Seeking for effective performance, minimum cost, and good Official Development Assistance (ODA) performance evaluation: A case study of Bach Mai Hospital, Vietnam

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Abstract

According to the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), the amount of official development assistance (ODA) has been resurging since 2000 and is expected touch over 100 billion USD in a few years. In 2006, the DAC members' average ratio of ODA to gross national income (GNI) nearly touched 0.30, which corresponds to the level in the early of 1990s. When providing ODA to developing countries, the regional characteristics, diversity of the economic growth stage, as well as the impacts of ODA on economic growth have to be duly taken into consideration. In this paper, the author mentioned that Vietnam exhibits a relatively better economic performance than the other East Asian countries. However, based on data analysis, the author observed a general tendency of developing countries: the higher a nation's economic growth the lesser is its dependency on aid. A national budget that depends heavily on aid does not always guarantee a sustained high economic growth rate year after year in developing countries. In order to achieve the effective use of ODA, it is also necessary to determine an appropriate method for evaluating ODA projects in developing countries. In the latter part of this paper, the author briefly examines a case study of Bach Mai Hospital (BMH) in Hanoi, Vietnam and concludes that good leadership would generally lead to the successful execution of a project undertaken. It is well known that BMH played a pivotal role after the outbreak of severe acute respiratory syndrome (SARS) in late February 2003, and owing to the immediate action taken by the hospital, Vietnam was promptly declared SARS-free by the WHO on April 28, 2004. The main objective of this ODA project was to improve the staff's medical skills and knowledge in addition to promoting cooperation among them during the 2003 SARS outbreak. However, there still appears to be scope for analysis and drawing lessons in developing general methods for the more efficient use of ODA. The author also believes that analyzing case studies of past ODA projects would bring a considerable amount of useful information that could improve the future quality of ODA.

Key words: Government policy and Evaluation of ODA, Case study of the Vietnamese economy.

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1. Introduction

The initiation of the disbursement of official development assistance (ODA) from developed counties was sluggish in the 1990s; this phenomenon is known as "aid fatigue.[1]" As shown in Figure 1, the average ratio of ODA to gross national income (GNI) among the Development Assistance Committee (DAC) countries of the Organization for Economic Cooperation and Development (OECD) decreased from 0.34% in 1984–1985 to 0.22% in 2000. In response to this negative ODA disbursement, each developed country is seeking new strategies for improving the quality of ODA projects. In the United States, ODA is disbursed in the following five modes: (1) economic support fund, (2) development assistance, (3) the food for peace program, (4) human support aid, and (5) multinational aid[2]. In Japan, however, ODA disbursement is primarily considered to be a friendly donation to developing countries. For example, as is well known, the United States is requesting the Japanese government to reduce its ODA to Myanmar as an economic punishment for the latter's non-democratic policy. However, the Japanese government is concerned that the imposition of economic sanctions on Myanmar would isolate the country and cause negative counter effects[3]. After World War II, Japan—then a developing country—secured a loan from the World Bank. In 1990, it managed to repay the entire loan amount[4]. This incident is a relatively recent one; therefore, the Japanese government is able to empathize with the condition of a country that is provided with such loans and is willing to cooperate in finding an approach that is beneficial for both the donor and recipient countries. For achieving this purpose, the author maintains that supporting and monitoring leadership in projects undertaken in developing countries is important. In order to simplify and elucidate this point, the author introduces "The Bach Mai Hospital Project" as a case study later in this paper; this project is considered as an example of a successful ODA project in recent years[5]. The subsequent section describes some characteristics of the relationship between aid and the regional characteristics, economic growth, and the nutrition level of the world and the Vietnam economy. Section 3 provides a brief history of the projects related to Bach Mai Hospital (BMH) and also describes the importance and effectiveness of leadership in a project team, by

[1] At the Monterrey Conference held over March 18–22, 2002 at Monterrey, Mexico, the issues of trade, aid, debt, and the coherence of global and regional financial structures were discussed, with respect to the achievement of the MDGs. The World Bank also recognized the importance of the efficiency of ODA and poverty reduction. Since the conference, the amount of ODA has surged under the new ODA strategy of "Institution, Ownership, and Participation."

[2] See also Nisigaki, Shimomura and Tuzi [2003] for more details.

[3] However, there is also another opinion that the Japanese government imposes some degree of economic punishment on Myanmar by maintaining a low rate of ODA to it.

[4] This aid is known as the GARIOA (Government Appropriation for Relief in Occupied Area Fund) and EROA (Economic Rehabilitation in Occupied Areas) funds. For six years from 1946 through 1951, Japan received this fund to initiate the reconstruction of its devastated economy after World War II.

[5] As the author will mention in section 3, this project is actually titled "The Bach Mai Hospital Project for Functional Enhancement." Note that there have been other projects undertaken by Bach Mai Hospital in the past and even at present, as we will see in Table 1 later.

means of theoretical and statistical tools. This is expected to motivate all the members to participate in these projects and facilitate good performances by them. The final section summarizes the conclusion and also mentions what remains to be studied in the future.

Figure 1: Worldwide ODA trend: 1984–2000

2. The relationship between economic growth, nourishment, and aid dependency

In 2003, over 70 billion dollars was transferred from developed to developing countries, with bilateral aid accounting for 53.6 billion USD, and multi-lateral aid for 20.6 billion USD. According to the report of the DAC on the OECD, the amount of ODA appears to increase over a decade, as we can see in the figure below. However, the amount of ODA measured in terms of the ratio of GNI is far from the 0.7% targeted by the United Nations for its Millennium Developing Goals (MDGs). Therefore, in order to utilize the limited ODA funds at the maximum efficiency level, a certain strategy should be built for delivering ODA to developing countries in an effective manner. The MDGs, which were declared in September 2000, outline the following eight main goals to be achieved by 2015: (1) eradication of extreme poverty and hunger; (2) achievement of universal primary education; (3) promotion of gender equality and empowerment of women; (4) reduction of child mortality; (5) improvement of maternal health; (6) combating HIV/AIDS, malaria, and other diseases; (7) ensuring environmental sustainability; (8) development of a global partnership for development.

Figure 2: The time series trend of ODA and the estimated ODA disbursements until 2010

2 – 1: World Developing countries' economic growth, nourishment, and aid dependency in 2003

There is no clear statement regarding economic growth in the MDGs. However, as we were already aware, if developing countries find it difficult to maintain good health and nutrition levels, they will be unable to develop human resources for industrialization. Moreover, in this era of globalization, developing countries are required not only to manage local enterprises and transfer modern technology into enterprises in their own domestic market but also to counter the severe

competition in the global market. This does not intend for developing countries to depend heavily on aid in the achievement of these aims. Further, cross data of developing countries reveals a negative relation between economic growth and aid dependency, as we see in the next figure. The author uses developing countries' data of the World Bank's World development Indicators in 2003[6]. The economic growth of two areas, namely, "East Asia and the Pacific" and "South Asia," is relatively higher than that of the other areas. However, in the case of nutrition levels, the living standard of the East Asia and Pacific region appear to be better than that of South Asia. It is interesting to categorize each area by its own regional characteristics such that they provide certain clues to build an aid strategy.

Figure 3: Negative relation between GDP growth and ODA dependency

In the above figure, we can find useful fundamental facts pertaining to each area. First, the point denoting that economic growth of the area of EU and Central Asia is an outlier[7]. This is because the Commonwealth of Independent States (CIS) and the East European countries in this area have been facing economic hardships since their independence from the former Union of Soviet Socialist Republics (USSR). The line in the figure depicts the linear regression, estimated for five areas except that of EU and Central Asia. Next, we can observe a relation between undernutrition and aid dependency in the same way.

Figure 4: Positive relation between poor nutrition levels and ODA dependency

From the above figure, we can find that the nutrition levels of three areas—"EU and Central Asia," "East Asia and the Pacific," and "Middle east and North Africa"—is better than that of others. One the other hand, South Asia is relatively worse in this respect as compared with the other areas. We also found that sub-Saharan Africa scores extremely low at both economic growth and nutrition levels. By measuring the distance from the average level of economic growth and nutrition, which is drawn as a linear regression in figures 3 and 4, at the same level of aid dependency in the figure, we also found that the areas of EU and Central Asia and South Asia were plotted at a considerable distance from the average figure for the world. It is known that the United Nations has been arguing for the absolute increase of donation to sub-Saharan Africa. The author agrees with the idea; however, from the viewpoint of aid dependency, a serious issue is that of the devastated economies of CIS and East Europe. With regard to South Asia, we have to consider other aspects in addition to economic growth. "Why is South Asia unable to achieve better nutrition levels with its high

[6] See regional classification in Appendix for details.
[7] Note, here, the author follows the classification of the World Bank's World development Indicators, and the area of EU comprises mainly the East Europe. Also see Appendix.

economic growth?" It is crucial that ODA donors and the governments of South Asian countries cooperate and take advantage of their good economic performance to achieve better nutrition levels and higher living standard. Later in this paper, the author shows that ODA projects would be executed effectively under good leadership.

Before proceeding to the next section, based on figures 3 and 4, the author summarizes and illustrates another figure describing the relation between economic growth and nutrition levels. The next figure provides some interesting perspectives for achieving the efficient use of the limited ODA funds: (1) Increasing the absolute amount of aid to sub-Saharan Africa is the highest priority in coming decades. (2) Supporting EU and Central Asia in their endeavor to recover their political stability and economic growth should be given high priority. (3) Studying how to allocate aid efficiently and equalize the nutrition level across the population is a must. (4) Latin America and the Caribbean might have some structural problem causing vicious circle between poor nourishment and low economic growth.

Figure 5: Positive relation between poor nutrition levels and economic growth

Note that the above four-area classification shows that each area has its own characteristics. Thus, it is clear that we have to first recognize the diversity of the regional characteristics and then consider them in developing the most effective and useful method of allocating aid. Based on the facts provided here and some additional details, the author will review the relation between economic growth, nourishment, and aid dependency by using the available data on 83 developing countries.

2 – 2: Vietnamese economic growth, nourishment, and aid dependency in 2003

In this section, the author presents a figure showing additional detail on the relation between economic growth and aid dependency based on the available data on 83 developing countries. According to the World Bank's World development Indicators in 2003, the area of East Asia and the Pacific comprises 10 developing countries. As seen in the next figure, each country in East Asia and the Pacific—including Vietnam—has a relatively better economic growth and nutrition level than the other countries.

Figure 6: Negative relation between GDP growth and nutrition levels

Since Vietnam is located above the regression line drawn in the figure, we know that Vietnamese

economic growth is relatively higher than the average. Now, the author maintains that it is time for Vietnam to pay greater attention to improving the nutrition level so as to achieve a higher quality of living standard for people and better welfare. It is also interesting to see how the relation between economic growth and the nutrition level would change with an increase in aid dependency. For this purpose, the author fixed aid dependency against the odds ratio of economic growth to nutrition levels and plotted it on the horizontal line in the figure below.

Figure 7: Ratio of economic growth to nutrition levels with aid dependency

Note that the odds ratio is expressed as $\frac{\pi(x+1)/1-\pi(x+1)}{\pi(x)/1-\pi(x)}$. π (x) is defined as a function of aid dependency x.

If country *i* is located beyond the regression line in figure 6, then $\pi = 1$.

Otherwise, $\pi = 0$

From the figure, we can easily imagine, that the value of logit $\ln\left[\frac{\pi(x)}{1-\pi(x)}\right]$ is negative because it decreases toward the right. Interestingly, the figure shows that the heavier the aid dependency, the lower the economic growth and the poorer the nutrition level. First, the result of this estimation of the logit model shows that as aid dependency increases, the odds ratio changes to –0.048%[8]. In addition, we can compare the estimated $\pi/1-\pi$ with the corresponding observed data. In 2003, Vietnamese aid dependency was 4.4, and the estimated ratio of $\pi/1-\pi$ is 0.0517. The observation of the odds ratio is 0.0857 as large as more than 1.6 times, as shown in figure 7. This fact implies that the Vietnamese economy grew too fast in the 1990s, and on the other hand, it did not appear much concerned about improving its poor nutrition level. China, Thailand, and Papua New Guinea also have a relatively large gap between the estimated value and observation of the odds ratio, at 3.9, 1.9, and 2.11 times, respectively. On the other hand, the odds ratios of other countries in East Asia are well fitted with the observations. There exists a gap between the estimated value and observation of the odds ratio, for instance, in the case of Philippines, it is 1.08; Indonesia, 0.86; Cambodia, 1.05; Laos, 1.03; and Mongolia, 0.63. It is noteworthy that the author mentions this with respect to the aid dependency of Vietnam and does not state that Vietnam did not undertake any health care projects in 2003. In the next section, the author introduces a famous health improvement ODA project undertaken at Bach Mai Hospital and provides a theoretical framework to show that "Good leadership brings about good results of projects at the minimum cost."

[8] The coefficient of the logit model of simple regression is –0.048, the p-value is 0.0017, and R^2 is 0.429. Additional details on this result are available from the author.

The Vietnamese government undertook a strong political and economic reform known as "Doi moi" in order to transform the Vietnamese economy into a market-oriented economy. Due to this, Vietnam has been enjoying a good macroeconomic performance for nearly two decades since 1986. However, some of the abovementioned facts convey a need to rethink the ODA strategy of Vietnam in coming years. This is particularly important in order to prevent the gap between the relatively high economic growth and the poor nutrition levels from the level of aid dependency, particularly since the amount of aid is expected to increase in coming years. This might also influence the Vietnamese national strategy for higher living standard and the achievement of the MDGs by 2015. The author also insists that from the viewpoint of the evaluation of ODA projects, there is an urgent need for an answer to the following question: "Under what conditions do ODA projects perform well?" In this regard, in the next section, the author only examines the economic role of leadership in addition to conducting statistical tests in the case study of BMH in Hanoi, Vietnam.

3. Case study: The Bach Mai Hospital Project for Functional Enhancement

This section outlines the history of the BMH project along with a background of related projects undertaken in Vietnam. As shown in Table 1, some top referral hospital programs were conducted prior to the initiation of the project under consideration. These include the Project for the Rehabilitation and Upgrading of the Cho Ray Hospital (1992–1994), the Project for Improvement of Medical Equipment at the Hai Ba Trung Hospital (1993–1994), the Project for Improvement of Medical Equipment in Hanoi City (1993–1994), and the Project for Improvement of the Bach Mai Hospital (1997–2000). Therefore, prior to the BMH project (2000–2005) that was undertaken to combat severe acute respiratory syndrome (SARS), basic knowledge and medical skills regarding health care had already been established in Vietnam. In this project (2000–2005), expert guidance on nosocomial infection control was imparted from the viewpoint that the prevention of nosocomial infection is vital for improving the quality of medical service. The outbreak of SARS, a disease previously unknown to human beings, in Vietnam in late February 2003 was accompanied by numerous cases of nosocomial infections in local hospitals. However, all infected patients were transferred to BMH; the hospital isolated these patients and undertook intensive measures against nosocomial infections. As a result, further nosocomial infections and secondary spreads were successfully prevented. This led to the end of the SARS outbreak, and Vietnam became the first country to be declared a SARS-free nation by the WHO[9].

[9] For additional details, see Ohara and Tateno [2005].

Table 1
History of the projects undertaken at Bach Mai Hospital and Vietnam as a whole

In economics, this type of knowledge and technology utilization for preventing a secondary spread of SARS is referred to as an externality. Before the first BMH project in September 1997, the hospital lacked medicines and medical tools; moreover, it required extensive repairs. BMH, which was established in 1911, contributed medical services in the northern region of Vietnam[10]. Back then, it was one of the largest general hospitals across 31 northern provinces in Vietnam. It had 1,390 beds and served approximately 25 million people—34% of the total Vietnamese population. However, in the 1980s, BMH faced serious problems such as obsolete facilities, deteriorating levels of medical services, and lack of medicines. In October 1996, the Vietnamese government set up a master plan that aimed to provide high-quality medical services. As shown in Table 1, from September 1997 to January 2000, a project was undertaken by the Japanese government's Grand Aid Cooperation.

3 – 1: Re-evaluating the BMH project with respect to the role of leadership

This section provides a basic introduction to the methodology for analyzing the successful execution of the BMH project. The importance of leadership and the active involvement of all the members in ODA projects need to be reiterated. In additional, whether or not the successful execution of a project depends on good leadership can be explained in detail from the viewpoint of economics. In this case, it is assumed that the project leader is more experienced than the senior staff and the least-experienced junior staff. Further, it is assumed that the experience values for a leader, senior, and junior are 3, 2, and 1, respectively. Thus, the education cost can be expressed by a linear function as a certain fixed cost c_0 minus the experience value. Here, the project team comprises a project leader, two senior staff, and three junior staff. In order to execute the projects successfully, achieving a consensus among team members is important. Further, the consensus and cooperation costs increase with the number of participating members. Under these conditions, when a leader exhibits good leadership and initiates participation in the project, the motivation of the other members—the two seniors and three juniors—and the effectiveness of the project is positively influenced. The figure shown below illustrates a generalized situation; specific cases will be illustrated later.

Figure 8: Member participation and arrangement cost

In the above figure, the education cost is calculated as the fixed cost c_0 minus the experience value.

[10] For additional details, see Ohara and Ikari [2002]

For example, the education cost for a leader with an experience value of 3 is calculated as follows.

Leader's education cost = c_0 – value of experience

= 10 – 3 = 7

Note that in this case, c_0 is assumed to be 10. It is also assumed that the consensus cost is equal to the number of members participating in the project. In the above standard case, if the leader exhibits good leadership and the senior and junior members support the leader, the total cost will reach a minimum level, as indicated by the dashed line in the next figure; this will imply that the project is being executed efficiently. In this case, the minimum total cost is 6 and achieved in the early stage of the project. It should be noted that in addition to leadership, the cooperation and incentives of senior members are also important. This point will be illustrated later. In addition, note that the education cost of juniors is standardized to one, which is equal to the marginal cost of the consensus—the additional cost incurred with the participation of a new member in the project. Therefore, once the total cost reaches the minimum level, it remains constant.

Figure 9: Example of member participation and arrangement cost

At this point, two inefficient cases have been presented. In the first case, the leader is not interested in the project and exhibits poor leadership despite the fact that he or she is the most experienced in the team. In this case, the minimum total cost is 8.

Figure 10: Case I
Leader exhibits poor leadership

In the second case, the leader exhibits good leadership but the seniors in the team show lesser interest in the project despite the fact that they are more experienced than the juniors. In this case, the minimum total cost is 7.

Figure 11: Case II
Leader exhibits good leadership but seniors show less interest due to lack of incentives

In all the three cases described above, if each member begins his or her job, he or she will work efficiently. However, delays in the beginning and late participation of a leader or seniors in a project have a severe effect on the total project cost, thereby lowering the assessment of the entire team. In any ODA program conducted in developing countries, it is preferable that the donors prepare a project team supervised by a good leader and supported by a cooperative system comprising senior

specialists who can motivate and educate junior members. For ODA donors, assessing the ability of the leader and team cooperation should be the key aspects for determining whether funds would be provided and for evaluating the project performance. In Vietnam, people are culturally and historically inclined toward respecting seniors and specialists in society, particularly in an academic or university setting. In my opinion, a hospital resembles a university in certain aspects in that a hospital has well-organized leaders in doctors and seniors who possess specialized knowledge and expertise. Moreover, these seniors are capable of educating juniors in a manner that they gain social respect. In my opinion, one of the reasons for the successful control of SARS by BMH in 2003 is the healthy relationship shared among all the hospital members as well as the Japanese supporter of ODA to educate BMH appropriately through projects.

3 – 2: Empirical proof and statistical test of the role of leadership

It is difficult to empirically verify that good leadership improves the allocation of aid at minimum cost, because we would need more time to conduct a field research, sample more observations, and collect new resources for this purpose. However, it is possible to statistically test the relation between good leadership and the high performance of aid. The next figure taken from the report on the BMH project by Japan International Cooperation Agency (JICA) in 2004 shows that the number of trainees at BMH increased over a span of 3 years from 2001 to 2003 by more than 2.5 times, to a cumulated total of 1,517 people. At the same time, the marginal cost of one trainee per day decreased from 4.01 to 2.93 dollars by 26.9%. This fact tells us that the efficiency of training might have increased with learning by doing through the experience at BMH. To analyze this in more detail, the author uses survey data from the same investigation report on this project.

Figure 12: Training cost incurred by BMH from 2001 to 2003

In practice, it is difficult to imagine or believe that every ODA project in history has been executed with perfect efficiency. In other words, there is always some scope for improvement in the current project in the future[11]. According to the evaluation report of JICA, there were reported to be unnecessary purchases of medical equipment that were seldom believed to be used efficiently[12]. This statement was made by a Japanese evaluating team on the BMH project. More interestingly, the

[11] This "fault" or "failure" encourages renewed efforts to improve the quality and efficiency of ODA projects. It is very important to continue our efforts to achieve higher quality of ODA in next stage.

[12] The cost of providing medical machinery is almost 2.7 million dollars, which covers nearly a quarter of the total aid cooperation money—11 million dollars—from January 10th, 2001 to January 9th, 2005. For more details, see JICA [2004].

report by Japanese experts of ODA evaluation is consistent with the responses in a questionnaire interview of counterparts including Vietnamese doctors, nurses, and staff of BMH on July 16th, 2004. In the questionnaire, they were asked about the result of the achievement output of the five-year ODA project. The answers are presented in the figure below.

Figure 13: Result of questionnaire on the achievement of the BMH project: from 2001 to 2005

The questionnaire was returned by 32 counterparts from the BMH workers including doctors, nurses, and staff; the author considers five occupations [13]. An interesting point is that two sectors—"Equipment management" and "Training collaboration/nursing school"—have a relatively high "unachieved ratio" of 13% and 3% respectively. Based on the logic that a good leadership motivates positive participation among all the members in the program, a training course is expected facilitate the success of the project. From the other investigation of the project reported by JICA, we found that among 72 counterparts of BMH, only 3 managers of nursing schools were trained in the required knowledge and skill in Japan. Note that the report had no records of staff training from nursing schools in. On the other hand, as the next table shows, the average ratio of staff to managers in the entire program was 0.87, 0.82, and 0.73 for the years 2001, 2002, and 2003, respectively[14].

Table 2
Contingency table of trained managers and staff in Japan: 2001 to 2003

The size of the management trained in the course was more than that of staff in general, and this figure gradually decreased over the three years. This also implies that the educational cost per additive staff decreased as the knowledge of managers was transferred to other counterparts and junior staff through face-to-face learning in the training course. However, in order to verify and analyze this, we should not draw conclusions only from the descriptive statistics presented in the figure. Statistical tests have to be conducted. In this case, test of "goodness fit" is available; according to the author's calculation, the χ^2 statistic is 2.752 and the degree of freedom is 2. The result of this test states that there is no correlation between the rows and columns in table 2[15]. In other words, there is no statistical difference in the ratio of staff to managers for three years from

[13] The questionnaire was distributed to 40 people, and 32 response sheets were returned; thus, the collection rate is 80%.
[14] The Bach Mai Hospital Project for Functional Enhancement was conducted from January 2001 to January 2005. Therefore, the data for 2004 is also available. However, the questionnaire on achievement, the results of which are presented in figure 13, was conducted on July 16th, 2004. Therefore, the author does not mention the number of trainees in 2004 since this has no relation with the result of the questionnaire.
[15] The critical values of 1% and 5% with degree of freedom 2 are 9.21 and 5.99, respectively.

2001 to 2003, although each ratio is separately given as 0.87, 0.82, and 0.73. According to the author, this "spurious correlation" occurred partly because the data is not categorized into occupations. Therefore, in table 2, the author sorted the data on the total of 2,233 month of all participants in the training program, and extracted only three occupations, doctors, nurses, and equipment as shown in the next table.

Table 3

Contingency table of trained manager and staff according to occupation: doctors, nurses, and equipment

The above table is a three-dimensional contingency table. Therefore, in the first case, a test is more complicated than in the previous case[16]. The author makes three hypothesizes, tests them, and reports the result as follows.

Test 1:

Null hypothesis H_0: Class (managers, staff) is independent from Occupation (doctors, nurses, and staff) and Year (2001, 2002, and 2003)

Result: The above null hypothesis is rejected with χ^2 statistic 153.4 and degree of freedom is 6.
The critical values of 1% and 5% are 16.8 and 12.5, respectively.

Test 2:

Null hypothesis H_0: Occupation (doctors, nurses, and staff) is independent from Class (managers, staff) and Year (2001, 2002, and 2003)

Result: The above null hypothesis is rejected with χ^2 statistic 151.1 and degree of freedom is 8.
The critical values of 1% and 5% are 20.0 and 15.5, respectively.

Test 3:

Null hypothesis H_0: Year (2001, 2002, and 2003) is independent from Class (managers, staff) and Occupation (doctors, nurses, and staff)

Result: The above null hypothesis is ***NOT*** rejected with χ^2 statistic 8.18 and degree of freedom 8.
The critical values of 1% and 5% are 20.0 and 15.5, respectively.

The results of the above three tests imply that we could find statistical difference among occupations,

[16] For more details, see Bishop *et al.* [1975]

but not for the years in which ODA was allocated from 2001 to 2003. Note that this result is consistent with the facts that we have already observed will all occupations in table 2. Therefore, now three-year data is piled up to make no difference and the table 3 is now merged into as below.

Table 4
Contingency table of trained managers and staff in Japan according to occupation: during 2001–2003

It is clear and interesting to recognize that the role leadership is different in terms of occupations but not in terms of the years consumed by training. The author insists that the ratio of staff to managers should have been changed in order to improve the efficiency of training by monitoring the project year after year. From this perspective, another finding is also noteworthy: the size of the staff in terms of equipment shown in table 3 is as much as six times as that of the management. Moreover, this situation remained unchanged for three years as we can see in table 3. In turn, both the ratio of staff to managers in the case of doctors as well as nurses kept on changing. Author believes that the ratio of staff to managers will be one of political tools to check the extent to the improvement of the project performance and, if necessary, be arranged such that the leader can perform his or her role efficiently in ODA projects.

4. Conclusion

In this paper, the author first overviews certain tendencies of ODA and argues it is time that governments revisit strategies to allocate the appropriate amount of aid into developing countries in the era of multipurpose, particularly in the light of the eight objectives outlined in the MDGs that are to be achieved by 2015. For this purpose, the author provides useful analytical methods to categorize the world-wide study area by three characteristics: economic growth, nutrition level, and aid dependency. Also, it is possible to apply this method of analysis even to a certain groups of countries or areas. In particular, the author hopes that this approach might be helpful to solve the problem of the efficient allocation of the limited amount of ODA funds.

Using world data, the author showed that an increasing aid dependency is related to the poor economic growth as well as poor nutrition levels of people in developing countries. It is also time for Vietnam, which enjoys relatively high economic growth, to begin considering a new strategy for a more balanced development between economic growth and the nutrition level. In the previous section, the author attempted to explain and illustrate the positive relationship between leadership and project performance at the minimum cost. This approach appears to be successful in

analyzing the BMH project in Vietnam. However, this well-known project also suggests that there remains some scope for improving efficiency and for drawing lessons for the next project in the future. Further, the author confesses that an additional detailed investigation is necessary to obtain a more concrete conclusion and emphasizes that all data investigated in the past should be made accessible to researchers for data analysis. Despite these shortages of data as well as author's knowledge on all projects of ODA, the author believes that good leadership in a project helps build a cooperative atmosphere, one of the important and essential factors in achieving effective results in an ODA project. In addition, in an evaluation of ODA, investigating the leadership is possible and useful to check whether the project is proceeding efficiently or not. The author also hopes that this information that is based on simple logic can be helpful to both recipient and donor countries to collaborate, exchange opinions, and determine ways to improve ODA efficiency.

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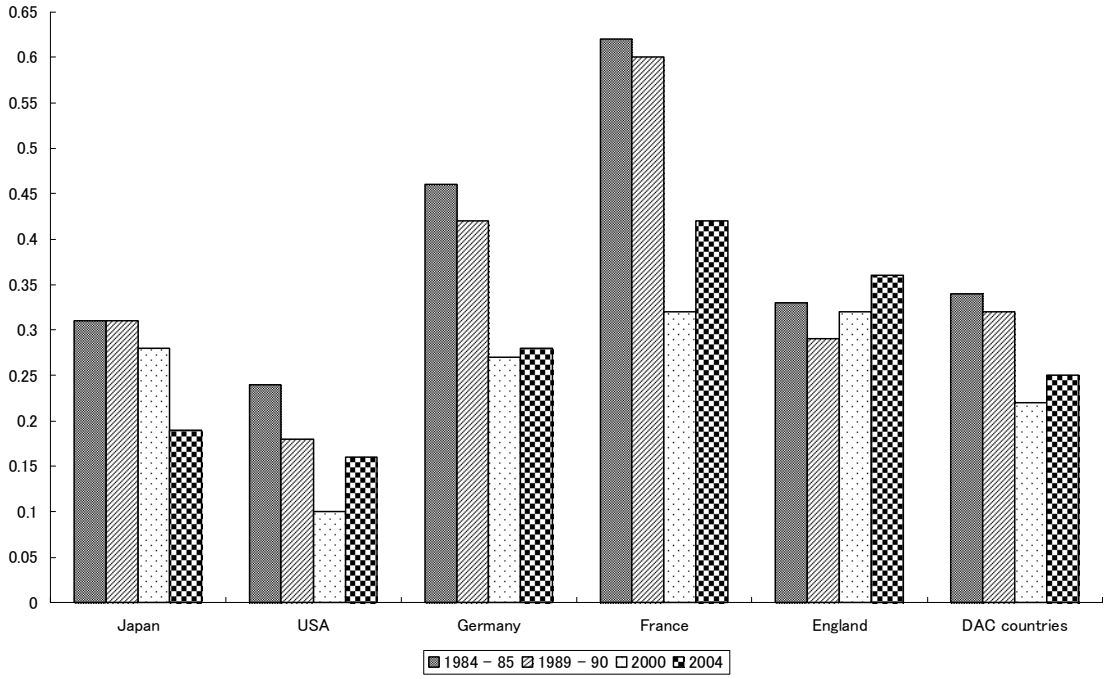
[11] World Bank, 2003, *World development indicators*.

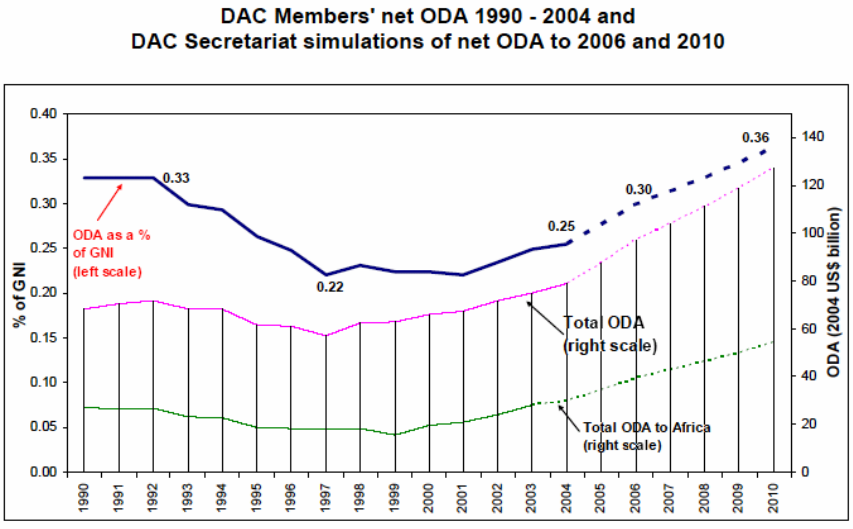
Figure 1: Worldwide ODA trend: 1984–2000



Source: Nisigaki, Shimomura and Tuzi [2003]; Tables 4–3; p. 120.

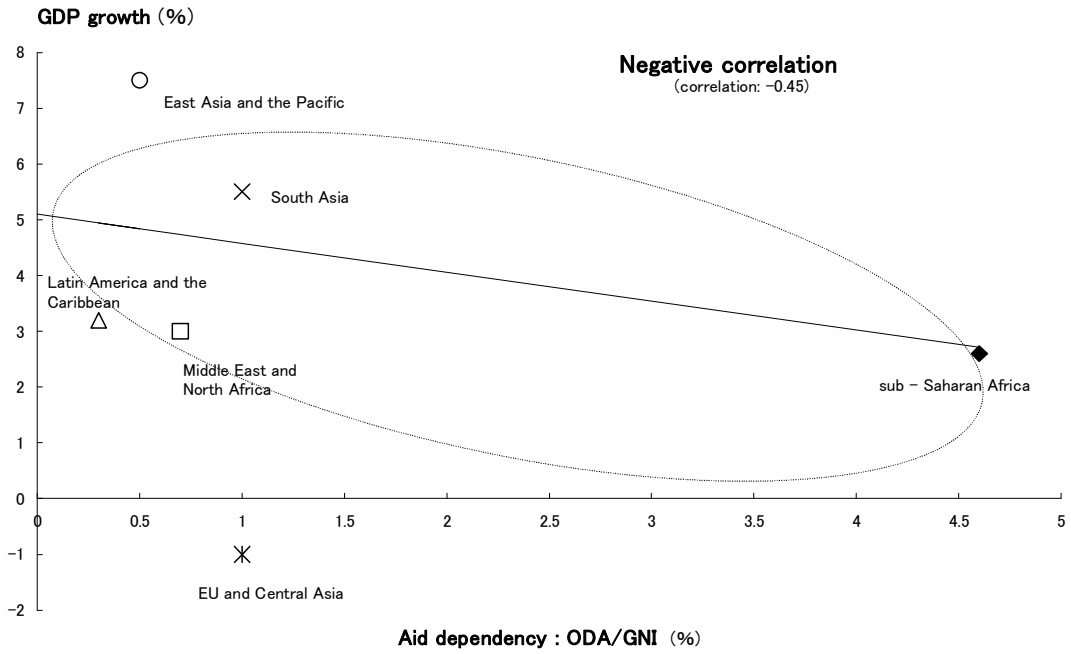
Original source: OECD, Development Cooperation, 2000. The average ratios for 1984–1985 and 1989–1990 have been used.

Figure 2: The time series trend of ODA and the estimated ODA disbursements until 2010



Source: OECD homepage http://www.oecd.org

Figure 3: Negative relation between GDP growth and ODA dependency

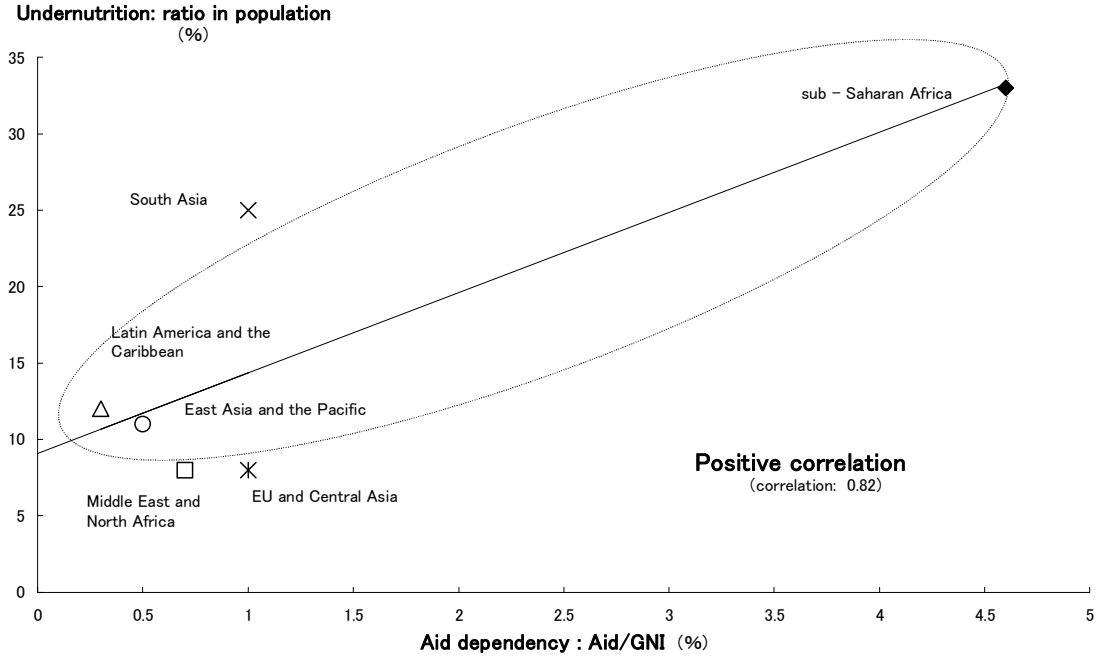


Source: World development indicators, World Bank, 2003.

Note: GDP growth is measured in terms of the change in GDP at constant prices. The average annual growth from 1990 to 2001 is used here. Aid includes official development assistance (ODA) and official aids, which is composed of grants and loans (net for repayments) that meet the criteria for ODA and are given to countries and territories in part II of the DAC list of aid recipients.

Linear regression: $y = 5.12 - 0.043X$, $R^2 = 0.221$

Figure 4: Positive relation between poor nutrition levels and ODA dependency



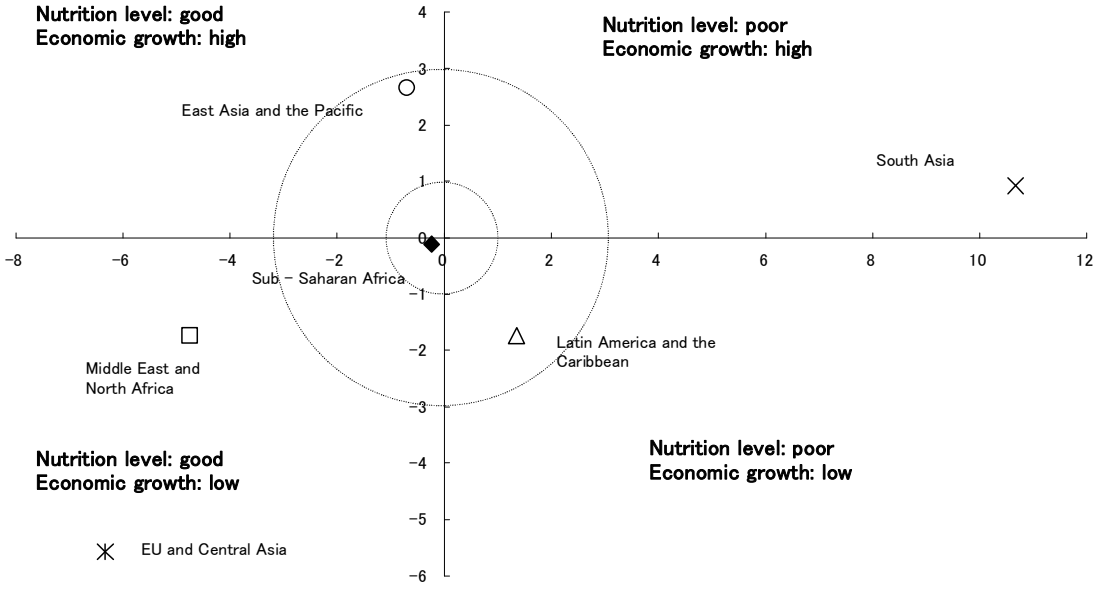
Source: World development indicators, World Bank, 2003.

Note: In the original source, data on undernutrition are produced by the Food and Agriculture Organization (FAO) based on the calories available from local food production, trade, and stocks; the number of calories required by different age and gender groups; the proportion of the population represented by each age group; and a coefficient of distribution to account for unequal access to food (FAO 2000).

Aid includes official development assistance (ODA) and official aids (see the note in figure 3).

Linear regression: $y = 9.07 + 5.25X$, $R^2 = 0.668$

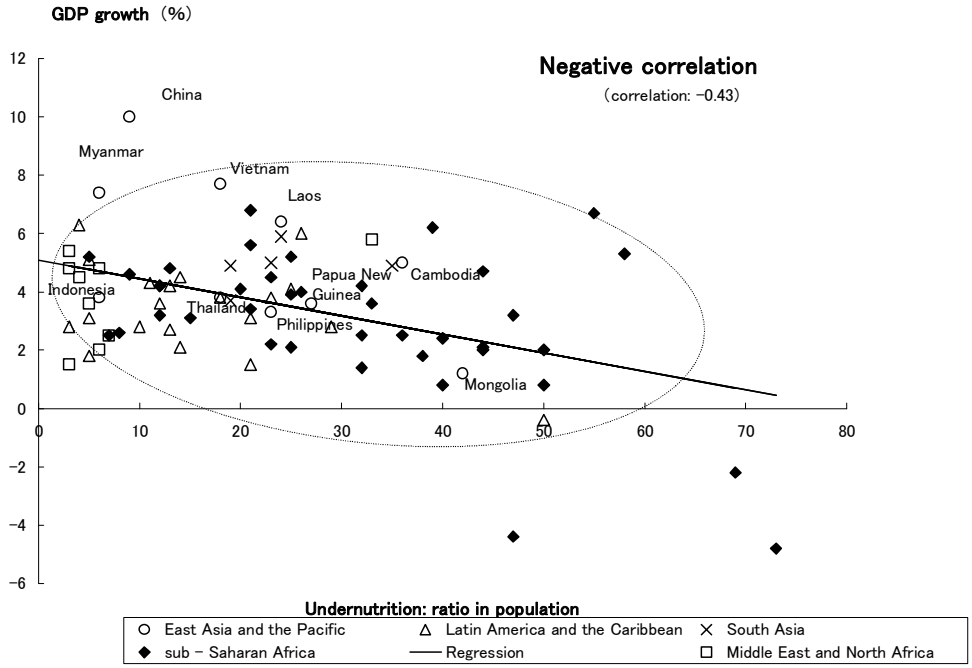
Figure 5: Positive relation between poor nutrition levels and economic growth



Source: World development indicators, World Bank, 2003.

Note: The data on each area is plotted from the residual of linear regression in figures 3 and 4. For instance, South Asia (10.92, 0.62), as we can easily observe, is plotted within the distance between the observation and estimated values of the linear regression in figures 3 and 4, respectively.

Figure 6: Negative relation between GDP growth and nutrition levels

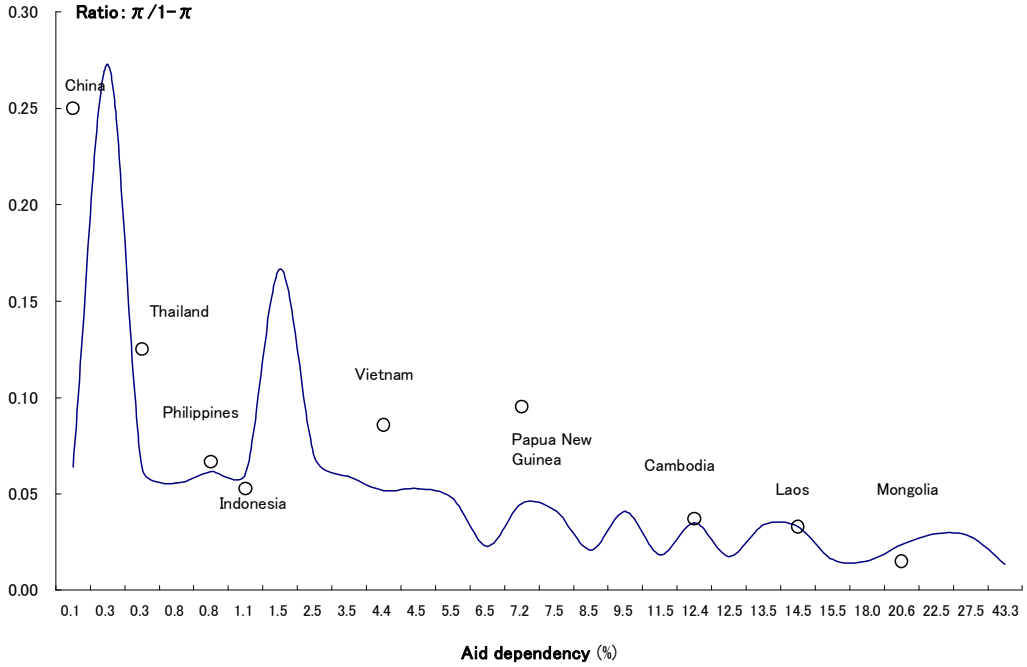


Source: World development indicators, World Bank, 2003.

Note: The scale of the area is same as that of figures 3, 4, and 5. The regression line is drawn based on the data on 83 countries excluding EU and Central Asia since the growth data of this area is an outlier point, as we mentioned earlier.

Linear regression: $y = 5.083 - 0.063X$, $R^2 = 0.203$

Figure 7: Ratio of economic growth to nutrition levels with aid dependency



Data Source: World development indicators, World Bank, 2003.

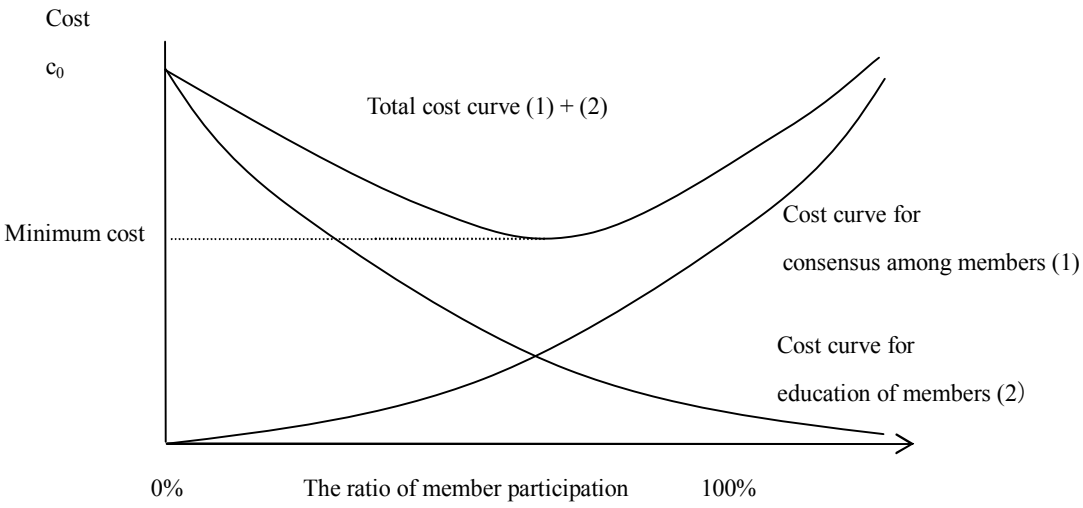
Logit model regression: $Y = -2.74 - 0.048X$, $R^2 = 0.42$

(-13.50) (-3.67)

Note that Y represents logit = $\log(\pi/1-\pi)$, and X aid dependency.

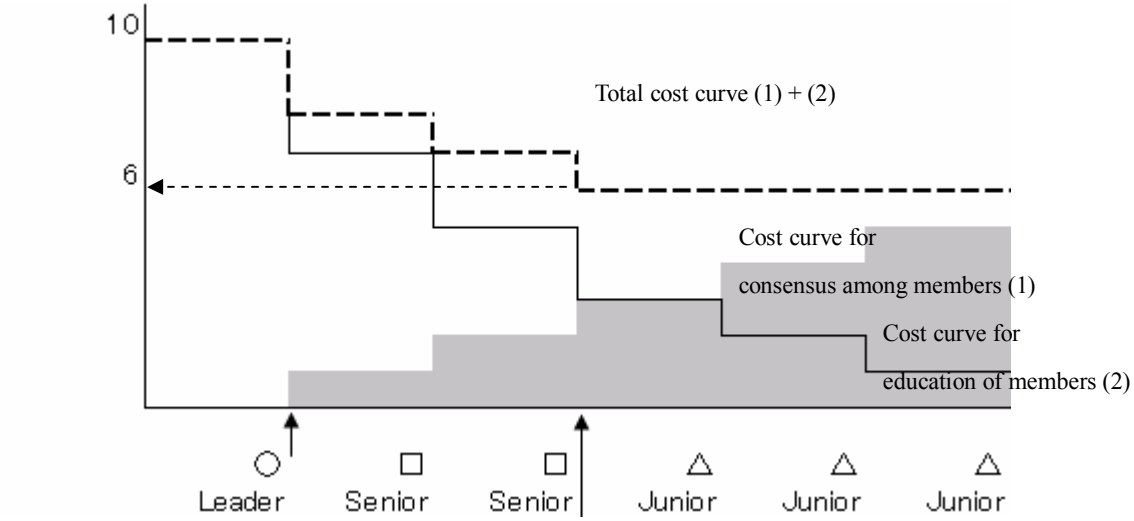
The value within parenthesis is the t-value, and the coefficients are significant at 5%.

Figure 8: Member participation and arrangement cost



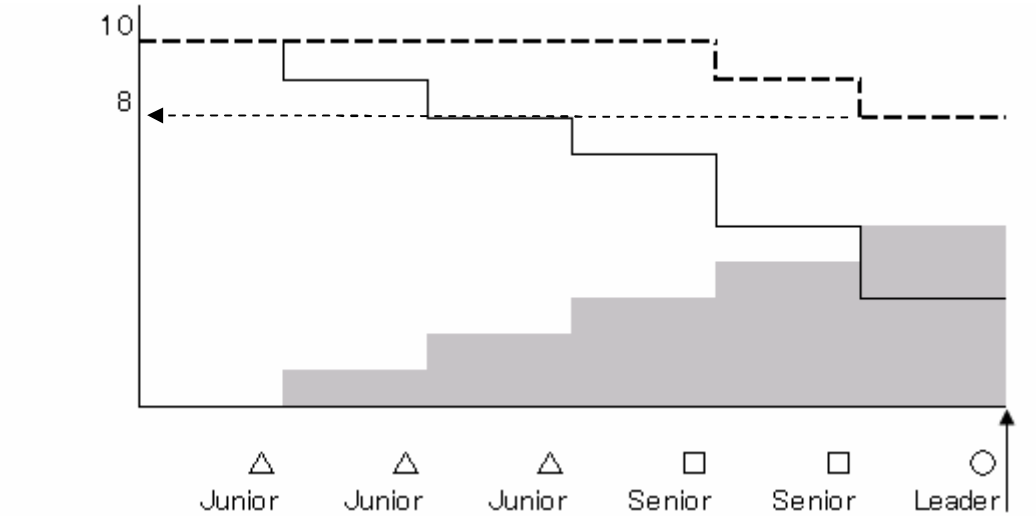
Original source: Imaoka [1998], Figure 2 in p. 209.

Figure 9: Example of member participation and arrangement cost



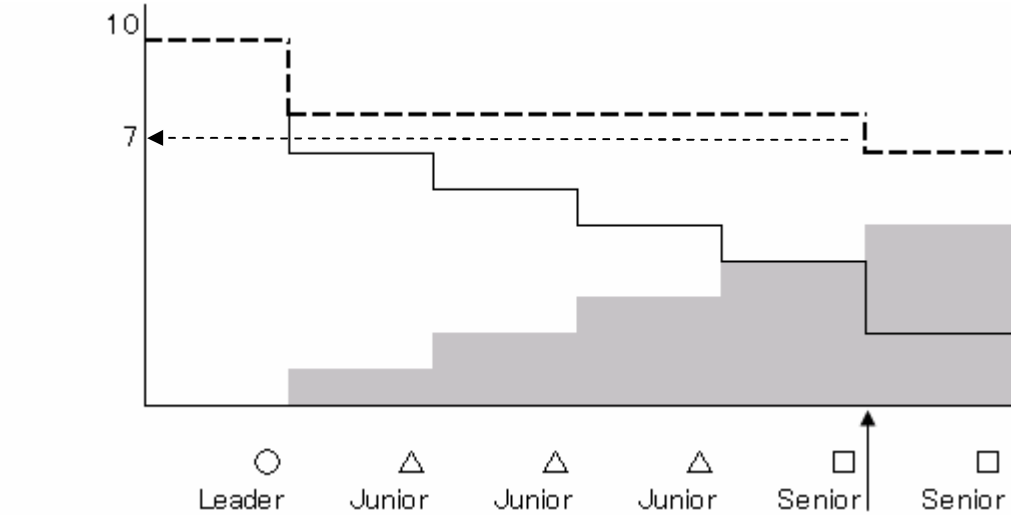
Source: This figure is adapted by the author from Imaoka [1998]. See also figure 8.

Figure 10: Case I
Leader exhibits poor leadership



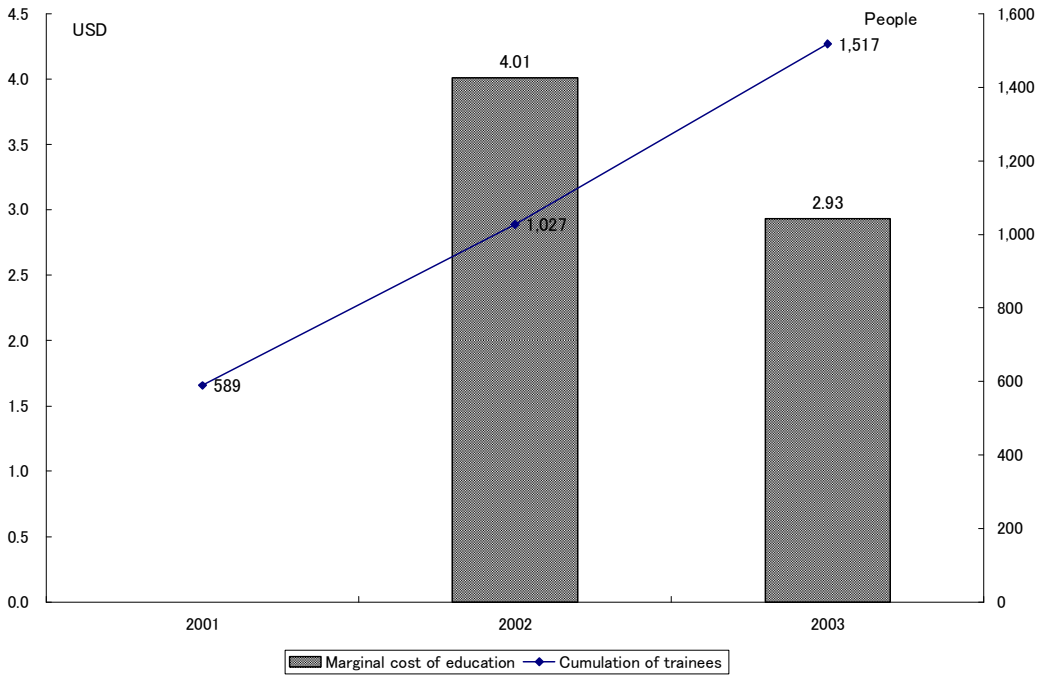
Source: The figure is adapted by the author from Imaoka [1998]. See also figure 8.

Figure 11: Case II
Leader exhibits good leadership but seniors show less interest due to lack of incentives



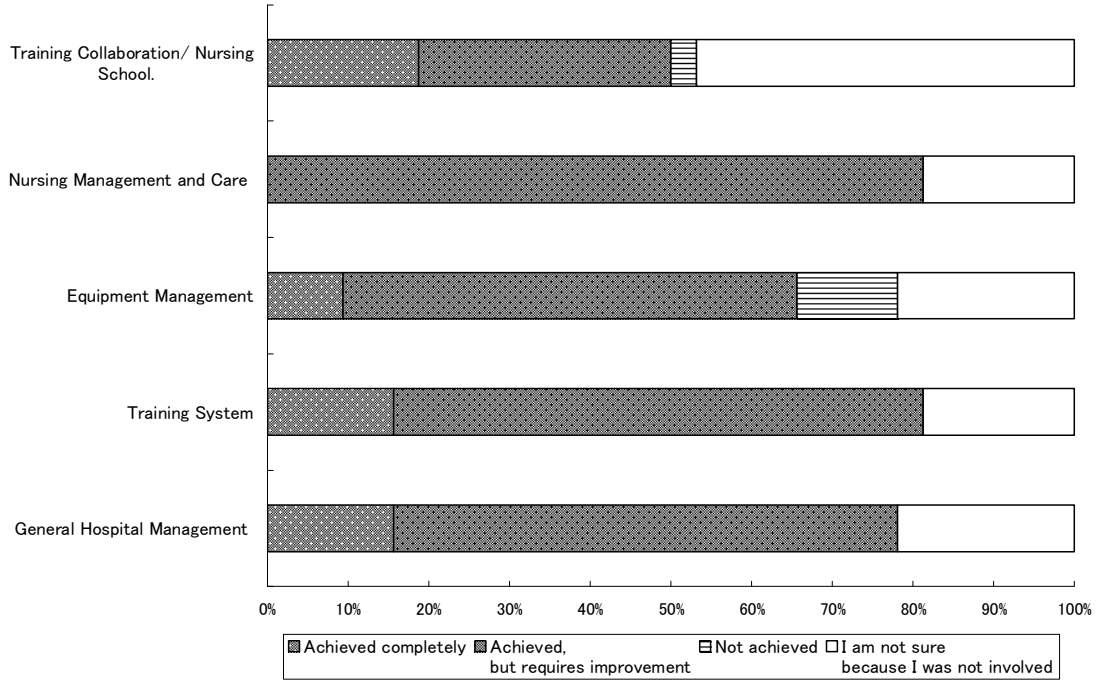
Source: This figure is adapted by the author from Imaoka [1998]. See also figure 8.

Figure 12: Training cost incurred by BMH from 2001 to 2003



Source: This figure is adapted by the author from the Evaluation report of the BMH project by JICA [2004].

Figure 13: Result of questionnaire on the achievement of the BMH project: from 2001 to 2005



Source: This figure is adapted by the author from the Evaluation report of the BMH project by JICA [2004].

Table 1: History of projects undertaken in Bach Mai Hospital and Vietnam as a whole

ODA* type	Top Referral Hospitals	
GA	The Project for the Rehabilitation and Upgrading of Cho Ray Hospital	1992–1994
TCP	The Project on Cho Ray Hospital	1995–1999
GA	The Project for Improvement of Medical Equipment in Hai Ba Trung Hospital	1993–1994
GA	The Project for Improvement of Medical Equipment in Hanoi City	1993–1994
GA	The Project for Improvement of Bach Mai Hospital	1997–2000
TCP	The Bach Mai Hospital Project for Functional Enhancement	2000–2005

*GA denotes Grant Aid, and TCP denotes Technical Cooperation Project.

The Japanese ODA for BMH was provided at three stages: the first stage extended from 1997 to 2000; the second stage, 2000 to 2005; and the third stage, 2006 to 2009.

Source: Homepage of JICA: http://www.jica.go.jp/vietnam/others/data.html

Table 2:
Contingency table of trained managers and staff in Japan: 2001 to 2003

(Unit: person x month)

Year / Class	2001	2002	2003	
Managers	372	408	459	1,239
Staff	322	336	336	994
All	694	744	795	2,233
Staff/Managers	0.87	0.82	0.73	

Source: This table is calculated by the author based on data from the Evaluation report of the BMH project by JICA [2004].

Table 3:

Contingency table of trained managers and staff in Japan according to occupation: doctors, nurses, and equipments

(Unit: person x month)

Year / Occupation / Class	2001			2002			2003			
	Doctors	Nurses	Equipment	Doctors	Nurses	Equipment	Doctors	Nurses	Equipment	
Managers	72	48	12	90	52	12	122	60	12	480
Staff	60	48	72	60	48	72	60	55	72	547
	132	96	84	150	100	84	182	115	84	1,027

Source: This table is calculated by the author based on data from the Evaluation report of the BMH project by JICA [2004].

Table 4:

Contingency table of trained manager and staff in Japan according to occupation : 2001–2003

(Unit: person x month)

Year / Occupation / Class	2001-2003			
	Doctors	Nurses	Equipment	
Managers	284	160	36	480
Staff	180	151	216	547
All	464	311	252	
Staff/Managers	0.634	0.94	6.00	
	464	311	252	1,027

Source: This table is calculated by author based on data from the Evaluation report of the BMH project by JICA [2004].

Appendix

The country list of regional classification in the figure 3, 4, 5, 6.

East Asia and Pacific	Latin America and the Caribbian	South Asia
American Samoa	Antigua and Barbuda	Afghanistan
Combodia	Argentina	Bangladesh
China	Barbados	Bhutan
Fiji	Belize	India
Indonesia	Bolivia	Maldives
Kiribati	Brazil	Nepal
Korea, Democratic people's Republic	Chile	Pakistan
Lao	Colombia	Sri Lanka
Malaysia	Costa Rica	
Marshall Islands	Cuba	**Sub – Saharan Africa**
Micronesia	Dominica	
Mongolia	Dominican Republic	Angola
Myanmar	Ecuador	Benin
Northern Mariana Islands	El Salvador	Botswana
Palau	Grenada	Burkina Faso
Papua New Guinea	Guatemala	Burundi
Philippines	Guyana	Cameroon
Samoa	Haiti	Cape Verde
Solomon Islands	Honduras	Central African Republic
Thailand	Jamaica	Chad
Timor – Leste	Mexico	Comoros
Tonga	Nicaragua	Congo, Democratic Republic
Vanuatu	Panama	Congo, People's Republic
Vietnam	Paraguay	Cote d'Ivoire
	Peru	Equatorial Guinea
Europe and Central Asia	St.Kitts and Nevis	Eritrea
Albania	St. Lucia	Ethiopia
Armenia	St. Vincent and the Grenadines	Gabon
Azerbaijan	Suriname	Gambia
Belarus	Trinidad and Tobago	Ghana
Bosnia and Herzegovina	Uruguay	Guinea
Bulgaria	Venezuela	Guinea – Bissau
Croatia		Kenya
Czech Republic	**Middle East and North Africa**	Lesotho
Estonia		Liberia
Georgia	Algeria	Madagascar
Hungary	Djibouti	Malawi
Kazakhstan	Egypt	Mali
Kyrgyz Republic	Iran	Mauritania
Latvia	Iraq	Mauritius
Lithuania	Jordan	Mayotte
Macedonia	Lebanon	Mozambique
Moldova	Libya	Namibia
Poland	Morocco	Niger
Romania	Oman	Nigeria
Russian Federation	Saudi Arabia	Rwanda
Serbia and Montenegro	Syrian Arab Republic	Sao Tome and Principe
Slovak Republic	Tunisia	Senegal
Tajikistan	West Bank and Gaza	Seychelles
Turkey	Yemen	Sierra Leone
Turkmenistan		Somalia
Ukraine		South Africa
Uzbekistan		Sudan
		Swaziland
		Tanzania
		Togo
		Uganda
		Zambia
		Zimbabwe

Source: *World development Indicators 2003* by World Bank [2004].