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Aid Coordination in the Health Sector: Examining Country Participation in Sector-Wide Approaches

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Abstract

Do countries undertaking sector-wide approaches to health development share certain common characteristics? Using independent sample *t* tests on national-level data, this paper examines if there are significant average differences between countries undertaking a sector-wide approach to health development (SWAp) and those countries that are not. The results of those tests indicate that there are significant differences between SWAp and non-SWAp countries. Such findings may be useful in understanding the current environment of donor-recipient partnerships.

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Introduction

In a period in which development aid has come under increasing criticism for failing to show improved development results for recipient countries, donor organizations have encouraged stronger donor-recipient partnerships and improved aid coordination system (Eriksson, 2001a). Better aid coordination has been viewed as an important factor in increasing development aid effectiveness and donor-recipient accountability (Cassen, 1986; Buse and Walt, 1997; World Bank, 1998; Walt et al., 1999; Ericksson, 2001b). While aid coordination mechanisms vary from such practices as geographical zoning, donor consortia, to sector-wide approaches, the aid coordination system can be roughly divided between “donor-” and “country-driven” arrangements. Research has shown that country-driven arrangements may contribute most to development effectiveness (Eriksson, 2001a).

Hailed as a new type of partnership among recipient countries, donors, and non-governmental organizations (Peters and Chao, 1998; Walt et al., 1999), sector-wide approaches (SWAp) for health development have become increasingly popular with the World Bank since the mid-1990s (Walt et al., 1999; Foster, 2000). A sector-wide approach (SWAp) is commonly defined in terms of its aim: “to achieve sustainability and national ownership by shifting external bilateral and multilateral funding from individual projects to the implementation of a country strategy and programs to deliver the strategy” (IHSD, 2000). The shift from individual project funding to a sector-wide approach is meant to correct for the lack of accountability and sustainability among donors and recipients that frequently results from the fragmentation of development assistance (Shacter, 2001). Donors surrender their rights to finance specific projects and in turn are given a greater voice in the development and implementation of sectoral strategy (Shacter, 2001; Share-net, 2001). In return for their obligation to consult with donor agencies, recipient countries are given greater responsibility for the creation of sectoral strategy and ownership in the process. In the respect, SWAp are seen as organized around the concept of donor-recipient partnerships and the principle of recipient country leadership and ownership (Peters and Chao, 1998; Walt et. al., 1999).

Research has shown that each country's coordination environment is unique and that SWAp implementation must be flexible enough to adapt to specific national histories and environments (Walt, 1999). Although country contexts play an influential role in the development of donor-recipient relations and various coordination or aid management mechanisms (Buse, 1999), the literature on aid coordination and SWAp implementation suggests that there may be characteristics that countries implementing or undertaking a SWAp in the health sector have in common (hereafter referred to as “SWAp countries”). Do SWAp countries tend to share certain economic, social, health, and aid characteristics?

While the literature on aid coordination and SWAp implementation has suggested that SWAp countries may share certain features, those characteristics have not been systematically identified, examined, and presented. This paper presents the results of an exploratory analysis on the common characteristics of SWAp countries. Using independent sample *t* test procedures, SWAp countries are compared with other least-developed and low-income countries, which are not undertaking a SWAp. *T* test procedures were used to determine if SWAp countries have statistically significant average differences in important economic, social, governance, health, network-centrality, and aid-dependency indicators. A closer examination of the similarities and differences that SWAp countries have with non-SWAp countries will assist in the future evaluation of SWAp implementation and provide the basis for the further analysis of which factors best contribute to SWAp implementation and success.

Data and Methods

There were three stages to data collection and analysis: 1) the delimitation of the study population and the classification of countries according to SWAp implementation, 2) the collection and organization of economic, social, health, network and aid-arrangement indicators, and 3) data analysis using independent sample *t* tests.

The 69 countries included in the study were based on the Organization for Economic Cooperation and Development's (OECD) list of least-developed and low-income countries. Using the report "Trends in Aid by Major Aid Agencies" and the Swiss Agency for Development and Cooperation's listing of countries implementing or undertaking a SWAp in the health sector, those 69 countries were coded as undertaking or not undertaking a SWAp. Twenty countries were identified as undertaking or implementing a SWAp in the health sector; the remaining 49 countries were classified as non-SWAp countries. Following the creation of the study population, indicator data was collected on each country.

Indicator variables were collected for the years 1999-2000 in six areas: economic, social, health, governance, networks centrality and aid arrangement. The four main data sources were the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), the United Nations Development Program (UNDP), the World Bank, and the World Health Organization (WHO). Table one lists the six indicator areas, the variables included in each area, and the data source.

Table 1: Indicator Variables

<i>Indicator Area</i>	<i>Component Variables</i>	<i>Sources</i>
1. Economic	Gross National Income per capita (GNI/per capita) (given in \$US)	World Bank Development Indicators, 1999
2. Social	Human Development Index (HDI)	UNDP Human Development Report, 1999
3. Health	Disability Adjusted Life Expectancy (DALE)	WHO Annual Report Statistical Annex, 2000 (Estimates for 1999)
4. Governance	1. Government Effectiveness 2. Regulatory Quality	World Bank Governance Indicators, 2000/2001
5. Network Centrality	Degree	OECD, Creditor Reporting System: Aid Activities, 1999 Generated using UCINET V (Borgatti et al., 1999)
6. Aid Arrangement	1. Official Development Assistance (ODA) per capita 2. ODA in the health sector per capita 3. Project : Donor Ratio	World Bank Development Indicators, 1999 OECD, Creditor Reporting System: Aid Activities, 1999

Gross national income (GNI) per capita was used to examine if there were any significant economic differences between countries undertaking a SWAp in the health sector and those that were not. The GNI per capita values were collected from the World Development Indicators of the World Bank. Formerly referred to as GNP per capita, the gross national income per capita is converted to U.S. dollars using the World Bank Atlas method and then divided by the midyear population. UNDP's Human Development Index (HDI) was used to measure if significant developmental or "quality of life" differences existed between SWAp and non-SWAp countries. The Human Development Index measures three aspects of human development: longevity, knowledge, and a decent standard of living (UNDP, 2002). It was decided to use WHO's measure of disability-adjusted life expectancy (DALE) of its member countries to examine if there were significant differences between SWAp and non-SWAp countries in the health sector. DALE summarizes the expected number of years to be lived in what might be termed the equivalent of "full health." To calculate DALE, the years of ill health are weighted according to severity and subtracted from the expected overall life expectancy (WHO, 2002).

Two governance indicator estimates were taken from the 2002 World Bank "Governance Matters II" report to examine whether significant differences existed between SWAp and non-SWAp countries in governance areas (Kaufmann et al., 2002). The World Bank report provides governance estimates in six

areas: 1) voice and accountability, 2) political stability, 3) government effectiveness, 4) regulatory quality, 5) rule of law, and 6) control of corruption (Kaufmann et al., 2002). For the present study, the indicators regarding government effectiveness and regulatory quality were used in the independent sample tests. "Government effectiveness" estimates measure respondent perceptions of the quality of a country's bureaucracy, the competence of its civil servants, and its ability to deliver public goods (Kaufmann et al., 2002). "Regulatory quality" estimates measure a respondent's perceptions of the market-friendly nature of a country's policies for trade and business development (Kaufmann et al., 2002).

Network centrality measures were constructed using OECD's 1999 data on bilateral aid activities. Network centrality measures were used to capture the visibility or prominence of recipient countries in the aid network for the health sector. Did SWAp countries have higher visibility or prominence in the 1999 health-sector bilateral aid than non-SWAp countries? While this measure might reveal if network centrality operates as a predisposing factor to SWAp implementation, it may also be used for the future evaluation of donor behavior or support of SWAp countries. If donors remain favored toward SWAp countries, it is hypothesized that this donor favoritism will be reflected over time in the greater prominence and influence of SWAp countries in the aid network. Unlike a measure that only indicates the number of donors that a country has in a sector, centrality measures capture the visibility of recipient country as seen in the structure of the donor-recipient network. In this sense, centrality measures not only reflect the number of donors that a country has but also the strength of its relationships with those donors.

Network centrality measures were generated using social network analysis methods. First, an affiliation network showing individual donor amounts per recipient country was generated from the OECD's 1999 Creditor Reporting System data. The actor (donor) x event (recipient country) matrix was then used to generate degree and eigen-vector centrality values for each recipient country in the study. Degree centrality measures highlight the actors with the most ties to other actors in the network. The higher an actor's centrality value the more direct contact and adjacency that actor has to other actors in the network (Wasserman and Faust 1994). In the types of affiliation networks created in the present study, degree centrality measures should indicate the level of activity and number of contacts that a recipient country has (Faust 1997). A recipient country's degree centrality in the network may be seen as an "index of its potential communication activity" (Freeman 1978/1979). Individual country centrality scores were grouped according to SWAp implementation and used to examine if SWAp countries were more central or prominent in the bilateral health-sector aid network. Degree centrality values were generated using UCINET V (Borgatti et al., 1999).

To examine the tendency of countries toward a country- or donor-driven coordination arrangement, three indicator variables were used: 1) official development assistance (ODA) per capita, 2) OECD-country bilateral assistance per capita in the health sector, and 3) project-donor ratio in the health sector. The first two variables are meant to capture a recipient country's level of aid dependency. The first variable captures a country's overall aid dependency, while the second captures a country's aid dependency in the health sector specifically. Although it has been suggested that SWAps appear most useful in highly aid dependent countries (EU, 2000), the question that frames this line of research asks whether SWAps do appear in highly aid dependent countries. Countries with low aid dependence have been shown to prefer project aid to policy conditional program aid (World Bank, 2001). How does aid dependency affect country preferences for sector-wide approaches? The third indicator variable, a project-donor ratio, is meant to capture the degree to which donors pool resources for common projects in the health sector. This ratio was generated using the OECD data on bilateral aid support in the health sector. A country's total number of projects in the health sector was divided by the total number of bilateral donors in the health sector for that country. It is hypothesized that the lower the ratio, the greater the tendency for donors to pool resources in a specific country. For example, in a recipient country with four health-sector projects and eight donors, it may be that there is a greater tendency on the part of the donors to coordinate or pool resources with other donors and the recipient country than is the case in a country with eight projects and four donors. While this hypothesis is formulative and remains to be

tested, the project-donor ratio may provide a useful starting point for examining the concentration or pooling of resources during SWAp implementation.

Using SAS statistical package, independent sample *t* tests were conducted on SWAp (n=20) and non-SWAp countries (n=49) to examine if there were significant average differences in the aforementioned areas. In each case, the null hypothesis assumed that there were no significant average differences between the two groups. If the probability > *F* value was less than .05, the *t*-value for unequal variances was used. Statistical significance between the two groups was assumed to exist at the 0.05 level.

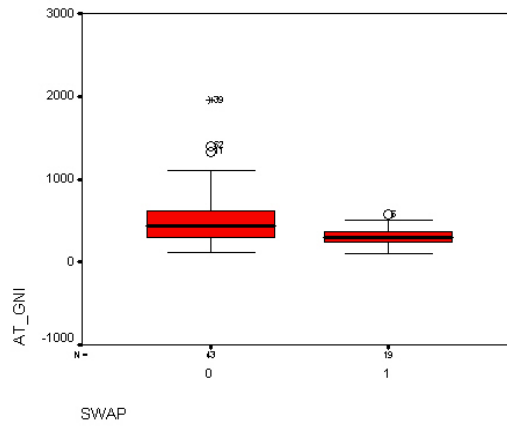
Results

Table two shows the indicator variable, the sample size, the average of SWAp and non-SWAp countries, the *t*-value, and its significance for the *t* tests. Results of independent sample *t* tests reveal that significant average differences exist between SWAp and non-SWAp countries in four of the six indicator areas: economic, governance, network centrality, and aid arrangement tendencies. Compared with countries not undertaking a SWAp in the health sector, the findings show that SWAp countries have a statistically significant 1) lower average gross national income per capita ($t = 3.644, p = 0.001$), 2) higher average score on government effectiveness ($t = -3.010, p = 0.004$) and regulatory quality estimates ($t = -0.892, p = 0.005$), 3) greater prominence in the 1999 health-sector aid network ($t = -4.562, p = 0.000$), and 4) higher ratio of projects to donors in the health sector ($t = -3.333, p = 0.001$). Figures 1-5 present box plots of the distributions for these five variables. They are classed according to SWAp and non-SWAp status. Although statistically significant average differences were not found in social and health indicators, SWAp countries do however show a lower average score on the human development index and DALE scale, and higher levels of ODA and health-sector aid dependency.

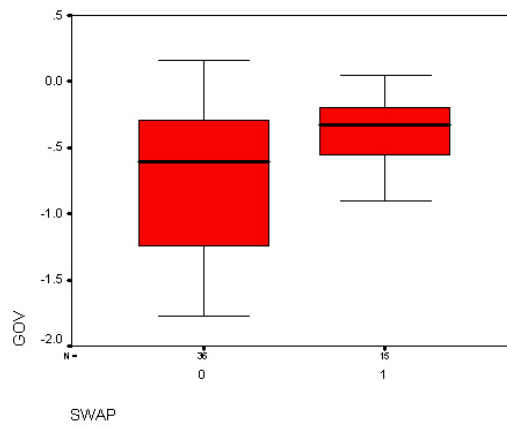
Table 2: Independent Sample *T* test Results

<i>Indicator</i>	<i>Type</i>	<i>n</i>	<i>Mean</i>	<i>t</i>	<i>df</i>	<i>Significance</i>
GNI/cap.	SWAp	19	305	3.644	56	.001
	Non-SWAp	43	530			
HDI	SWAp	20	.43	1.064	39	.294
	Non-SWAp	40	1.76			
DALE	SWAp	20	41.84	1.474	63	.146
	Non-SWAp	45	45.79			
Government Effectiveness	SWAp	15	-.368	-3.010	48	.004
	Non-SWAp	36	-.712			
Regulatory Quality	SWAp	19	-.218	-2.892	57	.005
	Non-SWAp	40	-.701			
Degree	SWAp	20	63.0	-4.562	67	.000
	Non-SWAp	49	53.5			
ODA per capita	SWAp	19	35.79	-1.662	56	.102
	Non-SWAp	39	24.97			
Health Sector ODA Per capita	SWAp	19	2.80	-.916	61	.363
	Non-SWAp	44	2.16			
Ratio Projects:Donors	SWAp	20	4.13	-3.333	66	.001
	Non-SWAp	48	2.83			

**Figure 1: Box plot *Gross National Income per capita* (Atlas method)
(0 = non-SWAp countries, 1 = SWAp countries)**



**Figure 2: Box plot of *Government Effectiveness*
(0 = non-SWAp countries, 1 = SWAp countries)**



**Figure 3: Box plot of *Regulatory Quality*
(0 = non-SWAp countries, 1 = SWAp countries)**

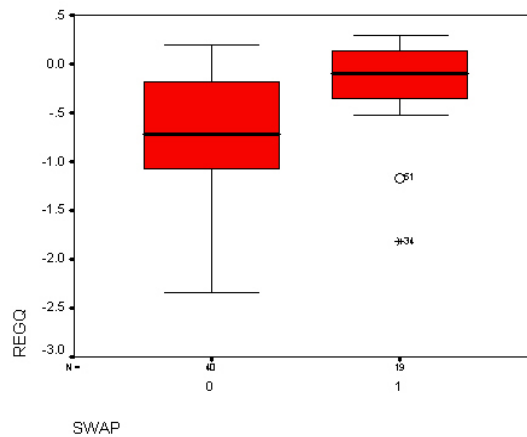


Figure 4: Box plot of Degree Centrality
(0 = non-SWAp countries, 1 = SWAp countries)

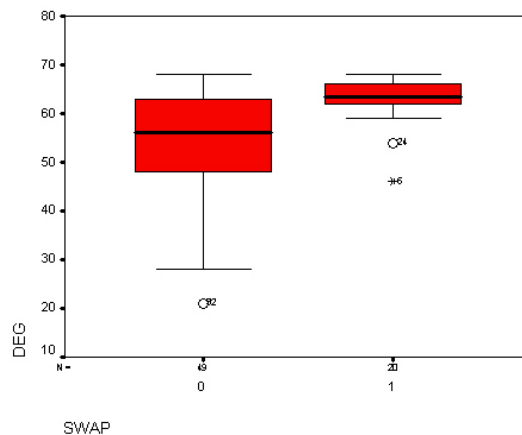
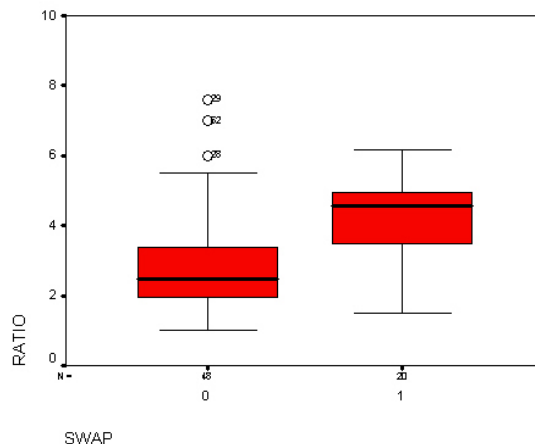


Figure 5: Box plot of Project: Donor Ratio Values
(0 = non-SWAp countries, 1 = SWAp countries)



Limitations

The data for the analysis were from recognized international sources: Organization for Economic Cooperation and Development, United Nations Development Program, World Health Organization, and World Bank. The limitations of those data sources are better explained in those sources themselves.

Regarding the study itself, there are several limitations that should be noted. First, donor characteristics are also important determinants affecting the aid coordination arrangement between donors and partners. Further research is required to show how donor characteristics influence the types of aid arrangements that countries develop. While the ratio of projects to donors is meant to capture the degree to which donors pool resources for health-development projects, the measure remains formulative and requires further development. Second, the study focused on bilateral aid to developing countries and did not include an examination of multilateral aid flows to SWAp and non-SWAp countries. Multilateral aid has been shown to be more effective for recipient country development goals. Further research might examine the visibility of SWAp countries in the multilateral aid network compared to their visibility in

the bilateral aid network. Third, although the study sought to investigate and describe the significant average differences that existed between SWAp and non-SWAp countries, the nature of the association between the six indicator variables was not traced. Further research is required to identify the nature of the associations among SWAp implementation, economic, governance, network centrality, and aid arrangement variables. For example, what is the influence of governance compared to economic variables on a country's implementation of a SWAp in the health sector? To answer such questions, additional research is necessary to determine if the study's indicator variables simply reflect important differences between SWAp and non-SWAp countries or operate as causal factors in the implementation of sector-wide approaches.

Discussion

Results of the study indicate that SWAp countries have significantly different averages in several important areas. These differences will be first discussed separately and then examined more generally. First, countries implementing a SWAp in the health sector have a lower average gross national income per capita than those countries that are not undertaking a SWAp. This finding seems to support the argument that SWAps are a more attractive coordination mechanism for donors and recipients in countries with relatively lower economic performance (see Walt et al., 1999).

As shown through both government effectiveness and regulatory quality estimates, SWAp countries as a group have higher average governance estimates than non-SWAp countries. SWAps thus appear to be a more attractive mechanism in countries that have a better reputation regarding the quality of their public bureaucracy and their policies. This finding supports the contention that donors must feel recipient-country policies are being implemented in a transparent environment to support the reform of aid management practices (Walt et al., 1999). Yet, without a longitudinal analysis of donor behavior and recipient governance estimates, it is uncertain if the higher governance indicators for SWAp countries are the cause or result of the donor's fondness towards them.

Thirdly, SWAp countries occupy a greater average centrality in the health-sector bilateral aid network than non-SWAp countries. This finding shows that SWAp countries have a higher average number of donors and projects and that they have a greater prominence in the aid network than non-SWAp countries. Given that the centrality values are generated from 1999 aid, this indicator variable only captures the prominence of SWAp countries in the early stages of SWAp implementation. Despite this aspect of the indicator, it may provide a measure by which to assess the sustainability of donor support to SWAp countries and SWAp processes.

In the area of aid arrangement, the research presents mixed result. SWAp countries have a statistically significant higher average ratio of projects to donors. As hypothesized earlier, higher ratios could suggest a lesser degree of resource pooling among donors and between donors and recipient countries. Higher ratios may therefore imply a tendency toward donor-driven arrangements and thus the willingness on the part of recipient countries to allow donors greater involvement in health-sector planning. Although SWAp countries have higher averages in ODA per capita and bilateral aid per capita in the health sector, there is not a statistically significant difference. The results for this area suggest however that the need for some form of coordination is likely to increase in those countries with a greater number of donors, projects, and donor money.

Taken together the results of the analysis suggest that sector-wide approaches in the health sector appear more attractive in least-developed and low-income countries that are performing relatively lower economically but higher on governance factors. SWAp countries do enjoy a privileged visibility in the 1999 bilateral aid network when compared to other least-developed and low-income countries. Although the causal factors underlying this privileged visibility remain to be determined, the higher centrality values of SWAp countries in 1999 suggests that sector-wide approaches are being undertaken in countries that occupy a central, i.e., prominent, position in the bilateral aid network. Given

the findings concerning aid arrangement tendencies, SWAp implementation appears currently to be a donor-driven process.

Significance

While there may be no particular national path for successful SWAp implementation (Walt et al., 1999), this paper argues that there are statistically significant differences between countries that are undertaking a sector-wide approach in the health sector and those that are not. The fact that there are certain indicators that distinguish SWAp and non-SWAp countries suggests that there may be important pre-disposing or enabling factors involved in a country's implementation of a sector-wide approach. In which national environments are sector-wide approaches attractive for both recipient countries and donors? Since SWAps are process-oriented, initiatives may be taken even when appropriate conditions appear absent (see Walt et al., 1999). Yet, these findings do recommend a more in-depth analysis of the common characteristics that distinguish SWAp and non-SWAp countries.

Like other aid instruments, aid coordination should be evaluated for "its contribution to development results" (Eriksson, 2001a). Better coordination in the health sector should improve the efficiency and effectiveness of a health sector (Walt et al., 1999). It should be noted therefore that SWAp and non-SWAp countries did not have significantly different average values in their 1999 health-related indicators. This is not an unexpected finding given the fact that sector-wide approaches have only recently been implemented in the health sector. After several years of SWAp implementation, the effectiveness of SWAps on improving health-related outcomes could be reexamined using the types of methods presented.

Sector-wide approaches are intended to help place the recipient in the driver's seat (Walt et al., 1999; EU, 2000; Share-Net, 2001). To evaluate the success of such efforts, measures of aid coordination that have universal applicability are necessary. This paper has supported the use of aid dependency and project-to-donor ratio indicators to evaluate the degree to which recipients are in the driver's seat. The use of such measures to assess aid coordination tendencies remains formulative and future research will help to determine how accurately they capture country- versus donor-driven arrangements.

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