UN approval of greenhouse gas emission reduction projects in developing countries: The political economy of the CDM Executive Board

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Abstract

The approval of methodologies and individual projects in the context of the Kyoto Protocol's Clean Development Mechanism (CDM) is often an issue of national interest. Decisions of the CDM Executive Board (EB) can thus be expected to be highly politicized. Based on data for about 250 methodologies and about 1000 projects discussed by the EB so far, this paper provides a first econometric analysis of this hypothesis. The results suggest that indeed, along with formal quality criteria, political-economic variables determine the final EB decision. This is most clearly the case for decisions on CDM projects which are far less transparent than those on CDM methodologies. In particular, EB membership of the country or countries concerned raises the chances of a project to be approved. Moreover, clearly, with rising numbers of methodologies and projects, EB decision making has become stricter over time.

Key words: International climate policy, CDM, political economy, rational choice, international organization

JEL Codes: Q25, O19

1. Introduction

The CDM Executive Board (EB) is an institution within the UN Framework Convention on Climate Change (UNFCCC) system defined by the Kyoto Protocol. Its 20 members and alternates are elected by the Conference of the Parties and meet in about monthly intervals to approve individual projects to be carried out in the framework of the Clean Development Mechanism (CDM). Moreover, they are responsible for the approval of methodologies used to assess current and future projects' additionality and to calculate as well as monitor their emission reductions.

As the CDM allows industrialized countries (listed in Annex B of the Kyoto Protocol) to receive Certified Emission Reductions (CERs) from projects in developing countries, the assessment of additionality is vital to determine whether emission reductions through these projects would not have happened anyway. The approval of non-additional projects leads to benefits of the investor in the industrialized and/or in the developing country concerned, depending on resource flows agreed between these partners, to the detriment of global protection against climate change. The type of projects and the methodologies proposed depend to a large extent on the developing countries' natural resources and the technological paths currently used for energy and industrial production. The approval of specific methodologies and project types therefore often becomes an issue of national interest. Decisions of the CDM Executive Board are thus expected to be highly politicized.

At the same time, the evaluation of whether a methodology is adequate to correctly calculate emission reductions and properly assess additionality, and whether a specific project meets these requirements, requires important technical knowledge which cannot be expected from EB members who are usually delegated from national bureaucracies. Special committees of researchers and other experts are therefore set in place to analyze these technical questions. The responsible technical committee for methodologies is the Methodology Panel (Meth Panel); for individual projects, it is the Registration and Issuance Team (RIT). While Meth Panel decisions are reported in openly accessible minutes of the meeting, there is no transparency about RIT decisions. It follows that EB decisions on methodologies can be easily compared with the Meth Panel recommendations while this is not the case for decisions on individual projects. In addition, positions on individual projects are exchanged in the EB behind closed doors despite the general rule that EB meetings should be public (UNFCCC 2006, Decision 4/CMP.1, Annex I, rules 26 and 27, p. 38).

Given high stakeholder interest in both methodologies and individual projects, the lack of transparency raises doubts about the extent to which the scientific and technical assessment indeed drives final EB decisions. In addition, it suggests that political-economic determinants of decision making should be particularly strong for individual project decisions because transparency is higher for methodologies.

Based on about 250 methodologies and about 1000 projects discussed by the EB until October 2007, we empirically investigate the relevance of political-economic versus technical determinants of EB decision making. In this context, we focus on the role of EB members' nationality, the relevance of the specialized technical committees, change over time due to increasing numbers of methodologies and projects, and the degree of transparency of the EB decision making process.

This is the first attempt to empirically analyze the determinants of EB decision making. Our hypotheses are derived building on the broader literature in political economy, on evidence

for other international organizations, as well as on anecdotal evidence reported about the EB in the context of individual methodology or project discussions.

In Section 2, the theoretical ideas will be outlined in more detail and allow us to motivate our hypotheses. Section 3 then discusses the data and the estimation method we use for our econometric analysis. Section 4 presents the results. Finally, Section 5 derives some conclusions and policy recommendations for the further institutional development of the UNFCCC Secretariat and its CDM Executive Board.

2. The political economy of EB decision making: A brief theoretical foundation

According to the rules of the Kyoto Protocol, a CDM project may be accepted only if it generates emission reductions which are additional to reductions that would have happened anyway (additionality). For instance, if the investment into a new power plant replacing an old one leads to higher energy efficiency and reduced emissions, this project does not automatically qualify for the CDM. If the replacement is economically attractive for mere efficiency reasons, the investment will have take place anyway, and no CERs should be issued for it. However, any investor planning such a project has an obvious incentive in trying to argue that it is additional, because the CERs potentially generated can have a considerable financial value for him. For example, a wind power plant with an investment cost of 100 million € in a moderately attractive wind regime could annually generate CERs of a value of 6 million €. In extreme cases (e.g. industrial gas projects), the value of CERs generated in a single year can even be a multiple of the initial investment cost. Thus, there is reason to believe that investors and other stakeholders are strongly interested in influencing EB decision making. Let us now consider the potential interests in a more systematic way.

These interests may arise in different countries: the host countries, usually developing countries, but also including individual high income countries like South Korea, and the buyer countries which are industrialized countries with emission reduction targets as defined in Annex B of the Kyoto Protocol (Annex-B countries). The actual investor may be a national or international firm or a public institution. The project may be developed in the host country alone (unilateral CDM) or result from cooperation between a host and a buyer country investor.

If a project is registered by the EB and becomes operational, it generates CERs. In case of unilateral CDM, as no buyer country is directly involved in the project investment, the CERs can be sold by the host country investor at market rates. Otherwise, the benefits arising from the CERs are shared between the host and the buyer country investors whereby the shares depend upon the negotiation power of each party. The buyer country investor can then either also sell his part of the CERs on the market or use it to compensate his domestic emissions. In the case of multilateral CDM, the host country can also benefit from technology transfer.

The above discussion shows that both private investors and governments themselves may have an interest in their CDM projects to be approved. As private firms cannot directly influence policy making at the international level, we assume that they will lobby their governments for support.

Moreover, not only investors can benefit from the CDM. In the last few years, the CDM has also become an important business for various kinds of consultancy and auditing services. There are consultancy services required for the development of project documentation, which

is then to be audited ("validated") before a project may even request registration from the EB. Consultancy services are also required for the design of CDM methodologies. The organizations involved in this business are often private consultancy firms for which the success of getting a major project registered or of getting a methodology approved may be crucial for acquiring new orders in the future. We can therefore expect that these consultancies – just as private investors directly involved in CDM projects – will lobby their governments to ensure the success of their proposals.

Finally, international organizations become involved in the process. They frequently act as an intermediate buyer pooling CDM projects to establish funds with the resulting CERs equally benefiting all the members of the fund. The pioneer and most well known example is the Prototype Carbon Fund (PCF) of the World Bank operational since April 2000. The World Bank has opened up ten other funds since then (World Bank 2007, pp. 4-5). For the World Bank, this field represents a challenging new area of diversification. Of course, just as governments and private investors, the Bank is interested in positive EB decisions for its projects. Firstly, it has to defend its image of a highly professional think tank in all areas of international development. And secondly, it might not be able to obtain subscriptions for new funds if projects in the portfolio of existing funds face difficulties in the registration process.

Moreover international organizations compete with private consultancies in designing CDM methodologies. Again the World Bank is at the forefront of activities in the area, and the stakes in favorable EB decisions on its methodologies are at least as high as for individual projects.

In general, for most of the actors described above, one might expect the interest in having methodologies passed to be even higher than the interest in the registration of individual projects. The reason is that there are fewer methodologies, and that each of the methodologies predetermines the CDM potential of a whole group of individual projects. At the same time, the stakes of individual countries in a given methodology depend on the geographical spread of the relevant technology. A methodology for hydro power, for instance, will be applicable in many countries, so that many countries will be similarly interested. A methodology for N_2O reduction from adipic acid production, however, can be used only in China, South Korea and Brazil because other countries do not apply this technology. The approval of methodologies relevant for technologies only in a small number of countries may benefit some countries (and / or their investors) to the detriment of others – as it can attract investment which substitutes for investment elsewhere. We therefore expect debates about this type of methodologies to be the most highly politicized.

We also expect some differences in the political interest in different type of projects. Here, however, interest can be assumed to simply depend upon project size. For small projects, even the official texts provide for a different treatment with faster procedures and less restrictions concerning project evaluation. Depending on project type, small projects have to meet one of the following thresholds: (i) renewable energy: <15 MW; (ii) energy efficiency: <60GWh (before December 2006: <15GWh); (iii) all other projects: <60 000 CERs (before December 2006: emissions < 15 000 t CO2-equivalent). Small projects can be distinguished from other projects through a specific code number.

We have argued for stakeholder interest, but how could this effectively influence EB decision making? We adopt a simple rational choice perspective and consider that EB members take their decisions after an evaluation of the political and economic costs and benefits of either

alternative. Obviously, they may also follow normative environmental objectives, but for simplicity and to sharpen the argument, this will not be explicitly considered here.

In line with the general literature on decision making in international organizations we expect that countries directly represented among the ten members or ten alternates of the EB have a higher chance to influence decision making in favor of their governments, private investors or consultancies. While only the members have a formal right to vote, decisions are usually based on a consensus so that alternates, who have the same right to participate in the debate, can be assumed to be similarly influential.

In contrast to other international organizations where the overriding dominance of individual member states is a frequently analyzed topic (see e.g. Fleck and Kilby 2006 for the World Bank or Barrow and Lee 2005 for the IMF), voting power is distributed equally over all members in the EB. Nevertheless, there could be differences in the effective influence an individual EB member may be able to exert. This influence may be related to the overall importance of a country which can raise its negotiating power (e.g. through informally linking up the issue at stake with cooperation or pressure in other fields). Moreover, it may be related to different levels of effort linked to a different strength of incentives. While all countries can benefit from the CDM, the potential for such benefits may be quite different. For instance, relatively more advanced developing countries which are generally attractive for foreign direct investment (FDI) are usually also more attractive as host countries for the CDM (Michaelowa and Michaelowa 2007). On the buyer country side, it could be relevant which obligations for emission reductions the countries took up under the Kyoto Protocol, and to what extent economic, technical and political constraints hinder them to meet these obligations domestically. Moreover, it may be relevant, whether a country already has a strong position in FDI which could enhance the potential interest for the CDM.

Similarly, even countries not represented in the EB may have higher chances to get their projects and methodologies adopted if they are generally powerful players and if there is a high incentive for them to engage in influencing the decision making process.

As far as international organizations are concerned, they are never directly represented by an EB member country. However, the methodologies and projects they develop are generally relevant for a number of countries, some of which will almost certainly be represented in the EB. Moreover, the World Bank as the predominant international organization involved in the field is present everywhere in the debates and has a strong information and lobbying power. Finally, it may use networks within the international bureaucracy to reinforce its position.

In general, the extent to which EB members will favor political-economic over technical or scientific quality considerations must be expected to depend upon the institutional setting of the decision making process. In particular, the transparency of the process appears to be an important variable here. Many non-governmental organizations (NGOs) have taken a critical stance towards the CDM because they fear that anything but emission reductions at home can easily lead to an abuse and to CERs generated for projects which are neither additional nor sustainable (WWF 2007, p. 2; CDM Watch 2005). Clearly, under such conditions, a divergence between EB decision making and the technical advice of the relevant advisory committees will be closely scrutinized and may give raise to protests which can harm the image of the EB and the CDM as a whole. Obviously, NGO interventions are much easier when the information on both technical advice and EB decision making are openly available.

As already mentioned above, according to official rules, EB deliberations should be open to the public. Parts of the discussions in EB meetings are even downloadable as a video on the internet (UNFCCC 2007a). However, the EB can decide to exclude the public in exceptional cases (see Annex 1 for the exact formulation of this clause). Interestingly, these exceptions have become the rule in the case of deliberations and decisions about individual CDM projects. Therefore, while the process is widely transparent for decisions about methodologies, the only information available on individual projects is the actual decision. For CDM projects, there is no information on country positions or on arguments exchanged. In fact, even the initial quality assessment by the Registration and Issuance Team (RIT) is considered confidential information, so that there is no basis for comparison for any external observer. The opposite is true for methodologies, for which the initial Meth Panel recommendation is recorded in the official minutes of the meeting which are easily accessible on the UNFCCC website. Given the political cost of criticism, we may thus expect that political-economic determinants of EB decision making will be stronger for decisions on projects than for decisions on methodologies.

Finally, it appears plausible to assume that it is in the joint interest of all actors potentially benefiting from the CDM to show that the mechanism works. Policy makers may also wish to show that, for the simple reason that they have taken a positive decision on the introduction of this market mechanism in the first place – a decision which would otherwise be considered by the general public as a failure. In order to show that the mechanism works, in the first place, a certain volume of CDM activities is required, i.e. sufficient demand for CDM projects must be generated and a relevant number of projects have to become operational. In the initial years, this may lead to a rather mild scrutiny of methodologies and projects submitted for registration. At the same time, in the long run, a decision making body cannot always let everything pass if it wants to be taken seriously by any outside observer. In addition, the CDM might be rejected as a whole if the assessment procedure is deemed to be unreliable. Therefore, the selection process can be expected to become stricter over time.

Pulling together the different arguments motivated through the theoretical considerations above, we can sum up the discussion with the following hypotheses:

(1) EB decisions tend to favor projects and methodologies relevant for EB member countries (their governments, private investors or consultancies).
(2) Countries for which the CDM has a high potential and countries which are generally powerful players have a higher chance to see their projects and methodologies accepted by the EB.
(3) If the World Bank is involved in individual projects or methodologies, this also raises their chance to be accepted.
(4) Due to the lack of transparency, political-economic as opposed to technical or scientific considerations are more important for EB decisions on individual projects than for decisions on methodologies.
(5) Political-economic considerations are more important for those methodologies which are relevant only for a limited number of countries, and for big rather than for small projects.
(6) EB decision making becomes stricter over time.

3. Data and estimation methods

We use a self-compiled dataset based on data from the UNEP Risoe Center (URC 2007) to empirically test our hypotheses. Our data contains qualitative information on the type and status of all projects and methodologies available on the CDM website of the UNFCCC on October 31, 2007. As we are interested in the determinants of EB decision making, we select only those cases where the status indicates that some EB decision has already been taken. This includes a total of 985 projects and 239 methodologies (including 31 afforestation and reforestation methods).

For these projects and CDM methodologies, the original URC dataset contains information on the host and (in case of multilateral CDM) the buyer countries, the names of the relevant consultancies or international organizations, the assessment of methodologies by the Meth Panel, the intermediate and final assessments of the EB, as well as the relevant dates for submission of and decisions on methodologies. For individual projects, only the date of the request for registration is available.

We expanded this dataset in many ways. First, we looked up the EB decision date for projects from individual project design documents (PDDs) available online (see UNFCCC 2007b). Then, we went through the minutes of EB meetings (UNFCCC 2007a) to find out about individual members for each year. Their nationality was then used to create dummy variables indicating host or buyer country representation in the EB. Using PDDs and relevant company websites, we also determine the country of the relevant consultants and equally created a dummy indicating EB membership.

Moreover, to capture the political relevance of a methodology, we created a categorical variable with ranges from 1 (applicability in all countries, i.e. low potential for political competition) to 5 (applicable only in a small number of countries, i.e. high potential for political competition). Thus, the higher the value of the variable, the higher is the political relevance of the decision.

We further derived the gap between Annex B countries' Kyoto emission budgets and the projected emission levels during the commitment period. This variable indicates the expected need for CERs. For EU countries, it was based on forecasts by the European Environment Agency (2006), and for Canada and Japan on projections by the U.S. Department of Energy (2007) (only energy-related CO_2 emissions). All remaining information was obtained through linear extrapolations based on UNFCCC inventory data for 2000-2005 (UNFCCC 2007c).

Finally, we merged this data with additional country information on GDP, FDI, trade, CO_2 emissions and education from the World Bank's (2006) World Development Indicators. All these variables are selected for the year 2000 which is the year just before CDM activities started in 2001 and therefore should be the year at which decision makers would orient themselves when considering the power of a country or the relevance of CDM as a complement to FDI. As the variation of this data over the years 2000 to 2006 is negligible as compared to the cross-country variation relevant here, and as information on these variables is taken into account with a lag which may vary from one EB member to the other, we consider that it is misleading to seek additional precision by entering this information for individual years of EB decision making. Using only information for the year 2000 also allows us to impute missing values with values for adjacent years. For tertiary education, for which information was missing for some developing countries even after this replacement

procedure, additional linear imputations were made sequentially using secondary enrolment rates and GDP per capita.

We consider that the educational variable may be important as a proxy for the quality of projects and methodologies. This appears to be relevant especially in the context of CDM projects as no direct control for quality is available in the data. As discussed above, the Meth Panel assessment is available for methodologies, whereas the RIT assessment is confidential and remains unpublished.

However, simply considering host country education levels does not seem sufficient to control for project quality. We therefore derive a new quality indicator based on a review of all 985 individual PDDs. As one of the authors is himself a member of the RIT, he knows the standard criteria to be respected and the results of all RIT assessments he carried out himself. The criteria include the credibility of the additionality test implemented by the project, as well as the correctness of the application of the baseline and monitoring methodology. Based on the information available from the PDDs we define a categorical variable with categories from 1 (lowest quality) to 5 (highest quality) for each individual project.

Let us now consider the information available for our dependent variable, i.e. for EB decisions. As we observe different stages of decision making, the scale is less obvious than one might think in the first place. Nevertheless, for both methodologies and projects, we can define one simple indicator for the final decision. It is a dummy variable taking the value of one if the project is eventually registered or the methodology approved.

To reflect more of the details of the decision making process, we code two additional categorical variables for projects and methodologies. For methodologies we define three categories. If a methodology is approved immediately, the value is 2. If the first decision is to request a revision, but the methodology is then accepted in the second round, the value is 1. If it is rejected or withdrawn, the value is 0.

For projects, information on intermediate steps is available only as long as no final decision has been taken. As opposed to the simple rejection/registration variable, our categorical variable considers this intermediate stage in order not to lose so many observations. They are coded in line with the probabilities to proceed from this intermediate step to either rejection or registration. This leads to an overall coding from 0 to 4 where 4 stands for registration, 3 stands for a request for review. This means that a minimum of three EB members ask for a review, but the EB has yet to decide whether the review will actually be implemented. In the past, in many cases no review actually took place and the project received a favorable decision by the EB despite the request of some of its members. The value of 2 indicates that the project is still quite close to being registered, but that some corrections have been requested. The value of 1 indicates that a review effectively takes place which somewhat indicates serious doubts about the project. Finally, the value of 0 stands for projects which were either rejected or withdrawn. The distribution of methodologies and projects into the different categories is presented in Table 1.

Table 1: EB decision making outcomes for projects and methodologies until 10/2007

Methodologies				Projects			
Approval dummy		Approval categories		Registration dummy		Registration categories	
Approval (1)	107 (44.8%)	Immediate approval (2)	51 (21.3%)	Registration (1)	827 (93.9%)	Registration (4)	827 (84.0%)
		Approval after revision (1)	56 (23.4%)			Request for review (3)	48 (4.9%)
						Correction request (2)	48 (4.9%)
						Under review (1)	8 (0.8%)
Rejection or withdrawal (0)	132 (55.2%)	Rejection or withdrawal (0)	132 (55.2%)	Rejection or withdrawal (0)	54 (6.1%)	Rejection or withdrawal (0)	54 (5.8%)
Total	**239 (100%)**		**239 (100%)**		**881 (100%)**		**985 (100%)**

From the table, it becomes immediately apparent that decisions on methodologies have been stricter by far than decisions on individual projects. In fact, only 6% of all projects were rejected whereas this was the case for over 50% of the methodologies.

The estimation procedure is predetermined by the type of our dependent variables. For multivariate regressions with the binary and the other categorical variables we use probit and ordered probit regressions respectively. We initially also estimated logit and ordered logit models, but tests on the functional form indicated that the normal distribution yields a better fit.

We expect that observations on projects or methodologies of the same host countries may not be independent. Therefore, we explicitly take into account clusters at the host country level. One might also expect other limitations to the usual independence assumption. For instance, projects by the same buyer or validated by the same auditors may not be fully independent. However, for theoretical reasons (e.g. related to national technology) we expect this problem to be more relevant at the host country level. In addition, there is a large share of unilateral CDM for which buyer countries were not even defined when the EB decision was taken. To avoid an overly complex modeling framework with various overlapping clusters, we thus limit our analysis to the consideration of potential correlations within host countries.

4. Empirical results

4.1. EB decisions on methodologies

Let us first consider EB decision making with respect to CDM methodologies. Table 2 presents our regression results. Note that the number of observations is generally lower than in Table 1 because some of the aforestation and reforestation methodologies lack data on important explanatory variables. In Regression 1, we use a binary specification of the Meth Panel recommendation to control for the consideration of quality. It turns out that this variable is highly significant and, in fact, explains almost all of the variation in our outcome variable. Table 3 shows a cross tabulation of Meth Panel and EB decisions which demonstrates that indeed, only in three cases, the final decisions are not identical. Apparently, the EB closely follows Meth Panel recommendations. This implies that hardly any other variable has enough explanatory power to become significant. Only the year of the EB decision shows a significantly negative coefficient indicating that EB decisions have become stricter over time.

Considering initial rather than final Meth Panel recommendations and taking into account intermediate values between a clear yes or no (Regressions 2-4), we find slightly more difference between the assessments of the two committees. There are divergent views in 23 cases, whereby, somewhat surprisingly, the EB tends to be stricter than the Meth Panel (more negative assessments in 18 out of 23 cases).

Table 2: Determinants of methodology approval by the CDM Executive Board

	(1) Probit (with clusters)	(2) Probit (with clusters)	(3) Probit (with clusters)	(4) Ordered probit (with clusters)
	EB approval yes/no	EB approval yes/no	EB approval yes/no	EB approval 0-2 (2 is directly accepted, 0 is rejected or withdrawn)
Meth Panel recommendation (yes=1, no=0)	4.91***			
	(0.00)			
Initial Meth Panel recommendation		2.97***	2.98***	2.11***
(A=2, B=1, B/C=0.5, C=0)		(0.00)	(0.00)	(0.00)
Host country is EB member or alternate	0.26	0.50	0.50	-0.01
	(0.48)	(0.11)	(0.12)	(0.95)
Buyer country is EB member or alternate	-0.53	0.23	0.26	-0.05
	(0.37)	(0.44)	(0.45)	(0.80)
Consultant country is EB member	0.15	-0.78**	-0.80**	-0.47**
or alternate	(0.69)	(0.02)	(0.02)	(0.05)
Consultant is an international organization	0.28	0.80*	0.83**	0.06
	(0.66)	(0.06)	(0.02)	(0.87)
Year of decisive EB decision	-0.36***	-0.23**	-0.24**	-0.03
	(0.00)	(0.02)	(0.05)	(0.78)
FDI, net inflows into host country			-0.02	0.04
(2000, % of GDP)			(0.81)	(0.53)
FDI, net outflows from buyer country			-0.00	-0.01
(2000, % of GDP)			(0.99)	(0.21)
Constant	723.80***	466.57**	472.25**	
	(0.00)	(0.02)	(0.05)	
Log pseudolikelihood	-13.58	-47.05	-47.01	-109.80
Wald χ^2	142.18	67.99	174.60	173.85
Prob > Wald χ^2	0.00	0.00	0.00	0.00
Pseudo R^2	0.90	0.68	0.68	0.50
Observations	195	213	213	213

P-values in parentheses (adjusted for host country clusters)
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3: Meth Panel recommendation versus EB decision

	EB decision		
Methpanel recommendation	No	Yes	Total
No	120	1	121
Yes	2	88	90
Total	122	89	211

Regression 2 replicates Regression 1 with the new Meth Panel variable. We now also find significant coefficients for methodologies developed by international organizations (IO) and

by consultants whose governments are represented in the EB. The IO variable has the expected positive impact, i.e. when the World Bank develops a methodology, this methodology has a higher chance to be accepted by the EB (at a given level of technical and scientific quality, as measured by the initial Meth Panel recommendation).

For consultants whose governments are represented in the EB, the coefficient is negative. As opposed to our hypothesis, it appears rather disadvantageous for consultancies if their country has a seat in the EB. This result is robust to the inclusion of additional host and buyer country variables. In Regressions 3 and 4 we include FDI in- and outflows as an example.

Regression 4 differs from Regression 3 in that it does not use the dichotomous outcome variable, but the more elaborate categorical variable which also takes into account intermediate assessments of the EB. Now again, apart from the initial Meth Panel recommendation, most variables are insignificant. The regression is generally less well specified as indicated by a much lower likelihood and less convincing values in Ramsey's Reset test[1] which indicates some significance of a squared term (not shown).

All in all, Table 2 shows that the impact of political-economic variables is not very pronounced in EB decisions on methodologies. While we do find the expected effect of stricter assessments over time as well as – at least in two regressions – the expected positive effect of the World Bank, we do not find any positive effect of host or buyer countries represented in the EB, and for consultants represented by their governments the effect is negative rather than positive. The most dominant explanatory variable is our control for the effective quality of the methodology as indicated by the Meth Panel recommendation. Generally the EB adopts this recommendation and, if at all there is divergence, this rather tends to make the assessment stricter than the Meth Panel's initial assessment.

Interestingly, however, whether or not there is divergence, appears to be related to the political relevance of the methodology in terms of its applicability to different countries. In this context, the direction of the divergence does not seem to matter. Coding a simple dummy variable to indicate divergence and relating it on our variable for political variance in a bivariate logistic regression framework yields an odds ration of 1.8, significant at the 1% level. This implies that the more limited the applicability of the methodology, i.e. the higher the competition effect and thus the political relevance, the higher the chances that some divergence of views arises in the first place.

One might also wonder, whether the lack of significance for most political-economic variables could not be related to the problem that Meth Panel decisions are themselves not free from political considerations. If EB decisions were somehow anticipated by Meth Panel recommendations, it would not be surprising that they are so much in line with the latter. In this case, Meth Panel recommendations used in our above regressions may be an endogenous variable and misleading if introduced as a control. Indeed, even though the Meth Panel is a body of experts, it is not fully free from EB influence because the chair himself is an EB member, and there are frequent complaints from independent Meth Panel members about this linkage.

[1] In the basic version of Ramsey's Reset test which is used here, the dependent variable is regressed on its own predicted values from the main regression and their squares. If the initial model is well specified, the coefficient of the predicted values should be highly significant while the square term should not contain any additional information and thus be insignificant.

We dealt with this problem in various ways. First, we considered instrumenting the quality of the methodology with host country tertiary education. However, the correlation between Meth Panel decisions and tertiary education is so low (ρ=0.099) that we decided to abandon this approach. We then considered using the difference between the assessments of both committees as the dependent variable thereby moving our potentially endogenous control variable to the left hand side of the regression. This does not substantially alter the results from Table 2.

Finally, we decided to consider Meth Panel decisions themselves as our dependent variable. The results are presented in Table 4. Now, economic measures of openness and investment attractiveness such as trade and FDI turn out to be significant, although the effect is quantitatively not very relevant. As shown in Regression 7 where marginal effects are presented along with coefficient estimates, for example, a one billion US$ increase in host country FDI inflows raises the chances of a methodology to obtain a positive recommendation by just 0.6% (evaluated at the mean of all independent variables).

Another interesting policy variable with a significant coefficient is the duration of the decision about a methodology. The longer the period between initial submission and final decision, the higher the chances of the methodology to eventually receive a favorable evaluation. This may be related to the time of diverse lobbies to intervene in the process.

In addition, just as for EB decisions, it clearly turns out that assessments have become stricter over time. In the context of Meth Panel decisions, time is measured by the serial number of the rounds.

However, just as before, we do not find any positive influence of EB membership. To the contrary, if distinguishing between members and alternates, we even find a negatively significant coefficient. As shown in Regression 7, if the host country is an EB member, and all other variables are kept at their mean, the methodology has a 19% lower chance to be approved by the Meth Panel.

Anyway, all results from Table 4 have to be interpreted with caution as we do not have any satisfying control for the quality of the methodology here. In Regressions 6-8, we introduce a partial control for the aspect of additionality. The variable classifies methodologies in the additionality categories 1: bad, 2: doubts, and 3: ok. It is based on the subjective assessment of an external observer, an assessment which is available for 140 of the methodologies in our dataset.[2] This variable is highly significant, but we must be aware that there are other relevant technical aspects of the quality of a methodology which may be correlated with some explanatory variables (e.g. host FDI inflows or trade) and bias our results.

Summing up our discussion of decision making on methodologies, we can say that the relevance of political-economic variables is rather limited. While there is evidence of a time dependency, for the relevance of IO involvement, and, to some extent, for the impact of economic variables which may make the CDM generally more attractive for investors, EB members do not tend to decide in their own favor or in favor of their constituencies. This result does not change even if we consider that Meth Panel recommendations may themselves be endogenous.

[2] We thank Daisuke Hayashi from "Perspectives Climate Change" for allowing us to use his additionality assessment.

Table 4: Determinants of Meth Panel Decisions

	(5) Probit (with clusters)	(6) Probit (with clusters)	(7) Probit (with clusters)[+]	(8) Ordered probit (with clusters)
	Meth Panel recommendation (yes=1, no=0)	Meth Panel recommendation (yes=1, no=0)	Meth Panel recommendation (yes=1, no=0)	Meth Panel recommendation 0-2 (2 is best, 0 is rejected or withdrawn)
Additionality (external assessment)		0.44***	0.43 / 0.17***	0.42***
		(0.00)	(0.00)	(0.00)
Host country is EB member or alternate	-0.13	-0.41		
	(0.66)	(0.13)		
Host country is EB member			-0.50 / -0.19*	-0.34
			(0.06)	(0.11)
Buyer country is EB member or alternate	-0.03	-0.07		
	(0.92)	(0.86)		
Consultant country is EB member or alternate	-0.16	-0.10		
	(0.50)	(0.72)		
Consultant is an international organization	0.30	0.04		
	(0.41)	(0.92)		
Round of Meth Panel decision making	-0.03*	-0.05***	-0.05 / -0.02**	-0.04*
	(0.07)	(0.01)	(0.02)	(0.08)
FDI, net inflows into host country (2000, current US$ bill.)	0.01**	0.01***	0.01 / 0.006***	0.01***
	(0.03)	(0.01)	(0.00)	(0.00)
Trade (imports+exports of host country, 2000, % of GDP)	0.00*	0.01**	0.01 / 0.002**	0.01***
	(0.08)	(0.01)	(0.01)	(0.00)
Days from submission to end mark	0.00***	0.00***	0.00 / 0.001***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.92***	-1.72***	-1.74***	
	(0.01)	(0.00)	(0.00)	
Log pseudolikelihood	-111.49	-78.03	-78.19	-124.45
Wald χ^2	35.44	100.06	82.20	79.58
Prob > Wald χ^2	0.00	0.00	0.00	0.00
Pseudo R^2	0.12	0.19	0.19	0.10
Observations	184	140	140	140

P-values in parentheses (adjusted for host country clusters)
* significant at 10%; ** significant at 5%; *** significant at 1%
[+] For Regression 7 (preferred regression) marginal effects are presented in addition to coefficient estimates. They are evaluated at the mean. For the variable "Host country is EB member" dF/dx is for the discrete change of the dummy variable from 0 to 1. P>|z| corresponds to the test of the underlying coefficient being 0.

4.2. EB decisions on individual projects

We will now analyze, whether this result also holds in the case of individual project decisions where the transparency of the decision making process is much more limited.

Even a first preliminary look at descriptive statistics suggests that this is not the case. In fact, various explanatory variables related to EB membership cannot even be introduced into our multivariate regressions because there is no variance in outcomes. Thus, all 29 projects for which the World Bank was the credit buyer successfully achieved their registration. Similarly, in all 15 cases in which the host country was represented as an alternate EB member, the

corresponding projects were registered. And finally, in all 7 cases in which the validator's government was represented in the EB, projects were registered, too.

Of course, we have to keep in mind that these numbers are comparatively small as compared to the overall number of projects, and that overall – as opposed to decisions on methodologies – rejections are a rather rare and affect only 6.1% of all projects.

Let us therefore move to our more general econometric assessment. Results are presented in Table 5.

Again, one of the major econometric concerns is how to properly control for the effective quality of a project. Using host country tertiary enrolment rates as a proxy (Regression 9) does not show any significant link to EB decision making at all, which leaves us with some doubts about the adequacy of this variable for this purpose, and thus about this regression specification as a whole. In all other regressions, we use the assessment of project quality in line with RIT criteria as described in Section 3. This variable is highly significant throughout and seems to capture the actual effect of quality rather well.

In all these regressions, host country EB membership now turns out to be positively significant. Marginal effects displayed in Regression 11 suggest that host country membership increases the probability of a project to be registered by about 4% (evaluated at the mean). The size of the effect is reduced, however, when other host country variables are taken into account (see Regression 12).

Buyer country membership shows a positive coefficient as well, which becomes at least close to significant in most regressions. It is in fact significant at the 10% level in Regression 11 where buyer country EB membership and the buyer being an IO are considered jointly in a single dummy variable. As the IO variable cannot be controlled for separately in the regression, looking at buyer country membership alone includes IO buyers in the control group and therefore blurs the result. This is avoided by the use of the joint dummy variable. Nevertheless, even in Regression 11, the size of the effect is rather small.

Just as in the case of methodologies, we also find that EB decisions have become stricter over time. This result is highly significant across all regression specifications.

Moreover, in Regression 12, we find some evidence for the importance of variables indicating the economic relevance of the project – in general, as well as for the host or buyer country individually. Thus, in line with our expectations, small projects which do not lead to relevant competition effects, have a significantly higher chance to be registered. Moreover, buyer countries' Kyoto gap which increases their need for the CDM, also increases their chances to have their projects accepted by the EB. Finally, the overall amount of CO_2 emissions of a host country, a figure that indicates the economic potential of the market, is also positively related to projects being registered.

Table 5: Determinants of project registration by the CDM Executive Board

	(9) Probit (with clusters)	(10) Probit (with clusters)	(11) Probit (with clusters)+	(12) Probit (with clusters)+	(13) Ordered probit (with clusters)
	EB final decision (yes=1, no=0)	EB final decision (yes=1, no=0)	EB final decision (yes=1, no=0)	EB final decision (yes=1, no=0)	EB decisions, 0-4 (4: directly accepted, 0: rejected or withdrawn)
Host country tertiary enrolment (2000, % gross)	0.01 (0.31)			0.02 / 0.0001 (0.11)	0.01 (0.37)
Project quality		0.90*** (0.00)	0.90 / 0.01*** (0.00)	1.09 / 0.01*** (0.00)	0.51*** (0.00)
Host country is EB member or alternate	0.44 (0.12)	1.30*** (0.00)	1.34 / 0.04*** (0.00)	0.53 / 0.003* (0.07)	0.78*** (0.00)
Buyer country is EB member or alternate	0.51 (0.16)	0.52 (0.16)			
Buyer country is EB member/alternate or IO			0.64 / 0.007* (0.09)	0.53 / 0.002 (0.12)	0.21 (0.35)
Year of EB decision	-0.49*** (0.00)	-0.60*** (0.00)	-0.59 / 0.01*** (0.00)	-0.78 / -0.004** (0.01)	-1.12*** (0.00)
Small project				0.50 / 0.002* (0.09)	0.20 (0.33)
Kyoto gap (predicted, 2008-2012, million t CO_2 eq.)				0.00 / 5.4e-6** (0.04)	0.00 (0.45)
FDI, net outflows from buyer country (2000, % of GDP)				0.01 / 6.6e-5 (0.22)	0.00 (0.74)
FDI, net inflows into host country (2000, % of GDP)				-0.14 /-6.4e-4*** (0.01)	-0.07** (0.05)
Trade (imports+exports of host country, 2000, %of GDP)				-0.01 / -2.8e-5* (0.08)	-0.00 (0.46)
Host country CO_2 emissions 2000 (kt)				0.00 / 3.3e-9*** (0.00)	0.00 (0.49)
Constant	985.92*** (0.00)	1212.18*** (0.00)	1188.54*** (0.00)	1558.70** (0.01)	
Log pseudolikelihood	-180.65	-125.22	-124.19	-111.18	-491.00
Wald χ^2	13.27	124.26	130.19	839.35	342.28
Prob > Wald χ^2	0.01	0.00	0.00	0.00	0.00
Pseudo R^2	0.07	0.36	0.36	0.43	0.19
Observations	876	877	877	875	975

P-values in parentheses (adjusted for host country clusters)
* significant at 10%; ** significant at 5%; *** significant at 1%
+ For Regressions 11 and 12 marginal effects are presented in addition to coefficient estimates. They are evaluated at the mean. For the variables "Host country is EB member or alternate", "Buyer country is EB member/alternate or IO" and "Small project" dF/dx is for the discrete change of the dummy variable from 0 to 1. P>|z| corresponds to the test of the underlying coefficient being 0.

Generally, the results discussed above are less pronounced in the ordered probit regression. Only project quality, the year of decision making and host country FDI inflows remain significant. This is the case despite the higher number of observations available for the analysis in Regression 13. But this higher number is achieved by taking into account projects for which no final decision has been taken and which are still under review or correction. Here, we should recall that the categories of our categorical dependent variable are based on a simple assessment of probabilities for projects to eventually be registered if they have to

undergo such intermediate evaluation or revision processes. Our dependent variable may therefore not always capture the situation correctly, which would explain the rather imprecise regression results.

We are confident that our independent variables cover the most important determinants of EB decision making. Ramsey's Reset tests for the probit models in Table 5 are satisfactory except for Regression 9, which does not directly control for project quality. For the other regressions, the squared predicted values are never significant (not even at the 10% level) while the plain predicted values are highly significant. Leaving out the political-economic variables, the test indicates that important information is missing (not reported here).

Summing up our discussion of individual project decisions we find non-negligible evidence for almost all of our initial political-economic hypotheses. Although results are not always significant in all relevant specifications and the size of the effects is often rather small, the overall picture provides a rather convincing evidence of the relevance of various political-economic factors for EB decision making. Especially with respect to the variables related to EB membership, the results are in striking contrast to the results on EB decisions for methodologies. This in turn is consistent with our hypothesis about the role of transparency.

5. Conclusions

Based on our econometric analysis of EB decision making over almost 1000 individual CDM projects and 250 methodologies, we find that the EB is strongly committed to quality criteria. At the same time, our results suggest that a number of political-economic variables also drive EB decision making outcomes. This is in line with our theoretical hypotheses.

More specifically, we find that EB decisions tend to favor projects relevant for EB member countries (hypothesis 1). This is the case for both host and buyer countries, whereby the role of the former is more clearly significant. However, the data does not provide any indication of a positive impact of EB membership on decisions about methodologies.

There is mixed evidence for our hypothesis that countries for which the CDM has a high potential and countries which are generally powerful players have a higher chance to see their projects and methodologies accepted by the EB (hypothesis 2). There is no such evidence for methodologies, apart from the results of our analysis of Meth Panel decisions. For CDM projects, we observe that host countries with a high overall level of CO_2 emissions and thus a high potential for CDM investments, just as host countries with a relatively high share of human capital seem to be able to obtain registration for a higher share of their projects. At the same time, host FDI inflows and trade openness do not improve the probability of projects to be registered.

For projects and methodologies alike, the involvement of the World Bank as a powerful international player improves the probability of success (hypothesis 3). Moreover, clearly, political-economic considerations are more important for EB decisions on individual projects than for decisions on methodologies (hypothesis 4). In our argumentation, this has been linked to the lack of transparency about the decision making process on individual projects (including the lack of transparency about the initial RIT recommendation).

In addition, political-economic considerations appear to be more important for those methodologies which are relevant only for a limited number of countries and for big projects

(hypothesis 5). Project regressions clearly show that small projects are registered more easily, i.e. without much critical discussion. And in the context of methodologies, we note that divergent assessments of the Meth Panel and the EB are observed more frequently when the methodology gives rise to competition so that the decision is of higher economic relevance.

Finally, for both methodologies and projects, there is highly consistent evidence that EB decision making has become stricter over time (hypothesis 6) along with the increase in the stock of methodologies and projects already approved.

As the EB is a rather new institution, its functioning may still be subject to change. This leads us to also reflect upon potential institutional improvements which our analysis may suggest. Firstly, it has to be recalled that the existing system seems to function rather well. This is the case because the predominant determinant of EB decisions appears to be quality, and because the influence of political-economic variables is rather limited in size. Nevertheless, the impact of the political-economic variables is clearly significant, especially in the case of project decisions. With respect to methodologies, only the time dependency and the influence of the World Bank are significant. Time dependency, in the sense that initially, EB decision making tended to be less strict than in more recent times, does not seem to present any further problem for the future. Now that the CDM has become a widely used mechanism, no fall-back has to be expected. The influence of IOs and, for projects, of other economic and EB membership variables, can, however give rise to some concern. Institutional safeguards should be put in place to limit their impact. An obvious recommendation in this context would be to render the EB decision making process on individual projects more transparent. This would also imply a publication of the initial scientific or technical assessment of the RIT.

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Annex 1: Rules on the transparency of EB decision making

E. Transparency
Rule 26

Subject to the need to protect confidential information, the principle of transparency should apply to all the work of the Executive Board, encompassing the timely public availability of documentation and channels through which external comments by all Parties and all UNFCCC accredited observers and stakeholders can be submitted for consideration by the Board. The posting of the Board's meetings on the Internet is one way to ensure transparency.

F. Attendance
Rule 27

Paragraph 16 of the CDM modalities and procedures:
1. Meetings of the Executive Board shall be open to attendance, as observers, by all Parties and by all UNFCCC accredited observers and stakeholders, except where otherwise decided by the Executive Board.
2. In the context of paragraph 1 above, the Executive Board may decide, in the interest of economy and efficiency, to limit attendance at its meetings to members, alternate members and secretariat support staff. In such instances, the Executive Board shall take all practicable steps to accommodate in other ways the interests of Parties, non-Parties to the Kyoto Protocol that are Parties to the Convention and accredited UNFCCC observers and stakeholders to observe its proceedings, except when the Executive Board decides to close all or a portion of a meeting.

Source: UNFCCC 2006, Decision 4/CMP.1, Annex I, rules 26 and 27, p. 38.