic literature, the grants versus loans debate dates back a long time, and it stems from the different intrinsic nature of these two types of aid. On the one hand, grants are transfers with no obligation to repay, while loans are transfers for which repayment is required, even though on concessional terms. The most common arguments of the grants versus loans controversy have been reviewed by Schmidt (1964), and conflicting evidence has been provided over time. In general, grants are said to be preferred to loans when the recipient is a poor country, since they do not contribute to debt overhang (Lerrick and Meltzer, 2002, and Cordella and Ulku, 2004), and to be more appropriate for non-revenue producing projects such as social sector programs (Sandford, 2002). On the other hand, loans are believed to be used more efficiently than grants since they ask for repayment and thus encourage better fiscal management

and greater tax effort (see, among the others, Odedokun, 2003, and Gupta *et al.*, 2004). Between 1960 and 1980, the amount of loans has expanded but since 1981, in the wake of the debt crisis, the share of grants has risen continuously reaching a value of more than 75 per cent of total net ODA flows from DAC countries in 2006 (UN, 2008). Moreover, in 2004, a “transparency exercise” has implicitly suggested that grants have to be preferred over loans since they have no trade distorting effects<sup>1</sup>. However, this presumption has not been tested empirically yet. For this reason, in what follows we assess the magnitude of trade distortion of grants and loans at the macro level, in order to shed some light on whether grants or loans are more trade distorting, or simply similarly (non) distortionary.

### 3. Empirical specification

#### 3.1 Set-up of empirical methodology

There are several types of models to explain trade. One way to test the trade distortion hypothesis is by using the gravity model (Tinbergen, 1962). This model estimates bilateral trade (in terms of exports or imports) as a function of the economic size of the countries of the trade-pairs, their level of development, and the distance between them. The model also allows for a series of other factors characterising the relationship between the two countries. In its simplest form, the gravity model can be written as follows:

$$\ln(\text{Exp}_{ijt}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(\text{Ypc}_{it}) + \beta_4 \ln(\text{Ypc}_{jt}) + \beta_5 \ln(\text{Dist}_{ij}) + \beta_6 X_{ijt} + \varepsilon_{ijt} \quad (1)$$

where  $i$  stands for the exporting country (donor),  $j$  for the importing country (recipient) and  $t$  for the time span. The dependent variable  $\text{Exp}_{ij}$  represents the export flows from country  $i$  to country  $j$ . Among the explanatory variables,  $Y$  measures the gross domestic product of country  $i$  and  $j$  respectively,  $\text{Ypc}$  stands for the GDP per capita of each of the two countries,  $\text{Dist}_{ij}$  is the distance between the exporting and importing country, and  $X_{ij}$  is a vector which usually includes dummies indicating whether the two countries share a common border, a common language or other.  $\varepsilon_{ij}$  is the error term, normally distributed, with mean 0 and variance  $\sigma_\varepsilon^2$ .

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<sup>1</sup> This exercise has been conducted as a response to concerns by the US that its domestic enterprises are at a disadvantage with regard to exporters from other donor countries due to an alleged differential access to information and lack of transparency in the bidding processes. The apprehension of *de facto* tying of untied aid has focused exclusively on loans, hence favouring grants over loans, and seemingly reflecting an implicit presumption that grants have no trade distorting effects.

This study extends equation (1) to include aid in the traditional gravity approach. In particular, given that our main interest is to assess and compare the magnitude of trade distortion of loans and grants, we distinguish between two aid variables: ODA loans (*Loans*) and ODA grants (*Grants*). In other words, we estimate the following equations:

$$\ln(\text{Exp}_{ijt}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(\text{Ypc}_{it}) + \beta_4 \ln(\text{Ypc}_{jt}) + \beta_5 \ln(\text{Dist}_{ij}) + \beta_6 X_{ijt} + \delta_1 \ln(\text{Loans}_{ijt}) + \delta_2 \ln(\text{Loans}_{All-i,jt}) + \varepsilon_{ijt} \quad (2)$$

$$\ln(\text{Exp}_{ijt}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(\text{Ypc}_{it}) + \beta_4 \ln(\text{Ypc}_{jt}) + \beta_5 \ln(\text{Dist}_{ij}) + \beta_6 X_{ijt} + \delta_3 \ln(\text{Grants}_{ijt}) + \delta_4 \ln(\text{Grants}_{All-i,jt}) + \varepsilon_{ijt} \quad (3)$$

$$\ln(\text{Exp}_{ijt}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(\text{Ypc}_{it}) + \beta_4 \ln(\text{Ypc}_{jt}) + \beta_5 \ln(\text{Dist}_{ij}) + \beta_6 X_{ijt} + \delta_1 \ln(\text{Loans}_{ijt}) + \delta_2 \ln(\text{Loans}_{All-i,jt}) + \delta_3 \ln(\text{Grants}_{ijt}) + \delta_4 \ln(\text{Grants}_{All-i,jt}) + \varepsilon_{ijt} \quad (4)$$

where  $\text{Loans}_{ij}$  is the exporting country  $i$ 's loans to country  $j$ , and  $\text{Loans}_{All-i,j}$  stands for the loans country  $j$  receives from all the countries other than country  $i$ . Similarly,  $\text{Grants}_{ij}$  and  $\text{Grants}_{All-i,j}$  are respectively the grants country  $j$  receives from country  $i$ , and the grants country  $j$  receives from all the countries other than country  $i$ . The vector  $X_{ij}$  in equation (2), (3) and (4) includes the following set of dummy variables commonly used in the international trade gravity model literature:

- *Colony* which is a binary variable taking value 1 if one country in the trade pair was colonized by the other, and 0 otherwise;
- *Comlang* which is a binary variable taking value 1 if the two countries have a common language, and 0 otherwise.

Table A1 in the Appendix provides a detailed description of the variables used.

According to the gravity approach, we expect that export flows are positively influenced by: (i) the size and the level of development of the countries of the trade-pairs (as measured by GDP and GDP per capita respectively), and (ii) the existence of common cultural factors (i.e. common language, and previous colonial relationship). On the other hand, exports are expected to be negatively related to the distance between the two countries of the trade-pairs since distance increases transport costs.

In order to examine the trade distorting effects of loans and grants, we conduct two different tests. First, in order to test for trade distortion of loans and grants, we test for  $\delta_1 > \delta_2$  and  $\delta_3 > \delta_4$  in equation (2) and (3) respectively, since this occurs when the effects of aid from the country of origin of the exports are larger than those of aid from other countries. Second, to see whether loans are more trade distorting than grants, we test for  $\delta_1 - \delta_2 > \delta_3 - \delta_4$  in equation (4).

### **3.2 Brief discussion of methods used**

The gravity model analysis is conducted using several methods. First, we can use a pooled OLS as a benchmark model. Second, in order to increase the precision of our estimates, we can take advantage of both the cross section and variation over time in the sample by using standard panel data methodologies. Finally, to enhance further the robustness of our estimates we can take into account endogeneity challenges and estimate a linear dynamic model where we use the lag of the dependent variable as an explanatory variable. By using lagged variables we can also take into account the challenges that while finance may be disbursed at the beginning of a project, actual purchases and imports are often done later on in the project.

The use of a panel data methodology has two main advantages over a simple cross-section analysis: 1) it allows capturing the relevant relationships among variables over time, and 2) it allows us to account for any unobserved trading-partner-pairs individual effects.

To control for possible country fixed effects, we use the panel data fixed effect estimator. The fixed effects models assume that the intercept consists of two parts, one that is shared by all countries and the other that varies across them. Thus, there is a unique intercept for each country in the sample. In order to estimate this model and to take into account that the intercept varies across different groups, we use dummy variables for each cross-sectional unit. The main advantage is that the model is correctly specified, and the results will be efficient and unbiased, while a major drawback is that by using too many dummy variables we might deplete the model from enough degrees of freedom necessary to conduct adequate statistical tests. Furthermore, the use of time invariant variables leads to higher risks of multicollinearity, forcing the model to drop the variables. For this reason, at least in the context of this paper where we are dealing with variables such as distance (time invariant variables) and a significant amount of dummy variables (colony, common language, etc.), the use of fixed effect models might be less advisable. Nonetheless, we include the results of these models for completeness and to have a wider and more complete view of the underlying relationships pushing up trade flows in our model.

On the other hand, as our sample may not be exhaustive of all the possible export flows in the world, we consider the eventuality that individual specific effects might be randomly distributed, and so we also use the random effect model. The random effects models assume that the intercept is a random outcome variable and, differently from the former model, it allows us to obtain coefficients for time invariant variables. In general, there is no straightforward way to decide between fixed effects and random effects models. However, in order to decide appropriately, we could in principle use the Hausman specification test. Nevertheless, in our case, we think this is not advisable given that the models are not quite the same: the random effects model contains time invariant variables and much more dummy variables than the fixed effects specification, so we would be testing two different models/specifications rather than actually the methodology.

Finally, our specification is such that there is a high possibility for endogeneity challenges. So, in order to deal with those challenges, we use of the system generalized method of moments (GMM-Arellano-Bover, Blundell-Bond). This type of model was pioneered by Arellano and Bond (1991), and estimates a single system of regressions in differences and levels, each one with its own set of instrumental variables (usually lags of each variable are used as instruments). To clarify, we consider the following panel data dynamic model:

$$y_{it} = \sum_{j=1}^p \alpha_j y_{i,t-j} + x_{it} \beta_1 + w_{it} \beta_2 + v_i + \varepsilon_{it} \quad i = 1, \dots, N \quad t = 1, \dots, T \quad (5)$$

where  $x_{it}$  is the vector of strictly exogenous covariates,  $w_{it}$  is the vector of predetermined or endogenous covariates,  $v_i$  are the panel-level effects, and  $\varepsilon_{it}$  are i.i.d. over the whole sample with variance  $\sigma_\varepsilon^2$ . In our analysis, we use time dummies, distance, common language, and previous colonial relationship as purely exogenous variables, while we treat GDP, GDP per capita, loans and grants as predetermined variables, using various numbers of lags as instruments. The adequacy of the model can be measured using the Hansen tests. One major drawback from this methodology is the intense use of instruments, so a sufficient number of data points are needed to obtain meaningful results.

In short, in our study we will present model estimates using different methods. Each approach has its advantages and disadvantages and there is no single test to suggest which approach is best.

## 4. Data

The analysis uses data for 15 OECD donor countries and 74 recipient countries (see Table A2 and Table A3 in the Appendix) over the period 1980-2006. Bilateral trade data stem from the IMF Direction of Trade Statistics, and aid data are drawn from the OECD CRS database. This database provides data on aid commitments and aid disbursements. The coverage of aid commitments, especially in earlier years, is better than for aid disbursements. However, as trade effects will normally take place only when funds are being disbursed we prefer the use of disbursement data. Moreover, given that the trade effects of aid might become visible only approximately one or more years after the formal commitment of aid (e.g. time span required for selection of consultants, production of tender documents, tender procedures and production and shipments of goods) and may extend over a longer period, in our econometric analysis we also use lagged (disbursements) data. The GDP data are taken from the World Bank World Development Indicators (WDI) Database. Data for distance as well as for our set of dummy variables are sourced from the CEPII Distance Database.

The database we use consists of a panel that describes bilateral exports and aid flows available for at least a couple of years and across one or more pairs of countries. This database is characterised by a large heterogeneity of countries and varying coverage of periods (unbalanced panel). This constrains the methodologies available for the analysis and increases the difficulties in interpreting the results.

## 5. Empirical results

This section presents the empirical results. We first present and discuss the basic results using aid disbursements data (Section 5.1 and 5.2), and then provide preliminary robustness test and alternative specifications (Section 5.3).

### 5.1 Basic results

We estimate equations (2), (3) and (4) using simple OLS, fixed effects and random effects panel regressions, and we also use the system GMM technique as previously described in Section 3. Table 1 (below) presents the results of the estimations using aid disbursements data.

Columns (1) through (4) in Table 1 show the effects on export flows when we take into account loans as aid variables. The results are in line with expectations and the previous literature: income level, previous colonial relationships as well as common language play an important role in promoting trade flows, while distance tends to decrease trade. Indeed, the impact of the economic size of both donor and recipient countries — as proxied by the GDP level — is significant mainly at the 1 percent level. It is important to point out that while donor countries' GDP is not significant in all specifications, GDP of the recipient countries is consistently significant and positive throughout all specifications (1-12). This is important because clearly the bigger the potential market is, the higher the need for trade flows. Moreover, the level of development of recipient countries, measured by their income per capita level, has a positive and significant impact on bilateral export flows in most specifications. On the other hand, GDP per capita in exporting countries have more mixed effects on exports. We could interpret this as evidence that an increase in the income per capita in exporting countries could drive an increase in local demand, thus attracting a share of exports originally directed abroad. Distance, which in the literature has been found to affect negatively export flows between countries, is always significant at the one percent level and has a negative sign, confirming that an increase in transport costs leads to a decrease in exports from donor countries. Moreover, as expected, the existence of a common language and of a previous colonial relationship in the trade-pairs has a positive and significant impact in almost all specifications. This is in line with earlier studies and means that sharing a common language and having had a previous colonial relationship increase the possibility of continuous export flows between donor and recipient countries. The estimates from regressions in the first three columns also suggest that aid given to recipient countries in the form of loans by their own trading-partners has a positive and significant impact on export flows.

Columns (5) through (8) provide the results for the same specification, but where we have changed one dimension: we consider grants rather than loans in our regressions. The results are similar to the previous estimates, confirming that the level of GDP in both countries as well as our set of dummy variables have a positive impact on export flows, which are instead negatively affected by distance. Moreover, grants from trading-partners enter positive and significant. However, it is important to highlight that an increase in grants from all countries other than country  $i$  leads to a decrease in export flows from country  $i$  to country  $j$ . This could point out to a weakening of the links within the trade-pair due to a strategic move by a third country that intends to penetrate country  $j$ 's markets or to reinforce the trade linkages with it.

Columns (9)-(12) do the estimations taking into account simultaneously grants and loans which allows for testing for the significance of the differences. All the previous results still hold and there is once more evidence that aid given by donor countries in the form of both loans and grants have a positive impact on bilateral trade. We should also bring attention to the fact that loans by third countries are insignificant throughout all specifications, so they do not have any impact on export flows. Finally, increases in income for both donor and recipient countries lead to increased trade.

Since our focus is not only on parameter estimates but on trade distorting effects of loans and grants, we need to return to our original hypotheses. The results of the different specifications of equation (2) — columns (1) through (4) — suggest that loans are trade distorting since the relationship  $\delta_1 > \delta_2$  is always satisfied. Similarly, grants are also trade distorting since the relationship  $\delta_3 > \delta_4$  holds through all the specifications of equation (3) — columns (5) through (8). Therefore, both loans and grants have trade distorting effects. This is an important result which seems at odds with the conventional wisdom that grants are not trade-distortionary. The main reason for this is that we examine relationships at the macro level, while trade distortion effects are often considered at the project level (and which we do in our complementary studies). While some distortionary effects of aid may not be visible at the micro level, aid may influence trade at the macro level, e.g. by financing projects or sectors that are trade intensive, or supporting an enabling environment for trade (Cali and Te Velde, 2008). The same logic could result in grants being more trade distorting than loans.

Indeed, the test of the relationship  $\delta_1 - \delta_2 > \delta_3 - \delta_4$  in columns (9) through (12) suggests that grants are more distortionary than loans – this is in contrast with what has been implicitly suggested by the “transparency exercise” conducted in 2004. Indeed, the test for loans being more trade distorting than grants leads us to conclude that grants are more trade distorting than loans since  $\delta_3 - \delta_4 > \delta_1 - \delta_2$  for all specifications (Table 2 provides the results, including tests for significance for the relevant specifications). So, our analysis suggests that grants may affect donor countries’ export flows more than loans. This might be linked to strategic movements by donor countries who, by providing grants, make recipient countries (perhaps inadvertently) feeling more disposed to buy goods from them, thus gaining new markets for their goods. This idea is in line with previous evidence that aid may affect trade indirectly by creating links between donors and recipients. Moreover, this might suggest why third countries’ loans are insignificant all the time, while grants of third countries are sometimes significant and negative.

**Table 2. Summary effects of loans and grants**

<i>Coefficient</i>	OLS	Fixed effects	Random Effects	System Effects
Loan	0.088	0.02	0.026	0.005
Loan other	-0.004	-0.006	-0.006	-0.005
Grant	0.052	0.017	0.02	0.005
Grant other	-0.071	-0.016	-0.023	-0.0038
Loan (own effect - other)	18.02	2.81	6.05	0.029
<i>Test for significance (&lt;0.05)</i>	0.0000	0.0944	0.0139	0.5906
Grant (own effect - other)	16.26	2.55	7.76	1.29
<i>Test for significance (&lt;0.05)</i>	0.0001	0.1111	0.0053	0.2575
grants dist - loans dist	3.30	0.07	0.24	0.00
<i>Test for significance (&lt;0.05)</i>	0.0694	0.7937	0.6237	0.99

## 5.2 Discussion of the results

This study focuses on comparing the use of different methods rather than varying the specifications and methodologies to examine aid and trade flows. This particular approach aims to address possible drawbacks and limitations of certain types of methods, but at the same time we can observe the behaviour of the main specifications throughout the different types of methodologies. A brief general overview of the different methods used was already discussed in Section 3.1. Here, we discuss the differences and robustness of the results of each model in more detail.

Leaving aside the OLS regressions which have clear limitations compared to using panel data, and assessing the GMM specifications in depth, we can see that although the GMM methodology is structured to deal with endogeneity issues, it also requires a lot of observations. In other words, in order to be efficient it requires a large amount of data. Unfortunately, in our case the availability of data is limited, and this reduces the effectiveness and reliability of the GMM results. Considering this, we are left with two possible methods: the fixed and random effects models. As we previously highlighted, in our context the random effects methodology has certain inherent advantages over the fixed effects model.<sup>2</sup> Indeed, random effects models allow for additional explanatory variables (i.e. dummies for common language, colonial relationship and distance), which are crucial for our gravity model analysis. Therefore, from a pure methodological perspective, we can argue that the random effects methodology allows us to draw more robust conclusions than the fixed effects model, and we therefore prefer the latter in favour of the former.

<sup>2</sup> The random effects model has fewer parameters to estimate when compared to the fixed effects methodology. Furthermore, it allows the use of dummies and time invariant variables.

In what follows we analyse the results of our econometric study by comparing the results obtained using the random effects model with those obtained throughout the OLS method, which is used as a benchmark. We do not include a comparison between the results obtained from the fixed and random effects models, since the specifications used are different.

If we compare the OLS regression in column (1) of Table 1 with the random effects model in column (3), we can see that, when using the random effect model, the coefficients on the size of countries  $i$  and  $j$  appears to be more important, while the coefficients for  $Ypc_{it}$  diminish in value and loose significance. In a similar way, the distance and colonial relationship variables acquire more weight when using the random effects model, while the coefficients for common language remain relatively unchanged throughout the different types of methodologies used.  $Loans_{ij,t}$  are still significant when using the random effects model, but they diminish in value from 0.85 to 0.25.

Similarly, if we compare column (5) and (7), we observe that  $Ypc_{jt}$  gains in significance and magnitude, changing from 0.06 to 0.35, when using the random effects model, while grants from country  $i$  to  $j$  remain stable, and grants from the rest of the world loose significance. From column (3) and (7) we can see that, at least when taken into account separately, loans and grants from the rest of the world have no significant effect on exports. From column (11) we can see that loans and grants from trading partners remain highly significant at the one percent level, while loans and grants coming from the rest of the world seem to play no major role on determining export flows, although grants from the rest of the world are significant at the ten percent level.

### 5.3 Robustness tests and alternative specifications

There are several possible extensions of the basic results. Here, we present the effects of using aid commitments rather than aid disbursements as in Section 5.1. We also present the empirical results of regressions that include lagged data.

#### *Aid commitments*

Table 3 shows the results of using aid commitments (also from the CRS database) rather than aid disbursements because the coverage is better especially in earlier years. The results of using commitments data are broadly similar to using disbursements data. In qualitative terms, grants are more trade distortive compared to using loans. By comparing column (1) and (3) we can see that the size of countries  $i$  and  $j$  represented by their respective GDP has similar effects when using both the OLS and random effects models. However, the OLS methodology attributes a significant but small effect to  $Ypc_{jt}$ , while the random effects model in column (3) attributes a higher coefficient to per capita income in trading partner's country, which is more in line with economic theory. Focusing on loans, the OLS method gives significance only to loans from trading partners, while the random effects model attributes significance to both loans from trading partners and loans from the rest of the world. It actually gives a small but greater weight to loans from the rest of the world. Looking at the regressions using only grants as aid variable, column (5) and (7) suggest that  $Ypc_{jt}$  is not significant in the OLS model, while in the random effects model it is significant and scores a coefficient very similar to the one provided in column (3), thus hinting at the stability and consistency of the random effects model. This becomes clearer when comparing column (3), (7) and (11): all the random effects specifications and their different coefficients remain stable, significant and around the same magnitude for most of the cases.

#### *Lagged values*

Table 4 shows the results of using lagged variables for aid disbursements. In particular, given that the trade effects of aid might become visible only approximately one or more years after the formal commitment of aid, we use lagged variables up to two years for loans and grants. After having introduced lagged effects for loans and grants, the GDP as well as distance, common language and colonial relationships remain stable and in line with our previous results. Loans and grants variables in levels do not change a lot compared to the previous specifications, while the lagged variables have mixed effects. As before, loans and grants seem to play a positive role on export flows, while

grants by third countries tend to reduce these flows. Moreover, both loans and grants are again trade distorting, and grants result to be more trade distorting than loans.

### *Individual country tables*

We have included three country regressions in the Appendix (Tables A4 - A6) for Germany, France and Japan.<sup>3</sup> These countries yield a similar (but low) amount of observations enabling us to compare the different effects and roles that grants and loans play in their export flows. These countries provide us with a good opportunity to study the effects of loans and grants in different contexts. France has a rich colonial past, and its language is spoken in several countries around the world. On the other hand, Germany's colonial past is less marked and its language is not spoken in as many countries. Finally, Japan is the second biggest economy of the world, it counts with almost no colonial past and its language is not spoken in countries other than Japan.

We present the results for Germany, France and Japan in Tables A4-A6. The system GMM was not used due to the reduced size of the sample. As expected, distance is negative and significant in all specifications. However, a colonial relationship plays a negative and sometimes significant role. This can be due to the few colonial relationships with Germany, Table A4. Indeed, Papua New Guinea is the only country in the sample with past colonial ties with Germany, and the export flows with this country compared to the other countries are quite small. If we compare loans and grants, the former seem to be a more important factor behind German export flows to developing countries. Although grants appear to have a negative and significant effect on export flows in the OLS specifications, the Breusch-Pagan Lagrange multiplier test suggests that we need to use the random effects model where the coefficient is insignificant and too small to matter. It is different when we focus on France. Table A5 summarizes the results. Again, as expected, distance has a negative and significant impact on export flows, while colonial relationships play an important positive and constantly significant throughout the sample. Table A6 shows the effects that loans and grants have on Japanese export flows. Differently from the previous two cases, Japan possesses no colonial or language links with other countries included in the sample. As expected, distance plays a key role for export flows.

Regarding the trade distorting effects of loans and grants, the results broadly confirm that both loans and grants can have trade distorting effects on export flows from donor countries. In tandem with

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<sup>3</sup> The choice of these countries relies on data availability. These countries are the only ones in our sample to have enough observations to allow us to build a small panel.

what was found at the aggregate level, grants are more trade distorting than loans in the case of Japan and the highly significant results in this country may drive some of the results in the panel. However, differently from what has been found in the analysis at the aggregate level, in the case studies of Germany and France loans seem to be more trade distorting than grants, although it should be noted that the lack of observations in single country case studies make it difficult to make interpretations. Above all it shows that there is quite a lot of heterogeneity in the relationship between loans and grants and bilateral trade at the country level. Tables A6 – A9 report tests for significance for the relevant specifications, and the case of Japan stands out in terms of significantly greater trade distortion for grants than for loans.

We can quantify the impact of additional aid flows (grants or loans) on exports. We first take bilateral exports and aid data, shock aid by 1 million (which is around 0.01% for each donor), multiply the relative increase in aid by 0.025 (which is approximately the coefficient in the pooled and more reliable regression in the random effects model) and then estimate the relative and absolute change in exports. Table 5 suggests that a one million change in bilateral aid would lead to an increase of bilateral exports of a third of a million (France) but three quarters of a million in Germany and Japan. It should be noted that the data here use average values and average coefficients.

**Table 5. Approximate effects on export flows of a 1 million USD increase in aid flows**

Country	2006: Value of exports of goods to non-OECD countries	2006: Value of bilateral ODA (net disbursements)	Share of USD 1mn in ODA	Value of exports change (USD mn)
France	98448	7919.38	0.013%	0.31
Germany	212398	7034.08	0.014%	0.75
Japan	315875	10385.17	0.010%	0.76

Source: OECD DAC and IMF DOTS; changes of aid multiplied by 0.025 (see regression results) to obtain effects on trade.

## 6. Conclusions

The objective of this paper was to examine whether there is any trade distorting effect of grants or loans at an aggregate level, and whether grants or loans are more trade distorting, or simply similarly (non) distortionary. We estimate a gravity model on bilateral exports between 15 OECD donor countries and 74 recipient countries over the period 1980-2006, and estimate the effects of loans and grants on trade flows, taking into account other standard explanatory variables.

Using several econometric methodologies, we found that both loans and grants have trade distorting effects on export flows from donor countries, and perhaps surprisingly that grants are more trade distorting than loans, although this varies across methods used. None of the methods found that loans are more distortionary than grants (see Table 2). The random effects model (the preferred option in the current context) suggests that both loans and grants are distortionary and that grants are slightly more distortionary than loans (although not significantly so). These results are in contrast with a recent argument according to which grants should be preferred to loans since they have no trade distorting effect. We interpret this evidence as an indication that grants by donor countries create stronger economic links with recipient countries, e.g. by fostering the environment for trade, or encouraging recipient countries (perhaps inadvertently) to buy their goods. And this finding holds after controlling for pre-existing cultural and linguistic links.

The use of aggregate data (bilateral trade and aid) cannot be used to test through which channel the effects work. For instance, much of the grants currently come in the form of budget support and, while such support will not be linked to trade directly, there might be a strong indirect effect. The complementary studies (country and sector studies) will be able to increase our understanding of what happens at the project level. However, this paper suggests that we need to be careful in arguing that loans are more trade distorting than grants. While this might be true at the individual project level, it is certainly not true at the macro level.

Table 1. The effects of bilateral aid (disbursements) on bilateral trade: Regression Results for 1980-2006

	LOANS				GRANTS				LOANS & GRANTS			
Dependent Variable: <i>Exp<sub>ijt</sub></i>	OLS	Fixed Effects	Random Effects	System GMM	OLS	Fixed Effects	Random Effects	System GMM	OLS	Fixed Effects	Random Effects	System GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Exp<sub>ij,t-1</sub></i>				0.773***				0.767***				0.769***
<i>Y<sub>it</sub></i>	0.778***	-1.909	0.811***	-0.071	0.821***	-1.74	0.820***	-0.016	0.744***	-1.686	0.802***	-0.011
<i>Y<sub>jt</sub></i>	0.882***	2.428***	0.904***	0.285***	0.918***	2.267***	0.907***	0.292***	0.880***	2.326***	0.903***	0.290***
<i>Ypc<sub>it</sub></i>	-0.438***	2.328	-0.335	0.917*	-0.458***	1.696	-0.450*	0.74	-0.535***	1.849	-0.421*	0.709
<i>Ypc<sub>jt</sub></i>	0.098***	0.104	0.354***	-0.198**	0.060*	0.251	0.350***	-0.248**	0.076**	0.189	0.346***	-0.237**
<i>Loans<sub>ij,t</sub></i>	0.085***	0.020**	0.025***	0.003					0.088***	0.020**	0.026***	0.005
<i>Loans<sub>All-i,jt</sub></i>	-0.011	-0.006	-0.006	-0.004					-0.004	-0.006	-0.006	-0.005
<i>Grants<sub>ij,t</sub></i>					0.054***	0.017*	0.020***	0.006	0.052***	0.017*	0.020***	0.005
<i>Grants<sub>All-i,jt</sub></i>					-0.052**	-0.014	-0.021	-0.047	-0.071***	-0.016	-0.023*	-0.038
<i>Dist<sub>ij</sub></i>	-0.955***		-1.013***	-0.275***	-0.995***		-1.007***	-0.271***	-0.920***		-1.000***	-0.267***
<i>Colony<sub>ijt</sub></i>	0.598***		0.826***	0.287	0.662***		0.818***	0.260	0.569***		0.795***	0.247
<i>Comlang<sub>ijt</sub></i>	0.635***		0.646***	0.149	0.551***		0.609***	0.144	0.546***		0.613***	0.15
<b>Constant</b>	84.600***	137.390***	38.058***	-5.913***	85.303***	127.142***	37.436***	-4.584**	61.816***	127.191***	32.593***	-4.647**
<i>N</i>	1688	1688	1688	1172	1688	1688	1688	1172	1688	1688	1688	1172
<i>N<sub>g</sub></i>		319	319	212		319	319	212		319	319	212
<i>R<sup>2</sup></i>	0.802				0.799				0.804			
<i>R<sup>2</sup><sub>within</sub></i>		0.280	0.249			0.280	0.248			0.284	0.251	
<i>R<sup>2</sup><sub>overall</sub></i>		0.404	0.785			0.408	0.783			0.423	0.787	
<i>R<sup>2</sup><sub>between</sub></i>		0.214	0.774			0.226	0.774			0.239	0.777	
<b>Number of Instruments</b>				121				121				151
<b>Arellano-Bond test AR(2)</b>				0.133				0.108				0.115
<b>Hansen test</b>				0.100				0.357				0.489

Note: All variables in natural logarithms. Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent. All regressions include a time trend not reported, while in the case of the system GMM we also include time dummies.

**Table 3. The effects of bilateral aid (commitments) on bilateral trade: Regression Results for 1980-2006**

Dependent Variable: <i>Exp<sub>ijt</sub></i>	LOANS				GRANTS				LOANS & GRANTS			
	OLS	Fixed Effects	Random Effects	System GMM	OLS	Fixed Effects	Random Effects	System GMM	OLS	Fixed Effects	Random Effects	System GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Exp<sub>ij,t-1</sub></i>				0.533***				0.558***				0.533***
<i>Y<sub>it</sub></i>	0.787***	0.04	0.754***	0.295	0.784***	0.089	0.747***	0.375*	0.740***	0.065	0.743***	0.381**
<i>Y<sub>jt</sub></i>	0.788***	-0.039	0.810***	0.511***	0.841***	0.003	0.841***	0.499***	0.789***	-0.023	0.819***	0.516***
<i>Ypc<sub>it</sub></i>	-0.410***	0.354	-0.336**	-0.853*	-0.546***	0.399	-0.336**	-1.051**	-0.546***	0.334	-0.353**	-0.971**
<i>Ypc<sub>jt</sub></i>	0.074***	1.286***	0.248***	-0.205	0.038	1.249***	0.210***	-0.168	0.053**	1.254***	0.214***	-0.184
<i>Loans<sub>ijt</sub></i>	0.089***	0.013	0.017**	0.011					0.089***	0.013	0.017**	0.013
<i>Loans<sub>All-ij,t</sub></i>	0.015	0.027***	0.025***	0.004					0.024**	0.029***	0.027***	0.003
<i>Grants<sub>ijt</sub></i>					0.074***	0.004	0.015**	-0.028	0.071***	0.002	0.014**	-0.029*
<i>Grants<sub>All-ij,t</sub></i>					-0.059***	-0.029	-0.035***	0.041	-0.074***	-0.034*	-0.040***	0.019
<i>Dist<sub>ij</sub></i>	-0.954***	0.920***	-0.938***	-0.438***	-0.961***	0.774***	-0.944***	-0.429***	-0.910***	0.744***	-0.935***	-0.449***
<i>Colony<sub>ijt</sub></i>	1.248***		1.229***	0.474**	1.261***		1.231***	0.486**	1.161***		1.223***	0.514***
<i>Comlang<sub>ijt</sub></i>	0.250***		0.348***	0.214	0.150**		0.313**	0.233	0.189***		0.318**	0.23
<b>Constant</b>	42.490***	4.756	34.659***	2.144	51.150***	11.967	39.260***	1.255	36.702***	3.173	31.986***	0.821
<b>N</b>	2707	2707	2707	1439	2707	2707	2707	1439	2707	2707	2707	1439
<b>N<sub>g</sub></b>		495	495	253		495	495	253		495	495	253
<b>R<sup>2</sup></b>	0.833				0.831				0.837			
<b>R<sup>2</sup><sub>within</sub></b>		0.286	0.271			0.282	0.266			0.289	0.272	
<b>R<sup>2</sup><sub>overall</sub></b>		0.032	0.820			0.052	0.820			0.052	0.822	
<b>R<sup>2</sup><sub>between</sub></b>		0.065	0.786			0.087	0.789			0.086	0.789	
<b>Number of Instruments</b>				206				206				256
<b>Arellano-Bond test AR(2)</b>				0.804				0.907				0.945
<b>Hansen test</b>				0.976				0.968				0.997

Note: All variables in natural logarithms. Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent. All regressions include a time trend not reported, while in the case of the system GMM we also include time dummies.

**Table 4. The effects of bilateral aid on bilateral trade (aid disbursements, including lags): Regression Results for 1980-2006**

Dependent Variable: <i>Exp<sub>ijt</sub></i>	LOANS				GRANTS				LOANS & GRANTS			
	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>System GMM</i>	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>System GMM</i>	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>System GMM</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Exp<sub>ij,t-1</sub></i>				0.760***				0.750***				0.751***
<i>Y<sub>it</sub></i>	0.818***	-3.869**	0.813***	0.332**	0.890***	-3.651**	0.807***	0.647**	0.773***	-3.734**	0.815***	0.466***
<i>Y<sub>jt</sub></i>	0.831***	5.324***	0.989***	0.354***	0.917***	5.160***	0.949***	0.335***	0.826***	5.057***	0.976***	0.366***
<i>Ypc<sub>it</sub></i>	-0.578***	2.483	-0.441	0.054	-0.618***	2.229	-0.481	-0.977	-0.644***	2.083	-0.5	-0.314
<i>Ypc<sub>jt</sub></i>	0.160***	-1.925**	0.381***	-0.189**	0.090*	-1.800**	0.424***	-0.234**	0.136***	-1.679**	0.398***	-0.174**
<i>Loans<sub>ijt</sub></i>	0.038*	0.01	0.019*	0.005					0.041*	0.01	0.019*	0.004
<i>Loans<sub>ij,t-1</sub></i>	0.008	-0.014	-0.008	-0.033**					0.012	-0.017	-0.011	-0.032**
<i>Loans<sub>ij,t-2</sub></i>	0.053**	-0.030**	-0.019	-0.024*					0.057**	-0.029**	-0.017	-0.027*
<i>Loans<sub>All-i,jt</sub></i>	-0.014	-0.013	-0.015	-0.017					-0.008	-0.013	-0.015	-0.022
<i>Loans<sub>All-i,j,t-1</sub></i>	-0.004	-0.013	-0.016	-0.018					0.001	-0.012	-0.014	-0.023
<i>Loans<sub>All-i,j,t-2</sub></i>	0.071**	0.004	0.007	0.026					0.064**	0.001	0.004	0.015
<i>Grants<sub>ij,t</sub></i>					0.056**	0.016**	0.015	0.023	0.056**	0.014*	0.014	0.017
<i>Grants<sub>ij,t-1</sub></i>					0.018	-0.004	0.001	-0.011	0.024	-0.005	-0.001	-0.013
<i>Grants<sub>ij,t-2</sub></i>					-0.026	0.014*	0.015	-0.006	-0.03	0.015*	0.016*	-0.006
<i>Grants<sub>All-i,jt</sub></i>					-0.122***	-0.034	-0.038*	-0.074*	-0.140***	-0.037	-0.038*	-0.038
<i>Grants<sub>All-i,j,t-1</sub></i>					0.052	0.008	0.018	0.023	0.04	0.007	0.018	0.035
<i>Grants<sub>All-i,j,t-2</sub></i>					0.033	0.018	0.032	-0.013	0.016	0.02	0.032	-0.002
<i>Dist<sub>ij</sub></i>	-0.920***		-0.945***	-0.328***	-0.958***		-0.932***	-0.275***	-0.871***		-0.933***	-0.335***
<i>Colony<sub>ijt</sub></i>	0.134		0.196	0.137	0.238		0.173	-0.146	0.062		0.167	0.066
<i>Comlang<sub>ijt</sub></i>	1.062***		1.117***	0.371*	0.933***		1.094**	0.564*	1.004***		1.100***	0.418*
<i>Constant</i>	85.753***	215.803***	36.062***	-8.663***	109.189***	211.389***	57.174***	-6.411**	62.813*	213.829***	60.925***	-8.275***
<i>N</i>	917	917	917	916	917	917	917	916	917	917	917	916
<i>N<sub>g</sub></i>		167	167	167		167	167	167		167	167	167
<i>R<sup>2</sup></i>	0.826	0.379			0.823	0.377			0.830	0.388		
<i>R<sup>2</sup><sub>within</sub></i>		0.379	0.297			0.377	0.297			0.388	0.305	
<i>R<sup>2</sup><sub>overall</sub></i>		0.490	0.802			0.498	0.805			0.491	0.804	
<i>R<sup>2</sup><sub>between</sub></i>		0.320	0.792			0.331	0.795			0.319	0.795	
<i>Number of Instruments</i>				161				161				231
<i>Arellano-Bond test AR(2)</i>				0.16				0.10				0.13
<i>Hansen test</i>				0.78				0.72				0.98

Note: All variables in natural logarithms. Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent. All regressions include a time trend not reported, while in the case of the system GMM we also include time dummies.

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## Appendix

**Table A1. Variables Description**

Variables	Number of Observations	Definition	Sources
$Exp_{ijt}$	1688	Exports from country $i$ to $j$ in real terms in USD	IMF
$Y_{it}$	1688	GDP of country $i$ in real terms in USD	WDI
$Y_{jt}$	1688	GDP of country $j$ in real terms in USD	WDI
$Ypc_{it}$	1688	GDP per capita of country $i$ in real terms in USD	WDI
$Ypc_{jt}$	1688	GDP per capita of country $j$ in real terms in USD	WDI
$Grants_{ijt}$	1688	Grants disbursed in real terms in USD	OECD
$Grants_{All-i, jt}$	1688	Grants from all the countries other than country $i$ in real terms in USD	OECD
$Loans_{ijt}$	1688	Loans disbursed in real terms in USD	OECD
$Loans_{All-i, jt}$	1688	Loans from all the countries other than country $i$ in real terms in USD	OECD
$Dist_{ij}$	1688	Distance between country $i$ and $j$	CEPII
$Colony_{ijt}$	1688	Dummy for a previous colonial relationship	CEPII
$Comlang_{ijt}$	1688	Dummy for common language	CEPII

Note: The dataset covers the period 1980-2006.

**Table A2. Donor Countries**

	<b><i>Donor Countries</i></b>
1	Australia
2	Austria
3	Belgium
4	Canada
5	Finland
6	France
7	Germany
8	Italy
9	Japan
10	Norway
11	Portugal
12	Spain
13	Sweden
14	Switzerland
15	United States

**Table A3. Recipient Countries**

	<b><i>Recipient Countries</i></b>
1	Albania
2	Algeria
3	Angola
4	Argentina
5	Armenia
6	Bangladesh
7	Benin
8	Bolivia
9	Bosnia-Herzegovina

10	Brazil
11	Burkina Faso
12	Cambodia
13	Cameroon
14	Chile
15	China
16	Colombia
17	Costa Rica
18	Cote d'Ivoire
19	Djibouti
20	Dominica
21	Ecuador
22	Egypt
23	El Salvador
24	Eritrea
25	Ethiopia
26	Gabon
27	Georgia
28	Ghana
29	Guatemala
30	Guinea
31	Haiti
32	Honduras
33	India
34	Indonesia
35	Jamaica
36	Jordan
37	Kenya
38	Laos
39	Lebanon
40	Madagascar
41	Malawi
42	Malaysia
43	Mali
44	Mauritania
45	Mauritius
46	Mexico
47	Mongolia
48	Morocco
49	Mozambique
50	Nepal
51	Nicaragua
52	Niger
53	Nigeria
54	Pakistan
55	Panama
56	Papua New Guinea
57	Paraguay
58	Peru
59	Philippines
60	Senegal
61	Sierra Leone

62	South Africa
63	Sri Lanka
64	Swaziland
65	Tanzania
66	Thailand
67	Togo
68	Tunisia
69	Turkey
70	Uganda
71	Uruguay
72	Uzbekistan
73	Zambia
74	Zimbabwe

**Table A4. Germany: The effects of bilateral aid on bilateral trade**

Dependent Variable: <i>Exp<sub>ijt</sub></i>	LOANS			GRANTS			LOANS & GRANTS		
	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Y<sub>it</sub></i>	-20.619***	-20.671***	-22.753***	-19.440**	-20.562***	-22.508***	-20.795**	-20.301***	-22.341***
<i>Y<sub>jt</sub></i>	0.899***	2.234***	1.012***	0.984***	2.282***	1.014***	0.924***	2.231***	1.010***
<i>Ypc<sub>it</sub></i>	12.132	13.038**	14.077***	10.274	12.812**	13.632***	12.133	12.630**	13.615***
<i>Ypc<sub>jt</sub></i>	0.123***	-0.033	0.233**	0.03	-0.052	0.248***	0.074*	-0.024	0.239***
<i>Loans<sub>ijt,t</sub></i>	0.058***	0.006	0.027**				0.067***	0.005	0.026**
<i>Loans<sub>All-i,j,t</sub></i>	0.041	-0.014	-0.012				0.039	-0.015	-0.013
<i>Grants<sub>ijt,t</sub></i>				-0.053**	0	-0.002	-0.050**	-0.001	-0.002
<i>Grants<sub>All-i,j,t</sub></i>				0.015	0.01	0.014	-0.024	0.01	0.011
<i>Dist<sub>ij</sub></i>	-0.695***		-0.807***	-0.775***		-0.821***	-0.714***		-0.807***
<i>Colony<sub>ijt</sub></i>	-0.435**		-0.192	-0.615***		-0.242	-0.533**		-0.196
<i>Comlang<sub>ijt</sub></i>	0			0			0		
<i>N</i>	472	472	472	472	472	472	472	472	472
<i>N<sub>g</sub></i>		50	50		50	50		50	50
<i>R<sup>2</sup></i>	0.91	0.462		0.907	0.461		0.912	0.462	
<i>R<sup>2</sup><sub>within</sub></i>		0.462	0.433		0.461	0.432		0.462	0.434
<i>R<sup>2</sup><sub>overall</sub></i>		0.834	0.903		0.833	0.901		0.834	0.903
<i>R<sup>2</sup><sub>between</sub></i>		0.83	0.906		0.83	0.901		0.83	0.906

Note: All variables in natural logarithms. Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent. All regressions include a time trend not reported.

**Table A5. France: The effects of bilateral aid on bilateral trade**

Dependent Variable: <i>Exp<sub>ijt</sub></i>	LOANS			GRANTS			LOANS & GRANTS		
	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Y<sub>it</sub></i>	-6.931	-0.57	-2.284	-12.818	6.286	1.746	-20.555	4.355	-0.493
<i>Y<sub>jt</sub></i>	0.735***	2.858**	0.826***	0.796***	3.161**	0.835***	0.726***	2.978**	0.819***
<i>Ypc<sub>it</sub></i>	4.992	1.017	1.69	8.398	-4.979	-2.158	16.13	-2.762	0.279
<i>Ypc<sub>jt</sub></i>	0.140***	-0.865	0.173*	0.058	-1.05	0.204**	0.043	-0.926	0.188**
<i>Loans<sub>ijt,t</sub></i>	0.119***	0.055***	0.060***				0.143***	0.053***	0.059***
<i>Loans<sub>All-i,j,t</sub></i>	-0.021	-0.012	-0.025				0.009	-0.013	-0.026
<i>Grants<sub>ijt,t</sub></i>				0.025	0	0.004	0.027	-0.003	0.001
<i>Grants<sub>All-i,j,t</sub></i>				-0.068	0.068	0.038	-0.149***	0.058	0.022
<i>Dist<sub>ij</sub></i>	-0.596***	0	-0.604***	-0.642***	0	-0.640***	-0.535***	0	-0.607***
<i>Colony<sub>ijt</sub></i>	0.971***	0	1.263***	0.981***	0	1.272***	1.018***	0	1.249***
<i>Comlang<sub>ijt</sub></i>	0.514*	0	0.519	0.648**	0	0.659*	0.337	0	0.537*
<i>N</i>	369	369	369	369	369	369	369	369	369
<i>N<sub>g</sub></i>		56	56		56	56		56	56
<i>R<sup>2</sup></i>	0.834	0.189		0.824	0.164		0.84	0.196	
<i>R<sup>2</sup><sub>within</sub></i>		0.189	0.165		0.164	0.143		0.196	0.169
<i>R<sup>2</sup><sub>overall</sub></i>		0.385	0.829		0.36	0.819		0.376	0.828
<i>R<sup>2</sup><sub>between</sub></i>		0.487	0.856		0.466	0.845		0.48	0.854

Note: All variables in natural logarithms. Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent. All regressions include a time trend not reported.

**Table A6. Japan: The effects of bilateral aid on bilateral trade**

Dependent Variable: <i>Exp<sub>ijt</sub></i>	LOANS			GRANTS			LOANS & GRANTS		
	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Y<sub>it</sub></i>	8.808	-20.761*	-25.355**	25.084	-16.188	-18.255*	28.028	-16.554	-19.404*
<i>Y<sub>jt</sub></i>	0.854***	2.048	1.038***	1.012***	2.17	1.034***	0.888***	1.746	1.046***
<i>Ypc<sub>it</sub></i>	-2.549	23.951**	30.057***	-19.777	18.947*	22.257**	-22.412	19.398*	23.417**
<i>Ypc<sub>jt</sub></i>	0.361***	0.745	0.489***	0.408***	0.529	0.515***	0.479***	0.876	0.470***
<i>Loans<sub>ijt</sub></i>	0.235***	-0.035	-0.025				0.201***	-0.036	-0.025
<i>Loans<sub>All-i,jt</sub></i>	-0.076***	0.008	0.012				-0.077***	0.009	0.012
<i>Grants<sub>ijt</sub></i>				0.229***	0.059***	0.076***	0.196***	0.059***	0.076***
<i>Grants<sub>All-i,jt</sub></i>				-0.164***	-0.051*	-0.068***	-0.109**	-0.052*	-0.071***
<i>Dist<sub>ij</sub></i>	-0.903***	0	-1.036***	-1.006***	0	-0.927***	-0.799***	0	-0.942***
<i>Colony<sub>ijt</sub></i>	0	0		0	0		0	0	
<i>Comlang<sub>ijt</sub></i>	0	0		0	0		0	0	
<i>N</i>	456	456	456	456	456	456	456	456	456
<i>N<sub>g</sub></i>		66	66		66	66		66	66
<i>R<sup>2</sup></i>	0.797	0.393		0.792	0.413		0.81	0.42	
<i>R<sup>2</sup><sub>within</sub></i>		0.393	0.364		0.413	0.384		0.42	0.391
<i>R<sup>2</sup><sub>overall</sub></i>		0.677	0.747		0.705	0.764		0.671	0.76
<i>R<sup>2</sup><sub>between</sub></i>		0.695	0.728		0.719	0.745		0.689	0.741

Note: All variables in natural logarithms. Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent. All regressions include a time trend not reported.

**Table A7. Germany: Summary effects of loans and grants**

<i>Coefficient</i>	OLS	Fixed effects	Random Effects
Loan	0.067	0.005	0.026
Loan other	0.039	-0.015	-0.013
Grant	-0.050	-0.001	-0.002
Grant other	-0.024	0.01	0.011
Loan (own effect - other)	0.59	0.78	2.92
<i>Test for significance (&lt;0.05)</i>	0.4422	0.3817	0.0877
Grant (own effect - other)	0.30	0.22	0.23
<i>Test for significance (&lt;0.05)</i>	0.5814	0.6438	0.6351
grants dist - loans dist	15.56	0.21	3.21
<i>Test for significance (&lt;0.05)</i>	0.00	0.65	0.073

**Table A8. France: Summary effects of loans and grants**

<i>Coefficient</i>	OLS	Fixed effects	Random Effects
Loan	0.143	0.053	0.059
Loan other	0.009	-0.013	-0.026
Grant	0.027	-0.003	0.001
Grant other	-0.149	0.058	0.022
Loan (own effect - other)	10.52	4.57	9.37
<i>Test for significance (&lt;0.05)</i>	0.0013	0.0370	0.0022
Grant (own effect - other)	12.30	1.66	0.47
<i>Test for significance (&lt;0.05)</i>	0.0005	0.2025	0.4937
grants dist - loans dist	13.67	5.17	8.36
<i>Test for significance (&lt;0.05)</i>	0.0003	0.026	0.0038

**Table A9. Japan: Summary effects of loans and grants**

<i>Coefficient</i>	OLS	Fixed effects	Random Effects
Loan	0.201	-0.036	-0.025
Loan other	-0.077	0.009	0.012
Grant	0.196	0.059	0.076
Grant other	-0.109	-0.052	-0.071
Loan (own effect - other)	33.07	2.38	2.12
<i>Test for significance (&lt;0.05)</i>	0.0000	0.1279	0.1456
Grant (own effect - other)	20.32	10.83	29.30
<i>Test for significance (&lt;0.05)</i>	0.0000	0.0016	0.0000
grants dist - loans dist	0.01	11.74	13.31
<i>Test for significance (&lt;0.05)</i>	0.94	0.0011	0.0003



## **Part C**

# **A framework for the sectoral analysis of the impact of aid tying on trade and development**

June 2009

**Edward J. Clay, Matthew Geddes and Luisa Natali**

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- Annex C: ToR for Sectoral Guidelines

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## A framework for the sectoral analysis of the impact of project aid on trade

*This paper presents a prototype framework or set of guidelines for investigating at a sectoral level the influences of tying practices and use of different modalities and instruments on recipient markets and the trade of donors. After explaining the rationale for a sectoral focus, a four-stage approach for a real time investigation is proposed. This includes, first a review of recent and current aid funding by modalities and instruments, second a detailed project process analysis of the procurement of goods and services for a sample of on-going projects, third cost-effectiveness analysis as a test of competitive sourcing, and fourth an assessment of development implications in terms of markets and trade. The draft framework has been developed through an exploratory study for the water and sanitation sector in Ghana and is presently being further tested in country studies undertaken as part of the OECD DAC/PDE Thematic Study on Aid Untying. In view of the inconclusive nature of the evidence on the consequences of the formal untying of aid and frequently associated moves to disburse aid through country partner procedures and novel modalities such as pooled or basket funding of aid, it is hoped that this framework could be employed with appropriate modifications and adaptations for other sectorally based studies and evaluations.*

### 1. Introduction

Presently some 90% of total bilateral aid by DAC countries is provided on a grant basis and 78% is formally untied and free from overt tying practices.<sup>1</sup> However, the extent of informal tying practices is an unexplored issue. As Phase One of the KfW Study has confirmed, formal or informal tying practices would be expected to have trade distorting implications, quite apart from aid effectiveness and efficiency costs. In contrast, the adoption of a specific aid instrument does not *per se* have trade implications. Rather again is it an issue of institutional practice? It was therefore proposed to explore the feasibility of undertaking an assessment of the trade distorting effects of aid on a sectoral basis, considering both different aid instruments, including grant and concessional loans, across countries. The logic of a sectoral approach is that, apart from general budgetary support, aid is typically planned and organised to correspond with government that is institutionalised on a sectoral basis. This exploration would build on:

- Methodological and practical lessons from the systematic investigations into the tying status of food aid and on the efficiency costs of tying;<sup>2</sup>
- The econometric investigation into the effects of aid on trade distortion;<sup>3</sup>
- The Ghana country case study;<sup>4</sup>

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<sup>1</sup> Clay, Edward J. Matthew Geddes, Luisa Natali and Dirk Willem te Velde, 2008. *The Developmental effectiveness of untied Aid: Evaluation of the implementation of the Paris Declaration and of the 2001 DAC Recommendation on untying ODA to the LDCs. Phase One Report.* Paris, OECD. Evaluation of the Paris Declaration. [www.oecd.org/dataoecd/5/22/41537529.pdf](http://www.oecd.org/dataoecd/5/22/41537529.pdf)

<sup>2</sup> See Section 4.4 of the phase one study, Clay, Edward and Elizabeth Turner. 2007 'Impact of Overseas Development Assistance (Grants and Loans) on Trade'. Report to KfW Entwicklungsbank. London, Overseas Development Institute (ODI), 24th April, and also Jepma, C.J. (1991), *The Tying of aid*, Paris, OECD.

<sup>3</sup> Massa, Isabella and Dirk Willem te Velde. 2009. 'The trade distortion implications of loans and grants: an econometric examination.' Revised PAPER, Overseas Development Institute (ODI), London, March 2009

- Preliminary investigations as part of the OECD Study of untying practices;<sup>5</sup>
- Previous research for Ghana on the effectiveness and efficiency costs of tying practices.<sup>6</sup>

The result of this exploration is a draft framework for a sectoral assessment of the trade distorting effects of aid. The framework has already been adopted for the country studies that are being undertaken in Phase II of the OECD Thematic Study on untying of ODA.<sup>7</sup> It is hoped that the framework, which it is intended to revise in light of use in the thematic study, will be of interest to others concerned with the trade implications of aid practice including for example the OECD, the WTO Secretariat and donor agencies in evaluating the consequences of aid untying.

*Choice of case study sector:* In undertaking the exploration it was decided to focus on a single sector as identified and reported separately according to the DAC3 Classification in OECD data bases for ODA. On grounds of practicality such a choice is virtually unavoidable. Furthermore, it will permit comparisons over space and time. Next, it would be more interesting to select a sector involving funding for infrastructure which is likely to involve tradables and non-tradables, and the former including both importation of goods and services. This sector should for wider relevance be one including activities under programmes both to support reconstruction in fragile/post conflict situations and in promoting growth in LDCs more generally.

*Food Aid* perhaps seemingly the obvious and easiest case was considered to be inappropriate. There is, as indicated in Phase One, a considerable body of evaluative and research evidence for food aid. However, this form of aid is in several respects distinctive, and so does not provide an appropriate model for investigating the trade implications of other sectoralised forms of aid. Food aid is the funding of commodity assistance. Mostly, this is in forms that are widely traded commodities. The associated tying practices, efficiency and trade distorting effects of food aid tying are well established. There is also a growing body of evidence on the developmental effectiveness and efficiency of properly organised sourcing in the partner country or regionally. Only interest groups dispute these conclusions. Finally, food aid includes activities that are classified, to some extent arbitrarily, as part of two sectors, Emergency and Distress Relief and Development Food aid and Food Security Assistance.

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<sup>4</sup> Clay, E., Geddes, M., Natali, L., Mensah, E.] and Quartey, P. 2009. [Ghana Country Study, INCOMPLETE]

<sup>5</sup> Clay *et. al.*, 2008. *op. cit.*

<sup>6</sup> For example, Osei, B. (2004) 'The cost of aid tying to Ghana', African Economic Research Consortium. *AERC research paper 144*; Nairobi: AERC. Osei, B. (2003) 'How tied aid affects the cost of aid-funded projects in Ghana', African Economic Research Consortium. *AERC Research Paper 137*; Nairobi, AERC.

<sup>7</sup> 'Thematic Study: The Developmental Effectiveness of Untied Aid: Evaluation of the Implementation of The Paris Declaration and of the 2001 DAC Recommendation on Untying ODA to The LDCs. Revised Approach To Phase II.' London, Overseas Development Institute (ODI), London, 2009.

A statistical review of the use of aid instruments for different sectors for recipient countries indicates that both donor funding for infrastructure and the uses of different aid instruments is now very patchy across sectors and countries.<sup>8</sup> The *water and sanitation sector (WSS)*, that includes both infrastructural and social investments, was identified as potentially the most promising for an exploratory case study investigation:

- many donors are well represented in almost all recipient countries;
- grant and loan funding continue to be provided;
- funding of mix of non-tradables, imported capital equipment and involvement of international companies in providing design and construction management services;
- likely priority sector for future aid because of water scarcity and climate change issues.

Accordingly, the Ghana country study focused on the WSS, providing the practical examples on which this paper draws extensively. This part of the KfW funded study is an attempt to consolidate what has been learnt so far, including from the other components of the study in the form of a practical method of investigation.

## **2. Rationale of Guidelines for sectoral investigations**

At a global level the econometric analysis supports the conjecture (hypothesis) that aid promotes trade in terms of imports from the donor country. However, the relationships are far from robust and the data are known to be very imperfect. The choice of bilateral instruments, grants and loans, does not appear *per se* to be a significant influence. The relationships or lack of them may be explained by various speculative ideas about what might influence aid-sourcing decisions including those discussed below.

Aid is *additional* trade: that is the aid funding is associated with a trade flow that would not otherwise have occurred. Country studies on tying practices suggest that the relationship is relatively weak, implying low short-term effects on imports (Clay et al., 2008, Chapter 5). Cross sectional investigations for food aid, in some respects the simplest case, indicate a range values of elasticities of substitution for commercial imports that vary with the uses of commodity assistance. These elasticities range from around 0.6, for commodities that are monetised or sold on to local markets, to 0.3 where commodities are directly distributed to final beneficiaries or less when provided for quasi-medical use in intensive

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<sup>8</sup> This statement is based on a review of aid commitments during 2004-2006 for transport, energy and water sectors for 13 countries including: Colombia, Honduras, Nicaragua, Cameroon, Ghana, Kenya, Senegal, Uganda, Zambia, South Africa, Laos, Vietnam and Sri Lanka.

and supplementary feeding infant and child feeding.<sup>9</sup> Aid may also be used to provide finance for non-tradables such as delivery costs. As this example suggests the specifics of sectoral uses of aid need to be understood in order to make inferences with any confidence about additionality.

Recipient preference for donor goods and services is widely considered an influence. Mutual understanding between partners may lead to the selection of activities where the donor is the likely source of supply. An example of this is that even with untied aid the recipient may wish to sustain the donor goodwill by choosing a donor country source for technical cooperation (Clay & Turner, 2007).

The data are a further serious limitation on investigations through global or multi-country cross sectional or panel studies. The trade statistics include only goods. A substantial proportion of aid funds services, especially TC, is funded by HQ in the donor country and is effectively unreported. The data on tying status are also incomplete, especially prior to agreement on the DAC 2001 Recommendation. For these reasons it was considered appropriate to complement the global analysis by country investigation, at least on an exploratory basis.

Similarly trade distortion effects need to be investigated at a disaggregated level. If the investigation is to include both goods and services, then it might be more appropriate at a sectoral level. A comparison of sourcing outcomes for a cross-section of donors within a single sector allows a degree of specificity in the investigation impossible when examining national data. So within the Ghana country study it was proposed to investigate through a sectoral study for Water and Sanitation the influence on sourcing of goods and services of donor policies and practices especially for formally untied aid and use of different instruments.

How might the role of different aid instruments and tying practices be explored to establish whether specific aid transactions are potentially distorting? The literature is largely concerned with tying practices. What is happening now that most bilateral aid, especially to LDCs, is formally untied?

Previously investigations into tying practices have largely focused on two areas. First there is the simplest case, commodity aid. The costs and sources of aid-funded imports can be directly compared with commercial imports or potential imports of identical products or very close substitutes available on international markets. Second, there are the efficiency costs of tying for large turn-key projects.

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<sup>9</sup> Historically, the greater part of monetised aid was in the form of loans, mostly US export credits. However, the shift to project aid channelled through NGOs from the 1990s continued to be associated with similar elasticities for displacement of commercial imports (OECD, 2003. 'Export competition issues related to food aid'. COM/AGR/TD/WP (2003)48. *Working Paper for the Joint Working Party on Agriculture and Trade*. Paris: OECD; and FAO (2006) *The State of Food and Agriculture (SOFA)* Rome: FAO

This efficiency effect has been successfully investigated at a single project level.<sup>10</sup> What is happening within a sector where there are different instruments, aid is being projectised and funding a range of goods and services within projects?

The Guidelines set out below provide a prototype framework for such an investigation. These were prepared during the Ghana Country Study for the investigation of WSS projects, and then amended to provide the guidance for four country studies done as part of the OECD DAC-PDE Thematic Study. It is envisaged that they could be modified again in the light of undertaking these country studies. Some of the uses of aid funding to source goods and services are likely to be both country context and sector specific, and so it is envisaged that the framework would need to be modified when employed in other sectors and other countries.

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<sup>10</sup> For example in Osei, op cit (footnote 6 above).

### 3 Guidelines for Country Sector Studies

#### Overview

Each case study will involve four stages. First, there is a sector-wide review of aid funding, including a comparison with the modalities and instruments used in different sectors. This stage also includes selection of projects for more detailed investigation in Stage Two. Second, there is a more detailed investigation into how project funds have been allocated and disbursed to determine sourcing of goods and services and implications for local and regional markets and trade more widely. Third, cost-effectiveness analysis is used as a test of competitive sourcing (non-distorting flows). Fourth, there should be an attempt, even if only qualitative to assess the developmental implications of the investigation into donor tying/untying practices and used of different instruments. The method of investigation for the detailed analysis of Stage Two is described in some detail in Annex A.

**Table 1: Ghana Total Bilateral and IFI Disbursements: aid modalities 2003- 2008, in million US\$ mn**

<i>Aid instrument</i>	<b>2003-2005</b>	<b>2006</b>	<b>2007</b>	<b>2008 (e)</b>
<b>General Budget Support</b>	<b>867.2</b>	<b>7.7</b>	<b>315.9</b>	<b>381.3</b>
<b>Sector Budget Support</b>	<b>13.6</b>	<b>18.6</b>	<b>36.4</b>	<b>120.6</b>
<b>Sector Budget Support earmarked</b>	<b>36.0</b>	<b>17.6</b>	<b>24.1</b>	<b>39.1</b>
<b>Basket-Funding</b>	<b>298.3</b>	<b>100.9</b>	<b>100.2</b>	<b>110.7</b>
<b>Project Approach</b>	<b>1,471.8</b>	<b>643.8</b>	<b>759.4</b>	<b>1,144.7</b>
<b>IMF BoP Support</b>	<b>53.4</b>	<b>116.6</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>2,840.3</b>	<b>1,225.3</b>	<b>1,236.0</b>	<b>1,796.5</b>

Source: World Bank, Accra, Development Partner Envelope 2008

#### **Stage One: the channelling of aid funds and identification of projects for process analysis**

This part of the review will provide a picture of channelling of aid for the recipient country partner. It should be sufficiently detailed and well documented so that it could provide a benchmark against which the sectoral investigation can be assessed.<sup>11</sup> Preliminary work on Ghana, as well as other countries involved in the Paris Declaration initiative, suggests that the investigation requires more information about aid modalities than is typically being generated for example as part of the PDE (See Table 1). This has led to a review by questionnaire on modalities and procurement piloted in Ghana and discussed below.

<sup>11</sup> In the event that this assumption does not hold, then the report should make recommendations about which data are lacking and what might be done to address this deficiency.

The review will include the following steps:

1. Verifications of aid programmes: review of programmes and projects as reported. Focus on accuracy of reporting and whether aid is untied/partially untied or tied. Assessment made of the range of alternative modalities present in terms of disbursement and procurement of goods and services.<sup>12</sup>
2. Establishing how bilateral aid (disbursements) is being channelled during the study period<sup>13</sup>:
  - a. Budgetary support (General BS, Sectoral BS, earmarked sectoral BS), which provides a benchmark against which to compare use of other modalities.
  - b. Projects using partner government country procurement system (CPS)
  - c. Projects using non-government partner procedures – NGOs and private commercial organizations (PCOs)
  - d. Pooled funding arrangement according to CPS or lead agency procedures
  - e. Project funding involving agency's own procurement at country office level, which may be tied or untied
  - f. Project funding involving agency's own procurement through HQ – tied or untied
  - g. Hybrid project including b, and e or f. <sup>14</sup>

A completed example of the questionnaire for Canada that was circulated to obtain these data is included as Annex B. With co-operation of country and donor partners this survey could provide a useful benchmark for further monitoring of aid use and modalities.

3. (Water) Sector as example of sector under review: donors are asked to provide a listing of active projects i.e. that have been *approved* up to *completion* (including those in the final stage of terminal financial payments and accounting). After completion detailed data on use of funds are often lost or archived only selectively.

Donors will also be asked to participate in the Project Process Analysis. In the WSS in Ghana cooperation was also needed from international agencies - UNICEF (water) and the World Bank (water, procurement and a local aid statistical reporting). For a comparative review other multilaterals e.g. AfDB, IDB and AsDB, would be involved in the Water and Sanitation sector.

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<sup>12</sup> In the Ghana case, the OECD CRS (<http://stats.oecd.org/WBOS/Index.aspx?DatasetCode=CRSNEW>), World Bank Donor Partner (DP) Envelope database ([siteresources.worldbank.org/INTGHANA/Resources/GH\\_DP\\_Envelope\\_Overview\\_2008\\_FINAL\\_23\\_June\\_2008.pdf](http://siteresources.worldbank.org/INTGHANA/Resources/GH_DP_Envelope_Overview_2008_FINAL_23_June_2008.pdf)) and government Budget for 2007/8 (<http://www.mofep.gov.gh/budget2008.cfm>) were used to provide an initial profile of aid programmes and projects for the period since January 2004.

<sup>13</sup> Because of substantial variations in year-to-year funding by some donors (OECD, 2008. *Effective Aid by 2010? What will it take?* Survey on monitoring the PDE Vol 2 Country Chapters, Ghana) the three most recent years seem to be appropriate. In Ghana, however, for consistency FY 2007 was the focus of review, as some donors would not have FY 2008 data available until later in 2009.

<sup>14</sup> For example, Denmark's 'pooled' project in Ghana included 'b' funding by DFID and 'f' for TC by DANIDA.

Non-OECD donors: without including those funders the inventory will be incomplete. An attempt should be made to construct an inventory from documents such as the Consultative Group (CG) review, informal contacts and discussions, especially in relation to the water sector, e.g. India, Egypt, Saudi Arabia, Kuwait, Israel, and China. In Ghana, none of these countries was apparently directly involved as donors or credit suppliers for WSS. However, China, for example, is active in funding energy with export credits and its companies are involved in project implementation.

*Country partner agency coverage:*

1. The Ministry of Finance (MoF) will be first point of contact and will usually provide guidance on further contacts with desks having specific donor responsibilities.<sup>15</sup> It will also be appropriate for reviewing the uses of aid that goes through MoF procedures. The DAC Chair will usually make a formal request for cooperation

Other contacts are likely to include those Ministries and operational agencies with water sector responsibilities. In Ghana for the water sector these included:

2. Ministry of Water Resources, Works and Housing (MWRWH) with water supply responsibilities
3. Water Directorate (within MWRWH)
4. Ministry of Local Government and Rural Development (MLGRD) with sanitation and sewage responsibility
5. Community Water and Sanitation Authority (CWSA) under MLGRD for rural water supply
6. Ghana Water Company for urban water supply and sanitation
7. Aqua Vitens, South African private contractor managing urban water supply
8. Accra Metropolitan Authority for metropolitan water supply and sanitation
9. Public Procurement Authority (PPA) supervising the CPS
10. Millennium Development Authority (MIDA), a wholly separate local agency responsible for management of US funded MCA program.

The extent of the need for contacts with international or local NGOs and PCOs only becomes clear as the investigation proceeds. In Ghana, for example, WaterAid was an implementing partner for UNICEF and otherwise drawing upon its own resources. Others, for example World Vision, were found to be an indirect channel for AusAid, not directly represented in Ghana.

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<sup>15</sup> The initial contact point is usually the External Resources Department or Division within the MoF. In some countries, e.g. Vietnam and Laos, this may be the Ministry of Planning and Investment.

The sheer complexity of aid funding highlighted in the Paris Declaration Evaluation makes a comprehensive review of modalities and instruments very human resource intensive and time consuming.

**Stage Two: Aid instruments and Untying: the sourcing of aid and trade implications**

This stage will involve an in-depth review of a selection of projects and programmes to determine *sourcing of contracts* in terms of partner country, donor country market, other sources including within the region and other (possibly DAC and non-DAC) countries. The chosen method of investigation is primarily a *project process analysis*, which is described in detail in attached Annex A.

This investigation focuses as in the Ghana case study on the Water and Sanitation sector, in which several donors are represented including potentially tied and untied aid, grants, loans and mixed credits.

Local procurement in terms of main or head contracts, sub-contracts and below that level, goods and services should be a particular focus of attention. Although DAC rules treat all locally registered companies as local, an effort might be made to distinguish qualitatively between locally registered subsidiaries and what are indigenous enterprises.

It is suggested that a Table be prepared in Stage One setting out a provisional list of projects for study.

*Market and trade implications of sourcing:* to go beyond the sourcing of contracts to find out the actual breakdown of sources of goods and services in terms of countries of origin.

The actual scope of Stage Two in terms of scale and coverage will depend on willingness of donors and their partners to cooperate (transparency) and also the information that is actually available, which depends on reporting and accounting practices in place. The output of Stage Two will be a set of in-depth case studies of how funds are being channelled and spent, primarily in the water sector. An example of such case studies for Ghana is found in Chapter 5 of the country study.

**Stage Three: Cost-effectiveness analysis (CEA)**

*Cost-effectiveness* is the standard test of value for money in public procurement of goods and services. For example, many donors employ CEA as a test of efficiency in both project completion reporting (e.g.

CIDA) and evaluations. CEA also provides a criterion for determining whether sourcing is trade distorting. Cost-effective selection is internationally competitive where the contracted cost is compared with import parity price for tradables. Cost-ineffective selection can be regarded as prima facie evidence of distortion. In the course of reviewing projects in Stage Two an effort should be made to identify specific categories of goods and services that are actually commercially imported or widely traded internationally and suitable for undertaking a cost-effectiveness analysis of actual purchasing in terms of import parity prices (IPPs). For non-tradables the local market price provides a similar standard.<sup>16</sup>

The CEA should also be seen as a tool for identifying issues for further investigation. Where there is apparent inefficiency or a wide range of results compared to IPPs, what are the explanatory factors? Unfortunately CEA is often undertaken retrospectively and the opportunity for follow-up is lost.

#### **Stage Four: Developmental Effectiveness**

To complement the focus on cost-effectiveness and efficiency concerns, the investigators should attempt at least a qualitative assessment, however speculative, of the implications for local development of untying and the way it is undertaken in a specific project, donor and country context.

#### **Outputs of the Sector Study**

The study will provide the substance for a report based directly on the four stages of the investigations as set out below.

*Stage One: Consequences of untying for aid uses* – a review of aid usages that are conditional on untying. The results of Stage One Questionnaire are to be presented.

*Stage Two: Consequences of untying – e.g. the water sector.* A review of the uses of aid including procurement procedures, sourcing of aid and market and trade implications.

- Selected examples of current practices: the PPA case study results (potentially a synthesis of results from the cases with the detailed case studies as appendices).
- Findings on procedures, sourcing of contactors, goods and services.
- Is there any, even just qualitative evidence that local sourcing, where this occurs, is potentially developmental for the local economy?

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<sup>16</sup> The tradable/non-tradable distinction is context specific. For example, Chinese companies were widely considered in Ghana to be bringing in labour categories that normally would be recruited locally.

*Stage Three: Cost-effectiveness issues.* This should include selected examples from PPA providing

- comparison of projects within sector (purposive or random selection)
- cross-country comparison.

What would be required for an overall assessment of cost-effectiveness for projects? Are there trade-offs between efficiency and developmental effectiveness?

*Stage Four: Developmental effectiveness issues.*

## **Annex A      Project Process Analysis**

### **1. Objectives and scope:**

Untying releases a single constraint on the use of aid resources: restrictions on the geographical sourcing of goods and services. So how does untied aid actually work in practice? To answer this question it is proposed to undertake what will be called a *project process analysis*. *The objective of the analysis* (for short) is to track the flow of resources under a specific project or programme from the commitment of funds by the donor(s) to disbursement by the ultimate operational organisation responsible for procurement. This is a purely factual exercise – *asking what actually happens?* This includes looking at what *organisations* are involved, in *what ways* and *whose procedures* are being followed and what these procedures actually include. It will establish how funds were spent and on what goods and services, through which agencies, and also distinguish as far as possible according to source. A key feature will be identifying the factors, which lead to discrimination between identical goods and services available from different sources.

Furthermore, effort should be made to understand the impacts of the choice of source in terms of local and possibly wider regional development. For example, what measures was taken to overcome potential biases against local suppliers from lack of market information, tender specification etc.

As it is impractical to cover the whole range of donor support, the scope of the investigation will be restricted to focusing on primarily one sector. For Ghana this was the *water and sanitation* according to OECD DAC3 classification. The tracking is also likely to be restricted to a single purposively selected project or programme per donor agency because of time and resource constraints. The selection is unavoidably purposive in order to be representative of modalities and instruments identified in the Stage One survey (annex B).

### **2. Project selection**

The projects to be included in the analysis will be identified in Stage One discussions taking into account the responses to the questionnaire on modalities (Annex B). The projects should be selected according to the following criteria:

- a. Active project i.e. between agreement and completion;
- b. If donor is lead agency, for pooled project;
- c. Untying/tying status;
- d. Aid instrument e.g. grant, loan, and mixed credit; and
- e. Representative of the donor's portfolio, if it has several water sector projects.

The scope for undertaking in-depth analysis of projects, especially ground-truthing will be severely circumscribed by time and sources available. A draft table of projects should be prepared. This will allow a discussion about balance and representativeness, taking into account whether the sector study includes only one partner country or is part of a multi-country study.

The use of country partner procedures (category C modality) is associated with support for capacity building in financial management and more specifically procurement, again one or more such projects may be included in the country investigation.

One of the possibilities opened up by untying is *pooled funding*, sometimes called basket funding, that is category e. It is envisaged that the analysis would consider a selection of pooled projects. [Definition of *pooled funding*: This arrangement arises where two or more donors jointly fund a project by channelling the untied funds into a single pool or account. This may be a local partner or DP pool, which will be supervised and monitored usually by one donor.] Pooling is clearly distinct from *joint funding* where for example donors agreed to fund separate parts of a project with tied or untied aid and a possible combination of grants and loans. The account will not be used as budgetary support but for earmarked, projectised activities:

### **3. The process investigation**

This investigation will include a review of the project through the following steps:

#### *3.1. Review of key donor documents for preparation, agreement and implementation of project.*

This will be the moment to document the project specifics and then identify the subsets of information to follow up with MoF and the implementing agencies in an individual project portfolio. It is essential that these be of a consistent structure to allow comparison of similar issues between projects.

[For example in the case of CIDA these project documents would include:

- Project appraisal document plus Memo
- Request for proposal – (ToR for tender under MERX)
- ‘Selection of tender’ evaluations
- Executing document – project implementation plan
- Annual or Semi-annual Progress Reports
- Mid Term Review
- Project Completion Report
- (Evaluation unlikely for current project)]

### 3.2 *Role of Ministry of Finance in handling project funds and monitoring disbursement.*

#### 3.3 *Role of implementing ministry and/or agency.*

The review will consider how funds are handled in terms of accounts, how and where there was a determination of the requirements of the goods and services leading to the specifications being set. According to the procedures used, how does this requirement at the procurement stage get translated into contracting outcomes? The analysis will look at actual outcomes of contracts in terms of the source of the chosen supplier and the associated source of the goods and services. These will be categorized according to:

- local,
- regional/or for ACP country other ACP,
- donor,
- other DAC,<sup>17</sup>
- other countries (BRIC, middle income, etc).

In addition to the factual investigation of the disbursement, there will also be a descriptive account of the process obtained from the implementing parties. As such, the tracking will also consider the implementation process, and not just contract outcomes. For example, were there implementation problems? Are aspects of particular procedures likely to result in a slow process, extra administrative load for the agency or the donor, etc. compared with use of conventional donor project procedures? Views will also be sought on whether it will be possible to identify the source for specific goods? This is critical to undertaking a cost effectiveness analysis.

#### 3.4 *Ground-truthing:*

The ultimate test is that of effectiveness. What is actually happening at the beneficiary level? A full impact survey is precluded by a lack of time and resources. Nevertheless, for one of the projects included in the PPA, the investigation might include a single ground-truthing visit. The intention is to identify how far the aims stated or implied during the design and implementation phases are borne out at the beneficiary level. Beneficiary views will also be sought. Random sampling may be appropriate to select one from several projects of a single donor and in two stages for sub-projects to avoid bias towards cases known to be either well or badly performing.<sup>18</sup>

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<sup>17</sup> An Issue for further consideration is where the donor is a EU/EEA country should other countries in the area be treated as a single market?

<sup>18</sup> See Duflo, Esther, Rachel Glennerster, and Michael Kremer. 2007. "Using Randomization in Development Economics Research: A Toolkit" in T. Paul Schultz, and John Strauss (eds.) *Handbook of Development Economics*, Elsevier Science Ltd.: North Holland, Vol. 4, pp. 3895-62.

At this stage, the individual project process analysis portfolio should be complete and have data or comments corresponding to all the issues arising from the initial review of the donor documents and supplemented by comments on issues arising from the descriptive accounts by the ministries, agencies and beneficiaries.

#### **4. Cost-effectiveness analysis (CEA)**

The review of projects with stakeholders in the process analysis should be used to identify selected goods and services where the results of contracting can be subject to a CEA. This exercise involves a comparison of actual costs with those of potential alternative sources. This will require the identification of several goods and services, whether locally produced or imported, which can be commercially purchased locally. Alternatively for goods only imported under aid contracts, there may be other sources of information such as equipment catalogues, consulting expert opinion and preferably traded prices. The latter are usually only available for widely traded commodities.

In the WSS an example might be pumping equipment for rural water supply, which involves a relatively limited range of pump types, even if there are differences in the precise specifications. Other goods suggested for CEA in Ghana were vehicles or PVC piping. Well/borehole drilling contracts may be another possible object for analysis.

#### **5. Developmental Effectiveness**

To complement the focus on cost-effectiveness and efficiency concerns, the investigators should attempt at least a qualitative assessment, however speculative, of the implications for local development of untying and the way it is undertaken in a specific project, donor and country context. These issues should be addressed at least for the project where there has been an opportunity to ground truthing or field visits. For example, were measures explicitly taken to build local capacity? Was the procurement done in ways that would indirectly have that consequence? Non-discrimination: were measures taken to overcome potential biases against local and regional suppliers from lack of market information, tender specification, etc? Was there any explicit or implicit form of positive discrimination in favour of local and regional suppliers? Were there any possible tensions or trade-offs between efficiency (least cost procurement) and developmental goals? The collective findings emerging from a set of case studies that have been carefully selected on explicit criteria can provide something more than mere anecdotal evidence.

**Annex B: Stage One Questionnaire on Aid Modalities – Canadian Bilateral Aid Disbursements to Ghana in 2007**

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**Paris Declaration Evaluation /OECD DAC Study on Untying of Aid:  
A note requesting cooperation of bilateral donor agencies in Accra - Canada**

How can you assist the DAC/PDE study on the effects of aid untying?

1. How is your bilateral aid being channeled? Could you provide an estimate for FY2007 or most recent completed year of the funds according to the following categories:

Category	CG DPE 2007 (US\$ mn)	CG DPE 2007 (%)
CG DP envelope 2007 total disbursements	58.16	100
a. Budgetary support (including GBS and SBS – unearmarked)	<b>34.6</b>	<b>59.5</b>
b. SBS - earmarked	<b>Nil</b>	<b>Nil</b>
c. Projects using partner government country procurement system (CPS)	<b>6.7</b>	<b>11.5</b>
d. Projects using non-government partner procedures – NGOs and private commercial organizations (PCOs)	<b>4.7</b>	<b>8.1</b>
e. Pooled funding arrangement according to CPS or lead agency procedures	<b>0.7</b>	<b>1.4</b>
f. Project funding involving agency’s own procurement at country office level, which may be tied or untied	<b>N/A</b>	<b>N/A</b>
g. Project funding involving agency’s own procurement through HQ – tied or untied	<b>1.3</b>	<b>2.2</b>
h. Hybrid project including c, and f. or g.	<b>3.9</b>	<b>6.7</b>
<b>i. Projects using Canadian Executing Agencies – project funding involving CEA’s own procurement with agency’s guidelines.</b>	<b>8.1</b>	<b>13.9</b>

Note: The questionnaire for the PD review does not provide this level of detail about procedures, nor does the CG *Ghana Partnership Resource Overview* – broadly only distinguishing the share of resources using PCP and a. and c.

2. Can you provide a *list of pooled projects and programmes* in which you are involved including – Other partners, who is the lead agency, start date of agreement and amount of funds committed by your agency?

**Ghana Research and Advocacy Project (G-RAP)**

**Other Partners: Department for International Development (DFID)**

**Lead agency: DFID**

**Start Date of agreement: 2004-16-01**

**Amount of funds committed by CIDA: CAD\$2.0M**

**Land Administration Project (LAP)**

**Other Partners: GoG, International Development Association, DFID, NORDIC Development Fund, Germany KfW, GTZ, FAO and CIDA**

**Lead agency:**

**Start Date of agreement: 2004-01-02**

**Amount of funds committed by CIDA: US\$1.0M**

3. Can you provide a *list of your active projects* in the water and sanitation sector?  
– that is where an agreement has been made but the project is not yet completed (even if this involves only final financial closure)?

**List of active CIDA projects in water and sanitation sector:**

- Northern Region Water and Sanitation Project (NORWASP) \$16.4 million
- Hydrological Assessment Project (HAP) \$3 + \$2.8 million extension
- Northern Region Small Towns Project (NORST) \$30 million

4. Can we jointly select two of these water sector projects to be subjected to a *project process analysis* – tracking the resources from your commitment up to the procurement of goods and services according to the categories listed above in Question 1. The selection criteria include:

- f. Active project
- g. You are lead agency, if pooled
- h. Untying/tying status
- i. Aid instrument e.g. grant, loan, and mixed credit.

**We have agreed with ODI that we will use the following projects for their process analysis:**

**NORST which, in response to their criteria is:**

- a) active
- b) CIDA is the lead agency
- c) It is partially untied - hybrid (will use government procurement processes and flow funds through government but, has CDN impl. agency)
- d) Contribution

**NORWASP:**

- a) active (until Dec. 31 2008 but, they said that is OK)
- b) CIDA is the lead agency
- c) clearly tied aid
- d) Contribution

5. We would like to discuss other potentially interesting projects that involve untied aid and strengthening capacity for partner country procedures and to include possibly one of these in the *project process analysis*.

6. Can you identify *the key project documents* on your side that it will be necessary to review in order to undertake the process analysis?

Contacts for responses:

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## **Annex C: ToR for Sectoral Guidelines**

(Extract from 'Revised Inception Report for Phase Two of study for KfW', 15 September 2008)

### **2.3 Sectoral analysis of both grant and loan project aid and export competition**

Presently some 90% of total bilateral aid by DAC countries is provided on a grant basis and 78% is formally untied and free from overt tying practices.<sup>19</sup> However, the extent of informal tying practices is an unexplored issue. As Phase One has confirmed, formal or informal tying practices would be expected to have trade distorting implications quite apart from aid effectiveness and efficiency costs. It is therefore proposed to explore the feasibility of undertaking an assessment of the trade distorting effects of aid on a sectoral basis, considering both grant and concessional loans, across countries. This exploration would build on:

- Methodological and practical lessons from the systematic investigations into the tying status of food aid (section 4.4 of the phase one study) and on the efficiency costs of tying;<sup>20</sup>
- The econometric investigation into the effects of aid on trade distortion (see section 2.1 above); and,
- The country case study (see section 2.2 above)
- Preliminary investigations as part of the OECD Study of untying practices
- Previous research for Ghana on the effectiveness and efficiency costs of tying practices.<sup>21</sup>

The output would be a draft framework for a sectoral assessment of the trade distorting effects of aid that could be shared with interested parties such as the OECD Secretariat, the WTO Secretariat and donor agencies.

The choice of an illustrative sector is currently under consideration. If practical, the team would like to focus on funding for infrastructure under programmes both to support reconstruction in fragile/post conflict and in promoting growth in LDCs more generally.

This part of the study is an attempt to consolidate what has been learnt so far including the other components of the study in the form of a practical method of investigation. It is proposed to produce a detailed outline on this aspect of the study as an interim product of the study at the end of October 2008 only after the visit to Ghana by ODI team members.

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<sup>19</sup> Clay Edward *et al.* '2008. Thematic study of developmental effectiveness of untied aid: evaluation of the implementation of the Paris Declaration and of the 2001 DAC Recommendation on untying of aid to LDCs. Phase One Report, October. 2008.

<sup>20</sup> Jepma, C.J. (1991), *The Tying of Aid*

<sup>21</sup> For example, Osei, B. (2004) 'The cost of aid tying to Ghana', African Economic Research Consortium. *AERC research paper 144*; Nairobi: AERC. Quartey, P., (2005), *Innovative Ways of Making Aid Effective in Ghana: Tied Aid versus Direct Budgetary Support*, *Journal of International Development*, Volume 17, Issue 18, pp 1077-1092.

**Part D**

**The trade implications of aid instruments and tying practices:  
Ghana country study**

July 2009

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and Peter Quartey**

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## Glossary

ACP	African, Caribbean and Pacific
AFD	Agence Française de Développement
CEA	Cost Effectiveness Analysis
CIDA	Canadian International Development Agency
CPS	Country Procurement System
CRS	Creditor Reporting System
CXA	Canadian Executing Agency
DAC	Development Assistance Committee
Danida	Danish International Development Agency
DfID	Department for International Development (UK)
DPE	Donor Partner Envelope
EC	European Commission
EU	European Union
GBS	General Budget Support
GDP	Gross Domestic Product
GNI	Gross National Income
GPS	Ghana Procurement System
HIPC	Heavily Indebted Poor Country
ICB	International Competitive Bidding
IFI	International Financial Institution
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau (Entwicklungsbank)
LDCs	Least Developed Countries
MCC	Millennium Challenge Corporation (US)
MDBS	Multi Donor Budgetary Support
MDGs	Millennium Development Goals
MOFA	Ministry of Foreign Affairs (Japan)
NCB	National Competitive Bidding
NGO	Non Governmental Organisation
ODA	Official Development Assistance
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PD	Paris Declaration
PDE	Paris Declaration Evaluation
PPA	(Ghanaian) Public Procurement Authority
SBS	Sector Budget Support
SECO	State Secretariat for Economic Affairs (Switzerland)
SSA	Sub Saharan Africa
TA	Technical Assistance
TC	Technical Cooperation
TD	Trade Diversion
US	United States
W&SS	Water and Sanitation Sector
WB	World Bank

## **The trade implications of aid instruments and tying practices: Ghana country study**

*This paper reports on one of three components of the second phase of an investigation into the potential trade distortion effects of aid focusing on the potential differential role of the use of different aid instruments (grants and loans). The first component is a global level econometric analysis (Massa and te Velde, 2009). The intention is that the econometric analysis should be complemented by in-depth country analysis. Given resource constraints, a single pilot recipient country study has been undertaken for Ghana to investigate whether aid practices lead to tying, either intentionally through explicit or disguised tying or unintentionally. The third component is methodological, describing in detail the approach piloted in to a sectoral investigation used in the Ghana study (Clay and others, 2009). The pilot study includes the following investigations: a statistical review of the relationship between aid instruments and tying of aid (Section 3); a country-level econometric analysis of aid instruments and tying of aid and the exports of DAC member countries (Section 4); a review of donor activities in Ghana with special focus on the water and sanitation sector (Section 5) and illustrative examples of tying status, procurement and sourcing implications from the sectoral investigation (Section 6) leading to conclusions in (Section 7). Two pilot cases in the water and sanitation sector are included as annexes. The Ghana study has also acted as the pilot for five further country case studies of aid tying and untying practices undertaken as part of the OECD DAC-Paris Declaration Evaluation Thematic Study of Aid Untying.*

### **Section 1 Introduction: background, purpose and methods**

#### **1.1 Background**

The Phase I study (Clay and Turner, 2007) relates to two OECD-based voluntary agreements: the 1992 ‘Helsinki Agreement’, which established disciplines for official development assistance (ODA) loans tied to procurement from donor countries that have a significant potential to be trade distorting, and the 2001 Recommendation of the OECD Development Assistance Committee’s (DAC) to untie all ODA (loans and grants) to the Least Developed Countries (LDCs). As a result of these arrangements, formally tied ODA has decreased significantly over recent years.

The implementation of the 2001 Recommendation is being monitored on an annual basis by the OECD Secretariat reporting to the DAC. In addition there is currently underway an evaluation of the extent of the DAC Members response to the Recommendation and its effects. This is being jointly undertaken with the Paris Declaration Evaluation (PDE) as a thematic study for which ODI is acting as the core team (Clay et al., 2008).

As the volume of untied aid has increased, so the focus under the OECD Official Export Credit Arrangement has shifted to possible trade distorting effects of untied credits, thereby seeking to extend the principles agreed for tied aid loans to untied aid loans. In 2004, a “transparency exercise” was introduced to yield findings on the contract awarding methods applied to ODA loans. This exercise is a response to concerns by the US that its domestic enterprises are at a disadvantage with regard to exporters from other donor countries, due to an alleged differential access to information and lack of transparency in the bidding processes and the apprehension of *de facto* tying of untied aid. The current transparency exercise focuses exclusively on loans,

hence favouring grants over loans, and seemingly reflecting an implicit presumption that grants have no trade distorting effects. However, this presumption has not been tested despite the dominance of grant aid in total ODA.<sup>1</sup>

Both the literature and anecdotal evidence suggest that the main sources of trade distortion (see Box 1 for a definition) are aid tying practices, both intended and unintended, which advantage donor country suppliers. The first phase of this study found an absence of literature and analysis investigating the differential impact of grants versus loans on trade distortion and hence no evidence to suggest that loans should be more distorting than grants (Clay and Turner, 2007).

### **Box 1 Aid and trade distortion practices**

A non-trade distorting aid transaction is understood to offer bias-free choice between suppliers. Therefore, a distorting aid transaction has the intended or unintended effect of biasing the choice between suppliers, often favouring those in the donor economy. This would lead to either the displacement of commercial exports that would have occurred without the aid transaction or, assuming a higher level of imports, a disproportionate increase in the donor's exports compared with competitors.

Source: Clay and Turner, 2007

There is, in contrast, a strong presumption that institutional arrangements and the specific terms and conditions of ODA agreements represent *tying practices* which are a significant determinant of the trade effects of aid flows. Both theoretical analysis and empirical investigations indicate that formal tying is likely to result in the selection of goods and services, which would otherwise be uncompetitive. In principle untied aid is not trade distorting. The empirical evidence on the actual consequences of untied aid is so far very limited (See Table 1.1 for a definition of tying status).

Due to data limitations<sup>2</sup> in the reporting of tying status, it has proved difficult to investigate the role of tying at a global, aggregate level. Thus Massa and te Velde (2009) were unable to include tying status and so differentiate possible effects from those of aid instruments. This is a serious restriction on the analysis of the role of aid instruments, especially where there is a clearly established link between tying practices and the use of some aid instruments. For example, traditional mixed credit arrangements are typically tied and therefore many donors have abandoned these when their bilateral aid is untied (See Section 3.2 below and Clay et al., 2008).

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<sup>1</sup> The current strong preference for grant aid also reflects the conventional view that full concessionality is desirable to avoid the build up of debt burden especially amongst HIPC/LDCs, as reflected for example in the Metzler Report to the US Congress (IFIAC, 2000). That assumption also implies that grants do not involve additional transaction costs.

<sup>2</sup> See Annex D for further details on data used and some of its limitations.

**Table 1.1 DAC Definitions of Tying Status of ODA, Other Official Flows and Officially Supported Credits**

TYING STATUS	DEFINITION AND COVERAGE
TIED AID	ODA or Officially Supported Loans, Credits or Associated Financing Packages, where procurement of the goods or services involved is limited to the donor country or to a group of countries, which does not include substantially all developing countries.
UNTIED AID	ODA grants or loans for which the associated goods and services may be fully and freely procured in substantially all developing countries and from OECD countries; as well as for funding the recipient's local costs.
PARTIALLY UNTIED AID	ODA grants or loans for which the associated goods and services must be procured in the donor country or among a restricted group of other countries, which must, however, include substantially all developing countries.

Source: Clay et al., 2008

Given the restrictions on exploring the potentially interrelated roles of instruments and their tying status at a global level, it was decided to undertake an in-depth country study of the range of potential effects of loan and grant instruments. This would be an exploratory study because a review of the literature failed to uncover a single systematic empirical investigation for a recipient country into the sourcing consequences of tying practices and aid instruments.

## 1.2 Purpose and scope

The purpose of the study is to examine whether the practices of donors and agencies in the sourcing of aid-funded goods and services have implications for trade and to determine the extent to which these discriminate between suppliers. One hypothesis to investigate is that where procurement is unrestricted and tendering is formally open, there may be information asymmetries, and so donor country suppliers are better informed of the opportunities to tender (i.e. *de facto* tying of untied aid). A second issue to explore is the role of donors and agencies in determining the choice of technology, or in specifying standards and designs, since these may be a source of trade bias. A third possibility is that aid leads to the creation of goodwill or loyalty between the aid recipient and donor and results in an implicit trade distortion.

The sourcing of goods and services also has *developmental implications*. So the investigation considers not only discrimination amongst high-income country (HIC) suppliers (the primary interest of some OECD members) but also the opportunities for local and regional suppliers to compete for contracts.

The case study explores whether there is any differential impact of aid instruments on sourcing of goods and services. In addition, the study considers to what extent *untied aid* (in the absence of informal or unintentional tying practices) is associated with higher levels of recipient country imports from the donor country; that would be unlikely (i.e. inconsistent with

the pattern of commercial trade) without such aid. This implies exploring the hypothesis that aid leads to the creation of goodwill or loyalty between the aid recipient and donor, and results in an implicit trade distortion.

There is a substantial literature on the aid-efficiency implications of tying practices (Clay et al., 2008: 35-41). However, most of the literature predates the extensive formal untying of aid since the mid 1990s. So it is at best speculative about the consequences for aid-efficiency of untying. Furthermore, the usual theoretical conclusion that instruments are neutral with respect to trade would appear to explain why there is a dearth of empirical investigations into the implications of aid instruments for current circumstances. The use of loan instruments by bilateral donors has sharply declined. The extensive efforts of most donors to untie their aid, at least formally, introduces the possibility that there may be identifiable interactions between modalities and sourcing where procurement is unconstrained by formal tying requirements and the provision of loans has become much more highly selective.

The resources available made it appropriate to confine the investigation to a single country. This constraint became less important when the opportunity arose to make the study a pilot for a larger set of country studies for the OECD DAC - Paris Declaration Evaluation Thematic Study into the consequence of aid untying due to the overlap in the hypotheses and material studied.

In purposively selecting a country case for an exploratory study a number of factors were taken into account. First, some donors are using a range of instruments which ensure that a significant if small part of aid is in loan form. This effectively excludes most LDCs, which are receiving bilateral aid on almost entirely grant terms from DAC members. The preponderance of African states amongst aid recipient countries suggests an African country. There is also an issue of governance. The range of instruments, procurement options and donors would be to some extent constrained by donor's views on the scope for using country partner procedures. Countries experiencing a major humanitarian crisis would be unsuitable for a pilot since a substantial part of officially funded trade may be emergency related and not part of what would be regarded as 'normal trade'. The feasibility of a study would depend on obtaining both government and donor cooperation in reviewing an area of potential sensitivity, procurement of and the sourcing of goods and services. After reviewing the data on ODA for a number of countries, it was decided to undertake a study for Ghana, a highly indebted poor country (HIPC) non-LDC where donors continue to employ a range of instruments and where the government is strongly committed to the PD process for improving aid effectiveness, as reflected by holding the Accra summit in September 2008.<sup>3</sup>

Members of the study team have become involved in parallel in the OECD DAC – Paris Declaration Evaluation (PDE) Thematic Study on Untied Aid (Clay et al., 2008). As DAC members had agreed to cooperate fully with that study, it provided an invaluable opportunity

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<sup>3</sup> Initially careful consideration was given to Tanzania where Elizabeth Turner, part of the Phase I research team, had worked previously. The minimal use of loan instruments and also issues of governance and the state of the public finances in the mid 2000s, were factors behind not proceeding with Tanzania (Spitzer and Fleuth-Leferink, 2009). Based on informal soundings in Tanzania, Elizabeth Turner was doubtful about the practicability of undertaking a country study on the relationships between aid instruments, tying practices and donor country exports, a sensitive area of government and donor practice.

to also obtain their cooperation for this country study and an audience for its outputs. Accordingly it was proposed and accepted by the Reference Group for the PDE in December 2008, that the research work undertaken for this country case study would also serve as material for the pilot country study for the set of country studies to be undertaken as part of the Thematic Study on Untied Aid. This study on the Trade Effects of Aid Instruments and Tying Practices would continue to be funded entirely under the KfW research project, and separate outputs would eventually be prepared focusing on the complementary but distinct objectives of the KfW and OECD studies. This report to KfW focuses on the role of aid instruments and whether and how these inter-relate with tying practices. A separate pilot country study report which will be drafted as part of the Thematic study on Untied Aid in Autumn 2009 and is more narrowly concerned with tying practices and issues of methodology.

### **1.3 Method of investigation**

As this is an exploratory study, the methods of investigation were only set out in a provisional way, allowing for review and further elaboration as the study proceeded. First, the study includes a statistical analysis that sets out and analyses the information as reported to the OECD and the Consultative Group for Ghana on the uses of aid instruments and reported formal tying practices to put the study in context (Section 3).

Second, it was decided to undertake an econometric analysis of the determinants of donor country exports to Ghana, including aid instruments and tying status that parallels, and can therefore be related to, the global level investigations. The statistical investigations undertaken using global sets of panel data would be replicated at a country level. Are the same relationships significant at a country level? Additional data may be available, in particular on tying practices, at a country level. Does the use of more complete and/or revised data sets lead to modified results? How robust is the econometric analysis? The results of this part of the study are set out in Section 4.

Third, the study provides an illustrative example of the ways aid instruments are currently being employed by bilateral donors, focusing on procurement and sourcing of goods and services. The underlying hypothesis is that the actual forms of procurement will be a determinant of sourcing. Historically, tying practices were considered as a major determinant of sourcing and hence the short term trade implications of aid. Most donors have committed themselves to untying of aid to LDCs, and more recently HIPCs. The study therefore seeks to explore empirically the ways in which the uses of instruments and tying/untying practices might separately or interactively influence the trade outcomes. This exploration includes three steps to ascertain what is actual current practice at a country level. To do this implies first reviewing whatever statistical data is available about donors instruments, procurement and sourcing practices.

Second, the study follows up by means of interviews and requests seeking individual donor's own data about their current and recent programmes. The limited data available even in a country where government and donors are strongly committed to delivering on the MDGs and the PD, led to the development of a questionnaire to obtain more detailed information about the proportions of aid being disbursed according to different practices. This approach implied high research costs involving donor interviews and follow-up including repeat meetings, where the study required information that was not automatically available. This part of the study is reported in Section 5.

As the third step, the study developed an approach for investigating individual projects. This was piloted in two projects, one supported by DANIDA and DfID with pooled funding, and a second supported by CIDA. Originally it had been intended also to analyse projects supported by AFD, the EC, KfW and the Netherlands. However, constraints of time, access to documentation and lack of availability of personnel with in-country knowledge of project implementation precluded this. The process analysis is described in the Sector paper (Clay et al., 2009), where it is concluded that such an investigation is only practicable for active or on-going projects. These constraints severely limited the scope for cost-effectiveness analysis. The findings from the project process analysis are reported in Section 6.

In the event, two country visits were required instead of the single visit originally envisaged. Far more extensive country level contacts with donors to obtain information about their programmes and procurement practices and related investigations proved to be necessary than originally envisaged. The presumption that this is a sensitive area of aid practice was confirmed during the study. Some donors with a portfolio of loan and grants as well as with continued tying of aid were only drawn into the study after extensive correspondence and requests for cooperation from the DAC. It is concluded that in practice it would be very difficult for independent research to be undertaken on these issues of procurement and sourcing of goods and services under aid arrangements at a country level without the agreement in advance of each of the concerned donors. This cannot be assumed to be an area of transparency in either partner government or donor practice. What is known with any confidence relates to partner countries with relatively good governance and donors with a genuine commitment to transparency in aid. Furthermore this is an area in which research costs are likely to be high, with little information freely available in the public domain.

## Section 2: Aid to Ghana in Context.<sup>4</sup>

Ghana has a population of approximately 23 million. In recent years, the country has enjoyed steady and increasing economic growth, with real GDP growth reaching 6.2% in 2007 and gross national income (GNI) per capita amounting to US\$ 586 in 2006. The economy has remained resilient even in the face of external and internal shocks. The strong performance in growth and the reduced poverty experienced in the past few years stems from various factors, including improvements in economic policy management. Extreme poverty has been reduced by half – from 36.5% in 1991/2 to 18.2% of the population in 2005/6. Thus, Ghana is the first Sub-Saharan African (SSA) country to achieve the Millennium Development Goal (MDG) on poverty. Substantial progress has been achieved in regard to MDG 2 on universal primary education: net primary enrolment reached 68.8% in 2006. Further achievements have been made in some areas of MDG 8 on Global Partnership for Development: Ghana reports a consistent decline in the level of external debt service as a percentage of exports of goods and services from 38% in 1990 to 7% in 2005 (OECD, 2008).

Over the period 1975-2002, total ODA to SSA was US\$318.8 billion, which compares with US\$214.1 billion received by East Asia and the Pacific Countries over the same period. The trend of growing dependence on aid for SSA described above is not different for Ghana; GNI per capita was US\$300 in 1975 and by 2005 it had increased to US\$450. In terms of ODA, between 1975 and 2002, Ghana received a total of US\$11.9 billion in aid. ODA rose from the equivalent of 9.5% of GDP in 1990 to 10.4% in 2005. A key question is whether, increasing aid to Ghana has had the appropriate impact on economic performance and welfare: that is, has it been effective?

ODA to Ghana amounted to US\$ 1,236 million in 2007 (US\$ 51 per capita) and disbursements in 2008 were projected to rise to US\$1,797 million. The World Bank and the EU were the major multilateral donors and the Netherlands and the UK were the major bilaterals. US assistance was projected to rise considerably in 2008 under the Millennium Challenge Account, but problems of slow implementation will probably show when 2008 estimated ODA is finalized that these projections were not fully realized. The possible implications of the global financial crisis for ODA are likely to be in 2009 and afterwards. The expectation that oil revenues would provide around 3-4% of GDP from 2009 onwards means that, as discussed more fully in Section 3, aid to Ghana is considered to be at a turning point.

The overall conclusions of the 2008 Paris Declaration Aid Effectiveness Monitoring Survey set the context for this study about aid instruments, tying practices and trade. Progress on untying is indicator 8 of the Paris Declaration, and some 92% of aid to Ghana was reported to be untied in 2008. Ghana is considered to have performed well in strengthening its country systems for public financial management and public procurement. However, the use of the public financial management system for aid actually declined between 2005 and 2007 and the use of the country procurement system, including budgetary support, rose only from 51% to 52% of total ODA.

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<sup>4</sup> This background section of the report is closely based on the PDE country aid effectiveness report for Ghana, for 2008 (OECD, 2008b) and statistics from the Ghana Development Partner Envelope for 2008 (World Bank, 2008) and the 2009 Human Development Report (UNDP, 2009).

The study considers aid to the Water and Sanitation Sector (W&S) in more detail. Ghana has made considerable progress in improving access to improved water and sanitation. The proportion of the population using improved water increased from 55% in 1990 to 75% in 2004. However, the proportion using improved sanitation rose only from 15% to 18% over the same period. The challenge in assuring access to potable water and sanitation is compounded by the growing urban population, increasing from 3 million in 1975 to 10.8 million in 2005, and projected to rise to 15 million in 2015.

The focus of this study on efficiency in aid provision has to be set in the context of the need for more funding and effective use of resources in a key sector for health and development. As a recent ODI Briefing Paper concludes:

“Historically, water and sanitation has suffered from severe under financing. This results from: a lack of internal financial capacity in the poorest of countries to achieve water and sanitation goals; poor political decisions for allocation of development aid; an overall reduction over time in development aid; and the limited cost-recovery potential in poverty-stricken regions. In addition, poor targeting of aid and a multiplicity of actors and structures compound the financial shortfall.... To ensure that resources for safe water and sanitation are used effectively at the local level, the local capacities to design, finance and manage improved service delivery must be greatly enhanced.”(Schuster-Wallace and others, 2008)

## **Section 3: Aid instruments and aid tying: country analysis**

### **3.1 Introduction: objectives, scope and data sources**

This section briefly surveys the recent trends and the current pattern of aid to Ghana, focussing on instruments, modalities and formal tying status. The main sources of information about aid flows are the OECD CRS database in terms of commitments and the country Consultative Group Development Partner Envelope database for disbursements. These statistics are complemented by information obtained directly from bilateral aid agencies during the course of the study. These data show trends in overall aid flows, the use of instruments, grants and loans. It should be recognised that both broad categories of grants and loans are associated with a range of terms and conditions on modalities of use and restrictions on sourcing. The statistics on modalities of disbursement of funds, including different forms of budgetary support and project uses is relatively complete only for recent years, since the growth of interest in use of country partner's own procedures. The reporting on tying status to the CRS, as documented in the OECD Phase I report, has become only relatively more complete since the 2001 DAC Recommendation. These data are used to provide a statistical overview of aid in this sector. In order to throw more light on the ways in which formally untied aid is being disbursed the study team developed a pilot questionnaire seeking more detailed information about the ways in which aid funds are spent in procuring goods and services, and the results are reported below in Section 5.

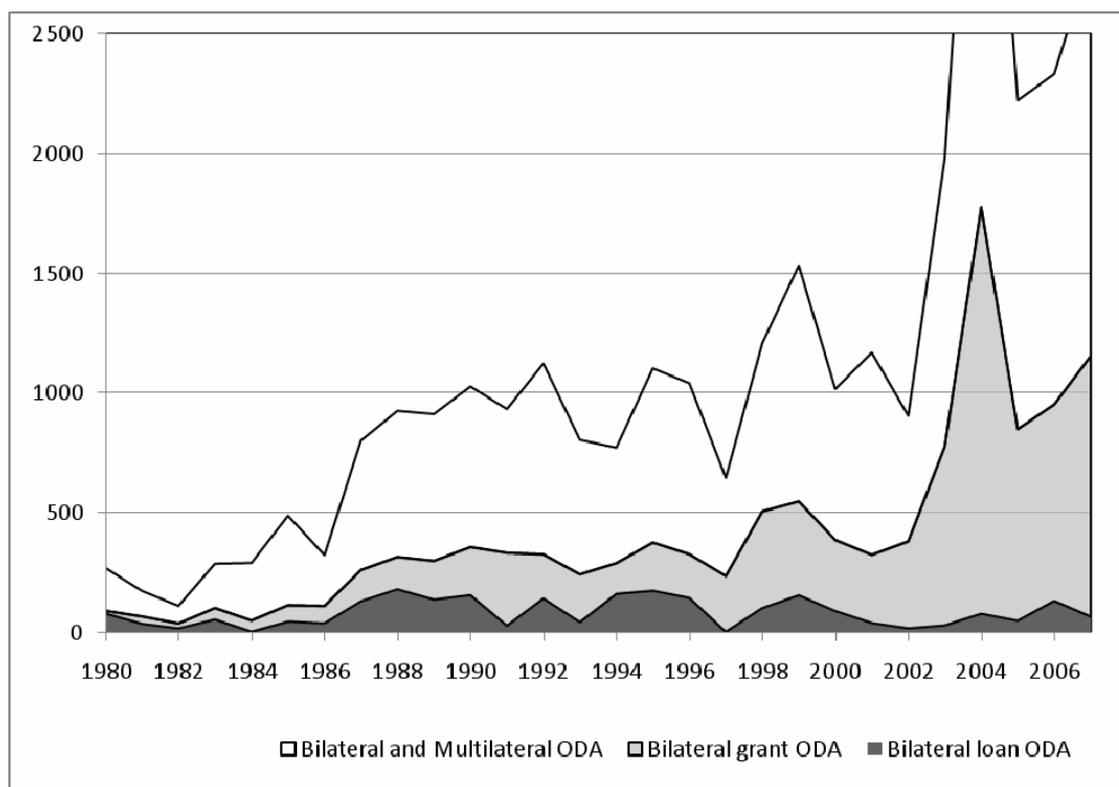
### **3.2 Trends in aid levels, instruments and modalities, 1980-2007**

After the near economic collapse in 1981, from the mid 1980s Ghana quickly became a star partner of the development co-operation community. The willingness of donors to provide enhanced levels of aid is shown in Figure 3.1 and Table 3.1. Commitments of multilateral and bilateral aid more than tripled between 1983 and 1990, as the economic recovery programme resulted in rapid growth and received widespread support. The collective willingness of donors to provide further support was sustained during the 1990s. However, the composition of support changed with multilateral aid dominated by IDA credits and bilateral grants becoming more important, and with Japan and the UK emerging as the major partners. Aid to Ghana was also influenced by the wider trend from bilateral loan to grant financing, especially from the mid 1990s. Whereas loans accounted for 86% of bilateral ODA in 1980 and over 50% during 1987-8, the value of new loans commitments, though fluctuating, declined progressively, especially after the Helsinki Accord in 1991, as donors phased out loan aid more generally. So by 2005-07 bilateral ODA was overwhelmingly on grant terms (91.3%), with loans accounting for 8.1% (Table 3.2). The identification of Ghana as a heavily indebted poor country (HIPC) in 1998 was also pointed to by some donors as a further reason for phasing out loans, even though they retained them in their portfolio of aid instruments (e.g. Japan).

Donors have been comparatively very supportive of an economy, growing rapidly, performing well on poverty reduction, with stronger democratic structures, but heavily burdened with official debt. Support for the HIPC debt initiative and Ghana's Poverty Reduction Strategy (GPRS-1) are reflected in the surge in total ODA commitments, which rose by over 100% between 2003 and 2004, bilateral grants and loans by 127% and 160% respectively (Table 3.1). However, these higher commitments were reflected in actual disbursements that rose from US\$833 million in 2003 to \$2008 million in 2006, and were then \$1236 in 2007, and provisionally \$1797 in 2008. On a three-year basis disbursements rose 50% between 2003-5

and 2006-9 (Table 3.3).<sup>5</sup> The aid support is broad based: the World Bank provided 20.4% of ODA disbursements in 2007, Netherlands 12.8%, UK 11.9%, USA 9.4%, the EC 6.7%, AfDB 5.4 % and Denmark 5% and five other donors, Canada, France, Germany, Japan and Spain contributing between 2.5% and 4.7% respectively. Aid support in Ghana is increasingly dominated by bilateral donors. This, as recognised in the pre-Accra review, is a situation that exemplifies the need for action on implementation of the Paris Declaration on aid effectiveness.<sup>6</sup>

**Figure 3.1: Ghana - ODA<sup>7</sup> 1980 to 2007 (US\$ Mn)**



Source: OECD Creditor Reporting System (CRS) database.

Notes: Data are based on commitments in current US\$.

Equity investments are not included (either for bilateral or total ODA)

<sup>5</sup> Figures are from the Development Partner Envelope (World Bank, 2008).

<sup>6</sup> The PD stresses actuary ownership by partner countries through alignment, harmonisation, a focus on results and mutual accountability (OECD, 2008).

<sup>7</sup> See Annex D for definitions and further details on what is included in ODA.

**Table 3.1 Ghana – ODA commitments in form of Grants and Loans, 1980-2007**

	<b>Bilateral and Multilateral ODA, US\$m</b>	<b>Bilateral ODA, US\$m</b>	<b>Bilateral ODA grants, US\$m</b>	<b>Bilateral ODA loans, US\$m</b>	<b>Bilateral ODA loans as a share of Bilateral ODA (%)</b>
1980	180	91	13	79	86
1981	107	68	31	37	54
1982	74	39	21	17	45
1983	186	103	49	54	53
1984	241	51	47	4	7
1985	374	115	69	46	40
1986	213	112	73	39	34
1987	541	262	131	131	50
1988	611	316	136	180	57
1989	614	300	162	138	46
1990	671	358	201	156	44
1991	601	333	305	28	8
1992	797	327	185	142	43
1993	562	243	200	43	18
1994	483	291	129	161	56
1995	728	377	202	174	46
1996	715	328	183	145	44
1997	411	237	234	3	1
1998	702	507	404	102	20
1999	986	548	393	155	28
2000	631	387	298	90	23
2001	845	325	286	40	12
2002	525	381	364	18	5
2003	1203	777	747	30	4
2004	2502	1776	1698	78	4
2005	1373	850	800	49	6
2006	1380	953	821	132	14
2007	1670	1155	1089	66	6

Source: OECD Creditor Reporting System (CRS) database.

Notes: Data are based on commitments in current US\$.

Equity investment and Grant-like flows are not included (either for bilateral or total ODA).

**Table 3.2 Ghana ODA Commitments: grants, loans and other instruments, 2005-7**

<b>Aid instrument</b>	<b>%</b>	<b>US\$ millions</b>
ODA Grants	91	3000
ODA Loans	8	266
Equity Investment	1	20

Source: OECD Creditor Reporting System (CRS) database.

Notes: Data are based on commitments in current US\$.

The surge in aid has been associated with a shift in the use of modalities, especially including Action to Reduce Indebtedness and the Multi-Donor Budgetary Support (MDBS) Initiative which together accounted for a third of aid commitments during 2005 -2007 (Table 3.5). Otherwise ODA has been strongly oriented to the social sectors rather than growth and infrastructure (Table 3.5). These priorities are reflected in the balance of grant and loan funding. Some 37% of disbursements during 2006-08, including World Bank, IMF and AfDB flows were accounted for by loans. However, the share of loans in bilateral ODA declined to 8% (Table 3.2). These loans are provided by five EU donors for financing a fisheries port and processing project. The sectoral distribution of loan ODA is consistent with this policy stance: apart from EU budgetary support, ODA loan finance is confined to agriculture, transport, W&S, industry, fisheries and health to a limited extent, and loan lending is hardly used to fund technical cooperation (Table 3.6).

These trends in areas of funding and instruments have been associated with two other developments: increased programme based funding and untying. A high proportion of aid has become programmatic, including general and sectoral budgetary support and multi-donor basket funding, with the share of project type assistance accounting for around half of disbursements since 2003 (Table 3.7).

**Table 3.3 Ghana: Total ODA Disbursements: loans and grants since 2003**

<b>Aid instrument</b>	<b>2003-2005</b>		<b>2006-2008</b>		<b>%Δ 2003-5 to 2006-8</b>	<b>%Δ 2006-8 to 2009-11 (Projected)</b>
	<b>US\$ mn</b>	<b>%</b>	<b>US\$ mn</b>	<b>%</b>		
Grant	1,750	63	2,684	63	+53	-0.4
Loan	1,091	37	1,573	37	+44	+42.6
Total	2,840	100	4,258	100	+50	+15.5

Source: World Bank, Accra, Development Partner Envelope 2008

Note: Data are disbursements in current US\$.

The data on formal untying are seriously incomplete due to partial and non-reporting by donors prior to 2001 (Clay et al, 2008). Nevertheless, by mid decade it is clear that bilateral ODA to Ghana had become overwhelmingly untied. A survey for 2004 found 75% untying of aid apart from debt relief (MAC, 2005). During 2005-2007, commitments indicate that equally

for both grants and loans around 75% were untied, 8% partially untied, mostly EU assistance, and just 10% were formally tied (Table 3.7). Most of this reported tying by value is TC linked grant aid (Table 3.8).

These two developments are wholly consistent, including the decline in loan ODA, since debt relief and budgetary support are typically untied. Ghana as a non-LDC was not originally covered by the DAC 2001 Recommendation on untying. Nevertheless, donors have been found to continue the process of untying generally, rather than just for LDCs. In 2008, the Recommendation was extended to cover HIPC countries and so now includes Ghana. The PD also supports untying, and calls for continued efforts to be made indicator 8 on effectiveness. This commitment is found also to be associated with the further progress on formal untying up to 2007 (Clay et al., 2008).

Historically some donors have provided tied loan ODA as part of a mixed credit arrangement. Several donors have phased out, or virtually ceased to use, these arrangements with formal commitments to untying making them slower and difficult to administer because of ICT requirements (Box 3).

#### **Box 2 The Decline of Mixed Credits Arrangements (MCA): the case of Norway**

MCAs were widespread and have been contracting sharply since the adoption in 1991 of the Helsinki Accord Rules on export and aid credits. This instrument was designed to operate in a tied aid environment - funding infrastructure and power projects, for example. Currently Norwegian MCA provide around Nkr 100mn annually, although this amount is variable. Prior to untying the level was around Nkr 300 mn a year. Projects of over Nkr 5 mn are considered for support. All contracts are internationally tendered and this has proved problematic. Tied MCA could offer a predictable package including timing, guarantees, private loans and suppliers. Untied, the MCA is not a full financing package: as the agency is unable to assure more than the interest subsidy on part of the funding with the remainder coming from a commercial source that, in turn, needs guarantees in place. Thus organising a project for Laos in 2006 proved a very long process. China ended its Norwegian MCA when it became untied and China could no longer specify the exact source of supply for the equipment. Switzerland has phased out MCAs but Denmark continues to provide them mainly for infrastructure to non-LDCs. Australia and Canada also provide only grant aid.

Source: Clay et al., 2008, Box 4.1

**Table 3.4 Ghana – ODA Grants and Loans by Donor, 2005-7**

<b>Donor</b>	<b>Total Commitments (US\$mn)</b>	<b>Grants (%)</b>	<b>Loans (%)</b>	<b>Loan commitments (US\$ mn)</b>	<b>Donor share of loan commitments (%)</b>
United Kingdom	775	100	0	0	0
United States	725	100	0	0	0
Germany	380	88	12	47	18
Netherlands	332	100	0	0	0
EC	311	94	6	19	7
France	284	48	52	149	56
Denmark	142	100	0	0	0
Japan	109	100	0	0	0
Belgium	63	55	45	28	11
Spain	46	50	50	23	9
Canada	31	100	0	0	0
Sweden	30	100	0	0	0
Switzerland	20	100	0	0	0
Ireland	7	100	0	0	0
Italy	5	100	0	0	0
Norway	3	100	0	0	0
Finland	1	100	0	0	0
Australia	1	100	0	0	0
Austria	1	100	0	0	0
Greece	1	100	0	0	0
New Zealand	0	100	0	0	0
Luxembourg	0	100	0	0	0
Portugal	0	100	0	0	0
<b>Total</b>	<b>3266</b>	<b>92</b>	<b>8</b>	<b>265</b>	<b>100</b>

Source: OECD Creditor Reporting System (CRS) database.

Note: table does not take into consideration equity investments.

**Table 3.5 Ghana – ODA Grants and Loans by Sector, 2005-7**

<b>Sector</b>	<b>Total Commitments (US\$m)</b>	<b>Grants (% of sector total)</b>	<b>Loans (% of sector total)</b>	<b>Sector (% of total loans)</b>
Action relating to debt	518	100	0	0
<i>General Budget Support</i>	507	86	14	27
<i>Transport &amp; Storage</i>	403	93	7	11
<i>Agriculture</i>	327	86	14	18
Education, Level Unspecified	260	100	0	0
<i>Health, General</i>	169	92	8	5
<i>Water Supply &amp; Sanitation</i>	150	81	19	11
<i>Other Multi-sector</i>	147	67	33	18
Government & Civil Society-general	145	100	0	0
Basic Education	118	100	0	0
Basic Health	77	100	0	0
Population Pol./Progr. & Reproduction	74	100	0	0
Dev. Food Aid/Food Security Ass.	60	100	0	0
<i>Industry</i>	48	61	39	7
Business & Other Services	41	100	0	0
Unallocated/Unspecified	32	100	0	0
Banking & Financial Services	32	100	0	0
Post-Secondary Education	27	100	0	0
Emergency Response	26	100	0	0
Energy	26	100	0	0
Other Social Infrastructure & Services	21	100	0	0
Secondary Education	11	100	0	0
<i>Fishing</i>	11	12	88	4
General Environment Protection	7	100	0	0
Forestry	7	100	0	0
Trade Policies & Regulations	6	100	0	0
Other Commodity Ass.	5	100	0	0
Administrative costs of donors	3	100	0	0
Conflict, Peace & Security	3	100	0	0
Support to NGO's	2	100	0	0
Refugees in donor countries	2	100	0	0
Tourism	2	100	0	0
Communications	2	100	0	0
Disaster Prevention & Preparedness	0	100	0	0
Mineral Resources & Mining	0	100	0	0
<b>Total</b>	<b>3266</b>	<b>92</b>	<b>8</b>	<b>100</b>

Source: OECD Creditor Reporting System (CRS) database.

Note: Table does not include equity investments.

**Table 3.6 Ghana Bilateral ODA : Instruments and Technical Cooperation, 2005-07**

<b>Instrument</b>	<b>Commitments (US\$mn)</b>	<b>Projects without TC (%)</b>	<b>Freestanding TC projects (%)</b>	<b>Project with some TC</b>	<b>Not reported (%)</b>
ODA Grants	3000.4	50.3	13.0	0.1	36.7
ODA Loans	266.0	52.9	3.0	0	44.0
<b>Total grants &amp; loans</b>	<b>3266.4</b>	<b>50.5</b>	<b>12.2</b>	<b>0.1</b>	<b>37.3</b>

Source: OECD Creditor Reporting System (CRS) database.

Note: "Projects without TC" is the percentage of either grants or loans for which donors reported the absence of a free-standing TC component. "Freestanding TC projects" is the percentage of either grants or loans for which donors reported a free-standing TC component. It seems likely that "Project with some TC" account for the majority of the "Not reported" section and this is due to the way donors report in the database.

**Table 3.7 Ghana Total ODA Disbursements by modalities, 2003- 2008, US\$ mn**

<b>Aid modality</b>	<b>2003-2005</b>	<b>2006</b>	<b>2007</b>	<b>2008 (e)</b>
General Budget Support (% of total)	867.2 (30.5)	327.7 (26.7)	315.9 (25.6)	381.3 (22.2)
Sector Budget Support (% of total)	13.6 (0.5)	18.6 (1.5)	36.4 (2.9)	120.6 (6.7)
Sector Budget Support (earmarked) (% of total)	36.0 (1.3)	17.6 (1.4)	24.1 (1.9)	39.1 (2.2)
Basket / Pooled Funding (% of total)	298.3 (10.5)	100.9 (8.2)	100.2 (8.1)	110.7 (6.2)
Project Approach (% of total)	1,471.8 (51.8)	643.8 (52.5)	759.4 (61.4)	1,144.7 (63.7)
IMF BoP Support (% of total)	53.4 (1.8)	116.6 (9.5)	-	-
<b>Total (% of total)</b>	<b>2,840.3 (100.0)</b>	<b>1,225.3 (100.0)</b>	<b>1,236.0 (100.0)</b>	<b>1,796.5 (100.0)</b>

Source: World Bank, Accra, Development Partner Envelope, 2008 (amended)

**Table 3.8 Ghana Bilateral Commitments of ODA, grants and loans by tying status, 2005-7**

	<b>Total Bilateral Commitments (B.C.) (US\$mn)</b>	<b>Grants (% total B.C.)</b>	<b>Loans (% total B.C.)</b>	<b>% of Grants</b>	<b>% of Loans</b>
Untied	2528	92	8	78	75
Partially tied	272	86	15	8	15
Tied	362	92	8	11	10
Not reported	105	100	0	4	0
<b>Total</b>	<b>3266</b>	<b>92</b>	<b>8</b>	<b>100</b>	<b>100</b>

Source: OECD Creditor Reporting System (CRS) database.

### **3.3 The trend from loans to grants goes into reverse.<sup>8</sup>**

Ghana's success in sustaining economic growth, meeting MDG goals on poverty reduction and the prospects of significant contributions from oil revenue to the budget (c.3% from 2009) is about to bring a further significant change in the pattern of ODA and government external funding. Ghana is making in effect its partial graduation from bilateral aid grants and highly concessional IFI lending to a mix of grant and loan aid, concessional external official and commercial lending.

In September 2007, Ghana issued a US\$750 million Eurobond on international capital markets.<sup>9</sup> The Government also signed a US\$292 million loan agreement with the China Exim Bank dedicated to the construction of a hydroelectric power plant at the Bui Dam.<sup>10</sup> Unofficial estimates put total currently agreed Chinese lending to the Ghana government and public institutions for infrastructure and public construction at some \$3 billion.<sup>11</sup>

The country's external borrowing is part and parcel of a broader strategy to provide the infrastructure to sustain real GDP growth prospects and achieve middle income status by 2015. These borrowing plans are also important because preliminary estimates of the oil discoveries indicate that oil reserves could generate additional fiscal revenues of about 3 to 4% of GDP on average for the next 20 to 30 years.

<sup>8</sup> This account of the shift to concessional and non-concessional commercial lending for funding public investment draws on the World Bank Ghana - *Country Brief* of 15/11/2008 before the full effects of the global financial crisis had been taken into account (World Bank, 2008b).

<sup>9</sup> The Eurobond was at a fixed coupon of 8.5 percent with a ten-year bullet repayment of the principal. The Eurobond prospectus states that the use of the proceeds will be for infrastructure investments that include, but are not limited to, energy and transport. The country has already allocated most of the proceeds of the Eurobond for an expansion of its thermal power generation capacity.

<sup>10</sup> The Bui related loan from the China Exim Bank carries an average commercial interest rate of 6.1 percent, with a 17-year amortization period, and a 5 years grace period. The loan is in turn dedicated to finance the construction of the hydroelectric power plant at Bui, with an annual generation of about 1,000 GWh and a proposed installed capacity of 400 MW. The loan is also *de facto* tied to Chinese led design and construction of the dam.

The donor community is also adjusting their funding to the changed context. Within the World Bank, the role for IDA will be reassessed by the end of FY09, in light of the government's eventual decisions on the use of the remaining financing from the Eurobond issue, and taking into account the volume and use of additional non-concessional financing contracted.

Under an oil export scenario, Ghana's risk of debt distress is low, down from the moderate risk of debt distress under current circumstances. An eventual re-classification of the country's debt rating would allow borrowing from the IBRD in which the country has shown interest. IBRD financing would provide the needed volume of financing, and procedures are better adapted to the type of projects the country is seeking to finance.

The Government is scaling up its capacity for a larger public investment program. It has established at the Ministry of Finance and Economic Planning a Project Finance Analysis (PFA) Unit with responsibility for analyzing, monitoring and evaluating new investment projects deemed eligible for Government support. The World Bank and DfID support the PFA unit and DfID leads joint multi-donor assistance including GTZ to strengthen public finance management within the ministry.<sup>12</sup>

This striking reversal of trend back towards concessional lending is already reflected in levels of ODA. Comparing the changes in the three-year levels of disbursements of loan and grant ODA (Table 3.2) the secular decline in levels of loan funding appears to have reversed between 2003 - 5 and 2006 - 8, when both grant and loan disbursements increased substantially. Projections for 2009-11, made before the global crisis fully impacted, imply a slight decline in grant ODA, but more than 42% increase in loan ODA. Some donors interviewed during November 2008 indicated that these developments would inevitably result in a reduced priority for grant aid for growth sectors, and perhaps of Ghana overall, within their programme during the remainder of the MDG period up to 2015.

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<sup>11</sup> The most recent documented estimates for 2007 for infrastructure-related agreed Chinese credit to Ghana is US\$980mn (Foster et al., 2009)

<sup>12</sup> The PFA unit will also have the responsibility of assisting project sponsors leverage private financing by assisting them in setting up Public-Private Partnership (PPP) Agreements and Private Finance Initiatives (PFIs). DfID is providing support in the area of project evaluation, while the World Bank is providing technical assistance to review and upgrade the current framework for investment appraisal and PPPs to ensure that Government resources are deployed in the most optimal manner for achieving the maximum economic benefits.

## Section 4: Econometric analysis of aid instruments, tying status and donor exports

### 4.1 Objectives and scope of investigation

This chapter aims at understanding whether different aid instruments (loans and grants) and the tying status of aid have any impact on donor export flows at the country level (in Ghana). The analysis attempts to answer two questions regarding the relationship between foreign assistance and donor country exports. First, we disaggregate the aid variable into aid that is provided in the form of loans and grants and we estimate the impact on donors export flows of different aid instruments at the country level using data for Ghana. The second question asks what happens if we control for the tying status of aid.

The chapter is organized as follows: the first section sets out the empirical specification of the model. Section 2 introduces the data used. The third section provides the results of the empirical analysis of the relationship between aid and trade flows. Concluding remarks are found in the last section.

### 4.2 Methodology – Empirical specification

In this section, we try to test empirically whether the tying status of aid impact on total donors' export flows to Ghana (the recipient country). We carry out an analysis in *three stages*, adapting the empirical specification (analysis at the global level) used by Massa and te Velde (2009) to the country level.

*First*, we compute the following three regressions to see whether the results that Massa and te Velde (2009) obtained at a global level holds at the country level (for Ghana). We use their dataset<sup>13</sup> and retain only observations for Ghana.

$$\ln(\text{Exp}_{it}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Ypc_{it}) + \beta_3 \ln(\text{Dist}_i) + \beta_4 \text{ComL}_{it} + \delta_1 \ln(\text{Loans}_{it}) + \delta_2 \ln(\text{Loans}_{All-i,t}) + \varepsilon_{it} \quad (1)$$

$$\ln(\text{Exp}_{it}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Ypc_{it}) + \beta_3 \ln(\text{Dist}_i) + \beta_4 \text{ComL}_{it} + \delta_3 \ln(\text{Grants}_{it}) + \delta_4 \ln(\text{Grants}_{All-i,t}) + \varepsilon_{it} \quad (2)$$

$$\ln(\text{Exp}_{it}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Ypc_{it}) + \beta_3 \ln(\text{Dist}_i) + \beta_4 \text{ComL}_{it} + \delta_1 \ln(\text{Loans}_{it}) + \delta_2 \ln(\text{Loans}_{All-i,t}) + \delta_3 \ln(\text{Grants}_{it}) + \delta_4 \ln(\text{Grants}_{All-i,t}) + \varepsilon_{it} \quad (3)$$

The dependent variable  $\text{Exp}_i$  represents the export flows from country  $i$  to Ghana;  $Y_i$  and  $Ypc_i$  measure respectively the GDP and GDP per capita of donor country  $i$ ;  $\text{Grants}_i$  is the country  $i$ 's grants to Ghana whereas  $\text{Grants}_{All-i}$  represents the grants Ghana receives from all the bilateral donors other than country  $i$ . Similarly,  $\text{Loans}_i$  and  $\text{Loans}_{All-i}$  are respectively the loans Ghana receives from exporting country  $i$ , and from all the countries other than country  $i$ .

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<sup>13</sup> Their dataset is restricted to 6 donors (Austria, Belgium, France, Germany, Japan, Spain) who give both grants and loans and covers the period 1992-2006 (see below data section).

$Dist_i$  stands for the distance between the exporting country and Ghana whereas  $ComL_i$  is a dummy indicating whether the donor country and Ghana share a common official language.  $\varepsilon_i$  is the error term, normally distributed, with mean 0 and variance  $\sigma_\varepsilon^2$ .

In order to adapt the original model to the country level, we do not include in the regressions the recipient's GDP and GDP per capita, which only vary across years and not across donors. We also drop the dummy 'colony' indicating whether the donor and the recipient have been in a colonial relationship; at the country level this variable loses its interest (the only 20<sup>th</sup> century colonial relationship was with the UK).

*Second*, we re-estimate the three above regressions using a modified dataset. The dataset is restricted to the five-year period 2002-2007 for quality issues (see Annex D)<sup>14</sup>. In order to study trade-distorting effects of loans and grants and test their hypothesis, Massa and te Velde include only those observations (donors/exporting countries) that provide both loans and grants<sup>15</sup>. Whereas most of the donors provide grants, donors who provide loans are limited in number and atypical. We consider that the data used in the first stage could embody a significant selection bias<sup>16</sup> and therefore retain in the dataset all donors, also including those who have either zero loans or grants<sup>17</sup>. We are interested in parameter estimates and not in testing whether loans or grants are more trade distorting. The second stage will test whether the results Massa and te Velde obtained using the restricted dataset hold when the full sample of donors is retained.

*Third*, we re-estimate the three regressions including a potentially important extra variable TS (tying status).  $TS_i$  stands for the percentage of donor ODA reported as tied<sup>18</sup>. The theory and evidence on tying would suggest that there is a positive relationship between the tying status variable as defined and the exports flows from donors to Ghana. When a donor provides tied aid, the recipient is constrained to the purchase of donor country exports; there is therefore a direct link between tied aid and trade<sup>19</sup>.

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<sup>14</sup> This dataset also differs from Massa and te Velde's as different deflators were used (different sources). The analysis, as with Massa and te Velde, does not take into account ODA grant-like and equity investment as in Ghana they represent only a very small percentage of aid disbursed/committed.

<sup>15</sup> They drop countries that provide only loans or only grants (have either loans or grants equal to zero). From an econometric point of view, this dataset restriction allows the authors to test whether loans are more trade distorting than grants in equation (3) (they test for  $\delta_1 - \delta_2 > \delta_3 - \delta_4$ ).

<sup>16</sup> Two of the largest donors in Ghana, UK and USA, were excluded from the dataset as well as Australia, Canada, Denmark, Finland, Greece, Ireland, Luxembourg, Netherlands, New Zealand, Portugal, Sweden and Switzerland.

<sup>17</sup> We cannot compute the  $\log(\text{loans})$  or  $\log(\text{grants})$  when the variable is equal to zero (the log is undefined). To handle this type of problem we add 1 to the data before logging it –  $\log(0+1)$ . We assume that such adjustment is immaterial in the dataset as all positive values in the data are large numbers.

<sup>18</sup> Nilsson (1997) attempted to allow for the degree of tying by including a dummy for those donors which, on average, tied more than half of their bilateral aid (but this dummy was not found to be significant).

<sup>19</sup> However, it could well be that aid increases trade (not necessarily through tied aid). The mere provision of aid to the recipient country might result in increased donor exports to the recipient country. The recipient country could feel bound to procure either goods or services from the donor country in order to secure more aid flows (Lloyd and others, 1998; Morrissey, 1993).

The modified equations are as follows:

$$\ln(Exp_{it}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Ypc_{it}) + \beta_3 \ln(Dist_i) + \beta_4 ComL_{it} + \beta_5 TS_{it} + \delta_1 \ln(Loans_{it}) + \delta_2 \ln(Loans_{All-i,t}) + \varepsilon_{it} \quad (1a)$$

$$\ln(Exp_{it}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Ypc_{it}) + \beta_3 \ln(Dist_i) + \beta_4 ComL_{it} + \beta_5 TS_{it} + \delta_3 \ln(Grants_{it}) + \delta_4 \ln(Grants_{All-i,t}) + \varepsilon_{it} \quad (1b)$$

$$\ln(Exp_{it}) = \alpha + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Ypc_{it}) + \beta_3 \ln(Dist_i) + \beta_4 ComL_{it} + \beta_5 TS_{it} + \delta_1 \ln(Loans_{it}) + \delta_2 \ln(Loans_{All-i,t}) + \delta_3 \ln(Grants_{it}) + \delta_4 \ln(Grants_{All-i,t}) + \varepsilon_{it} \quad (1c)$$

We attempted to include FDI as an explanatory variable in the empirical specification. However, reviewing that data we find this would have led to a substantial loss of observations as 2007 data are still not available from the OECD International Direct Investment Statistics, and there are also many missing values in the data for some specific donors in particular years.

We would have also liked to include a dummy (BTA) to control whether the donor and Ghana are members of a common regional trade arrangement or bilateral trade agreement. However, according to the WTO, Ghana is only a signatory of ECOWAS (Economic Community of West African States) and GSTP (Global System of Trade Preferences among Developing Countries). The membership in these trade agreements however does not vary across donors.

### 4.3 Data

The first stage of the analysis uses the dataset from Massa and te Velde (2009)<sup>20</sup> which covers the period 1992 to 2006, but includes only data for Ghana.

Empirical estimates for the second and third stage are performed over a sample of donor countries to Ghana with observations covering the period 2002-2007<sup>21</sup>. The bilateral trade data is from the IMF Direction of Trade Statistics database whereas the data on ODA is from the OECD CRS database.

As in Massa and te Velde (2009), the analysis uses aid disbursements and not commitments. We expect trade effects to follow actual disbursements and not commitments; therefore, although the coverage of aid commitments, especially in earlier years, is better than for aid disbursements, we prefer the use of disbursement data.

Data on the tying status of aid, however, is not available in disbursement form<sup>22</sup>. Therefore, we attempt to proxy for the tying status by applying the share of tied commitments to total

<sup>20</sup> Further information on their data and sources can be found in their paper, Massa and te Velde (2009).

<sup>21</sup> The period under analysis has been chosen taking into account quality issues with regards to data reporting of the tying status of aid and disbursements (based on meeting with OECD statisticians; see Annex D for further details). The complete list of exporters/donors to Ghana for the years 2002-2007 are reported in Table A1.

<sup>22</sup> In the OECD Creditor Reporting System, tying status is reported against new commitments only. Aid can be reported as untied, partially tied or tied; cases in which the tying status of aid is missing are classified here as Not Reported. The following changes were made to the CRS database as downloaded

commitments (average of the previous two years) and then assuming the tied share in disbursed aid to be the same.

Data for GDP and GDP per capita are taken from the World Development Indicators (WDI) Online database. All nominal variables (exports, GDP and GDP per capita) are deflated into 2000 constant US dollars using the GDP deflator provided on the WDI online. Data for distance and common language dummy are taken from the CEPII Distance Database.

#### **4.4 Empirical results**

This section presents the empirical results of the three stages of estimation.

##### *First stage*

We estimate equations (1), (2) and (3) using simple OLS, fixed effects, random effects panel regressions<sup>23</sup> and the GMM estimator<sup>24</sup>. Table 4.1 presents the results of the estimations using aid disbursements data for Ghana. Columns (1) through (4) in Table 4.1 show the impact on exports when we take into account only loans as aid variables (and we do not include grants). Columns (5) through (8) provide the results for equation (2) where we include grants rather

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from the OECD website: 1) all cases of budget support were changed to untied (budget support is assumed to be untied by definition); 2) there are a few cases in which the tying status seems to be reported on a disbursement basis (exceptional cases). These have been modified (i.e. as the tying status is reported on a commitment basis and it is reported for new commitments only, if commitments in a year are equal to zero then the tying status should be reported as zero).

<sup>23</sup> It should be noted that panel OLS gives biased and inconsistent estimates. Moreover, we cannot test whether to use fixed or random effects estimator through the Hausman test (generally accepted as a way of choosing between fixed and random effects). As fixed effects estimation drops time invariant variables, we would be comparing different regressions (this should be kept in mind when interpreting results as they might differ in fixed and random effects panel regressions).

<sup>24</sup> We include the results obtained with the GMM, although results are not valid. The Hansen test has a perfect p value of 1.00; a high p-value on the Hansen test is a classic problem of instrument proliferation (in our case the number of instruments equals the number of observations!) which is likely to vitiate the test. ‘Simply by being numerous, instruments can overfit instrumented variables, failing to expunge their endogenous components and biasing coefficient estimates toward those from non-instrumenting estimators’ (see Roodman, 2008). Moreover, the Sargan test (a test of over-identifying restrictions) is significant, thus the instruments used in the GMM may not be valid. The Sargan test does not reject the

than loans in the regressions. Columns (9)-(12) do the estimations taking into account simultaneously grants and loans (equation 3).

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hypothesis that the sets of additional instruments used in the GMM specification are invalid.

**Table 4.1 - First stage results**

	LOANS				GRANTS				LOANS & GRANTS			
<i>Dependent variable: Exports</i>	OLS	Fixed Effects	Random Effects	System GMM	OLS	Fixed Effects	Random Effects	System GMM	OLS	Fixed Effects	Random Effects	System GMM
	{1}	{2}	{3}	{4}	{5}	{6}	{7}	{8}	{9}	{10}	{11}	{12}
GDP	0.910***	-0.515	0.910***	0.104	0.730***	0.522	0.730***	-0.13	0.748***	0.24	0.748***	-0.135
GDP per capita	1.203*	1.365	1.203*	0.491*	0.71	-0.137	0.71	-0.165	0.804	0.265	0.804	-0.149
Loans i	0.07	0.101*	0.07	-0.075					0.039	0.071	0.039	-0.054
Loans All-i	-0.102	0.011	-0.102	-0.471					-0.09	0.049	-0.09	-0.465
Distance	-2.292***		-2.292***	-0.689	-1.948***		-1.948***	0.14	-2.067***		-2.067***	0.015
Lag Exports				0.836*				0.891**				0.895**
Grants i					0.130*	0.159***	0.130**	0.158***	0.109	0.143***	0.109	0.156***
Grants All-i					-0.088	-0.088	-0.088	1.107*	-0.084	-0.07	-0.084	1.389
Constant	-30.964	-1.588	-30.964	11.049	-40.846	28.273	-40.846	-17.931	-30.288	17.117	-30.288	-13.585
N. obs.	50	50	50	37	50	50	50	37	50	50	50	37
N._groups		7	7	6		7	7	6		7	7	6
R <sup>2</sup>	0.656	0.163			0.663	0.262			0.671	0.336		
R <sup>2</sup> within		0.163	0.072			0.262	0.149			0.336	0.156	
R <sup>2</sup> overall		0.366	0.656			0.279	0.663			0.192	0.671	
R <sup>2</sup> between		0.27	0.508			0.16	0.482			0.068	0.509	
Number of instruments				37				37				37
Arellano-Bond test AR(2)				0.142				0.128				0.052
Hansen test				1				1				1
Sargan test				0.002				0.006				0.002

Note: All variables are in natural logarithms. System GMM estimation not valid (see footnote 12). All regressions include a time trend not reported, while in the case of the system GMM we also include time dummies.

Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent.

The coefficient for GDP is in line with expectations, previous literature and te Velde and Massa paper; donor's GDP (highly significant in the specifications estimated using OLS and random effects) positively influences the export flows towards the recipient country (Ghana). However, GDP per capita is significant at the 10% level only in the first and third specifications<sup>25</sup>, when only loans are included.

The estimates from the first stage regressions also seem to suggest that aid flows to Ghana in the form of loans<sup>26</sup>, either from the donor  $i$  or from all bilateral donors other than country  $i$ , have no significant impact on the bilateral exports to Ghana. Differently, grants provided from donors to Ghana is consistently significant and positive throughout almost all specifications, whereas bilateral grants from the rest of the donors do not appear to affect the export flows from donor country  $i$  to Ghana. Grants from all countries other than country  $i$  are not significant.<sup>27</sup>

Distance is found to be highly significant in most specifications<sup>28</sup> and negative; an increase in the distance (used as a proxy for transport costs as well as time, unfamiliarity, market access barriers, etc.) leads to a decrease in exports from donor countries (trading partners). This result is in accordance with the theory which states that bilateral trade between two regions (countries) is inversely related to the distance between them.

We cannot interpret whether sharing a common official language has a significant impact on the export flows. The dummy variable is dropped automatically, as there are no donors left in the dataset which share the common official language with Ghana.

### Second stage

We estimate equations (1), (2) and (3) using simple OLS, fixed effects and random effects panel regressions<sup>29</sup>. Table 4.2 presents the results of the estimations using the newly created dataset.

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<sup>25</sup> GDP per capita is significant also in the fourth specification estimated by system GMM (although coefficients biased as seen in footnote 12).

<sup>26</sup> Loans from the donor is only significant at the 10% level and positive when estimating the first equation (where only loans are included) with fixed effects (specification 2).

<sup>27</sup> They are only significant at the 10 percent level in the model with only grants (GMM estimation) and positive – an increase in countries other than country  $i$  leads to an increase in export flows from country  $i$  to Ghana. However, the GMM results are biased. See footnote 12.

<sup>28</sup> Distance which is a time invariant variable is automatically dropped by the fixed effect estimator.

<sup>29</sup> In the second and third stage we are not reporting GMM results as they are biased or not valid (see footnote 12).

It is important to make clear that the regressions estimated in stage one and stage two are not strictly comparable. The first stage regressions cover a different period of time (1992-2006) and are run over a very restricted sample (50 observations). Moreover, in the first stage we could not include the common language dummy.

**Table 4.2 - Second stage results**

<i>Dependent variable: Exports</i>	LOANS			GRANTS			LOANS & GRANTS		
	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects
	{1}	{2}	{3}	{4}	{5}	{6}	{7}	{8}	{9}
GDP	0.741***	-0.352	0.818***	0.619***	-0.496	0.614***	0.574***	-0.426	0.617***
GDP per capita	-0.04	2.644	0.103	-0.615***	2.248	-0.446	-0.391	2.432	-0.414
Loans i	0.037*	0.012	0.016				0.029	0.001	0.003
Loans All-i	0.208	0.259*	0.248*				0.103	0.105	0.091
Distance	-0.506***		-0.48	-0.332*		-0.283	-0.296		-0.288
Common language	0.438**		0.366	0.136		0.16	0.281		0.171
Grants i				0.153***	0.171**	0.168***	0.142***	0.166**	0.163***
Grants All-i				0.11	0.139*	0.136*	0.042	0.081	0.086
Constant	-165.7	-168.829	-201.875***	-240.251**	-220.771*	-264.555***	-202.844*	-193.519	-245.137***
N	121	121	121	121	121	121	121	121	121
N_g		22	22		22	22		22	22
R <sup>2</sup>	0.653	0.324		0.677	0.394		0.687	0.398	
R <sup>2</sup> within		0.324	0.321		0.394	0.392		0.398	0.394
R <sup>2</sup> overall		0.112	0.641		0.039	0.675		0.016	0.676
R <sup>2</sup> between		0.133	0.702		0.038	0.742		0.014	0.743

Note: All variables are in natural logarithms (common language excluded). All regressions include a time trend not reported, while in the case of the system GMM we also include time dummies.

Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent.

In this second stage we find that GDP, which proxies for the economic size of donor countries, has a positive and significant impact on bilateral flows in most specifications except when using fixed effects. However, the level of development of donor countries, measured by their income per capita level, has no impact on bilateral export flows. GDP per capita is significant at the 1% level and negative only in the second model (where only grants are included) - specification (4).

Although distance is not found to be always significant, the negative sign confirms literature findings (distance is only significant in specifications (1) and (4), when estimating equation 1 and 2 using OLS). Common language is not significant and does not seem to affect the level of export flows (only significant in first specification).

Loans from trading partners are not found to be significant in determining export flows (they are significant at the 10% level and positive only in the first specification, where only loans are included and the regression is estimated through OLS). However, when we estimate equation (1) we find that loans from all bilateral donors apart from country  $i$  are significant at the 10 percent level (FE & RE). This result, although weak, indicates that an increase in loans from all countries other than country  $i$  leads to an increase in export flows from country  $i$  to Ghana.<sup>30</sup>

Grants provided from donors to Ghana are consistently significant and positive throughout all specifications. When estimating equation (2) (where only grants are included) bilateral grants from the rest of the donors are significant at the 10% level and positive (FE & RE estimation). An increase in grants from all countries other than country  $i$  leads to an increase in export flows from country  $i$  to the recipient country (Ghana); this would seem to exclude the hypothesis that an increase of grants from countries other than  $i$  might weaken the trade relationship between donor  $i$  and Ghana.

### Third stage

Results from the estimations of equations (1a), (2a) and (3a) using simple OLS, fixed effects and random effects panel regressions<sup>31</sup> are presented in Table 4.3, which presents the results of the estimations using the newly created dataset and including the tying status variable. The results are similar to the previous estimates obtained in stage two<sup>32</sup>.

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<sup>30</sup>  $Loans_{All-i}$  and  $Grants_{All-I}$  consists of bilateral grants/loans from countries other than  $i$ . However, we also tried different specifications including multilateral loans/grants; no significant difference was noticed.

<sup>31</sup> See footnote 17.

<sup>32</sup> The only difference is that now loans from other bilateral donors other than country  $i$  are no more significant.

**Table 4.3 - Third stage results**

<i>Dependent variable: Exports</i>	LOANS			GRANTS			LOANS & GRANTS		
	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects
	{1}	{2}	{3}	{4}	{5}	{6}	{7}	{8}	{9}
GDP	0.732***	0.705	0.789***	0.587***	0.748	0.563***	0.553***	1.052	0.570***
GDP per capita	-0.312	-1.886	-0.455	-0.758***	-2.566	-0.83	-0.585*	-3.173	-0.829
Loans i	0.026	0.007	0.013				0.02	-0.006	0.001
Loans All-i	0.17	0.221*	0.223*				0.112	0.105	0.111
Distance	-0.558***		-0.524	-0.347*		-0.249	-0.314		-0.256
Common language	0.360*		0.313	0.117		0.118	0.216		0.111
Tying status %	0.611*	0.245	0.266	0.807**	0.338**	0.365**	0.803**	0.362*	0.371**
Grants i				0.155***	0.191**	0.186***	0.149***	0.192**	0.182***
Grants All-i				0.054	0.078	0.084	-0.01	0.015	0.02
Constant	-152.038	-250.608**	-195.689***	-211.586**	-292.979***	-244.605***	-175.345*	-286.943***	-224.260***
N	117	117	117	117	117	117	117	117	117
N_g		21	21		21	21		21	21
R <sup>2</sup>	0.665	0.295		0.698	0.397		0.703	0.403	
R <sup>2</sup> within		0.295	0.293		0.397	0.394		0.403	0.4
R <sup>2</sup> overall		0.554	0.656		0.628	0.687		0.625	0.688
R <sup>2</sup> between		0.597	0.726		0.675	0.754		0.676	0.753

Note: All variables are in natural logarithms (except Common language and Tying status). All regressions include a time trend not reported, while in the case of the system GMM we also include time dummies.

Legend: \* significance at 10 percent \*\*significance at 5 percent \*\*\* significance at 1 percent.

When estimating equation (1a) which only covers loan ODA the new variable, Tying status is significant only at the 10% level and only in specification 1, OLS estimation. However, when estimating specification (2a) and (3a) and using either grants or grants & loans the coefficient on the tying status variable is always positive and significant either at the 5% or at the 10% level<sup>33</sup>. This suggests that for grant ODA, the higher the percentage of tied aid as a share of donor ODA to Ghana, the higher the export flows from the donor country to Ghana<sup>34</sup>.

Although the tying of aid is not the only reason why development aid might increase donor exports<sup>35</sup>, our result confirms it plays an important role, Tied aid links increased grant ODA to increased donor exports to the recipient. This result is also consistent with our previous results and evidence from a number of earlier studies which find a positive correlation between donor aid and donor exports; these results have usually been used to corroborate the hypothesis that aid is tied (formally or informally) to exports from the donor country.

#### 4.4 Conclusions

This chapter has tried to quantify the effects of tying practices on exports from donors to recipient where other aspects of aid, namely instruments or donor characteristics, might be important. The results of the analysis indicate that loans (either from the donor or from the rest of the bilateral donors) in Ghana do not have a significant impact on export flows from the donor to the recipient. In contrast, grants provided by the donor, and to a lesser extent grants provided by other bilateral donors, are important determinants of a donor's export flows to Ghana. The findings also indicate that donor policies with regards to the tying of aid have a significant but quantitatively modest influence on donor's exports to Ghana i.e. tied bilateral grant aid is trade distorting.

However, results should be interpreted cautiously due to concerns regarding the serious existing limitations of the data<sup>36</sup>, the model and its estimation.

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<sup>33</sup> We defined the tying status of aid variable in different ways, trying different aggregations (i.e. untied and partially tied aid vs. tied and not reported aid, etc.). We initially defined 8 TS variables:

Tying\_1 = (T aid over donor ODA - %)  
 Tying\_2 = (T + PT aid over donor ODA - %)  
 Tying\_3 = (T+PT+NR aid over donor ODA - %)  
 Tying\_4 = (T+NR aid over donor ODA - %)  
 Untying\_1 = (UT aid over donor ODA - %)  
 Untying\_2 = (UT+PT aid over donor ODA - %)  
 Untying\_3 = (UT+PT+NR aid over donor ODA - %)  
 Untying\_4 = (UT+NR aid over donor ODA - %)

We got very similar results for Tying\_1, Tying\_2, Untying\_3 and Untying\_4 (similar results to those reported in table 4.3). However, we did not find Tying\_3, Tying\_4, Untying\_1 and Untying\_2 to be significant.

We decided to use Tying\_1 as it is easiest to interpret and less prone to critiques (for instance Tying\_2 is harder to justify as there is no precise rationale for putting together partially tied and tied aid).

<sup>34</sup> This result is less trivial than might appear. It is not evident from the theory that tied aid always leads to an increase in donor exports; tied aid may simply finance donor exports that would have been procured from the donor country anyway. For this reason, tying could in certain situations also have a negative impact on exports (substitution effect)

<sup>35</sup> Moreover, a previous study (Nilson, 1997) attempted to allow for the degree of tying by including in a gravity model a dummy for those donors which, on average, tied more than half of their bilateral aid but this dummy was not found to be significant.

<sup>36</sup> See annex D.

### *Model and estimation limitations*

As with most empirical investigations, also this model suffers from the *problem of omitted variables*. The exclusion of certain potentially important factors may confound the influence of the explanatory variables on export flows. Future research could include FDI as a variable, were more complete disaggregated data to become available.

Some donor personnel in Ghana suggested that the ACP-EU relationship might be an influence on exports from EU countries. This is a relationship that could be explored further.

As Massa and te Velde (2009) highlighted, impact on export flows might become visible only years after the formal commitment and disbursement of aid. For this reason we believe that the model should be extended to include *lagged disbursements* (grants and loans)<sup>37</sup>, and this could be used as a robustness check.

In these empirical investigations we found that loans in contrast to grants, have little or no impact on export flows. These results are likely to be *country specific* and related to the *grants – loans level* in the country. It would be worthwhile, therefore to use the model with data for countries such as South Africa or Vietnam where the level of loan-grant ratio is much higher.

To summarise, the results obtained and the problems encountered in the implementation of the model suggest that there are a number of extensions and sensitivity analyses that may prove especially worthwhile in improving on the existing structure of the econometric analysis.

First, as anticipated earlier, it could prove useful to re-estimate with the model including FDI and lagged disbursements. Secondly, it would be interesting to repeat the whole exercise in different countries to see how much results are related to country specifics, such as the relative levels of grants and loans. Alternatively, an aggregate aid variable including both grants and loans might be introduced. Thirdly, we conjecture that aid should be disaggregated between debt relief and budget support, technical assistance and remaining mostly project type aid<sup>38</sup>; it could be that certain forms of aid have different effects on trade flows and, in particular, on donors' exports to recipient countries; a disaggregated sector analysis could also be informative. Lastly, the empirical specification has focused on the impact of aid on donors

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<sup>37</sup> The restrictive dataset we used did not allow us to carry out such analysis. There are a limited number of observations in our dataset and the inclusion of an extra variable (lagged disbursements) would have reduced our sample further. Moreover, it is difficult to identify the right lag structure - an assumption is needed to choose the lag lengths for the analysis and the results are crucially dependent upon the lag structure selected for the variable. Several lag lengths were tried with no clear advantage over the results without lags.

<sup>38</sup> There are however several data restrictions that should be overcome in order to carry out such analysis. First of all, although disaggregated data is available, classifications are often not comparable between donors (a clear example is offered by Technical Co-operation; some donors report projects which are solely concerned with tech co-operation, others use a much looser definition and report 50% or all capacity building projects in addition). Moreover, the Creditor Reporting System provides disbursements data on General Budget Support, Food Aid and other form of aid but not on Technical Assistance. A possibility would be to use the DAC database; however, this provides disbursements data for Food Aid and Technical Assistance but not for GBS. As in Stavlöta (2006), it could be possible to proxy for GBS by applying the share of GBS commitments to total commitments, using the CRS data, and then assuming the share of GBS in disbursed aid to be the same. However, in this way we would lose information on the tying status of aid which is available only in the CRS database (by donor and recipient).

export flows; however, aid could also influence recipient exports, and for this reason recipient trade flows and not just export flows should be analysed.

**Table 4.4 – Donor countries**

<b>N</b>	<b>Donor countries</b>
1	Australia
2	Austria
3	Belgium
4	Canada
5	Denmark
6	Finland
7	France
8	Germany
9	Greece
10	Ireland
11	Italy
12	Japan
13	Luxembourg
14	Netherlands
15	New Zealand
16	Norway
17	Spain
18	Sweden
19	Switzerland
20	United Kingdom
21	United States

Abbreviations: T = tied; UT = untied; PT = partially tied; NR = not reported

## **Section 5: Donor instruments and tying practices**

### **5.1 Introduction: Objectives, method and data sources**

The overall purpose of the country study is to contribute to understanding about how the choice of aid instruments, modalities and other practices may have impacts on trade, in particular the circumstances in which it could give a commercial advantage to donor country exports. The conclusion of Phase I of this study on the trade implications of aid instruments and tying practices is that the choice of instruments is in principle trade-neutral, whereas the specifics of institutional arrangements, terms and conditions have been associated with extensive *de facto* tying. The econometric analysis in Section 4 broadly confirms the global analysis that the choice between grant and loan is not a significant factor, whereas formal tying has a significant, but modest, influence on donor exports to Ghana. In order to further explore these potential influences the team sought to complement these analyses through collecting and reviewing qualitative information and, where possible, quantitative data about *current donor practices* in the use of instruments, modalities and institutional practices, and then to consider ways in which these may determine procurement and sourcing of goods and services.

The team was highly selective when choosing the case studies, purposively focusing on a limited group of donors and their practices in a single sector. The donors included the five largest bilaterals, as well as those with the largest W&S portfolio and additionally those that had cooperated at HQ level in Phase I of the Thematic study on Untied Aid: Canada (CIDA), Denmark (DANIDA), the EC, France (AFD), Germany (BMZ, GTZ and KfW separately), Japan (MOFA and JICA), the Netherlands, Switzerland (SECO), the US (Millennium Challenge corporation) and UK (DfID).

Water and Sanitation (W&S) was chosen because of its position as both an infrastructure and growth sector likely to contain significant amounts of goods and services procurement, as well as a being social sector with clear links to the MDGs. In Ghana W&S is supported by a wide range of bilateral donors employing a good variety of instruments and practices. The approach adopted included a desk review of qualitative information about use of instruments, modalities and tying/untying practices and a series of structured interviews with donor personnel in-country. The data on uses of modalities for Ghana is incomplete, focusing largely on budgetary support and giving little information about associated procurement practices in the disbursement of funding. A pilot questionnaire was developed and circulated to donors seeking additional information. The response was limited but informative and the findings are reported in this section.

The research design includes the selection of projects for more detailed case study analysis, tracking funding from commitment to the actual procurement of goods and services in order to find out how funds were spent, and the sourcing implications. That all the projects would all be in the W&S sector was beneficial for comparability. Finally, a cost-effectiveness analysis comparing the procurement of tradables with import parity prices that could be used as a test of competitiveness in procurement was undertaken and is reported in Section 6. In the absence of any systematic country level investigation of the trade implications of instruments and tying practices in the current era of largely formally untied aid, these investigations are to be regarded as exploratory.

The methods of investigation, which are described in detail in the sector paper, are to be used in Phase II of the Thematic Study on Untied Aid. The link to the wider OECD project also proved to be invaluable for ensuring a good level of cooperation from government and some donors for two reasons. After the Paris Declaration country review some clearly felt themselves to be over-investigated, whilst others were unsure about providing details of contacting and procurement to independent researchers.

The cooperating agencies of government included the following. Views of Ghana government officials are reported on a non-attributable basis.

- Ministry of Finance and Economic Planning (MoF): Officials interviewed included some high level officials as well as appropriate bilateral desk officers. (The Statistics office also comes under the MoF);
- Ministries responsible for water: in Ghana there are two, The Ministry of Local Government and Rural Development (MLGRD) for rural water and the Ministry of Water Resources, Works and Housing (MWRWH);
- Agencies and companies responsible for implementing the project in cooperation with the donor: in Ghana. There are four main ones, the Water Directorate (department under the MLGRD), Community Water and Sanitation (under Water Directorate), Ghana Water Company (responsible for urban water under the MWRWH) and Aqua Vitens, a private contractor (responsible for collecting fees and managing urban water delivery) under Ghana Water Company. The Accra Metropolitan Authority is the major example of a municipal body responsible for urban sanitation. The Local Government Information Unit (LGIU) under the MLGRD is also responsible for assisting local governments in working with donors. In addition, MIDA an independent government department setup to administer MCA projects;
- PIUs - the project implementing departments - staff at the ministry who work on the donor projects;
- Public Procurement Agency (PPA) - responsible for administered and monitoring use of the Ghana procurement law; and
- Regional offices of all departments mentioned above;

Finally, Wateraid Ghana was consulted as well as firms and staff contracted to specific projects plus end users were consulted. Similarly, their views are reported on a non-attributable basis.

The presentation of findings on relationships between aid instruments, modalities and institutional practices distinguishes between those that might have a *direct effect* on trade (Section 5.2) and those likely to have an *indirect influence* (Section 5.3).

## **5.2 Direct Relationships**

Currently the range of aid modalities includes general and sectoral budgetary support, forms of pooled and parallel funding and project approaches (Table 3.7). Budgetary support (BS) provides funding that is usually disbursed according to Ghana's country procurement system (GPS). Pooled and parallel funding is either disbursed using the GPS of a mix of the different

donors own procedures. The *project approach* adopted for about half of aid can involve use of GPS.

There are considerable differences between donors in *their* choice of modalities as shown in Table 5.1, ranging from over half of ODA in the form of budgetary support to largely project funding. Similarly, only a few donors currently provide loan ODA. There are also considerable differences in the use of different procurement systems, but this is less well documented. Do these broad choices have any *prima facie* trade implications?

The GPS, which is untied, allows for National Competitive Bidding (NCB) and International Competitive Bidding (ICB), but permits a premium to locally registered companies of 7.5% in competitive bidding. In principle the GPS, which is under the supervision of the Public Procurement Agency (PPA), is trade-neutral, excepting the premium, to encourage locally registered enterprises. The PPA's regulations have been closely based on those of the World Bank. The World Bank has provided TC to strengthen domestic procurement and financial management along with UK's DFID led pooled project (See above Section 3). The other local public procurement rules are those recently developed by the Millennium Development Authority (MIDA), the PIU solely responsible for disbursement of funds provided by the US MCA.

**Table 5.1 Ghana: ODA as Budgetary Support - disbursements by donor during 2005-07**

Donor	General Budget Support (GBS)	Sector Budget Support (SBS)	Total ODA	GBS+SBS as a % of Donor's total ODA	Donor ODA as a % of total ODA
Canada	46.23		183.44	25.2	4.3
Denmark	24.40		200.33	12.2	4.7
EC	79.48	2.90	313.15	26.3	7.4
France	57.71	0.77	130.05	45.0	3.1
Germany	39.27		140.87	27.9	3.3
Japan	3.12		119.64	0.3	2.8
Netherlands	91.09	38.36	459.45	28.2	10.8
Switzerland	22.69		35.94	63.1	0.8
UK	226.96	88.65	446.97	70.6	10.7
US	0	0	369.3	0	8.7
WB	353.10	45.00	872.15	45.6	20.6
AfDB	80.79		150.3	58.3	3.5
Total	1,024.84	175.67	4257.73	28.2	100.0

Source: WB DPE, 2008

Donors also have their own procurement rules for sourcing of goods and services, and the trade implications of the way these institutional arrangements work is a matter for empirical investigation. Some donors have formal restrictions on sourcing of 'head contracts' that are the criteria for reporting to the CRS, whether or not aid is formally tied. For example, technical cooperation provided by the US is usually being contracted from US registered companies. EU aid provides the classic example of partial tying, limiting competitive tendering of a wide range of services to the EU single market and a list of developing partner countries (See Table 1.1). The Japan International Cooperation Agency's (JICA) rules for procurement of grant aid involve the restriction on head contracts to Japanese contractors (See Box 3).

#### Grants and loans:

The choice of grant or loan instruments is in principle trade-neutral. Informants, however, recognised a number of ways in which loan aid is treated differently from grant aid, with potential sourcing implications.

In Ghana external lending, whether multilateral or bilateral, requires cabinet level approval because it imposes repayment responsibilities. Grant aid does not require cabinet approval. Historically there were *de facto* line ministry and donor agreements, but under the moves to strengthen budgetary management both formally and in practice the MoF is intermediating in grant aid. So, in principle, loans are felt from a government perspective to involve significantly more scrutiny. This may introduce a barrier to potentially trade distorting tying practices that does not apply to grants. This higher-level approval process may, it is suggested, make it more likely that bilateral loans will use the Ghanaian country procurement system MFI lending is conventionally untied and subject to ICB.

Loan ODA faces competition from alternative (commercial) financing in Ghana. Thus the comparison is with untied funding as in the case of the 2007 Eurobond issue and tied credits. In the case of the 2007 Chinese EXIM bank loan there is understood to be elements of explicit or implicit (*de facto*) tying.

From a Ghanaian perspective these choices imply room for manoeuvre in funding and so 'ownership'. Where very large scale funding is available for government priority infrastructure, it was suggested that loan finance with tying and by implication trade distortion was acceptable. The losers might be considered to be third parties, developed country competitors. The concept of 'ownership' provides a further insight into Ghanaian views about grant or loan aid. Within public agencies, if not at the highest level of government, there is a view that 'if a donor brings a grant it is their money to spend as they like, if they bring a loan, it is not'. So there appears to be more acceptance of tying of grants.

Donor perspectives on grants and official loans are somewhat different, reflecting attempts to fit country level practice within wider agency policies. Some donor personnel feel that the need to justify spending to domestic stakeholders is greater for grant aid, as there is no repayment of the principal. Domestic procurement sometimes forms part of the establishment justification. Similarly there are differences in monitoring and accounting procedures, with these being less demanding for loans due to the lesser obligation of accountability to the

domestic taxpayer. Conversely, some donors indicated that these were more demanding for loans as donor were keen to ensure timely repayment.

One donor (Japan) in justifying a more hands-on approach with grant aid through the *de facto* requirement for domestically sourced TC for project management and goods saw grant aid as ‘a battle against time as the funding is fixed, therefore the concern for ensuring quality is much more important’.<sup>39</sup> The converse is that there can be more flexibility over procurement with loan funding. However, there is presently no Japanese loan ODA to Ghana because of its HIPC status.

On the basis of the review with concerned donors of the small number of bilateral loan funded projects, the level of the project management appears to vary with funding conditions. In general with loan funding there is less likely to be local hands-on management. Nevertheless reviewing the available information on the small number of bilateral loans, KfW and AFD did not indicate that formal procedures were more likely to involve tying. However, sourcing implications are unclear, and there were no currently active projects that could be included in the more detailed study for the W&S.

IFI and bilateral agency personnel argued that the requirement to repay and modest interest levels provide an incentive for the recipient government to ensure effectiveness and efficient cost-effective use of loans. However, the HIPC process might be seen to undermine this argument and imply that there is a problem of moral hazard with regard to concessional aid. There is, however, case evidence to suggest that where donors are perceived to provide funding within a commitment envelope, then governments may attempt to steer them away from areas where their tying practices make them a high cost source of support.

Lastly, the choice of instrument and associated terms, including degree of concessionality, reflect donor policies. It depends, as illustrated with KfW, on the recipient country development status. The choice of instruments also is sensitive to perceived institutional capacity. This is well reflected in joint government and consultative group perspectives on success in meeting MDG goals and performance on PD criteria of ownership and coherence. As recipient development status rises so KfW aid instruments become less concessional, with the balance moving from grants to standard concessional loans to development loans and finally to promotional loans.<sup>40</sup> Similarly, that the level of conditionality is a function of the sector<sup>41</sup> reflects a policy of loan lending for income generating projects, whereas, for example, an HIV/AIDS project is likely to be grant funded.

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<sup>39</sup> Japan’s rules on grant aid appear to require sourcing of the primary level management of contracts in Japan (see Box 3).

<sup>40</sup> LDCs get financial contribution (FC) grants. Non-LDC developing countries get IDA FC loans (no interest but 0.75% service charge with a period of 35-40 years and a 10 year grace period). The remaining countries receive FC loans (2% - 30 years - 10 grace). FC loans are judged to be developmental, so with a grant (from the BMZ) qualify as ODA (called FC development Loans). Non-Developmental loans are called FC promotional (near market rates - completely untied). Finally, FC composite loans comprise a KfW loan mixed with HERMES export credits - therefore can be either tied or untied (untied sets ICB for the export credit). Note that the interest rate offered also changes depending on whether the loan is tied or untied. Here conditionality has a direct effect on tying status. These loans can only be given for projects that are not 'commercially viable'.

<sup>41</sup> Loans and grants are often mixed together in the same instrument.

The actual mix of instruments therefore reflects the interaction of recipient country and donor perspectives and priorities. So in the urban water sector, for example, which is not seen as a ‘glamorous’ donor priority, Ghanaian informants indicated a willingness to accept MFI loan finance as well as mixed credits, with tied sourcing and likely higher costs, in default of otherwise preferable grant aid without such restrictions. Some donor informants in turn explained their unwillingness to offer grant aid to the sector as reflecting a problem of incoherence that resulted in a lack of alignment.

These examples drawn from discussions about current practice support the presumption that the choice of modalities *per se* or instrument does not have direct trade distortion implications. If such effects occur, these may be the indirect consequence of terms and conditions associated with specific aid agreements. Such effects may be intended or unforeseen consequences of arrangements.

### **5.3 Indirect relationships**

The consultations and project reviews highlighted the importance of various ways in which terms and conditions can be an *indirect influence* on the trade outcomes of aid.

#### **5.3.1 Tying practices**

First it is important to draw attention to a clear difference of perceptions about untying and tying practices. OECD and other international documentation as well as the academic literature are clear that tying concerns unequal opportunities to trade amongst potential exporters with aid recipient countries (Box 1). In contrast many Ghanaians, including both officials in discussions and academics (e.g. Quartey, 2004) approximate budgetary support to untied aid and consider all other aid to be tied aid, emphasising ‘ownership’ rather than trade distortion implications of tying. Understandably the government and Ghanaians have a strong preference for budget support, which they see as giving ownership. However, some in government, practically involved in use of aid funding, have strong views and many anecdotal experiences to offer about the inefficiencies associated with donor tying practices.

Tying aid would be expected to have a clear and direct impact on trade (Clay et al., 2008, Chapter 5). Trade Diversion (TD) occurs if the country to which the procurement is tied is not the ‘most efficient producer’. Economic theory associates welfare losses with this outcome. In addition, the size of the welfare loss is related to the efficiency difference between the ‘most efficient’ and the tied producer. For example, TD from the US to Canada is likely to be associated with minimal static welfare losses as both of these economies are likely to be similarly ‘efficient’. However, the dynamic welfare transfer to specific groups in the donor economies may be significant and provides the motivation for tying. At one extreme, there is not TD, i.e. where an efficient producer ties their aid to domestically generated goods and services. Presently this might be Japan for automobiles or China for a wide range of goods. The test is to compare aid sourcing where possible with the actual import parity price of tradables (see below Section 6).

**Box 3: JICA Guidelines for General Grant Aid projects and Grant Aid for fisheries and cultural cooperation projects – formally tied aid**

The guidelines specify that grants be tied to Japanese primary contractors:

Part II-1-2 Eligibility (p.6)

*In accordance with the E/N and the G/A, the Consultant shall be a Japanese national. The term “Japanese national” whenever used in these Guidelines means a Japanese physical person or a Japanese juridical person controlled by Japanese physical persons.*

Part III-1-1 Contractor (p.8)

*The Contractor shall be Japanese nationals who are capable of procurement of the products and services in proper manner under the Grant.*

Part III-1-2 Eligible Source Countries

*To be eligible for procurement under the Grant Aid, the products shall be those produced in eligible source countries, the scope of which is set forth in the G/A. Procurement from countries other than Japan or the recipient country can be made in accordance with the G/A with the prior consent of JICA.*

Source: JICA, undated,

There is formal tying as exemplified by the requirements within Japanese procurement rules for grant aid that the head contractors should be Japanese (Box 3).

There are also indirect linkages between terms and arrangements, which may result in *de facto* tying, even though formally funding is unrestricted. For example, because of the nature of some grants, which allow aid to be provided ‘in kind’, these may be easier to tie than loans. This is especially common for TC if the recipient country is implicitly considered unlikely to supply the requisite skills.

### **5.3.2 Procurement and sourcing**

The procurement system used to disburse funds is a major influence on the sourcing and trade outcomes. It is also associated with both formal and *de facto* tying. Donors and recipients are both aware that the choice of rule set for a project is important. These rules vary considerably between projects. What one donor finds acceptable is not acceptable to all donors in Ghana. There was no expectation that ODA funds would use the Ghana country procurement system. There are several sub-stages to procurement.

### Feasibility study, specification, evaluation and recruitment

Feasibility studies for ODA are undertaken either by the government if sufficient capacity (such as indicated by a SWAP) exists, or by a consultant typically provided by the donor. The feasibility study is often highly influential in determining the approach/method and the specification (including parts) for the project. This is important, as there are often a number of approaches to achieving the projects aims, with different inputs. The body responsible for the evaluation of tenders and recruitment is also important. In the past<sup>42</sup>, KfW funded projects have specified that the project consultants should be German and that they should be responsible for the preparation and supervision of the project.

### Head contracts and major sub-contracts

Some agencies have rules that require the *first level-tying* of the primary or head contract as in the Japanese case (Box 3). Then the rules allow *second level untying* so that the contractor has full flexibility in the procurement of goods and services. Denmark, for example, gives such flexibility within Mixed Credit Agreements. The implications of such secondary untying can only be established at a project level, as illustrated in Section 6.

### Information and advertising

A key feature of procurement rules is the way information is disseminated to potential contractors. The advertising guidelines determine which companies tender bids, for example, by setting where the tender opportunity is advertised and therefore who has access to the information. This can be compared to the more obvious (non advertising) approach (in Box 3) where the JICA procurement rules for grants make clear that the process should not disadvantage Japanese companies.

### Project packaging

The way a project is packaged, i.e. tender size, determines bond size and often therefore, minimum company size. This in turn determines whether, for example, local companies have the skills and funding to bid. With lump sum contracts, in practice only very large firms are likely to tender, as only they have the cash reserves and access to credit to be able cope with the uneven disbursement flows.

### **5.3.3 Capacity**

Procurement capacity levels in recipient countries can be an important determinant of trade outcomes in setting limits on *de-facto* tying. What you procure is only as good as what you ask for. This is both a legal skill and a technical skill to design appropriate solutions. In trade terms, this involves identifying where the design and specification of a project is *de facto* limiting the procurement to a particular set of goods/services, which may determine from where they are procured.

- Capacity determines whether donors use the Country Procurement System (CPS).

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<sup>42</sup> For example, the KfW funded Rural Water Supply IV which preliminary information was collected for while in Ghana. This project is of the same generation (signed in 2003) as the DfID/DANIDA project studied later.

- Capacity can halt tying by inertia, i.e. capacity can over-ride the ‘default’ position. It takes capacity to build a case against tying and to find other solutions, re-write procedures, etc.
- Capacity development is a major form of TC. Paradoxically the associated consultancy services are still overwhelmingly tied.

#### **5.3.4 Sector and project type**

As discussed earlier when looking at the direct effects of terms and conditions, neither the sector or project type is neutral in outcome. These are likely to be highly specific with regard to sectors and project types. At the same time it is important to remember that different sectors and project types have significantly different trade impacts because of their different linkages and input requirements.

The most clear-cut example is debt relief. There is only one type of ‘project’ available and this usually funded through grant ODA. The choice of instrument in other sectors is less clear-cut. Aid to both Fishing and Industry in Ghana appears to be largely loan based, whereas social sectors such as Education receive 100% grant ODA. What is implied is that different sectors have a ‘sector effect’ because of the goods and approaches needed to run a project in that sector. Similarly (although not restricted to any particular sector), TC tends to be grant funded, whereas investment projects are the most likely to be loan funded. Infrastructure projects where the major inputs are unskilled labour and concrete are comparatively more likely to be loan funded compared, for example, to projects composed of experts building capacity in the Ministry of Finance.

All this is well understood and efforts are made to establish international standards of good practice on the part of donors and in partner country systems of procurement. The study could find no apparent relationship between tying practice and the choice of instrument, grant or loan aid. Formally most donors were moving to procurement rules that were less restrictive on the nationality of those who may tender. Discussions in Accra confirmed that the European single market and the EU public procurement regulation had been an important factor for European donors. Similarly others, e.g. CIDA, were moving in that direction at a pace determined by the speed at which Canadian rules were modified.

The extent of continued *de facto* untying is an empirical question to be answered through detailed investigations which are beyond the scope of this study. It is anticipated that the Thematic study on Untied Aid will examine some of these issues in more detail. For example, reporting on formal untying focuses on head or primary contracts. The recognition of levels of tying implies that one should also compare the sourcing implications of both arrangements that are formally tied at a primary level with those that are formally untied to determine the overall effects of sourcing flexibility. It is conceivable, taking into account *de facto* tying at a primary level, for example through restrictions on access to information, that the outcomes of some formally tied and untied arrangements are not very different.

## **Section 6 Sourcing and procurement at a project level**

### **6.1 Introduction: background, objectives and scope**

The move to a country level analysis provided a big increase in the level of detail available. Nevertheless, it was felt that a further move down to the individual project level was necessary to provide more understanding of the process of aid disbursement. CIDA, DANIDA, KfW, the EC and the Netherlands agreed to a request to undertake a detailed analysis of a W&S sector project, providing project documentation. The CIDA and DANIDA/DfID projects were pursued furthest as they had project staff in place, locally available documentation and were projects for which procurement was either actively taking place or had taken place relatively recently.

CIDA and DANIDA kindly assisted this part of the study by giving us contacts and access to documents for some of their ongoing projects in the W&S. With CIDA we looked at NORST/NORWASP. NORWASP ran from 1999 to 2008 and NORST was commissioned in 2008. Both Projects are mainly targeted at water supply in the Northern Region and have budgets between \$CDN 15-20mn. Their primary concern is the construction and installation of boreholes, wells and pumps. With DANIDA the study looked at the Damanko-Kpassa (referred to below as ‘Damanko’) water supply project in Nkwanta North District of Volta Region. The aim is to provide clean drinking water to a number of communities where Guinea worm is endemic, through provision of a water treatment plant and distribution network. The total budget for physical work is approximately GH¢ 5mn provided by DfID and the Government of Ghana, excluding the TC component provided by DANIDA. The project is to run from 2006 until 2009. A fuller description of the two projects and the project analyses is found in Annexes B and C.

The flow of funds was tracked from the project gestation right through to the final disbursement and end users. The process involved studying project documents, meetings with key actors and site visits to ascertain the sourcing and trade implications. There was an element of ‘ground truthing’ to verify the reality of facts only seen otherwise on paper. Again, the examples presented here were developed following discussions about one or both of the projects and are intended to be seen as generalisable and illustrative of the operation of mechanisms considered in Section 5, as there is no reason to believe that the features discussed are significantly atypical. Both projects comprised physical infrastructure, TC and capacity building and were funded by grants. This section therefore does not directly consider the role of formal project terms but focuses more on the indirect mechanisms discussed, and also highlights the range of trade effects that exist and which at this level dominate in terms of trade (diverting) impact.

Noting the discussion on the links between sourcing, trade effects and trade diversion in Section 5, this section aims to provide a factual snapshot of current practice on how these administrative transactions are undertaken. At this micro level we can also look at how the impact might have been different in comparison with a theoretical ‘perfect’ international competitive tender. It is possible then to see how a trade or even trade diversion question might be posed.

## **6.2 Tying**

The Technical Cooperation (TC) component for both projects was tied. The Canadian TC was sourced from within Canada and the Danish TC was supplied from a tied contract signed in 2003 with a Danish consultancy to support the wider sector programme which encompassed the project. The existence of potential alternative bidders in both cases suggests a degree of competition.

### Relationships

Tying of TC is especially prevalent. In both projects everything except the TC was found to be fully (both formally and *de facto*) untied. Local officials suggested that tying TC is a “way of doing business” and the “aim is to make their life easier”. They associated it with donor mentalities, suggesting that most donors found it easier to talk to domestic based consultants. However, when pressed, both donor and recipient partners stated the position as being easier to talk to any 'western' consultant. The discussions were often phrased using the term 'relationships'. These could also be seen as amounting to the 'capture' of donors by specific consulting organisations. The untied component of the Damanko project employed many Ghanaian professionals and consultants, which confirms that there was potential scope to recruit in country. Ghanaian professionals were also employed in NORWASP, but to a lesser extent. However, the comparison on nationality is only approximate, as these services are not identical tradables. A long term working relationship and the benefits this brings is seen by some informants to be of significant value, as for example in the ability of consultants to regularly meet with donor HQ officials. The outcome is an implicit preference for those with whom one is familiar.

## **6.3 Procurement**

There was no single procurement method or system in either project, and so it would be wrong to characterise a project by one form of procurement. For example, numerous clauses in the CIDA guidelines allow for different forms of procurement and these were often used. This flexibility allows different project agencies to manage different stages of the procurement. Both donors used their national procurement systems, CWSA employed the GPS and contractors followed their company rules. It would not be meaningful to compare procurement 'systems' across projects, unless an assessment is made of the operation of disaggregated components of projects.

### Levels/Depth

Donors in reporting ODA to the CRS database give a single funding figure, which covers the 'head' contract or agreement and its tying status. This is overly simplistic. In reality, there are generally multiple levels, each with separate subcontracts and their own conditions and from which a proportion of the funds flow down to the next level. There is also no simple hierarchy to tying or untying. In the case of NORWASP, within an initially tied contract there was then subcontracting with instructions to procure goods using ICB. Similarly, an untied contract could find itself having restrictive procurement conditions added as it is further subcontracted. These arrangements where different parts of the project are subject to different procurement regimes could be described as 'hybrid' and appear to be fairly common.

### Contractors

The individual firms in the Damanko project were responsible for their own procurement as long as the items met the agreed quality standards. Sourcing therefore was seen as being

determined by 'ability' and 'mentality'. For example, small companies lacked the capacity to procure goods from abroad due to numerous factors such as information, expertise and access to foreign exchange. Similarly, different contractors were able to get different prices for identical inputs (see the examples in Section 6.4); this drove them to source from different places - with a trade implication.

The prevailing attitudes to sourcing within the firms, part of the culture of the organisation, were also evident as an influence. Chinese firms sub-contracted on the Damanko project were directly importing toilet roll and noodles even though both are easily obtainable in Ghana.<sup>43</sup> More importantly, this was also true for valves, construction machinery, sinks, etc. A company buyer on site explained that it is frequently easier or cheaper to ring head office and get everything sent out together by company HQ rather than procuring individual items, because of the additional time and financial cost involved. Partly, this attitude is encouraged within the firm as the contractor was part of a larger multinational conglomerate. The site manager explained that he followed established company procedures, and in some cases was not responsible for the actual procurement. This function was sometimes undertaken by head office where the domestic market is in a different country. In summary, contractors procured goods under the heavy influence of a set of 'default' choices. These defaults differed across contractors and it suggests that contractor origin is likely to be an important influence on sourcing decisions.

#### Advertising

Procurement rules as noted above (Section 5) influence the contractor origin. They may be either specified directly or are indirect within the chosen procurement system, using thresholds. The projects studied here involved, for second stage sub-contracts, a mix of international competitive bidding (ICB) and national competitive bidding (NCB), with a few examples of single-sourcing and pre-determined lists. The key difference is that an ICB is advertised internationally whereas an NCB is only advertised nationally in Ghana. In addition, the donor often advertised in the donor country. The pervading local view is that the advertising determined which companies tendered bids and were then selected. An NCB is still open to international bidders, just not advertised internationally. The more extensive use of NCB in the Damanko project was felt to be a factor in the selection of mainly local firms and so of the large domestically sourced content.

The Damanko project involved procurement at the district level and NORWASP either at the CIDA HQ or CWSA national HQ level. Damanko procurement at district level had a very localised flow of information, explaining the high share of very local (small) companies. In contrast, NORWASP, in procuring either from abroad or at national level, contracted firms from Sri Lanka, the Netherlands, Kenya, UK, Canada, Burkina Faso, Côte d'Ivoire and China. At this initial contract level the trade implications of the projects is very different. However, as these projects involved subcontracting further and further within Ghana, the information flow reached and in effect targeted the local level, with a remarkably similar eventual outcome.

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<sup>43</sup> These companies are formally locally registered with at least 5% of local capital, but are regarded as effectively being subsidiaries of non-national companies.

### Subcontract lot size

Subcontract lot size appears to be a determinant of both the companies that tendered and those that won tenders for both projects. For the Damanko project, lot size interacted with the threshold determining the Ghanaian procurement standard. Smaller lot sizes reduced the restrictions on companies in terms of the bond sizes they were required to post and the equipment they were required to have at their disposal. NORWASP allowed subcontracting, and there were approximately 50 different firms involved. Damanko disallowed subcontracting, and instead split the tenders into small sub-projects and only allowed one successful bid per company. Whether by design or not, these rules appear to have resulted in an impact on the origin of the firms carrying out the work. On both projects, locally registered Chinese companies picked up the biggest lots. Small local Ghanaian companies won the remainder. International firms were unlikely to bid for the smaller lots, and local informants suggest that they were put off by the small potential turnover, especially when compared to the lower entry costs of Ghanaian firms.

### Specifications

The only specific restrictions in sourcing Damanko arose from the requirement that the parts procured were compatible with CWSA standard parts lists. Usefully for the study this imposes a measure of consistency in terms of quality. A trade effect was observed for some of the more specialised parts, because specifications were associated with limitations on the source of supply. For example, the specifications called for a pipe diameter that was not domestically available, being chosen to stop unauthorised connections to the water network. As a result, all contractors were obliged to import, overriding their default choices and with this requirement seemingly impacting on costs (See below Section 6.4). In another case, CWSA specified the exact pump (including the manufacturer) to be procured for a highly unusual task, thus determining the source.

It is therefore important to consider who is writing the specifications. In the examples above, the ‘demand led’ nature of the project (as opposed to a donor led mixed credit scheme, for example) was key. Anecdotal evidence pointed to the origin (domestic for ‘demand led projects’) of the consultants doing the feasibility studies being an important influence on the decisions about specifications.

### Local Preference

The Ghana CPS optionally allows a domestic preference of 7.5% on ICBs to be implemented before tendering. This option had been used in the past where local capacity could be clearly shown and this was seen (judging both by the complaints from foreign contractors and local opinion) to provide a sufficient margin to exclude non-Ghanaian bidders. The contractors excluded were likely to be those from the OECD countries. The Damanko project also had a stated aim of achieving local ‘ownership’ in order to be able to sustain maintenance. This was manifested in a push for local employment. At an unskilled level this is likely to have happened anyway, but there is some evidence that this was also true at the consulting level. A further requirement for the Damanko project was that all firms were locally registered with several ministries and had a history of work in the Ghanaian W&SS. Whilst in principle this would not exclude international firms, only those of Chinese origin appeared to find it easy or worthwhile to register local subsidiaries. These ‘policy space’ measures can be important developmental tools.

### Technical Cooperation

The procurement for TC is separate from the rest of a project and subject to different rules. In each of the projects the TC component was separately procured by the donor under its national public procurement regulations and was either formally (NORWASP) or *de facto* (Damanko) tied. In each case the contract was won by a company based in the donor country that had a long-standing relationship with the donor agency and that was also perceived as 'world class'. As discussed earlier, the TC component was procured through HQ in both projects so that expenditure, although recorded as ODA, does not appear in trade statistics. A key factor in opting for HQ contracting was that the Ghanaian CPS was seen as especially slow in procuring 'international standard' consultants. The alternative recruitment agency tended to be domestically based for the donor ease of communication reasons, and this may affect sourcing of project staff.

### Capacity

Procurement capacity, for example availability of legal professionals (or even having copies of the relevant documents), was also important. These effects were being amplified with the move to decentralise procurement for the Damanko project down to the district level where there is even less capacity. The impression given by CWSA was that a lack of capacity exacerbated imbalances in relationships within the project, and so reduced the ability of those in charge of monitoring and commissioning to 'throw the book at people'. In effect, without capacity, the recipient partners were likely to follow the sourcing preferences of the donor and their consultants and the companies actually managing the project. In some cases capacity was seen as more important than the rules themselves. A NCB done badly was seen as likely to be worse for cost effectiveness than a single-sourced contract done well.

## **6.4 Cost Effectiveness Analysis (CEA)**

Cost Effectiveness Analysis is a useful analytic tool because it can link a micro level analysis, as in this case, with the more macro overall trade picture. By viewing import parity prices as a standard and comparing the actual prices paid for project inputs, an indication of the scale of the trade effects can be seen. Clearly this method is more effective the closer the goods are to being widely traded and for which market information is readily available. Such market information provides spot and forward prices that can be used to compute reference prices for alternative hypothetical commercial transactions at import parity prices, even where no imports actually occur. Commodities provided as food aid are an obvious example (OECD, 2006). Even with such tradables there are internal non-tradables, with prohibitively high internal transport, storage and handling (ITSH) costs.

With many of the goods and services procured for a project, a different situation prevails: the contractors were willing to pay for local knowledge, for relationships, for speed of execution, and for not needing a translator. Goods and services were looked for that came closest to the ideal of comparability with widely tradable products. For the Damanko project these included uPVC pipe, concrete, air valves, tipper trucks, masons, site engineers and labourers. Instead of actual IPPs, the cost-effectiveness calculations were based on the ratio of contracted prices and current domestic prices for similar items (Annex B). The prices found in contracts show significant variation, between 567% more expensive and 90% less than the domestic price. The price differentials provide a basis for exploring the choices being made and their technical logic.

A second important feature of the results (supporting an idea discussed earlier) is that different contractors were able to access vastly different prices from different sources for identical goods. The price variation closely followed the features of the contractor such as size and nationality. For example, in the case of tipper trucks used in the Damanko project, the contractors of Chinese origin obtain these for 64% less than the Ghanaian firms. This price disparity appears across many of the project inputs. These lower costs are likely to be related to the different origins of e.g. the trucks and the associated lower import prices. Overall it is concluded that using NCB for sub-contracting of lots was broadly competitively tendered. The price-difference analysis further confirms that project procurement of goods and services is being executed at costs that are competitive with domestic market reference prices.

NORWASP had completed in late 2008 before the project process analysis commenced, so that documentation was no longer available locally for undertaking a similar CEA (Annex C).

The study team also sought views about cost-effectiveness and, by implication, efficiency in sourcing. Local informants had clear perceptions of individual donors as having procedures and *de facto* tying practices, which were likely to lead to large cost differences in specific technical work, or in the sourcing of goods such as vehicles. For example, the Japanese were instanced as having funded in the past projects with very high costs for well drilling, and some Europeans were seen as intermediate in cost. Locally registered Chinese contractors funded under NCBs were currently least cost. Consequently, perceiving donors often to be working within a budgetary envelope, they tried to steer donors to funding areas where they had, in effect, greater comparative advantage, making their aid more cost-effective. Again ICB was considered by local informants to be more cost-effective than restricted tendering by the donor.<sup>44</sup>

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<sup>44</sup> An illustrative example supporting this view is the Odaw Drainage Channel Project, jointly funded under World Bank leadership. Annex C is an informal exercise which compares costing for constructions tendered under loans and a grant tied to commercial credit. This example supports the hypothesis that tying practices are more important than choice of instrument in determining cost-effectiveness.

## Section 7 Conclusions

This is an exploratory study into an area in which there has been little recent systematic investigation – the implications for trade of aid instruments and tying practices, and whether these discriminate between suppliers. Several hypotheses were identified regarding situations in which procurement is formally unrestricted, that there may be information asymmetries: that donors may influence outcomes through specifications of technical standards and designs, or that goodwill between recipient and donor leads to an implicit bias. KfW, which makes available loan and grant ODA, in funding the study has a declared interest in knowing whether different aid instruments are likely to or do lead to different trade effects.

The normal practice of IFIs is to require ICB for the management of projects through primary or head contracts and in the provision of technical assistance. The view amongst informants in Ghana is that this practice is widely considered as likely to result in successful tenders by internationally registered companies. In the case of bilateral aid, it is likely that these contracts, especially where TC is involved, will be won by organisations registered in the donor country. The EU is perhaps a special case because of the regulations on public procurement, which in principle require a level playing field for companies registered in any member country. Further systematic investigation through a survey of the whole aid portfolio would be required to determine the full extent to which such *de facto* tying is occurring. Reporting to the OECD indicates a high level of sourcing of primary contracts in donor countries (e.g. OECD, 2008a). The influences that explain this pattern of *de facto* tying are suggested in the hypotheses set out above – information asymmetries, the joint willingness of recipients and donor partners to work within what are considered to be donor preferences.

From a Ghanaian perspective, informants, in focusing on ‘ownership’ rather than narrowly on market outcomes, did not distinguish between the IFI procedures that favoured international suppliers and bilateral aid, seeing both as tied aid. Untied aid from a Ghanaian perspective was funding made available as budgetary support, and where a project approach is adopted procurement was under Ghanaian rules. In terms of trade outcomes, the admittedly limited number of projects reviewed all appeared to conform to this stereotype of external ‘ownership’ of primary contracts. However, where TC is contracted at HQ level it is unlikely that these aid funded services would be reflected in the trade statistics for exports from donor to recipient.

Focusing on recorded trade the key determinants of likely trade outcomes would appear to be first, the providing of aid and second, the procurement process. This process concerns not just formal procedures but the way these are institutionalised for the goods and services covered under not only the head contract, but also subcontracts. The two W&S case studies were informative in showing how the use of the country procurement system makes it more likely that goods and services will be sourced locally, or by importation in a broadly competitive way. There is no *prima facie* evidence for assuming distorting effects of different aid instruments. The provisional conclusion is that what is important are the sourcing rules and the culture of the implementing agency. The latter might be characterised as partly a consequence of highly imperfect information. These speculative

conclusions require testing through many more studies. This is only likely if sourcing becomes a normal aspect of project monitoring and evaluation.

What then is the role of different aid instruments? First, ODA loans have not been an important part of aid to Ghana in recent years. The lack of observable association between loans and donor exports in the econometric analysis might be thought to reflect this quantitative unimportance of loan ODA. A further factor may be that all those DAC members providing loans were EU states and procuring under EU procurement rules, and so any possible trade effect may be spread across the whole EU single market.<sup>45</sup> Further investigation to provide data to test this conjecture would be required, perhaps for South East Asia recipient countries, where other non-European donors are providing substantial levels of loans funding. Similarly, it would be worthwhile to compare the outcomes of ICB required by the IFI lending and bilateral aid.

Two donors that provide loans (AFD and KfW) suggested that rules for procurement and sourcing are now similar for loans and grants, and are untied. Only the Netherlands provided an example of the fast disappearing mixed credit arrangement, and reported tying grant aid linked to commercial credits under on-going projects within its ORET programme, now about to be phased out.

The future trade implications of development funding for growth and infrastructure could become very different. A non-DAC country, China, is emerging in Ghana, as elsewhere in Africa, as a provider of tied export credit funding for investment.

The limited evidence that could be assembled on cost-effectiveness is again consistent with the hypothesis that it is not formal tying but *de facto* tying practices that are likely to have substantive trade implications. In the one detailed case NCB resulted in broadly cost-effective sourcing. Locally registered companies were notably successful, whilst civil contractors from DAC countries had largely withdrawn from these small construction activities. Here too a potentially important issue raised by some aid agency informants is the eventual political sustainability of these untied uses of grant aid in an era of tighter budgets and possibly growing domestic protectionist pressures.

#### Trade diversion issues

At a country level the eclectic approach adopted in this study draws heavily on qualitative evidence in Sections 5 and 6 to complement the quantitative statistical analysis in Section 4. The former is commonly dismissed as ‘anecdotal’, especially by those who are uncomfortable with the evidence. But, we argue, if the picture emerging from the views and case examples provided by informants is consistent, then this should be reported as a provisional finding that can only be refuted by contrary, substantive evidence. Thus we conclude first that the outcomes, in terms of sourcing and so trade effects where tradables are involved, are sensitive to the choice of procurement procedure. This is in turn often associated with particular instruments and modalities. For example, ODA loans are typically associated with a competitive bidding process, but that may be recipient NCB, ICB or according to donor procedures. With grant aid the range of possibilities is wider,

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<sup>45</sup> The use of procurement rules based those for the EU through the European Economic Area imply that Norwegian and Swiss aid may have a similarly diffused effect across the EEA.

including formal tying and direct contracting. Second, statistical evidence, such as it is, should be analysed, but given its limitations of completeness and the different ways agencies may categorise aid, findings should be treated with caution. Third, careful investigation of the detail of the sourcing process is likely to be informative. Fourthly, CEA is a useful test, ideally comparing actual procurement of tradables and non-tradables with like.

#### Methods of investigation

The project process analysis in Section 6 seeks to answer the seemingly simple question, ‘What is actually happening?’ This approach illuminates the process of procurement and sourcing, but it is time and resource intensive, and also requires full cooperation of all concerned. If applied on a selective basis, it is a potentially powerful tool of analysis. If randomness were introduced into project and contract selection, this would be a way of avoiding institutional biases and giving more validity to qualitative findings. Isolating potential trade effects of the ways in which aid is provided is, however, much more difficult for projects that involve procuring a wider range of goods and services than either commodity aid or budgetary support. For commodity aid alternative commercial imports are usually well defined and in the case of BS the aggregate consequences of public expenditure can be analysed.

Further econometric analysis investigating aid and trade relationships at a country level (Section 4) is likely to be informative precisely because there are more complete and better understood data sets.

This study, in acting as a pilot for country studies that are part of the OECD ‘Thematic study on untying of aid’, has provided insights and suggested further hypotheses to explore, and ways to investigate how untying and tying practices are interconnected with uses of aid instruments and modalities. For example, it is important to consider procurement and sourcing not only at the primary contract level, which determines an activity’s formal tying status, but also in terms of sub-contracting and the practices of contracted agencies. Some of the issues which this case study addresses might be considered again in the light of findings from the wider OECD investigation. Much of what has been learnt so far in this pilot study about methods of analysis is set out more fully in the companion paper on sectoral analysis (Clay, Geddes and Natali, 2009). Overall the study confirms the value of adopting an eclectic approach, bringing together findings from different forms of analysis in a carefully considered way.

## **Annex A: Proposal for Country case study of donor and recipient practice**

(excerpt from 'Proposal: Impact of aid on trade distortion (phase two)', 18th April 2008)

The econometric analysis should be complemented by in-depth country analysis to explore the range of potential effects of aid (both grants and loans) on trade distortion. Given resource constraints, a single pilot recipient country study is proposed which could help investigate whether aid practices lead to tying, either intentionally through explicit or disguised tying or unintentionally. Hence, the case study will examine whether the practices of donors and agencies have implications in the supply of aid-funded goods and services and determine the extent to which these discriminate between suppliers. In particular, where procurement is unrestricted and tendering is supposedly open, there may be information asymmetries where donor country suppliers are better informed of the availability of such tenders (i.e. de facto tying of untied aid). Hence, it will be important to explore whether each donor's aid activities have a disproportionately large number of bids from the home country. In order to do this it will be necessary to conduct a detailed examination of the tendering process. In addition, the success of bids from suppliers in the donor country should be assessed to consider whether they are in a better position to win such contracts. Also, other factors such as the role of donors and agencies in determining the choice of technology or in specifying standards and designs should be investigated since it may bias trade in favour of the donor country. The choice of modalities and procurement practices of bilateral donors and also, for comparison purposes, multilateral agencies would be investigated at the recipient country level.

The investigation will be concerned not only with discrimination amongst high-income country (HIC) suppliers (the primary interest of some OECD members) but also in the opportunities for local and regional suppliers to compete for contracts.

The case study approach will explore whether there is any differential impact of grants versus loans on discrimination between suppliers. In addition, the proposed study will consider to what extent untied aid (in the absence of disguised or unintentional tying practices) causes an increase in the recipient's imports from the donor country than without such aid due to the creation of goodwill/loyalty between the aid recipient and donor and thus creating an implicit trade distortion.

With respect to the scope of such a case study, resource constraints imply it may be necessary to restrict the pilot to project aid and to particular sectors. Also, the case study may have to be limited to the procurement practices of a selection of donors. The chosen country should be an LDC in which aid is equivalent to a large proportion of imports and/or public expenditure. Also, given the exploratory nature and potential sensitivity of issues to be investigated, local knowledge is likely to be an important influence on the success of the study, hence a local consultant with good relations with donors and government will be employed to do a significant amount of the 'ground work'. During the inception phase of the project, a country case study will be identified for which aid is a significant share of inflows and where loans account for a notable share of total aid. The degree of 'good governance' will also be an influencing factor in the choice of country.

## **Annex B: Project Process Analyses**

### **Damanko-Kpassa water supply project**

#### **1. Background**

The Damanko-Kpassa project is a rural water supply project being undertaken in the Nkwanta North District of the Volta Region, Ghana. The project is an add-on to the DANIDA supported Community Water and Sanitation Sector Programme (CW&SP) managed by the Community Water and Sanitation Sector Programme Steering Group of which the Danish Mission is a member. It is a component of the second phase (CW&SP II), and a contract for the overall implementation of the project was awarded on 3 April 2007 for a period of two years. The project was conceived as part of a 5-year District Development Plan and aims at providing sustainable, safe drinking water to 13 communities of the district where guinea worm is endemic. These communities have a population of 42,874.

A distinctive feature of the project and one reason for its selection for in-depth review is that it has been financed through a pooled funding arrangement between the Government of Ghana (GoG) and the governments of Denmark and the United Kingdom, acting through their respective development agencies, the Danish International Development Agency (DANIDA) and the Department for International Development (DfID).

#### **2. Objectives, Scope and Method of Investigation**

This case study was a pilot to explore the process through which a project moves from commitment of funding to disbursement of funds. The investigation involved the use of secondary data sources such as tender documents, Tender Evaluation Reports, contract documents and other financial data obtained from the Community Water and Sanitation Agency (CWSA) project office in Ho. These information sources are complemented with primary data about project implementation processes obtained from interviews with some key personnel of the offices in Ho and Accra. A 'ground-truthing' visit to project sites was also made to assess the progress of work and compare 'first-hand' information with that gleaned from secondary documentation. The study interviewed some of the project consultants, some of the contractors and members of the beneficiary communities, including opinion leaders and members of the Water and Sanitation Committees (WASANS).

#### **3. Funding and Administrative Arrangements**

The project was financed through a pooled funding arrangement between the Government of Ghana (GoG), DfID (UK) and DANIDA. The financial contribution to the project by DfID is estimated to be US\$ 2,520,166, with a counterpart funding of about GH¢ 2,236,600 expected from the Government of Ghana. GoG is therefore contributing about 55% of the total financial resources to the project, while the contribution from the UK makes up the rest. Notably, the need for this counterpart funding from the government of Ghana arose out of the shortfall in donor-funding for the project. DANIDA supported the implementation of the project through the provision of a team of technical staff, comprising:

1. Management Advisor and assistant;
2. Software (Extension) Advisor;
3. Engineering Advisor;
4. Financial Advisor; and,
5. Hydrological Advisor.

The cost of the technical support extended to the project by DANIDA drawn from DANIDA's 2003 contract with COWI to support the programme is not currently available. DANIDA allocated TA to the Community Water and Sanitation Sector Programme which is provided and procured directly by HQ in Copenhagen and delivered as services in kind. The Community Water and Sanitation Sector Programme Steering Group was responsible for deciding to use DANIDA TA for the Damanko-Kpassa project and could have chosen to independently source TA under the Ghana Public Procurement Act instead.

Modalities for the disbursement of funds from the donor missions have been structured so that among the two funding agencies, the DANIDA country mission in Ghana receives funds from DfID for onward disbursement to a special account (with the Bank of Ghana). Key signatories to this account are noted to represent the Ministry of Finance and Economic Planning (MoFEP), Ministry of Water Resources, Works and Housing (MWRWH), and the Accountant General's Department (A-GD). These funds are further channeled through the MWRWH to the national office of the Community Water and Sanitation Agency (CWSA), then to the Volta Regional office of CWSA, before final disbursement to the District Water and Sanitation Team (WST) at the Nkwanta District Assembly. This final disbursement is made to the Nkwanta District WST because the project is based at the District level, and therefore financial obligations in respect of the project must be borne, in principle, by the District Assembly.

Though a district-based project, the CWSA Volta Regional office takes the lead in implementation, as it was considered to have more capacity for managing the project than the District's WST. However, the latter is still represented in key committees and processes related to the implementation of all aspects of the project, including community education on water and sanitation and tender evaluation.

The present modality for the disbursement of funds deviates from the previous system, where donor funds for similar projects were disbursed directly to the accounts of CWSA (Ho), without recourse to the finance ministry. Furthermore, CWSA had the mandate to deal directly with the donor mission(s) on projects under implementation. The new system for the disbursement of funds is regarded as one of the key measures established by MoFEP for harmonizing the channels for disbursing development aid to the public sector, especially the Ministries, Departments and Agencies.

In respect of DfID requirements for accounting and reporting on the project, this system of resource-pooling allows DANIDA to lead in receiving reports and assessing progress for subsequent sharing with the DfID country mission. For DANIDA itself, regular first-hand feedback on progress of the project by technical support staff serves as an additional avenue for information.

#### **4. Project Structure**

The lack of ground water to feed any borehole water supply system in the area underlies the choice of the structure of the Damanko-Kpassa water supply scheme. With the availability of the free-flowing, perennial River Oti at Damanko, the present system is designed to provide a year-round supply of potable water to the target communities. The overall project involves the construction of a piped surface water supply system, extracting water from the River Oti for treatment at the main plant at Damanko, and transmission to the communities via strategically located overhead water reservoirs and pipe stands.

Consultancy services for the implementation of the project feasibility studies; the design of the water supply system based on the option of sourcing and treating water from the River Oti for distribution to

the communities; environmental impact assessment; tendering, evaluation and award of contracts for the civil works; and supervision of the construction works and post-construction activities.

In particular, civil works for the project have involved the construction of the intake structure to draw water from the River Oti for treatment, and the subsequent transmission and distribution from the Damanko treatment plant to the Damanko township and the other 12 communities. For ease of execution, the overall construction works have been split into eight sub-projects (or lots) and contracted out separately. Taking Lot 6 as a typical example of such construction works, the principal components involve the construction of a fenced, high level 120m<sup>3</sup> capacity concrete circular tank at Sibi Hill. This is in addition to the erection of two 8.5m<sup>3</sup> polytanks at 8m above ground level, located at Sibi Central and Sibi Badule. These reservoirs are fitted with transmission pipelines that receive treated water from the Damanko plant, for onward distribution to households in those communities. At that level of elevation, water from the tanks flow via gravity to the main distribution pipelines, then to the 23 public standpipes also constructed as part of this lot.

The project also makes provision for the training of some members of the communities as caretakers who will be responsible for generating revenue from the use of the facility towards the self-sustenance of the project. Contractors for the various lots are therefore required to train these potential caretakers, named Water and Sanitation Committees (WASANS). The training of the WASANS under Lot 6, for instance, is expected to enable at least one member of the Sibi Hill, Sibi Central and Sibi Badule communities to understand the nature and structure of the project, the distribution networks and general features of the overall project. This is considered to be a key element for ensuring the sustainability of the project once completed and handed over to the communities, and as such is specifically factored in as a contractual obligation of the contractors under each lot of the project. Ongoing civil works under Lot 8 of the project include the construction of a special office unit to accommodate elected officers of the various WASANS. These will be directly responsible for the day-to-day administration of the project, including revenue mobilization and maintenance of the system.

Following the ‘ground-truthing’ exercise, it was established that excepting the construction of the water intake structure, which has been considerably delayed because of the flooding of the initial site, most of the sub-projects are nearing completion. Two lots are fully completed, and the remaining works for the other lots are assessed to be over 80% complete.

## **5. Tender and Procurement Processes**

The procedure for the procurement of services for all the civil works followed national competitive bidding processes as established by the Public Procurement Acts of Ghana (PPA, Act 663). This process was adhered to because the two donors made it a requirement under the financing agreement for the project implementing units to use national procedures.

In the selection of both the consultant and contractors, the tender process was initiated by a national newspaper advertisement inviting sealed bids from all qualified registered companies in Ghana. In the case of contractors, these companies were required by CWSA (Volta Regional office) to hold the sector Ministry’s registration certificate in the category ‘K/D/E’. They were also required to demonstrate some experience in the delivery of water and sanitation facilities in rural communities to qualify to bid for a contract under the project. Alongside a clear outline of the procedures for the submission of bids, the advertisement also informed interested bidders of a mandatory pre-bid conference. This was aimed at affording prospective bidders the opportunity to view the state of the

construction sites and seek clarifications on the tender document and related processes. The tender evaluation processes were managed by a five-member committee made up of local stakeholders of the project and the DANIDA technical team. In the case of the selection of contractors, the evaluation committee was composed in a similar way, with the addition of a selected consultant to the project. The two key local institutions represented on the committee were the Volta Regional Office of CWSA and the local government, the Nkwanta North District Assembly.

While the bidding process was open to both local and international construction firms, the requirement that these firms must be locally registered and also be certified by the local sector Ministry effectively kept out interested companies with little or no presence in Ghana.

The criteria for the evaluation and selection of bids for the project follow the Public Procurement Act with a technical and financial proposal. The evaluation of the tenders included:

- the responsiveness of the proposal to certain stipulated requirements, including the legal status of the firm, tax clearance certificates, Social Security and National Insurance Trust (SSNIT) clearance certificates, bid security and other related documentation; and,
- the technical capability and financial proposal of the firm, which would include the assessment of the technical report on implementation strategy, experience of the firm in works of similar nature, professional and technical personnel, equipment holding, work programme and implementation strategy and sources of funding.

A score of 75 out of 100 was set as the minimum to pass the technical proposal and qualify for the assessment of the financial proposal. Least-cost formed the core criteria for the ranking and selection of the financial proposal.

The application of these criteria led to the selection of Holix Consult Ltd, a Ghanaian-owned consulting firm. In all, ten consulting firms expressed interest of which six were invited to bid for the project. Two of the six failed to submit a proposal, and of the remaining four, only the proposal submitted by Holix Consult Ltd passed the technical assessment (Table B.1).

The assessment of bids for the civil works also involved an additional stage: which assessed the competitiveness of prices quoted by the various bidders. The evaluation procedure included correction, conversion and adjustment of prices quoted by the bidders, which then provided a basis for comparing the contract prices. These normalized quotations were then ranked and the lowest tendered selected for the subsequent phase of the process. Following these processes, the evaluation committee recommended the best bid for the various lots under the project. Instructions on the recommendation of contracts limited the number of lots to be awarded to a tenderer to only one. Again, the Tender Evaluation Committee followed provisions of the PPA to negotiate on tender prices that were found to be the best, but more than the resources available. The result of the tender evaluation is subject to further review by a Regional Tender Review Committee, beyond which a National Tender Review Committee could provide an additional review of the results of the tender evaluation.

**Table B.1: Damanko-Kpassa Water Supply Project : Recommended Construction Firms**

Component	Name of Recommended Firm	Origin	Sum (GH¢)	Period
Consultancy	Messrs Holix Consult Limited	Ghana	164,115.00	2 years
VRN 1	Messrs China Geo-Engineering Corporation	China	1,493,446.42*	39 weeks
VRN 2	Messrs Christian Engineering Ltd	Ghana	344,466.51	24 weeks

VRN 3	Messrs Gatrobson Ltd	Ghana	722,377.01	24 weeks
VRN 4	Messrs Defiat Development Company Ltd	Ghana	617,143.97	24 weeks
VRN 5	Messrs Deccos Enterprise Ltd	Ghana	265,374.56	24 weeks
VRN 6	Messrs Thy Will Business and Investment Company	Ghana	207,759.59	24 weeks
VRN 7	Messrs Construction Dynamics Ltd	Ghana	180,478.57	24 weeks
VRN 8	Messrs China Henan Geo Construction	China	555,116.08	30 weeks

Source: CWSA, 2008

Note: \*The actual tender price was GH¢2,105,442.48 but this exceeded the budget estimate. This contract sum was therefore reached based on negotiation between the contractor and the Tender Evaluation Board, following the provisions of clause 64(1) of the Public Procurement Act (Act 663).

The low number of bidders for some of the lots raises questions about the competitiveness of the bidding process, and therefore, the competitiveness of the prices quoted for the jobs. For instance, while Lot 1 had only two responsive tenders, Lot 2 had only one responsive bidder. This situation precludes any opportunity for competitive pricing of tenders, more so as the stated time constraint would not have permitted a second call for tender submissions. The PPA nevertheless permits the evaluation of bids, irrespective of the number of bidders. Table B.2 summarizes the number of competitors for the eight lots available under the project.

**Table B.2: Damanko-Kpassa Water Supply Project –Number of Responses to the Tender Process**

Lot	Purchases	Submissions	Responsive Submissions
VRN 1	5	2	2
VRN 2	13	5	1
VRN 3	11	10	8
VRN 4	11	10	6
VRN 5	4	4	3
VRN 6	5	5	4
VRN 7	10	6	6
VRN 8	6	4	4

Source: CWSA, 2008

‘First-level’ (Head contract) procurement of contractors under the project followed national procurement rules. Apart from the technical support staff that was sourced by DANIDA (discussed below), all other commitments to the project came fully untied and under the administration of the Ghana government. The contractors were not required to procure goods from any specific country of origin. Indeed, based on the fixed-budget agreement covering the award of contracts under the project, all firms were responsible for meeting their own procurement needs, as long as the items procured met the specifications outlined and agreed upon in the contract documents.

Consequently, for the implementing body, the primary basis for ensuring competitiveness in the sourcing of goods (and therefore value for money), was the price competitive selection process. Expenses that deviated from the agreed value in the signed contract essentially became the responsibility of the contractor. To reinforce this arrangement, the contractors were required to seek prior inspection by and the approval of, the project consultant before using any equipment or input

purchased for the construction work. A breach of this procedure meant no sanction for payment of the finished job.

The competitive procedure notwithstanding, given the special tax reliefs enjoyed by the CWSA on import and Value Added Taxes, major inputs for the project were procured through the facilitation of CWSA. This provided an additional avenue for ensuring that items procured for the project met the recommended specifications. Additional benefits were seen to be derived from deploying the CWSA systems in facilitating the procurement of essential equipment and other inputs for the project. Interviews with key stakeholders indicated that all pumping machines for the intake structure and treatment plant should come from Germany. This was to ensure that pumps used conformed with the system already used by CWSA and also therefore that parts for maintaining these pumps were readily accessible on the market.

CWSA has indicated that although the firms were free to source labour from any place of origin, they were encouraged to use local labour as a means of boosting ownership and the overall cooperation of the communities. These labour resources were however found to be predominantly casual, unskilled workers needed for digging and related field activities. Nonetheless, aside from the Chinese contractors that had Chinese personnel in the head technical and managerial positions, all the firms used local expertise in positions of technical and managerial responsibility.

The source of technical support for the project was a contract signed in 2003 between DANIDA and COWI (Danish Consultancy Firm) to support the CW&SP. Procurement by DANIDA since 2004 has been subject to the rules and regulations of the EU-directive.<sup>46</sup> In 2006 this was extended to worldwide untying. However, the details of this specific tender are unknown so it is unclear whether a Danish consultant was contracted due to a tied arrangement or an EU-wide tender. The selection process was reportedly done without the participation of CWSA and it was considered unlikely that a Ghanaian consultant would have been procured. The provision of such support is nevertheless regarded by the CWSA as a key channel for building capacity, especially as the close working relationship with the team ensures good knowledge transfer. For example, once contracted, the consultant works 'for/with' CWSA. Details for the other 'minor' members of the technical team are not known.

## **6. Cost-Effectiveness Analysis**

The analysis of the cost-effectiveness of the Damanko-Kpassa project follows the 'price-difference' approach (see Osei, 2003). Within this framework, the cost-effectiveness of the project is assessed based on the degree of deviation of prices quoted for the funded goods from the price of the same or similar goods as obtained from the open market (i.e. the alternative price). This difference is expressed as a percent of the alternative price. In principle, a positive (negative) value measures the extra cost incurred (savings made) in percentage terms by the project in following the procurement system. In assessing the Damanko-Kpassa project procurement, three out of the eight project Lots were selected for a detailed review of the project's cost-effectiveness. The 'ground-truthing' exercise confirmed that, except for the extension of the deadline for completion of works, no situation arose to justify any important changes to the prices agreed in the contract. The alternative reference prices used for the analysis are based on reports from market surveys undertaken by the Head Office of CWSA during the same period that the goods and services were procured for the project (2007/2008).

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The descriptions or specifications of the goods and services were used as the principal indicator of similarity, and therefore comparability, of the prices.

Table B.3 presents the result of the price-difference analysis for Lots 1, 6 and 8. It shows that the project achieved significant savings in the procurement of skilled labour (site engineers, masons and operators of concrete mixers). For Lots 1 and 8, these savings were up to 80% of the reference price. Savings for unskilled labour were 25% for Lot 1 and 12.5% for Lot 8. However, estimates for Lot 6 suggest extra expenditure of 63% for unskilled labour, though the savings for the concrete mixer operator and mason averaged 25%.

In respect of the day work rates for equipment such as the 0.25m<sup>2</sup> concrete mixer, 5m<sup>3</sup> tipper truck and crawler excavator, the results suggest an average cost savings of 80% compared with the reference price for the two Chinese managed (Lots 1 and 8). Lot 6 however reports additional cost of 125% with 0% and 16% respectively for tipper truck, the concrete mixer and crawler excavator. These price differences are almost certainly related to the different national origins of the trucks and the corresponding import prices.

An important item for the construction of works under Lot 1 is the pump. Two different types of pump were procured under this component and the results provide mixed indications of cost-effectiveness. For instance, the Grundfos submersible pump, which is used for extracting raw water to the treatment plant, was procured at a price 43% higher than the reference price. The centrifugal pump on the other hand was procured for 15% less than the reference price. Given that the contractor had to accept specific restrictions on the source of these pumps (as noted earlier), the price mark-up on the Grundfos pump in particular cannot be said to show cost-inefficiency. Rather it indicates the cost of restricting the sourcing of inputs in order to better manage the post-installation reality such as ensuring access to spare parts and maintenance staff familiarity with the equipment.

The above results suggest that procurement in the Damanko-Kpassa project, as executed so far, has been broadly cost-effective. Most of the key elements of the goods and services procured for the project have been priced competitively, as the 'price-difference' indices confirm. There are few extremely uncompetitive items. The outcome broadly confirms the effectiveness the national competitive tender process followed in the selection of the contractors. There has not been any strong need vary the contract cost of any particular sub-project. This control of costs has enabled the overall project to stay within its budget.

Nevertheless, the project has suffered some delays in its completion. Following an earlier extension of the completion dates, the contractors of only two Lots (including Lot 6) have finished work and await the handover to CWSA. All the others are yet to reach completion. In particular, the construction of the intake tank under Lot 1 has been delayed significantly as a result of the flooding of the first site. A key reason cited by some of the contractors for the delay is the distance between the project sites and the national and regional capitals. For instance, they report that in mobilizing construction materials for the civil works such as sand, iron rods (items cleared from the Tema Port) they ended up spending several days more than the usual travel time.

## **7. Monitoring and Accounting Procedures**

As with DfID, the Community Water and Sanitation Sector Programme has adopted DANIDA's system for management of funds, reporting and auditing including monitoring, accounting and related reporting arrangements. Thus, a single-spine disbursement, monitoring and reporting system is maintained for the two funding agencies. On the side of the Government of Ghana, regular quarterly reports on the progress of works to the national office of CWSA by the Volta Regional office have satisfied its reporting requirements. A key implication of this pooling arrangement on accounting and reporting procedures is that CWSA is able to produce a single accounting, monitoring, and progress report through its Head Office (in Accra) to the government and the donor missions, without having to report in different formats and under different timelines. As a result, considerable man-hours and resources are saved towards the efficient and timely delivery of actual project outputs.

The presence of DANIDA technical support teams in the field allows key developments concerning progress with the project to be communicated and actually discussed between the implementing body and the donor mission in a timely way, without breaching any laid down channel of communication. This is noted to be saving delays usually associated with the governmental channels of communication with the funding institutions. Furthermore, under this funding and the associated accounting arrangements, rules and regulations concerning procurement remain single and harmonized, because the agencies are required to follow the country's procurement system. The only exception are the technical support services provided under the project that are procured by DANIDA from Danish sources under its own rules. This procedure therefore does not impose any accounting expectations or requirements on CWSA.

**Table B. 3: Result of the Price-Difference Analysis –Damanko-Kpassa Water Supply Project**

Items	Supply Specification	LOT 1	LOT 8	LOT 6
Pump (type 1)	Grundfos SP 30-14, 13.9kW, 4HP, 75mm diameter pump with accessories. Rated flow = 30m <sup>3</sup> /h; Rated head = 108m; Power supply = 3 phase, Net weight = 74kg			
Pump (type 2)	Centrifugal CRN 45-6 pump with accessories. Rated Power = 22kW; Power Supply = 3 phase; Rated Flow = 45m <sup>3</sup> /h; Rated Head = 119m; Net weight = 254kg	-15	-	-
Concrete 1	Concrete blinding 1:3:6-19mm aggregate, average 50mm thick	50	-	-
Concrete 2	Plain in-situ concrete Grade 25, 1:2:4-19mm aggregate, minimum cement content 325kg/m <sup>2</sup> (=6.5 bags of cement per m <sup>3</sup> ), maximum volume = 0.2m <sup>3</sup>	-84	-	-
Concrete	Ditto to pipes and materials store ramp	-	-	-
Polytank water reservoir	6,000 Liter polytank (with accessories for connection to water supply source at least 4m below)	67*	-	-
Valve (type 1)	Gate valve 200mm diameter in brass or non-corrosive completed with BSP/PVC flanges and stems	17	-	-
Valve (type 2)	Air valve, 200mm diameter (complete)	0	-	-
Valve (type 3)	Ditto 50mm diameter	-95	-9	-59
Water meter	250 mm diameter, type kent	281	-	-
PVC pipe (class 4, 10 bar)	uPVC 250 mm diameter	-	111	-
PVC pipe (class 4, 10 bar)	uPVC 50mm diameter	567	0	13
PVC fitting	uPVC bend 90 degrees x 50mm diameter	-	-50	-20
Pre-cast Pipe tracers	Reinforced concrete 1:2:4 - 20mm aggregate, 200 x 200x1,000mm with markings, erect 600mm into the ground at every 100m interval	-	-	-
Day-work Labour (day):	Site Engineer	-77	-77	0
Day-work Labour (day):	Concrete Mixer operator	-80	-73	-33
Day-work Labour (day):	Mason	-60	-60	-20
Day-work Labour (day):	Labourer	-25	-13	63
Day-work Rates (hr):	Tipper Truck 5 m <sup>3</sup>	-80	-70	125
Day-work Rates (hr):	Concrete mixer 0.25 m <sup>2</sup>	-87	-80	0
Day-work Rates (hr):	Crawler Excavator	-17	-90	17

\*The quoted price includes the cost of installation, whereas the alternative price used here refers only to the price of the tank and the cost of delivery to the site.

## 8. Conclusions

The pooled funding arrangement for the implementation of the 2007 Damanko-Kpassa project reveals very interesting and still uncommon modalities for harmonizing and delivering donor support in Ghana. In particular, the funding arrangement made it possible for two donor missions with different resource capacities to pool funds for the implementation of a major development project, without generating complex accounting and reporting systems on the Ghanaian side. The fact that DfID could contribute funds to the project without necessarily committing further resources for running its own monitoring and evaluation systems for the project is an important innovation for development aid effectiveness. The two donor missions depended on each other's systems for delivering support to the project, thus giving meaning to harmonization of development aid. This project is also a good example of a project which is a 'hybrid' in terms of its procurement rules.

The choice of the country's own procurement systems for the implementation of the 2007 project also assisted in deepening capacity in managing development projects in both the public and private sectors. It is worth noting that 75% of the components of civil works were managed competitively by locally owned domestic firms. The civil consultancy services were also delivered by a local group. Altogether, these form about 55% of the total contract value for the project. This normally would not happen if funding for the project was tied and is still unlikely if it followed international competitive bidding (ICB) processes.

Having reviewed the tender evaluation and contract award processes, there is sufficient evidence to conclude that the 2007 project was broadly competitively tendered. The price-difference analysis further confirms that the project is being executed at costs that are competitive with the available market reference prices during the 2007/2008 implementation period. However, this assessment does not include an assessment of the tendering procedures or cost effectiveness of the technical assistance component funded by DANIDA under its 2003 contract, but it should be noted that the project appears to be being implemented efficiently from a narrowly technical perspective.

## **Annex C Northern Region Water and Sanitation Project (NORWASP) and Northern Region Small Towns Water and Sanitation (NORST)**

### **1. Background**

CIDA has been involved in Ghana's water sector since 1973 and has allocated about \$170 million to some 20 water sector projects. Some of the key projects include (i) the District Capacity Building Project; (ii) The Northern Region Water and Sanitation Project (NORWASP); (iii) the Hydrological Assessment Project (HAP) and (iv) the District-Wide Assistance Project (DWAP) and the Northern Region Small Towns Water and Sanitation (NORST) to mention but a few. Two of these projects, namely, the NORWASP and the NORST projects will be reviewed in this study. NORWASP follows an older CIDA modality of which NORST is a more recent evolution. CIDA consider NORST a hybrid project on the path to a programme based approach in a pre-SWAP environment. NORWASP was recently completed, NORST has just started (March 2009).

#### NORWASP

According to the project TOR, the goal of the project was to improve the health of rural communities affected by lack of portable water in one of the poorest regions in Ghana. The purpose of the project was to increase access to portable water and strengthen the capacity of Ghana and communities to develop community, Demand-Responsive Approach (DRA) to rural water supplies and sanitation services on a sustainable basis. The expected output level results were (i) Well construction; (ii) Procurement of hand pumps, associated tools and spare parts; (iii) Services provided by local consultants pertaining to the social dimensions of the project. NORWASP was expected not just to focus on community mobilization and management, but to go a step further by including a governance component that supports concrete capacity building initiatives at the District Assembly and Regional levels to foster effective and sustainable management of water resources. The main aspects of the project included Community mobilization and management training (management of water points, pumps); Sanitation, Health and hygiene education, Technical support, Local procurement and construction of up to 630 boreholes and 70 hand-dug wells<sup>47</sup>, Institutional capacity building at the District Assembly and Regional Administration levels related to water resource management. NORWASP had CWSA as its major partner (due to a low level of capacity at the District level in 1999).

#### NORST

Similarly, the Northern Region Small Towns Water and Sanitation (NORST), is a seven-year project, which aims to provide increased access to water and sanitation to 30 selected communities (small towns) within the Northern region of Ghana. The project is expected to cover approximately 125,000 beneficiaries through the design, installation and capacity building support towards the operation of water supply systems and its associated sanitation activities. The project will support the implementation activities of key authorities and agencies responsible for the delivery of water and sanitation services in the selected small towns in the Northern region. Since its inception NORST has been expanded from 10 to 13 districts. NORST has the District Assemblies as the major partner with CWSA facilitating where necessary but never taking control.

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<sup>47</sup> This was later changed for 500 boreholes and 35 hand dug wells. The project finished with 542 boreholes and (35+252 orphan borehole rehabilitations)

## 2. Methodology

This review adopts a method of investigation described as ‘project process analysis’. The review is based mainly secondary data sources such as Tender documents, Tender Evaluation Reports, Contract Documents and other information provided by CIDA. In addition, interview notes from discussions with key CIDA personnel were used to complement the secondary data sources. A ground truthing visit to the project area, such as that undertaken for the Damanko Project, was not attempted due to lack of time and because the project had closed. An independent cost-effectiveness analysis could not be attempted again because the project had closed and so, as CIDA advised, documentation was not readily available.

## 3. Project Specifics

### NORWASP

NORWASP commenced in October 1999 and was expected to end on October 2006, but it was extended to December 2008, with no extension cost. Similarly, the contract between CIDA and Cowater/Roche to implement the NORST project was signed on July 15, 2008. The project will run from 01 July to 30<sup>th</sup> June to synchronize with GoG fiscal year quarters.

The projects were implemented in seven districts of the Northern Regions Eastern Corridor. The districts were: Nanumba, Saboba-Chereponi, East Mamprusi, West Mamprusi, Zabzgu-Tatali, Gushiegu-Karaga, Yendi, The project management structure of both NORWASP consisted of 4 key entities: the Canadian International Development Agency (CIDA) Project Team – Canadian Executing Agency, Government of Ghana (GoG) represented by the Community Water and Sanitation Division (CWSD) and Project Steering Committee (PSC).

Under NORWASP, Wardrop Engineering Inc., Winnipeg Canada was selected by CIDA to play the role of Canadian Executing Agency (CEA), to provide technical and management assistance to the implementing agency, CWSA. The key responsibilities of CEA included:

- In collaboration with the CWSA, identifying the requirement for short-term advisory services on the project and providing the required expertise in a timely fashion
- Supervising its advisors assigned to the project and ensuring that high quality services were provided in a fashion consistent with the capacity building objectives of the project
- Ensuring that contracting and goods procurement processes associated with the CIDA contribution to the project were in accordance with Treasury Board Guidelines and CIDA’s Procurement Handbook
- Administering the CIDA contribution to the project by keeping accounts, reviewing expenditures and reporting the financial status of approved activities on a monthly basis, and submitting quarterly financial reports to CIDA

### ***Community Water and Sanitation Agency (CWSA)***

CWSA an agency under the Ministry of Water Resources, Works and Housing was the Project’s implementing agency and CWSA’s Northern Region Regional Director was the Project Manager. The responsibilities of CWSA included among others the following:

- Accessing and managing the Government of Ghana’s contribution to the Project
- Selecting, contracting and supervising consultants for design, construction management and supervision, and contractors for construction activities with technical assistance from CXA
- Managing the tendering and procurement process for all project inputs within the guidelines specified in Ghana’s Public Procurement Policy with technical assistance from the CXA
- Preparation of all progress and financial reports in a timely manner with technical assistance provided by the CXA
- Collecting and analyzing baseline data and monitoring performance measurement indicators and data.

### ***Project Steering Committee (PSC)***

The PSC was to:

- Consider and approve progress reports and annual work plans
- Assess results and achievements
- Recommend modifications to the design, approved budget structure, annual work plans and/or the performance management framework to the CIDA Project Manager for final approval.

The membership included:

- Chief Executive, CWSA, Head Office (Chair)
- Regional Director, CWSA, Northern Region
- One representative of each of the Ministries of: Finance and Economic Planning; Water Resources, Works and Housing; Local Government, Rural Development and Environment
- One representative from the Northern regional Co-ordinating Council
- CIDA Project Manager, Ottawa
- CIDA Representative, Canadian High Commission, Accra
- The District Chief Executive (DCE) of each of the NORWASP Districts (ex-officio member)
- CXA Project Director (ex-officio member)
- CXA Team Leader (ex-officio member)

## **4. Funding Arrangement**

### NORWASP

The total cost of the project was approximately CDN\$ 18.4 million (Table C.1). The Government of Ghana was expected to make a contribution of CDN\$ 2 million. The Government of Canada was to fund the bulk of the total cost of the project – CDN\$16.4 million. Of this, CDN\$4.2 million was tied, while the remaining CDN\$11.4 million was to finance local expenses, and CDN\$0.8 million for third party procurement. It was estimated that about CDN\$ 7.5 million of the local-cost financing will be used for an international tendering process for boreholes and hand-dug well construction. It was also envisaged that a large portion of the untied share of the budget would be used to employ Ghanaian professionals and skilled labourers during the community mobilization and construction phase. The cost breakdown for the various components is as follows:

**Table C.1 Budget Summary (NORWASP)**

<b>CIDA's Contribution</b>		
	Canadian \$000s	Percentage
CXA Services	\$4,250,000	23.1
Community Mobilization	500,000	2.7
Water System	8,360,000	45.5
Hygiene and Sanitation	280,000	1.5
Training/Capacity Building at District & Regional Levels	700,000	3.8
Procurement	830,000	4.5
Activities to Mitigate Effects of conflict	150,000	0.8
Monitoring and Evaluation	180,000	1.0
<b>Sub-total</b>	<b>\$15,250,000</b>	
Inflation @ 3%	450,000	2.4
Contingencies	700,000	3.8
<b>TOTAL</b>		<b>\$16,400,000</b>
<b>GoG Contribution*</b>		
Water System	840,000	4.6
Local Expenses (Vehicle, staff accommodation)	72,000	0.4
Local expenses (Staff fees and allowances)	1,060,000	5.8
<b>TOTAL*</b>	<b>\$1,972,000</b>	
<b>GRAND TOTAL</b>	<b>\$18,372,000</b>	

Note: \* The Government of Ghana contribution never materialized, therefore whole cost was borne by CIDA.

The CXA component and the water system components accounted for a greater share of the budget (23.1% and 45.5% respectively). The third highest proportion (5.8%) went to Local expenses (Staff fees and allowances). As a result, NORWASP had only one funding component which went to the CXA (tied). This did however include an amount of 'flow through' i.e. funds which would pass from the CXA to other entities e.g. for capacity building etc.

### NORST

The NORST project differs in that it has two components: under the first component, CIDA will transfer funds to the Government of Ghana primarily to cover the construction cost of the project. This component has a budget of \$17.6 million. Under this component, a joint GoG/CIDA monitoring, evaluation and audit of NORST is required in addition to providing support towards the incremental operational cost of CWSA's project implementation role in the project. There is also the possibility of rehabilitating the supply systems of some other small towns under this component.

The Canadian Advisory Agency (CAA) would provide technical advice to assist CIDA and GoG in outlining the details of component 1 during the initial period. Subsequently, CAA will participate in monitoring ongoing flow of funds in terms of timely arrival and use at the district level in order to keep CIDA informed as well as to ensure that the two project components are well coordinated by GoG.

The second component has a total budget of \$12 million has been allocated by CIDA for a contract with a CAA to provide the design services, technical assistance, capacity building, management assistance and other important support services to the Northern regional office of CWSA, and some district assemblies within the Northern region to facilitate their role in the NORST project. The activities and associated budgets under this component are as follows<sup>48</sup>:

- (i) \$9.6m will be allocated for Canadian and Ghanaian Personnel, sub-contracts, and reimbursable expenses including but not limited to capacity building costs and procurement of vehicles and office equipment

The next four sub-components represent the \$2.4m flow-through of the CAA component of the funding.

- (ii) \$1.5m for locally contracted services related to water supply system design and community mobilization
- (iii) \$50,000 budget will be reserved for CWSA and DA incremental costs in year 1
- (iv) \$700,000 budget reserved for DA incremental costs in years 2-7
- (v) \$150,000 budget reserved for stakeholder participation in policy activities

## **5. Tender Process and Procurement**

### NORWASP

NORWASP had two strands: (i) the selection of a Canadian Execution Agency under a competitive tendering process based on Canadian Treasury rules to provide technical and managerial support to CIDA in managing the project and (ii) the sub-contracting of some components to local contractors under local competitive tendering procedures (GoG PPA). Tendering for goods and services follows a competitive tendering process. Non- competitive tendering process has to be justified under Government Regulations.

The 'Conditions of Eligibility in CIDA 102 – General Conditions (RFP)' clearly stipulates that the consultant, including each member of the consortium, joint venture or other type of association, must comply with the following eligibility requirements: (i) if the consultant is an individual, he/she must be a Canadian citizen or a Canadian landed immigrant; or (ii) if the consultant is a profit organization, it must be a legal entity and have a place of business in Canada; or (iii) if the Consultant is a not-for-profit organization,, it must be a legal entity established in Canada. Thus, local entities may not be the Consultant, or be a member of a consortium, joint venture or other type of association submitting the proposal or be signatories to the contract form. Local entities may participate in the project only as sub-contractors. Some specific details on all sub-contracted projects under NORWASP are described below:

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<sup>48</sup> CIDA, 2007.

a) New Boreholes and Hand-Dug Siting, and Construction Supervision Consultants

CWSA in November 2000, sole sourced a contract to COMWASAN Consult Limited, a Ghanaian consulting firm which was part of the CXA's original team to carry out the siting and construction supervision of the first 120 boreholes and 25 hand-dug. CIDA requested Wardrop to site and supervise the construction of 60 boreholes in East Mamprusi, West Mamprusi and Gushiegu/Karaga districts, with the excuse of delays encountered in selecting the second consultant.

After evaluating tenders received for the siting and construction supervision (450) CWSA signed a contract with HydroPlan/Beza-Lel in January 2003. HydroPlan Ingenieur-Gessellchaff mbh (HydroPlan), a German consulting firm took a lead role with its Ghanaian partner, Beza-Lel Water and Agro Services Limited (Beza-Lel). Unsatisfactory performance of the second HydroPlan team leader coupled with contractual difficulties between HydroPlan and Beza-Lel saw the dissolution of the joint venture agreement. However, CWSA retained Beza-Lel as the siting and construction supervision consultant to complete the work. In 2007, CWSA amended its contract with Beza\_Lel to include the supervision of the assessment and rehabilitation of the first orphan boreholes.

b) New Boreholes Construction and Hand Pump Supply Contractors

CWSA signed a contract with China Henan Geo Construction Company to construct 120 boreholes and supply 120 hand pumps in March 2001. In August 2002, after evaluation of tenders for the lot of boreholes, CWSA signed a contract with Forexi SA of Cote d'Ivoire to construct up to 510 boreholes and supply 580 hand pumps. Because Forexi could not perform to expectations, CWSA instructed it to sub-contract the work which has not been completed by the scheduled date. Forexi used an international procurement process (Open Competitive Bidding under CIDA Procurement Guidelines) to purchase the 580 Afridev hand pumps from a manufacturer in India, Balaji Industries and Engineering Corporation.

c) Borehole Rehabilitation Contractors

There was unspent fund of CDN\$2 million at the original end of the project in October 2006. CIDA agreed that the money be used to rehabilitate orphan boreholes, which had been constructed by other projects and were no longer operating the design frame or parameters. During the phase 1 of the rehabilitation, CWSA contracted 4 Ghanaian companies (TBL Resources Limited, Cephavick Limited, Waterside Company Limited and Stanton Limited) through a regional procurement process (this refers to a special procurement window under the Canada Aboriginal Access Programme whereby the Aboriginals of Canada gain additional points in the bid evaluation process). Stanton Limited was not retained for the phase 2 for unsatisfactory performance; the other 3 companies were taken on board.

d) Hand Pump Installation, Area Mechanics and Caretaker Training Contractors

CWSA commissioned three firms to install hand pumps and train area mechanics and caretakers at newly constructed boreholes, hand-dug wells and rehabilitated orphan boreholes. Beza-Lel supervised the installation and caretaker training work until 2008, when the task of supervising the installation of hand pumps on the last 98 rehabilitated orphan boreholes were assigned to DWSTs. CWSA's water and sanitation Engineer 2 monitored the installation. CWSA awarded contracts for the installation of and caretaker training to Sharanam Ganesh Limited and Water Vision Technology Limited.

e) Latrine Artisans

In January 2001, CWSA contracted New Energy through a selective bidding process to train 70 latrine artisans. New Energy is a Tamale based organization. A CXA Sanitation Engineering Advisor assisted with the development of training plan and materials.

f) Consultant for Hand-Dug Well Feasibility Study

As a result of the lower than expected interest by Communities and District Assemblies and anecdotal reports on poor hand-dug well performance, CWSA contracted a regionally procured consultant to conduct a hand-dug well feasibility study in the Northern region. The consultant was Messr. Stephen Ndebugri.

g) Consultant for Feasibility Study on Rainwater Catchment

Because of the lower than expected drilling success rate, the Project Steering Committee recommended a study to assess the feasibility and subsequent piloting of roof water harvesting as an alternative technological option for communities where groundwater exploration was unsuccessful. CWSA recruited Messr Timothy Netty, an Engineer with experience in the water sector in Northern Ghana to conduct the study in four districts and 16 communities.

h) Capacity Building Consultants

In May 2000, with CIDA's approval, CWSA awarded a contract on a sole source basis to Gariba Development and Associates (GDA) to act as the Small Business Development Unit for 12 months, to increase the capacity of the partner organizations. GDA subsequently won a national procurement competition as specified under the Ghana PPA for an additional 18 months of work, which was awarded in May 2001.

i) Development of District Water Sanitation Plan

CWSA recruited an independent consultant, Messr Edward Kapile, through regional procurement process to work with the Assembly core staff and DWSTs, helping them finalise their plans.

j) Capacity Building of District Assembly Core Staff

CWSA contracted the Planning Department of the Kwame Nkrumah University of Science and Technology in Kumasi through a national competitive procurement process to further enhance the capacity of core DA staff

k) Conflict Management Training

CWSA contracted the Tamale branch of the West Africa Network for Peace Building, a Ghanaian organization, through a national competitive procurement process to provide conflict management.

l) CWSA Capacity Building

Training of staff of CWSA was conducted on both individual and group bases. Capacity building needs are often identified by the CWSA together with the donors. In addition to the CXA arranging

study tours. CWSA contracted a number of organizations and individuals to provide training as summarized below in Table C.2.

**Table C.2: Summary of Training Provided to CWSA Staff**

<b>Date</b>	<b>Training Institution</b>	<b>Content/Focus</b>	<b>Recipient</b>	<b>Course Length</b>
June '01	Mosaic Net International Inc., Ottawa	Participatory monitoring and evaluation training	Extension Services Specialist (1)	9 weeks
Nov. '01	IRC International Water and Sanitation Center, Netherlands	Community water supply management	Regional Director	2 weeks
Nov. '01	Network for Water and Sanitation, Kenya	Community Management in Water projects	Extension Services Specialists (3)	3 weeks
Dec. '01	CVL Computers, Tamale (Ghana)	Network Engineering	Information Technology Specialist	40 hours
Jan. '02	Ghana Institute of Management and Public Administration, Accra	Business Administration	Accountant	3 months
Feb. '02	Gala and Zakaria, Tamale	Conflict Management	All CWSA professional staff	2 days
May '02	VANEF, Accra	Defensive Driving	CWSA Drivers	5 days
June '02	Network for Water and Sanitation, Kenya	Gender Equity in Water and Sanitation Projects	Extension Services Specialist (3) and Information Technology Specialist	3 weeks
Aug. '02	University of Ghana, Accra	Data management and analysis	Information Technology Specialist	2 weeks
Sept. '02	Kwame Nkrumah University of Science and Technology, Kumasi	Team Building	All CWSA and CXA staff	4 days
Sept. '02	University of Bradford, UK	Project Planning, appraisal and finance	Regional Director	3 months
Oct. '02	Ernst and Young, Accra	Presentation skills	All CWSA professional staff	2 days
Oct. '02	Ghana Institute of Management and Public Administration, Accra	Executive Masters in Business Administration – Sandwich Program	Extension Services Specialist (1)	Part time over 2 years
July '03	E. Kapile, Tamale	Project Planning	All CWSA professional staff	2 days
Feb. '05	COSI, Foundation for Technical Cooperation, Sri Lanka	Qualitative Information System	Extension Services Specialist (2) and Information Technology Specialist	3 weeks
May '05	Brace Institute, Montreal	Water Resources investigation and planning	Water and Sanitation Engineer 2	3 months
June '05	Mosaic. Net International Inc., Ottawa	Participatory monitoring and evaluation	Extension Services Specialist (3)	1 month
Feb. '06	Banff Institute, Calgary	Leadership Development	Regional Director	6 weeks

Source: Project Completion Report

### Private Sector Organizations Contracted directly by CIDA

CIDA contracted private sector organizations and individuals to provide technical advice, and monitoring and evaluation services to the project including:

- Wardrop Engineering Inc., as the CXA
- External monitors – Irene Mathias (2002), Dr. Harry MacPherson (2003) and Greg Keast and Associates (2005)
- Auditors to audit the CXA financial accounts in 2003 and 2008 – the audit was undertaken by Collins Barrow Edmonton (Alberta) LLP
- Ismail Najjar, Water Advisor

### Human Resource Utilization

CWSA, CXA and other stakeholder staff were used on an as required basis. Canadian interns from Trent University also worked on the project. CXA team initially consisted of eight members, seven advisors who provided inputs in Ghana and from Canada on short and long term bases, and an administrator at head office (Table C.3). All the advisors were engaged according to schedules in the Annual Work Plans and Semi-Annual Reports. There were five Ghanaian Specialists on the CXA team who provided short and long-term inputs to the project in specialized areas (able C.4) . They often provided inputs and follow-up after the Canadians advisors completed their short-term assignment.

**Table C.3 Canadian Advisory Services during the Project**

<b>Position</b>	<b>Time Input to the end of December 2008</b>
<b><i>Personnel in Canada and Short-Term Assignment in the Field</i></b>	
Project Director	300 days
Administrative Assistant	134 days
Team Leader	462 days
Community Water Supply	177 days
Training/HRD	110 days
Financial Controller	110 days
<b><i>Canadian Advisors on Long-Term Assignment in the Field</i></b>	
Team Leader	72 months
Community Water Supply	14 months
<b><i>Outside Canadian Consultants</i></b>	
Sanitation Education and Engineering	152 days
Health and Hygiene	260 days
Gender	126 days

Source: Project Completion Report

**Table C.4 Ghanaian Advisory Services during the Project**

<b>Position</b>	<b>Time Input to the end of December 2008</b>
<b><i>Ghanaian Personnel Short Term</i></b>	
Small Business Development	7.2 months
Organizational Development	5.4 months
Gender	5.6 months
Local Hydro-geologist	4.5 months
<b><i>Ghanaian Personnel Long Term</i></b>	
Community Development	38 months
Local Accountant	90 months

Source: Project Completion Report

The above arrangements demonstrate a mixed impact. The competitive tendering of sub-contracted components at the local level will promote efficiency in project outcomes, because the least cost sources would be used. Secondly, local capacity was significantly built considering the training components in the project as well as the support provided by the CXA. However, the use of CXA exhibits some form of aid tying which can affect the effectiveness of the project. Sole sourcing of some contracts can affect effectiveness except in cases where a least cost and high quality supplier was contracted.

When the NORWASP project started in October 1999, Ghana had not promulgated its procurement law. However, the Public Procurement Act, 2004 (Act 663) was passed during the course of the implementation of the project. In view of this, the project approaches to procurement were amended in the course of the project implementation. For instance, initially CWSA staff in the Northern Region would undertake all procurement on the project. This was found to be inconsistent with the Public Procurement Act, 2004 (Act 663), which assigns the responsibility to various entities from the district (the district assemblies, the revenue agencies etc), through the regional to national levels depending on the value of goods, works or services to be procured. Schedule 3 of the Procurement Act (2004) specifies clearly the limits of each procurement entity be it local, regional or central procurement unit (see Country Notes for detailed discussion on public procurement in Ghana).

#### NORST

The NORST project had two financial components. The tendering process under Component 2 of NORST clearly exhibits aid tying at the head contract level. Under this component, CIDA will competitively select and contract a Canadian CAA to provide capacity building, design services, technical assistance and management assistance to stakeholders in Ghana in the management and implementation of the project. The CAA will work closely with CWSA Northern region, the DAs and DWSTs of the thirteen participating districts in the Eastern corridor (Nanumba North, Nanumba South, Saboba, Chereponi, East Mamprusi, Bunkpurugu-Yungo, East Gonja, Zabzugu-Tatale, Gushiegu, Karaga and Yendi, West Mamprusi and Kpandai).

By contrast, Component 1 of the financing is fully untied and is to be used for drilling contracts, reservoir construction, pump house construction latrine construction, construction management services, vehicles and construction related materials including pipe, pumps, electromechanical components, building materials and fittings. The project was to also to ensure<sup>49</sup> that the majority of

<sup>49</sup> The project managers will have to make sure contract works for services on these projects as well as procurements are undertaken at the local level

Component 1 construction funds would flow to and be disbursed at the district level since that is where the majority of procurement will take place. Procurement funds will be managed by the GoG within GoG systems in accordance with GPPA.

The CIDA guidelines require that contracting of goods and procurement processes associated with CIDA tied funding to the project are in accordance with 'CIDA's Procurement Handbook for Goods and Services'. The extent to which the District Assemblies will handle some procurement activities is not clear to the project managers since GPPA is relatively new and some processes and procedures as stipulated under the Act has not been fully developed at the district level. In addition, the procurement capacity at some districts is uneven and in some cases very limited. This will obviously affect project outcomes in terms of quality when local PPA processes are used in cases when there are capacity constraints. Nevertheless, it was reported that all materials, vehicles, motorbikes and office equipment, except for five laptop computers were procured in Ghana.

It should be noted that contracting and goods procurement processes associated with the CIDA contribution to the project were to be done in accordance with Treasury Board Guidelines and CIDA's Procurement Handbook. The procurement procedure provides that 'whenever possible, the organization should adopt the competitive tendering route'. The lowest compliant bid should be awarded the contract. For purchases under \$2500, \$2500-25000, or above \$25000, two suppliers, at least three suppliers and three qualified suppliers should be required to supplier tenders respectively. This requirement is ambiguous because the aid is in two parts – Tied and Untied. Also, how much of the project funds were subject to Canadian or Ghana Government rules could not be ascertained by the study team except for the NORWASP project. Of the \$16.4 million Government of Canada contribution to the project, 25.6% was tied. Meanwhile, of the \$12.44 million local cost financing, \$7.5 million was budgeted to be used procure equipments, materials, services etc. This policy aims to improve local capacity

*Note that the following sections (6, 7, 8, 9 and 10) concern NORWASP only. As NORST only started recently it is not possible to assess it as has been done for NORWASP below.*

## **6. Cost Effectiveness Analysis**

### NORWASP

According to the Project Completion Report (2008), 45 out of 50 project targets were achieved and or exceeded in some cases and the project was extended for an additional period of two 2years without necessarily having to increase the project budget. It added that at the end of the project \$2 million of the project budget was unspent. The following more specific cost-effectiveness related findings were reported:

- CXA team of advisors tended to be higher in terms of cost and were therefore used only for strategic and specialized activities throughout the project lifespan
- Fees charged by Ghanaian and Canadian consultants were within reasonable range and recorded very minimal increments over the project life span
- The CXA managed its inputs to the project within cost limits determined in 1999 and no increase in budget occurred

## **7. Accounting procedures: NORWASP**

The Procurement Act allows for donor accounting procedures to be followed when project(s) are donor financed. Thus in the case of the CIDA projects, the donors accounting procedures were followed especially the tied component. The Canadian Executing Agencies accounts are often audited by an external audit firm. In the case of NORWASP, the CXA (Wardrop) was audited by Collins Barrow Enmonton LLP in 2003 and 2008.

## **8. Monitoring and Evaluation procedures: NORWASP**

Internal M&E exercises were to be conducted regularly focusing on the progress made to the realization of all expected outputs and outcomes. Internal M&E exercises began in 2003 but the early exercises did not focus on all of the project's 50 targets which required the team to develop annual work plans and to identify constraints and develop mitigating actions on less than desired data. The first monitoring was conducted in 2003, the second in April 2006 and the final conducted in March 2008. Targets were to be quantitative and subject to interpretation so that progress to achieving them could be measured and reported on. CIDA during the implementation phase of the project has been contracting external monitoring teams who work in collaboration with CWSA. Initially, CWSA played less day-to-day management responsibilities. However, periodic monitoring suggested that CWSA should be made to take more daily responsibilities. Under the NORWASP project for instance, a mid term evaluation was done in 2005 and this highlighted key anomalies which were immediately rectified.

During such evaluations and subsequent ones, the Project Team were to evaluate design assumptions as part of Project monitoring and evaluation exercises, so that project methodologies can be changed or if the assumptions are found to be wrong, targets can be increased or decreased to levels which are achievable. The monitoring and evaluation procedures were specifically meant to assess project outcomes and outputs – this covered the conditions of the boreholes, latrines, the changes in hygiene and sanitation behaviour of beneficial communities, functionality of spare parts depots and condition of the support provided by DWSTs.

The project monitoring and evaluation procedures had the following impacts on the outcome:

- Defects were found on about 15% of Pads of rehabilitated boreholes and this was charged to the retention fund of the contractor concerned. The contract was also not renewed.
- Hand pump caretakers complained of high fees charged by local mechanics and this was taken into consideration in subsequent stages of the project
- The process also brought to the fore an issue with hand pump installers; a hand pump installer had used an area mechanic for installation and caretaking contrary to the rules. Thus the area mechanic frequently worked on the pump rather than the caretakers and this had to be stopped
- The process also revealed that young children could not use the latrine because the squat holes were large and children could fall in them. To improve project efficiency, a design cover with smaller hole for children was suggested

## **9. Ground Truthing: NORWASP <sup>50</sup>**

From Table B.4 above, flow through expenses i.e. procurement of equipment, which included construction sub-contracts, accounted for over half of CIDA's contribution to the project. But from some of the sub-contracts awarded, it is not too clear whether the Ghana's Procurement Law or the Treasury Board Guidelines and CIDA's Procurement Handbook were used. However, Table B.4 seems to suggest that the Tied aid was mostly limited to CXA activities since that accounted for 23.1% of the total funds (refer to notes under procurement, i.e., section 6 above).

An interesting revelation of the project was the contracts awarded for feasibility studies on Hand-Dug Well and Rainwater Catchment. This clearly indicates that a feasibility study, which is very crucial in project of such nature, was not considered important to the implementation of the project. It is therefore not surprising that the communities showed little interest especially in the poor hand-dug well and the low drilling success rate. Indeed a consultant was commissioned to undertake a study on Rainwater Catchment in four districts out of the seven implementing districts.

## **10. Overall Assessment**

Both projects have had significant impact on the water supply systems in the Northern region. Through the pooled funding arrangement between the Government of Canada and the Government of Ghana, efficiency gains have been made. For instance, the untied component of the budget was used to employ Ghanaian professionals and skilled labourers during the community mobilization and construction phases. In addition, considerable savings were made according to the evaluation reports from the purchase of materials, equipments and use of local services. Thus local materials and labour were sourced where possible. This process enabled CWSA to purchase pumps and other equipments from Canada at a much lower cost than if it was purchased from Canada (see Project memorandum 2004/06/11). It is expected that the untied component be increased in future to enhance project impacts. The proportion of the funds, which were tied, was quite significant and this has serious repercussions on project efficiency and other outcomes. Future projects should gradually build local capacity not at the labourer stage but also by developing middle and high level manpower within the sector. Nevertheless, the project involved the CWSA and gradually increased its management oversight responsibility. In the process CWSA's capacity was developed and decentralized modes of operation is now been used. This has improved the efficiency of the project. Currently, Danida and other donors give CWSA considerable autonomy in view of its improved capacity in recent times.

Although the study team did not visit the project sites, it became evident from previous evaluation reports that the project feasibility studies were not carried out initially as one would have envisaged. This problem is not peculiar to CIDA projects. Often times, projects have been undertaken without the due consultation with stakeholders or beneficiaries. For instance many HIPC funded projects in Ghana have suffered from this anomaly often resulting in low or no patronage of such services.

In conclusion, the water sector in Northern Ghana has received considerable support from CIDA and has made considerable impact on the beneficiary communities. However, the presence of tied aid within the sector remains a challenge as it affects the overall impact of the project. As Ghana develops its institutions including the procurement authority and other institutions involved in water delivery, it

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<sup>50</sup> Secondary sources or evaluation reports were largely used since the team could not visit the project site due to time pressures.

is anticipated that less tying practices will be used by CIDA. The gradual improvement in the capacity of CWSA and its staff is a positive sign and this should be built on. In fact, interviews with stakeholders indicate that Danida has been a very key player in the capacity building of CWSA to the extent that other donors like UNICEF fund the water sector together with Danida without having separate financing and reporting arrangements. Also, community consultations monitoring and evaluation should be intensified in subsequent projects to improve on project outcomes. Finally, the sustainability of these projects has not been discussed in detail if at all. Just like road sector has set up a road fund where road tolls are paid into to ensure continuous maintenance of roads, the water and sanitation sector has not benefited from such a policy. Thus, the threat of the current global financial crisis as well as the anticipated withdrawal of the few donors in the water sector in the coming years as revealed in the field interviews present a major threat to the sector unless new sources of funding is found.

This was also part of a pilot investigation and one lesson learnt is the need to restrict in-depth investigations about sourcing and procurement to active projects. This is first because of limited usefulness of a ground truthing project site visit once staff have departed. Second, it proved impossible to undertake a cost-effectiveness analysis once the project having closed even though very recently. Therefore the coverage of donors in a sectorally focused country study may be far more restrictive than might be implied by, for example, the most recently internationally available data from the CRS.

**Annex D: Urban environmental Sanitation Project, Odaw Drainage Channel Works: Cost Comparison**

Lot	Length	Principal quantities			Cost (€ 000)	Cost per km (€000)	Completion Time (months)	Procurement process	Instrument
		Excavation (000 m3)	Concrete (000 m3)	Reinforcement (tonnes)					
1	3.25 km	666.5	55.8	1,563	8,506	<b>2,617</b>	24	<b>ICB</b>	IDA Soft loan
1 rev	3.25 km	515.3	55.7	2,586	9,904	<b>3,047</b>	24	<b>ICB</b>	IDA Soft loan
2	1.25 km	185.6	24.0	1,764	10,507	<b>8,406</b>	18	<b>Selective bidding</b>	AFD Soft loan
3	2.75 km	282.1	32.8	666	15,783	<b>5,739</b>	26	<b>Single source</b>	ORET Grant and commercial credit

Source: Odaw Project Officers, internal assessment exercise, non attributable

Notes: Lot 1 Construction of 3.5 km trapezoidal reinforced concrete channel along the Odaw River from Abessey Okai Bridge to the Avenor Bridge

Lot 1 Construction of 3.5km reinforced channel (under revised contract specifying rectangular channel design rather than previous trapezoidal design) along the Odaw River from Abessey Okai Bridge to the Avenor Bridge

Lot 2 Construction of 1.25 km reinforced rectangular channel along the Odaw river from Avenor Bridge to the Alajo Bridge

Lot 3 Construction of 1.25 km reinforced rectangular channel along the Odaw river from the Alajo Bridge to Apenkwa Overhead (Motorway extension)

## Annex E: Data issues and definitions.

- 1) Data availability. The study can only make use of the data available. However, there are two key areas where it is not immediately apparent that the data we would have liked to use is not available.
  - a. Firstly, the data on tying can only capture formal tying. Both our investigation and the literature suggest that there is a substantial amount of *de facto* tying which is therefore not captured in the tables or econometrics. The tying status of aid is determined not only from the formal restrictions on spending which require recipients to contractually procure only from the donor country, but also from actual and practical restrictions which render aid funds *de facto* tied. There are several ways for a donor to effectively tie aid without a formal tying agreement. Informal tying might be the result of donors' commercial interests and pressures (and as such intentionally practised). It can occur when powerful donor countries are able to steer procurement towards national firms; through an implicit contract donors are able to persuade recipients to give preference to their suppliers within competitive bidding procedures (Tajoli, 1999). Donors may direct aid towards projects, goods or countries in which its industries have a comparative advantage in an attempt to assure that the procurement will happen in the donor country (Bhagwati, 1985; Jepma, 1991). Donors may also indirectly support national firms through the advertisement of the tender in publications which are not read outside of the donor country, or by evaluating bids against standards only applicable in the donor country (ActionAid, 2000). Donors might also informally tie their aid by first inviting bids and then deciding to support only those projects for which its home suppliers won the contract (U.S. Congress, 1993). Furthermore, informal tying can manifest itself as a 'secondary consequence of an arrangement already in effect' (Jepma, 1991). Tying of a small amount of aid might indirectly lead to a much larger amount. For example, large projects are usually undertaken after some preliminary examinations; when donors tie their aid to this pre-project phase, they often acquire substantial advantages in bidding for the project (U.S. Congress, 1993). In the provision of equipment with technical specifications, recipient countries might prefer to continue procurement from the same donor so as to avoid incompatibility or extra spending in technical training. The definition of (formal) tied aid might therefore underestimate the actual impact of tying practices on export flows. However, it cannot be excluded that some of the exports procured through tied aid would have been procured from the donor country anyway.
  - b. Secondly, *Technical Assistance/Cooperation*, which accounts for a large slice of tied aid, does not usually enter the trade statistics. As highlighted in Stavlöta *et al.* (2006), if donor country representatives carry out consultancy services in a recipient country, the transaction will be registered as domestic (i.e. the consultants bill the donor directly which supplies them as services-in-kind) and will not enter the trade balance although these services could be regarded as export of services. This is important as TC is both a significant share of ODA and an even larger share of tied ODA (during 2005-2007, around 52% of aid commitments to Ghana reported as tied or Not Reported was for wholly or partially TC related activities). Globally, 27% of TC related aid was tied as compared with only 13% for bilateral ODA in 2006 (Clay *et al.*, 2008, Table 3.5).
  - c. Moreover, the definition of exports in our analysis (see Annex E) is restricted to goods and does not include services. This is likely to lead to underestimating the impact of the tying status variable on donor export flows.
  - d. As mentioned in the main text we were also unable to get satisfactory data on additional variables for the econometrics e.g. FDI, bilateral trade agreements, etc.

- 2) Data reliability is mainly an issue of reporting<sup>51</sup> quality. As quality has improved over time, we have retained data for only the latest years (2002-2007) but this restricts our sample, leaving us with a limited number of observations. This does not assist the robustness of our results. Reporting was particularly bad
  - a. Non response (tying status)
    - i. Overall - Some donors e.g. the US, only started reporting the tying status of ODA to the CRS this year (2008).
    - ii. Partial – e.g. reporting of TC components (see table 3.6) – 37% of projects by value do not report the TC status.
  - b. Differential reporting
 

Different donors interpret the reporting directives differently. For example, whether aid channelled through NGOs is tied or untied or over the precise definition of budget support. This has also changed over time and is becoming more consistent
  - c. Coverage
 

For the most part the study uses the CRS dataset as it has the project level data required however, comparison with the DAC dataset reveals that especially for the earlier years a substantial amount of ODA is not included.
- 3) Commitments vs. Disbursements. Where possible the study tries to use the most appropriate, commitments have traditionally had more complete coverage whereas disbursements are closer to reality in terms of trade effects.
- 4) The ODA data used in the study includes all forms of ODA including Debt Relief as can be seen in Figure 3.1 - the peak in 2004 refers to the HIPC process. As such, the ODA flows include categories of ODA that are not directly trade related. The rationale is that the study aims to examine the trade effects of grants and loans, not the trade effects of only some categories of grants and loans. Removing all *a priori* trade distorting categories would also mean removing budget support and all aid flows channelled through the country procurement system<sup>52</sup>. This does however highlight an important point, that there are a number of other important factors for example modality of aid. This process would also not allow for testing of the null hypothesis that neither grants nor loans have a statistically significant effect on exports. In addition, sectors such as Debt Relief are grant aid and untied by definition so their removal would be a source of bias.
- 5) The exports data used in the study includes all traded goods. However, data represents only exports of goods and not services. Data is drawn from the IMF DOTS (Direction of Trade Statistics), the same source as in Massa and Te Velde (2008) for comparability.
- 6) The range of donors who gave loans in Ghana between 1996 and 2006 is limited, including Austria, Belgium, France, Germany, Japan and Spain. Donors are not uniform in their practice, for example, excluding Germany, these six donors are all fairly highly associated with tied aid. If tying is significant for trade effects, this will be biasing the study results for loans.

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<sup>51</sup> Reporting the tying status of aid is not mandatory; consequently this information is often not complete and missing especially in early years.

<sup>52</sup> Untied aid should not be considered a priori non-trade distorting; it cannot be excluded that untied aid flows cause donor country exports to increase, as a reflection of the goodwill of the recipient towards the donor.

## Definitions

Official development assistance (ODA) (source: OECD Glossary)

Grants or Loans to countries and territories on Part I of the Development Assistance Committee (DAC) List of Aid Recipients (developing countries) which are:

- (a) undertaken by the official sector;
- (b) with promotion of economic development and welfare as the main objective;
- (c) at concessional financial terms [if a loan, having a Grant Element of at least 25 per cent].

Official Development Assistance is classified by type of flow in the OECD Creditor Reporting System as follows: ODA Loans, ODA Grants, ODA Grant-like, ODA Equity investments.

Grants are transfers in cash or in kind for which no legal debt is incurred by the recipient. For DAC/CRS reporting purposes, it also includes debt forgiveness, which does not entail new transfers; support to non-governmental organisations; and certain costs incurred in the implementation of aid programmes.

Loans are transfers for which the recipient incurs a legal debt and repayment is required in convertible currencies or in kind. This includes any loans repayable in the borrower's currency where the lender intends to repatriate the repayments or to use them in the borrowing country for the lender's benefit.

Only loans with a grant element above 25 per cent are ODA eligible. In addition, an ODA loan has to be concessional in character. This means that its interest rate must be below the prevailing market rate.

Grant-like flows comprise a) loans for which the service payments are to be made into an account in the borrowing country and used in the borrowing country for its own benefit, and b) provision of commodities for sale in the recipient's currency the proceeds of which are used in the recipient country for its own benefit.

Equity investment comprises direct financing of enterprises in a developing country which does not (as opposed to direct investment) imply a lasting interest in the enterprise.

The above definitions have been extracted from: DCD/DAC(2007)39/FINAL, Reporting directives for the Creditor reporting System [www.oecd.org/dataoecd/16/53/1948102.pdf](http://www.oecd.org/dataoecd/16/53/1948102.pdf)  
For further information on the creditor reporting system refer to the document above reported.

## Exports

The coverage of exports statistics should be sufficiently broad to encompass all merchandise leaving a country to another country, except goods being transported through a territory (i.e. transit trade) (IMF, 1993).

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