How tied aid affects the cost of aid-funded projects in Ghana

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Abstract

This case study of the Sixth Power Project in Ghana is an empirical analysis first, to investigate whether tied foreign aid funded inputs bear additional costs on account of price mark-up and, second, to assess the impact of the cost of tying on the concessionality of the assistance. The excess cost of tying is estimated following the "cost–difference" method and the impact of tying on the concessionality of aid is assessed through the "shadow grant" element. The basic conclusion reached from the analysis is that there is significant mark-up on the prices of funded inputs relative to the prices from alternative sources of supply. The price mark-up reduces significantly the concession embodied in the aid flows. On the part of donors, it is argued that there is need for action to liberalize the market for the supply of aid exports. Finally, while the mark-up on prices of tied aid inputs may be a price Ghana had to pay to receive the assistance, the cost to Ghana of tying provides a case for the cancellation of aid debt of the country.

Acknowledgements

1. Introduction

Over the past half-century rich nations have given about $1 trillion in external aid to poor nations. The massive inflows have been expected to boost the recipient countries' growth rates and thereby help millions to escape poverty. The effectiveness of aid in promoting growth in recipient countries remains controversial, however. For a long time the debate on aid effectiveness was conducted between committed but critical advocates of aid and those who were profoundly convinced for one reason or another that aid "is not a good thing". The latter include those who argue that aid either perpetuates dependency and perverts domestic investment (see, for example, Hayter, 1971) or that it permits governments to "escape the burdens of their foolish economic policies" (Krauss, 1983). The aid donors and recipients themselves by and large stayed on the sidelines of this debate.[1] They were fairly sure that most of what they did was well done. For them – and even more striking in the thinking of earlier major international reviews on aid effectiveness such as Pearson (1964) and Cassen et al. (1986) the case for aid is self-evident.

In a review of the recent literature on aid effectiveness, Tsikata (1998) — gives the educated conclusion:

> The preponderance of evidence from the empirical literature on aid effectiveness suggests that development aid has not had a significant impact on growth in recipient countries. However, there is some evidence that aid has had positive effects when the policy environment has been conducive to growth. Regarding the relationships between aid and the main channels through which its impact on growth could flow — investment and domestic saving – the evidence is mixed, with some indication that aid has had a positive impact where adjustment efforts have been sustained.

Why should this be? Apparently aid would "work" if the projects and programmes supported by aid work. The literature is now quite clear on recipient country shortcomings that reduce the effectiveness of the assistance they receive to promote growth. War, corruption, incompetence and inappropriate economic policies in recipient countries have often led to the squander of donor cash. In a World Bank (1998) study that sorted 56 aid-receiving countries by the quality of their economic management, it was found that those with good policies (low inflation, a budget surplus and openness to trade) and good institutions (little corruption, strong rule of law, effective bureaucracy) benefited from the aid they got. Those with poor policies and institutions did not.

The donor side of the aid equation

Do donor policies increase the cost of aid? As many developing countries, especially in sub-Saharan Africa (SSA), undertake economic reforms that address some of the domestic shortcomings, questions about the other side of the aid equation—the donor side—have begun to occupy the attention of policy makers and researchers alike. Although there is no general agreement on the types of aid that would most likely lead to the desired impact on development, the literature appears quite clear on what constitutes "good quality" aid. This is inherent in the fundamental idea of aid: that resources will be transferred to developing countries on concessional terms, that is, on terms and conditions more generous than those on credits obtainable from the world's capital markets. This idea is to enable aid patterns to be compatible not only with the aims of growth but also with a position of net indebtedness that is tolerable in the long term in the recipient country. In effect, the financial cost of aid is crucial for its effectiveness. In SSA the types and quality of assistance extended to the region have begun to take centre-stage in the debate on aid effectiveness. There are compelling reasons for this. The benefits of structural reforms are being undermined by the huge cost of servicing external debt. For the majority of sub-Saharan countries the growing indebtedness is now a major constraint to both domestic fiscal stability and rapid economic growth. For the few countries that are gradually emerging from the debt crisis, this has been at the price of falling per capita incomes and lost development opportunities. Quite expectedly, the current debt situation of the region and the need to make optimum use of limited resources (domestic and foreign) have raised concerns about the cost of external aid.

Traditionally, the cost of aid is viewed from the financial conditions attached to an aid flow—the rate of interest, and maturity and grace periods. However, it is now widely acknowledged that other factors may increase the cost of aid, reduce its effectiveness and accentuate the aid dependency situation of a recipient country. Thirlwall (1978), for example, notes that when there is excess cost owing to mark-up on the prices of aid-financed inputs, the normal financial conditions of lending may be hardened, possibly rendering the real value of the assistance negative. Donors may be able to mark up the prices of funded goods and services through a variety of channels that secure for the donor an advantage of eliminating competition with alternative suppliers of the goods and services. With the degree of competition reduced, the chances of abuse of market power to extract excessive profit through higher prices are enhanced for the donor.

Whether donor countries abuse market power is an empirical question that requires in-depth examination of the aid record. Yet, very little effort has so far been made to systematically examine the prices of foreign aid goods and services. The limited evidence suggests that in spite of measures taken by donors to restrict overpricing, such as the use of international competitive bidding, tied aid prices may be significantly higher than competitive world prices. The situation demonstrates one clear lesson: that perhaps the best, though less rapid route, for examining the aid record in recipient countries is to take an in-depth look at the experiences of aid-financed projects/programmes, followed, of course, by a synthesis of lessons from those experiences. This study on Ghana is a step in that direction.

Purpose and objective of the study

The purpose of this study is two fold: first, to investigate whether project aid in Ghana bears additional financial cost owing to price mark-up on aid inputs and to estimate this excess cost ,and second, to assess the impact of the cost of tying on the concessionality of the assistance. The broad objective of the study is to provide the evidence that may be useful in formulating policies towards making project aid more effective in Ghana.

This paper is divided into four sections. Following this introduction, the next section provides background information, in which project aid in Ghana is examined followed by a description of the project used as the case study. In the third section, after setting out in more detail the methodological approaches of the study, the empirical estimates are presented and discussed. The last section brings out some conclusions and policy implications.

2. Background information

Since Ghana began its Economic Recovery Programme (ERP) in 1983, the external aid map of the country has seen dramatic transformation. Not only has the magnitude of aid in support of the reforms grown, its composition and origin have also shown greater diversity. At the initial stages of the programme (1983–1986), total aid inflows averaged about $200 million a year, representing about 4% of GDP (Table 1). The level of inflows then rose rapidly to reach about $600 million (11% of GDP) per year during the period 1987–1990. Aid inflows were at an all time high of about $780 million (12% of GDP) per annum during the period 1991–1994. Since then inflows have stabilized at around $550 million (9% of GDP) per annum. Indeed, the level of inflows to Ghana since the inception of the ERP has been unprecedented in the country's history.[2]

Table 1: Total disbursed aid to Ghana, annual averages 1983–2000

	1983–86	1987–90	1991–94	1995	1996	1997	1998	1999	2000
Total disbursed aid (US$ million)	200	600	780	509	697	533	701	607	605
Analyses:									
Aid as % of GDP	4	9	11	9	10	8	9	8	7
Aid as % of imports	30	39	34	23	27	19	24	21	20
Aid as % of current account	113	184	165	127	215	165	183	68	88

Source: Bank of Ghana.

Project aid in Ghana

The types of assistance extended to Ghana since 1983 have seen considerable changes. At the early stages of the reforms (1983–1986), the bulk of inflows was programme aid/balance of payments support. This type of aid formed about 50% of the total inflows (Table 2), and suited Ghana's requirements then for relatively fast-disbursing assistance designed to relieve specific infrastructure and production bottlenecks. During this period of the early stages of the reforms, multilateral institutions dominated aid provision. Since then the share of project aid in the total inflows has risen sharply, to represent about 55% during the 1990s. The increased share of investment project assistance has come about

as aid from bilateral sources has increased to constitute about 50% of total inflows (from about 30%) during the 1990s. The major bilateral donors, including Japan, the United Kingdom, USA, Germany, the Netherlands, Canada and France, attribute their increasing share in total aid to their desire to be more visible, a development that they relate to "a search for greater influence" in Ghana. They point out that while they had earlier opted to support the economic reforms with facilities channelled through multilateral agencies, it had lately became important for them to pursue specific project initiatives that yield direct observable impacts (Aryeetey, 1995).

Table 2: Foreign aid to Ghana by type, annual averages 1983–2000

	1983–86	1987–90	1991–94	1995	1996	1997	1998	1999	2000
Total disbursed aid (US$ million)	200	600	780	509	697	533	701	607	605
of which (%)									
Investment project aid[a]	30	39	55	50	58	56	58	58	NA
Balance of payments support[b]	50	41	22	21	22	21	20	14	NA
Technical assistance	11	15	17	18	18	18	19		NA
Food aid	4	4	2						NA
Emergency relief		0.2							NA

Notes:
a. Includes investment related technical assistance.
b. Includes credit lines to the private sector.
NA = Not available

Source: Bank of Ghana.

Certainly the desire of the major bilateral donors to be more visible with their aid programmes also derives from commercial pressures on aid in their countries, which the OECD (1994) observes have been growing in many of these countries in recent years. In response to such pressures all the major bilateral donors impose restrictions in one form or the other on their assistance. Such restrictions may secure for the donor an advantage of not competing with alternative suppliers and may lead to the imposition of additional cost for a recipient in terms of higher prices on aid goods and services.[3]

Case study: The Sixth Power Project (Volta River Authority)

Since the mid 1960s, almost the entire electricity system of Ghana has been hydro-based, with the Volta River Hydroelectric Project providing the main source of electricity. Indeed, the Volta River Project has been, and arguably still remains, Ghana's most prominent aid financed project since independence. The Volta River Authority (VRA) is a corporate body charged with the responsibility for the development and generation

hydroelectric and thermal power and the construction and operation of transmission systems for the supply of electrical energy for industrial, commercial and domestic use in Ghana. Since its inception some 25 years ago, VRA has developed and operated an extensive electric power supply network for domestic use and for the supply of power to the neighbouring countries of Togo and Benin. VRA also has an inter-power connection arrangement with Còte d'Ivoire.

Background

The Sixth Power Project is an aspect of the Volta River Project in Ghana. Until recently Ghana's power supply network covered mainly the southern part of the country. At the same time, while demand for the extension of the system to the northern parts of the country mounted, portions of the existing supply and distribution network, as well as the hydroelectric thermal power generating plants, needed major rehabilitation. Besides, even as VRA faced increased demand for electricity from both home and abroad, drought in the country demonstrated the vulnerability of the all-hydro system. The Sixth Power Project was initiated to rehabilitate the existing network as well as extend the facilities to the northern parts of the country and to the neighbouring country of Burkina Faso. The specific aims of the project were:
- To maintain the reliability of Ghana's electricity supply.
- To explore new ways of expanding VRA's power generation/supply base to complement the hydro-based system.
- To meet the projected domestic and export demand for electricity through the year 2000, including interconnection with neighbouring Burkina Faso.
- To implement a programme of institutional developments to enable VRA to meet its challenges.

Project implementation and donor involvement

The Sixth Power Project was divided into five processes: generation, transmission, distribution, studies and institutional development. The generation aspects involved the retrofitting of the Akosombo generating station and the construction of a new thermal generating station intended to supplement VRA's all hydro system in times of poor water inflows into the Volta reservoir. The transmission activities included the construction of a second bulk supply point for Accra, an extension of a 161-KV system to the Upper West Region of the country, and an extension of the 161-KV system from the Upper West Region to interconnect with Burkina Faso. The distribution aspect focused on removing the power supply bottleneck of the Northern Region of the country. The activities included the expansion of the northern distributional network to provide electricity to district capitals and towns in the region. The institutional development and studies components involved a programme to retrain and strengthen staff of the Northern Electrification Development (NED) programme.

All the activities of the project involved external participation in the form of the

provision of plant and equipment, spares and technical assistance. The Sixth Power Project cost a total of US$174 million. Of this, US$153 million (88%) was the foreign cost component provided for in external aid. A consortium of external donors made up of the European Investment Bank, the Economic Development Corporation of Canada, the Medicreto Central of Italy and the Government of Spain provided the aid funds. The levels of aid applied to the various components of the project are summarized in Table 3. It is apparent that the largest share of aid was extended to the generation and distribution aspects of the project. These phases of the project involved the provision of technical assistance, plant and equipment, and spares from the donor source(s).

What types of external assistance were involved? In all cases the type of assistance extended may be described as "mixed credit", where technical assistance was provided as grant, in association with credit for inputs, the whole bundle being procurement tied.[4] The tying process restricted VRA to using the products and technology supplied by the donor. For inputs supplied, all tender documents in terms of technical quality and price were reviewed and approved by the donor. It is the pricing of the funded inputs that is the subject of investigation in this study.

Table 3: Sixth Power Project: Levels of external aid applied (US$ million)

	1990	1991	1992	1993	1994
Generation					
1. Akosombo GS retrofit	0.6	2.2	6.7	19.3	30.3
2. Thermal plant	-	-	0.6	22.9	26.9
Transmission					
1. New 161 KV station	0.2	1.1	4.6	-	-
2. Grid extension	0.1	1.5	10.6	8.5	-
3. Grid extension to BF	0.1	0.5	1.4	-	-
Distribution					
MED system expansion	-	-	0.6	2	4.1
Institutional dev. and studies					
1. Technical assistance	0.3	1	2.8	2.1	2
Total	1.3	6.3	26.3	54.8	63.3

Source: Volta River Authority.

3. Empirical estimates and interpretation

The study addresses the issue of whether tied aid bears additional financial cost owing to the price mark-up generated by donor stipulated procurement conditions by estimating the price margins on funded commodities in relation to competitive world prices.

Methodological approach

The estimation procedure follows the "cost-difference" method (see, for example, Ul Haq, 1967; Bhagwati, 1967; and Yassin, 1991). This method estimates the excess cost on a commodity by determining the mark-up on the price of the commodity relative to the price of an alternative source of supply for the same or similar commodity. Thus, the mark-up on a funded commodity is calculated as:

$$Excess\ cost\ of\ aid = \left[\frac{(A-B)}{B}\right]\%$$
(1)

where:
A = price quotation of funded good.
B = lowest quotation for the same or similar good from by other source of supply.

Therefore, the main requirements of the "cost–difference" method are the prices of the funded goods and the alternative quotations for the same or similar goods.

The effect of aid-tying on the concessionality of assistance is determined by computing the "shadow grant" element of the aid flow. Given the normal financial terms of an aid flow—that is, the rate of interest, and maturity and grace periods—and assuming a constant stream of debt servicing, the grant element (G) is determined as:

$$G = \left[\frac{(F-PV)}{F}\right]\%$$
(2)

where:
     F = face value of aid flow
    PV = present value of debt service payment on aid flow

The "shadow grant" element is in turn obtained by deflating the face value of the aid flow by the proportionate excess cost of tying. Thus, the shadow grant element *(G*)* is expressed as:

$$G^* = \left[\frac{(F^* - PV)}{F^*} \right]\%$$
(3)

where:
    F^* = "deflated" value of aid flow
    PV= present value of debt service payment on aid flow

Price data and related information on the funded goods studied are obtained from the Volta River Authority, which maintains a list of external suppliers of all major items it uses. The study sought alternative price quotations for the funded goods by inquiring directly from firms producing the same or similar goods. For each item, alternative supplier(s) in an alternative country to the donor were contacted for the price of the item. The alternative price quotation was sought with the requirement that there be exact or significant degree of substitutability between the funded and alternative good. The alternative price data were sought for the years in which donors supplied the items. In cases where data for such years were not given, the current price quoted by the alternative supplier was deflated to the year of supply using the index of US producer prices (industrial goods) as the deflator.[5]

Empirical estimates and interpretation

The details of the funded goods studied including technical descriptions are summarized in Table 4. The technical descriptions are presented in columns B and C while the price data are shown in column E. The lowest price quotations from alternative sources of funded goods are shown in column F. The estimated price differentials between the funded source and the alternative sources are expressed in column G.

The estimates of the price differentials indicate that the funded goods cost Ghana more than they would have had they been obtained elsewhere. The estimated overall weighted average of the price margin between the funded prices and the alternative quotations is about 29% and the un-weighted average of the price margin is estimated at about 20%. This indicates that the items that account for the largest shares in the total are also the high cost items. It is observable that the estimated price margins show great diversity, ranging from a low of about 1% to a high of about 50%. This diversity relates

more to the individual accessories. It could suggest that price mark-up may be higher when items are supplied on individual basis. The cost implication of the estimated price margins on the funded commodities is apparent. On the total value of funded items ($11.03 million) the price mark-up was about $3.2 million. The mark-up is equivalent to nearly six years of interest payments on the credits covering the funded commodities. In other words, debt repayment on credits for the funded commodities is an addition to a significant proportion of the debt that had been recouped already in price mark-ups.

It is interesting to compare our estimates with those in other studies. Conclusions reached in some studies suggest that on average the price of goods financed by aid exceeds world market prices by 25–30% (see, for example, Hayter and Watson, 1985; DFID, 2000). Similarly, Yeats (1990) estimates price premiums of between 20 and 30% on the imports of iron and steel products of some African countries from France. Conservative estimates by Jepma (1991, 1992) suggest that tied aid prices are some 10–15% higher than competitive world prices. On the other hand, Osei (1999) estimates a price ratio of at least 2:1 between total tied aid imports and non-aid imports in Ghana. This estimation suggests that as more goods are brought under scrutiny the cost of tying increases. From a specific project point of view, Yassin (1991) estimates for Sudan an excess cost of about 74% on funded goods in relation to alternative quotations from other sources. The indication here is that the price margins estimated in this study are similar to those found elsewhere.

The estimated higher price on the funded items studied raised the issue of whether price was the major determining factor in the supply of the items. According to the VRA, while price was important, other factors such as delivery time and service advantages were also equally important. It is important to note, however, that the effects of such considerations as the delivery time and service advantages are minimized where suppliers are able to avoid competition in the supply of funded items. The Authority also maintained that its long history of dealing with donors as well as its good corporate record should minimize attempts by suppliers to mark up prices of funded commodities. What then explains the observed price mark-ups? A factor often cited is the quality difference between funded goods and alternative supplies, with the assumption of superior quality of funded inputs. Admittedly, any inference on quality differences is difficult to make. At the same time, if it is recalled that the alternative supply had to have exact or significant degree of substitutability with the funded goods, then it seems reasonable to expect the quality bias to be minimized.

It is also often argued that when exporters in donor countries finance exports of capital goods to developing countries, the export prices reflect the risk of investment in the recipient country. Ghana still maintains a cobweb of old controls and regulations, with a lack of transparency in the enforcement of laws and regulations that continue to cloud the investment climate and increase the risks of investment in the country (see, for example, World Bank, 1993) Yet, since all potential suppliers to Ghana face the same investment climate, it is difficult to put a finger on the investment climate as explaining the mark-up. Nevertheless, Ghana has to continue tackling such concerns, which relate to the risk perception of the country and may affect even credit-worthy corporate bodies such as the VRA. With respect to the donor countries, it is easy to argue that while the presence

Table 4: The "excess" cost of aid

(A)	Rated voltage (KV) (B)	Rating MVA (C)	Year (D)	Aid cost per unit (US$) (E)	Lowest quotation alternative source (US$) (F)	Excess cost of aid (E–F)/F (G)
VRA transmission						
Transmission power transformer	161/11.5/6.6	13.3	1991	353,798	300,100	0.1789
Transmission power transformer	161/11.5/6.6	33	1994	802,287	695,250	0.1540
Transmission power transformer	196/34.5	33	1990	769,950	645,250	0.1933
Transmission power transformer	161/34.5/0.415	0.1	1990	6,844	6,220	0.1003
Transmission power transformer	161/69/34.5	15	1994	461,923	390,000	0.1844
Transmission power transformer	161/36/11.5	16	1990	497,745	415,000	0.1994
VRA Northern transformers/reactors						
Reactor	161	17	1990	475,969	420,575	0.1317
Auxillary transformer	161/11.5/0.415	0.1	1990	6,844	6,220	0.1003
Grounding transformer	161/11.5		1990	34,250	30,212	0.1337
NED distribution sub-stations						
Distributions primary sub-station 5DBB	34.5KV sub-station		1992	299,425	255,750	0.1708
Distributions primary sub-station 3SBB	34.5KV sub-station		1992	153,990	130,750	0.1777
Distributions primary sub-station 4SBB	34.5KV sub-station		1992	205,320	175,125	0.1724
Distributions primary sub-station 16SBB	11KV sub-station		1993	684,400	610,125	0.1217
Distributions primary sub-station 15SBB	11KV sub-station		1993	641,625	550,000	0.1666
Distributions primary sub-station 15SBB	11KV sub-station		1993	513,300	450,550	0.1393
Diesel station switchgear	15 SBB		1992	641,625	600,000	0.0694
161 KV sub-station accessories						
Circuit breaker			1991	64,648	45,151	0.4318
Post-current transformer			1991	36,787	28,720	0.2809
Dead tank circuit breaker with CTs			1991	187,440	150,550	0.2450
Bus disconnector			1991	15,760	15,600	0.0103
Transformer line disconnector			1991	20,003	14,755	0.3557

Table 4: continued

(A)	Rated voltage (KV)	Rating MVA	Year unit (US$)	Aid cost per quotation	Lowest (E–F)/F alternative source (US$)	Excess cost of aid
	(B)	(C)	(D)	(E)	(F)	(G)
Surge arrester			1991	20,472	20,000	0.0236
Capacitor voltage transformer			1991	28,659	21,750	0.3177
Wound VTS			1991	42,775	30,175	0.4176
Load break disconnector			1991	30,006	22,151	0.3546
By-pass disconnector			1991	15,760.00	10,250	0.5376
Suspension insulator			1991	1,213	1,200	0.0109
AC/DC changeover panel			1991	12,833	9,650	0.3298

| **Overall average** | | | | | **0.2039** | |

of many exporting firms could be expected to reduce the potential for collusive practices and thereby minimize overpricing, it may be reasonable to suggest that contracts for the supply of such imports may not be won on the basis of competitive procedures. The supply of funded imports may be concentrated in a small number of firms in the donor countries, thereby leading to oligopolistic pricing practices, or the supply of aid imports entails no competition at all, that is, the so-called "direct negotiation". Either way, the price mark-up on funded goods suggests that the basic subsidy involved in aid is being captured by exporters in the donor countries rather than Ghana for whom it is intended.

The estimates of the "shadow grant" element are presented in Table 5. These estimates show the effect of the price mark-ups on the concessionality of the aid flows. It is apparent from Table 5 that without the effect of tying the average grant element (at 10% discount rate) on the total credits is about 36%. The effect of tying reduces this concession to an average of 17%. Again, the substantial reduction supports the assertion that much of the basic subsidy involved in the aid flows has gone to the exporters in the donor countries rather than to Ghana for whom it was intended. In a few of the credits, tying reduced to negative the concession involved. In these cases it would have been cheaper for Ghana to buy on the open market and borrow entirely at commercial rates of interest.

Table 5: The effect of tying on concessionality of assistance

Item	Year	Face value per unit of item ($)	Interest rate	Maturity period	Grace period	Grant elements (%) (discount rate of) 8%	10%	15%	Excess cost	Shadow grant element (%) (discount rate of) 8%	10%	15%
Transmission power transformer	1991	353,798	4.75	10	0	26.3	38.7	60.7	0.179	10.0	25.3	52.1
Transmission power transformer	1994	802,287	4.75	10	0	26.3	38.7	60.7	0.154	13.0	27.5	53.5
Transmission power transformer	1990	76,995	6.75	10	0	11.0	25.9	52.5	0.193	-10.0	8.2	41.1
Transmission power transformer	1990	6,844	6.75	10	0	11.0	25.9	52.5	0.100	1.0	17.7	47.2
Transmission power transformer	1994	461,923	4.75	10	0	26.3	38.7	60.7	0.184	10.0	24.8	51.8
Transmission power transformer	1990	497,745	6.75	10	0	11.0	25.9	52.5	0.199	-11.0	7.5	40.7
Reactor	1990	475,969	6.75	10	0	11.0	25.9	52.5	0.132	-3.0	14.7	45.3
Auxillary transformer	1990	6,220	6.75	10	0	11.0	25.9	52.5	0.100	1.0	17.7	47.2
Grounding transformer	1990	34,250	6.75	10	0	11.0	25.9	52.5	0.134	-3.0	14.5	45.2
Distribution primary sub-station	1992	299,425	4.75	10	0	26.3	38.7	60.7	0.171	11.0	26.0	52.6
Distribution primary sub-station	1992	153,990	4.75	10	0	26.3	38.7	60.7	0.178	10.0	25.4	52.2
Distribution primary sub-station	1992	205,320	4.75	10	0	26.3	38.7	60.7	0.172	11.0	25.9	52.5
Distribution primary sub-station	1993	684,400	4.75	10	0	26.3	38.7	60.7	0.122	16.0	30.2	55.2
Distribution primary sub-station	1993	641,625	4.75	10	0	26.3	38.7	60.7	0.167	12.0	26.4	52.8
Distribution primary sub-station	1993	513,300	4.75	10	0	26.3	38.7	60.7	0.139	14.0	28.8	54.3
Distribution primary sub-station	1992	641,625	4.75	10	0	26.3	38.7	60.7	0.069	21.0	34.1	57.8

Table 5: *continued*

Item	Year	Face value per unit of item ($)	Actual terms of borrowing Interest rate	Maturity period	Grace period	Grant elements (%) (discount rate of) 8%	10%	15%	Excess cost of tying	Shadow grant element (%) (discount rate of) 8%	10%	15%
Circuit breaker	1991	64,648	4.75	10	0	26.3	38.7	60.7	0.432	-30.0	-7.9	30.8
Post-current transformer	1991	36,787	4.75	10	0	26.3	38.7	60.7	0.281	-2.0	14.7	45.3
Dead tank circuit breaker with CTS	1991	187,440	4.75	10	0	26.3	38.7	60.7	0.245	2.0	18.8	47.9
Bus disconnector	1991	15,760	4.75	10	0	26.3	38.7	60.7	0.010	26.0	38.0	60.3
Transformer line disconnector	1991	20,003	4.75	10	0	26.3	38.7	60.7	0.356	-14.0	4.8	39.0
Surge arrester	1991	20,472	4.75	10	0	26.3	38.7	60.7	0.024	25.0	37.2	59.7
Capacitor voltage transformer	1991	28,659	4.75	10	0	26.3	38.7	60.7	0.318	-8.0	10.1	42.4
Wound VTS	1991	42,775	4.75	10	0	26.3	38.7	60.7	0.418	-26.0	-5.3	32.5
Load break disconnector	1991	30,006	4.75	10	0	26.3	38.7	60.7	0.355	-14.0	5.0	39.1
By-pass disconnector	1991	15,760	4.75	10	0	26.3	38.7	60.7	0.538	-59.0	-32.6	15.0
Suspension insulator	1991	1,213	4.75	10	0	26.3	38.7	60.7	0.011	26.0	38.0	60.3
AC/DC change-over panel	1991	12,833	4.75	10	0	26.3	38.7	60.7	0.330	-10.0	8.5	41.3
Average			**5.2**	**10.0**	**0.0**	**23.0**	**35.9**	**58.9**		**0.6**	**17.3**	**47.0**

4. Conclusion

This study set out to investigate, first, whether tied foreign aid funded inputs for a specific project in Ghana bear additional costs owing to price mark up, and, second, to assess the impact of the price mark-up on the concessionality of the aid flows. The basic conclusion reached here is that there is a significant mark-up on the prices of the tied funded inputs, and that the mark-up translates into a significant cost to Ghana. Also, the mark-ups significantly reduce the concession embodied in the assistance. It is argued that conditions in the market for the export of aid commodities in the donor countries could explain the observed price mark-up. There is need for action on the part of aid donors to liberalize the market for the supply of aid exports in their countries. Finally, although the higher cost of funded inputs may be a necessary price Ghana has to pay to receive aid, since, arguably, higher cost tied aid may be better than no aid, the evidence of higher prices on funded inputs provides a case for the cancellation of Ghana's aid debt.

Notes

1. This is not to say that donors and recipients have not been concerned about the effectiveness of aid. Indeed, now that developing countries are no longer pawns in the geo-strategic game between opposing blocs, the main donors are increasingly requiring the aid they give to be used effectively, particularly since the resources available are becoming more scarce.

2. A number of authors have attempted to provide reasons for the interest donors have shown in Ghana since the inception of the ERP. Martin (1991) and Aryeetey (1995) share the view that the significant growth in aid after 1983 is attributed to the improved adjustment record following the initial reforms. Aryeetey adds that improvement in Ghana Government's ability to negotiate for aid is also a contributory reason for the higher levels of inflows. Younger (1992), on the other hand, has suggested that many donors supported the ERP because of the bandwagon effect it created, as all donors wished to be associated with "a potentially good case".

3. All the major bilateral donors tie their assistance in one form or the other in response to commercial pressures. The United States, for example, uses formal tying restrictions under which it requires recipients to formally and contractually spend aid funds on imports of goods and services only from the donor source(s). The US ensures that these restrictions are not violated by disbursing aid in such a way as to give rise to directly identifiable imports that can be related to its particular source. With aid expenditure that is not related to directly identifiable imports, as for example, in the case of the "local cost" component of project aid or "budgetary grants", the US devises formal restrictions in the form of "restricted accounts", under which the recipient is required to spend the aid on specified sources. In addition, the US requires that at least 50% of goods purchased with aid be transported in US ships, except in cases where this is impossible because of lack of services under the US flag.

    The United Kingdom uses informal approaches to influence recipients to spend contracted aid on purchases from its source(s). The UK enjoys in particular traditional trade ties with several countries, which secures for the UK an advantage of not competing with alternative suppliers. The UK also has influential colonial

ties, which enables it exercise informal control on how and where its aid funds are spent. In an attempt to appear flexible in these informal tying practices, the UK usually stipulates that the assistance can be used for expenditures outside the UK markets only when the prices of UK suppliers are "unreasonably" high. The problem, however, is that the recipient is not given the option to compare UK prices with those of other markets.

France uses indirect restrictions to tie some of its assistance. It treats the aid flow as part of an overall trade arrangement. This may take the form of restrictions that require the recipient to spend the aid funds on goods and services from France, while France reciprocally agrees to purchase some goods and services from the recipient on a preferential basis. In addition, most of the major donor governments tie some assistance through credit guarantees to importers and exporters from their countries. These credit guarantees most commonly include suppliers' credits, which are private export credits guaranteed partly or wholly by some institution in the donor country. The financial support of these institutions for such credits is directly or indirectly linked to an official policy of the donor government.

4.   Do such "mixed credits" constitute aid? The OECD Development Assistance Committee (DAC) norm for "normal" aid flow is a grant element (at 10% discount rate) of at least 86%. At the same time, the DAC *Guiding Principles for the Use of Aid in Association with Export Credits and Other Market Funds* of 1983 established that "mixed credits" or associated financing should have a grant element of at least 20%, which was increased to 25% in 1985, 30% in 1987 and 35% in 1988.

5.   The reliability of the US Producer Price Index as the deflator was checked by ascertaining the price increase over the deflated period of items on which we obtained both current price and price for the year of supply. On balance the index reasonably approximated price increases over the deflated period. In effect, any estimated excess cost on the tied aid inputs cannot be attributed to over-deflation as a result of using the index.

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