HOW DO PUBLIC INSTITUTIONS SELECT COMPETITIVE AGRICULTURAL R&D PROJECTS? - THE CASE OF AN ITALIAN REGION

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Abstract

This paper analyses, through a Random Utility Model (RUM), how a public institution selects among competitive agricultural R&D projects on the basis of observable distinctive features. In particular, we aim at verifying if, which and how other criteria, beyond the pure scientific value, are decisive for selection. From such information, like cost, duration, etc., the institution must infer about the unobservable actual ability, effort and reliability of the scientists themselves. Such analytical framework is empirically applied to a real case, the agricultural R&D activity funded by the Emilia-Romagna Region (Italy) between 2001 and 2006.

Key words: Public Agricultural R&D Funding, Random Utility Model, Logit Model.
JEL: Q160, O320

Introduction

Over the last decades, the economic analysis of R&D public funding progressively shifted from the optimal amount of R&D investments to the optimal mechanisms to deliver the available limited resources to research activities (Huffman and Evenson, 1993; Huffman and Just, 1994, 1999a; Pardey e Beintema, 2002; Pardey *et al.*, 2006; Spielman e von Grebmer, 2004). Actually, this latter question brings the management of public research (not only in agriculture) at the centre of attention (Huffman and Just, 2000). Public research always involves two different agents, whose aims diverge: a funding institution that wants to gain from its investment the highest welfare increase (pay off), and the researchers who want to maximize fund raising and progress in their career. According to Huffman and Just (2000), there are alternative public agricultural research funding mechanisms, namely, possible contracts between the two players taking account of, at once, their clash of interests as well as of two essential characteristics of R&D: information asymmetries and high riskiness (Materia, 2008).

At many different levels (regional, national, European), competitive funding has become the predominant way to grant co financing to research proposals selected by independent experts (peer-reviewers). This paper aims at analysing the process by which a public institution selects among competitive research projects. We set up a Random Utility Model (RUM) to analyse, on the one hand, the choice of researchers to participate to the competition (auto-selection) and, on the other hand, how the public selects the best projects among those presented. Initially, the public bases his choice on the scientific and technical merit of the proposals, relying on an independent assessment (peer-reviewers).

This assessment, however, provides incomplete information. There are, in fact, other important but unobservable determinants of research outcome, such as the actual skill, effort and reliability of researchers themselves. The public can infer this information relying on factors the peer-reviewers do not consider, but that can be still observed: project cost, duration, previous knowledge of the characteristics of the scientists, etc.[1]

The aim of this paper is, therefore, to assess if and which additional elements, beyond the scientific merit, affect project selection.

The model

Consider the two players involved in the R&D activity: the public funding institution (hereafter: the public), and more researchers that compete for selection and carry out the research activity. For the sake of simplicity we assume that both are risk neutral[2]. The public allocates its limited budget selecting and co financing the best projects. On the one hand, researchers themselves can decide whether or not to spend time and effort to compete for research funds (self-selection). On the other hand, the public has to select projects on the basis of incomplete information. First, the public relies on a panel of experts (peer-reviewers) assessing the scientific and technical merit of each proposal. In addition, however, the public may also take into consideration other non-scientific elements of the project, such as cost, duration, pre-existing knowledge of the proposer's reliability, etc.

The representation of both researchers' self-selection and public selection is based on Random Utility Models (RUM) applied to discrete choices (Train, 2003). Let consider N agents, each with an utility function, i.e. U_i (with i=1, …, N). The agents can choose among M possible alternatives. To the j-th choice (with j=0, .., M) we can associate the respective agent's utility, U_{ij}. The RUM assumes that whenever the i-th agent chooses the alternative j-th, it is:

(1) $U_{ij} > U_{ik}, \forall i = 1,...,N, \forall j,k = 0,...,M$

i.e., the agent always chooses the alternative that gives him the highest utility. The conventional specification of the utility function is:

(2) $U_{ij} = X_i' \beta_j + \varepsilon_{ij}$

[1] If the funding institution would make these additional elements explicit, this could generate consequent strategic behaviours by the researchers to increase their chances of being selected. For this reason, this additional evaluation tends to be not formalized in order to preserve the belief among researchers that the scientific merit is the only relevant factor (Materia and Esposti, 2009).

[2] Risk neutrality implies that the stochastic nature of research affects utility only as expected result while its variance is not relevant.

where X_i is the (*px1*) vector of utility determinants, β_j the (*px1*) vector of parameters associated to the *j*-th alternative, ε_{ij} is the disturbance term expressing the stochastic and unobservable factors eventually affecting utility. The presence of the stochastic error term allows to derive a continuous latent variable, $\Pr_{ij}$, expressing the probability that the *i*-th agent chooses the *j*-th instead of the generic *k*-th alternative:

(3)
$$\begin{aligned}\Pr_{ij} &= \Pr\left(U_{ij} > U_{ik}\right) = \Pr\left(X_i'\beta_j + \varepsilon_{ij} > X_i'\beta_k + \varepsilon_{ik}\right) \\ &= \Pr\left[X_i'\left(\beta_j - \beta_k\right) > \varepsilon_{ik} - \varepsilon_{ij}\right] = f\left(X_i'\beta_{jk}\right)\end{aligned}$$

$f\left(X_i'\beta_{jk}\right)$ can assume alternative forms; the most known are the Logit and Probit models.

Researchers (R) auto-selection

The *i*-th researcher can choose among two possible alternatives: to take part (*j=1*) or not (*j=0*) to selection. He finds convenient to participate only if the utility associated with this choice, net of effort and resources spent to prepare the project, (U_{i1}^R) exceeds his reservation utility, i.e., the shadow-value of his effort and ability in alternative research activities (U_{i0}^R): $U_{i1}^R > U_{i0}^R$ ($\forall\, i = 1,..,N$). We can represent the researcher utility function as an implicit function of his characteristics and of the project itself: $U_{i1}^R = R_{i1}^R\left(\theta_i, e_i, C_i\right) + \varepsilon_{i1}^R$ and $U_{i0}^R = R_{i0}^R\left(\theta_i, e_i, (1-\mu_i)C_i\right) + \varepsilon_{i0}^R$, where $R_{i1}^R\left(\theta_i, e_i, C_i\right)$ is the expected return of the project in terms of research output (publications, patents, etc.), and is a function of researcher skill (θ_i) and effort (e_i) both unobservable, and of the resources invested in the project, namely its cost (C_i); μ_i is the co financing rate granted by the public. $R_{i0}^R\left(\theta_i, e_i, (1-\mu_i)C_i\right)$ is the reservation utility expressed as the return (research output) that would be obtained by the same skill and effort in alternative research activities for which, however, the researcher misses the public co financing ($\mu_i C_i$). Therefore, the probability for the researcher to participate to the selection is:

(4)
$$\begin{aligned}\Pr_{i1}^R &= \Pr\left(U_{i1}^R > U_{i0}^R\right) = \Pr\left[R_{i1}^R\left(\theta_i, e_i, C_i\right) + \varepsilon_{i1}^R > R_{i2}^R\left(\theta_i, e_i, (1-\mu_i)C_i\right) + \varepsilon_{i0}^R\right] = \\ &= \Pr\left[R_{i1}^R\left(\theta_i, e_i, C_i\right) - R_{i2}^R\left(\theta_i, e_i, (1-\mu_i)C_i\right) > \varepsilon_{i0}^R - \varepsilon_{i1}^R\right]\end{aligned}$$

Among researchers that decide to participate, the public must select the projects to be funded.

Project selection by the public institution (P)

The public institution can choose to select (*j=1*) or not (*j=0)* an R&D project. For the public, the utility associated with any *i*-th project (if selected) can be expressed as $U_{i1}^{P} = R_{i1}^{P}(\theta_i, e_i, C_i) - \mu_i C_i + \varepsilon_{i1}^{P}$, where $R_{i1}^{P}(\theta_i, e_i, C_i) - \mu_i C_i$ represents the expected value of the project outcome, in terms of social welfare, net of public co financing $(\mu_i C_i)$. As before, the expected return depends on researcher effort (θ_i), skill (e_i), and on resources invested (C_i). The reservation utility, concerning non-selection of the *i*-th project, is $U_{i0}^{P} = (\mu_i C_i)^{\rho} + \alpha B + \varepsilon_{i0}^{P}$ and represents the value, net of public costs, generated by the alternative use[3] of public funding $(\mu_i C_i)$ of which ρ>0 is the respective return parameter. Moreover, the assumption is made that the reservation utility grows as the budget constraint increases, i.e., as the total available resources to support R&D (*B*) decreases. The public institution, in practice, tends to save financial resources as the budget becomes more binding and parameter α expresses such effect. Therefore, the probability that the public selects the project is:

(5)

$$\Pr_{i1}^{P} = \Pr\left(U_{i1}^{P} > U_{i0}^{P}\right) = \Pr\left\{R_{i1}^{P}(\theta_i, e_i, C_i) - \mu_i C_i + \varepsilon_{i1}^{P} > (\mu_i C_i)^{\rho} + \alpha B + \varepsilon_{i0}^{P}\right\} =$$
$$= \Pr\left\{R_{i1}^{P}(\theta_i, e_i, C_i) - \alpha B - \mu_i C_i\left[1 + (\mu_i C_i)^{\rho-1}\right] > \varepsilon_{i0}^{P} - \varepsilon_{i1}^{P}\right\}$$

The empirical analysis

This analytical framework is empirically applied to the agricultural R&D co financing carried by the Emilia-Romagna Region (Italy) between 2001 and 2006 according to the pluri annual programme established by regional law[4] LR 28/98. Evidently, only the empirical analysis of project selection according to (5) is feasible with these empirical observations, not the self-selection of the researchers according to (4). Though only projects and proponents taking part to selection are observable, however, it should be always reminded that the sample of projects here analyzed may actually suffer from self-selection in terms of some inherent characteristics of the researcher and the project (skills, reliability, effort, cost, risk, etc.). LR 28/98 is an example of competitive research funding as it funds projects selected among those submitted (1221 in the present case). Selection is firstly based on an evaluation performed by a panel of independent experts (peer reviewers) attributing a score

[3] For example, investments in public infrastructures.

[4] Region Emilia-Romagna made these data available under a research project untitled "Valutazione della spesa per ricerca, sperimentazione e sviluppo tecnologico in agricoltura: la legge 28/98" ("Evaluation of expenditure for agricultural research and technological development: law 28/98") funded by the Region itself and carried out by the Associazione Alessandro Bartola (Materia e Esposti, 2008).

expressing the scientific and technical merit. Depending on the available budget and on possible other considerations, the Region eventually choose the funded projects (589 in the present case). LR 28/98, therefore, is a concrete example of how public research may consider additional factors, beyond the scientific merit, to choose among competing R&D projects.

The adopted dataset thus consists of n = 1221 observations (projects) for which the following information are available: score given by peer-reviewers; duration (months); monthly cost (total project cost divided by its duration); year of funding; type of proponents; type of projects by sector. About the latter aspects, according to LR 28/98 each research project is classified into five areas (or sectors): "crops", "livestock", "farm management and rural development", "environment", "marketing", while for proposers a distinction is made among firms, laboratories and research centres (such as university departments), but particularly whether the project is presented by the "organizers of research demand" (ORD)[5]. Such institutions are key-actors in the enforcement of the law and in delivering the funds, since coordinate and mediate between research and agro-food production. In the empirical specification, therefore, dummy variables are included to take account of both sectoral specificity and the peculiar proposer (ORD).

Evaluation score is, for the Region, a reliable measure of scientific merit, while project duration can be assumed as the proxy of unobservable researcher effort e_i. The cost, in turn, expresses the size, in financial terms, of the project that also depends, however, on its duration. To avoid co linearity with the latter, therefore, we include the monthly cost as a variable. The sectoral dummies are proxies of the different skills/reliability the Region associates to projects belonging to different areas. A possible higher trust on R&D proposal also justifies the dummy related to the proponent ORD. Finally, the time dummies identify the year of real funding of the project and assess whether the public actually experienced increasing selectivity over years. As there is no information on the exact overall volume of funds annually allocated by the Region, these time dummies are useful proxies of this unobservable time-varying budget constraint.

Table 1 summarizes the variables used in the empirical analysis and their interpretation with respect to model (5). Among dummy variables, year 2001 and "crop sector" dummies are excluded[6]. Except the dummies, all independent variables are standardized in order to better compare the magnitude of the respective estimated coefficients and marginal effects estimated. Three alternative specifications of (5) are considered here. First, we use the binomial Logit that simply considers the two possible choices of the

[5] They are the following two research centres: *Centro Ricerche Produzioni Vegetali (CRPV)* and *Centro Ricerche Produzioni Animali (CRPA*).

[6] The "marketing sector" dummy has not been taken into account as well, because only two funded projects belong to this group.

public: to select and fund (*j=1*) or not to select (*j=0*) the project[7]. Then, we explicitly take into account the third possible choice, namely that, due to the limited budget, some selected projects are actually funded (*j=2*) while others are not funded (*j=1*)[8].

A RUM admitting three different possible outcomes may be in turn specified in two alternative ways: as a multinomial or as an ordered model[9]. The difference between the two cases is that in the multinomial specification the three possible outcomes are represented in the form of multiple options without any hierarchical order, whereas in ordered models an order (or sequence) of preference among the alternatives is assumed. This latter case seems more suited for the two-stage selection considered here: first, projects are selected according to the scientific merit; then, the choice of those to be actually funded is made also on the basis of additional elements the public decides to take into account. This also makes explicit that the motivations driving the two stages may actually differ. In addition to the binomial Logit, therefore, a multinomial Probit and an ordered Logit models are estimated[10].

Results

The present empirical analysis aims assessing which, how and to what extent other factors, beside the scientific value, condition selection and funding of an R&D project. Table 2 reports estimated coefficient and marginal effects of the simplest specification, the binomial Logit. On the one hand, the score assigned by independent evaluators evidently remains the main factor of choice: it is the variable with the greatest impact (in absolute value) on choice. This is substantially confirmed also by the multinomial and

[7] A binomial Probit has been also estimated: results essentially coincide with the Logit.
[8] Considering the entire period and the 1221 submitted projects, 589 have been selected and funded (*j=2*), 336 not selected (*j=0*) and 296 selected but not funded (*j=1*).
[9] A further alternative could be the nested Logit specification. This model seems appropriate in this case as the choice is made, as mentioned, on two different levels with a sequential structure of choices. Such model specification, however, is not affordable in the present application. In the nested Logit the determinants of any alternative choice are specific for that decision level. In this respect, no information is available about what are the criteria for the first level of choice and those of the second level as this two-stage procedure is not, in fact, formalized. Level-specific variables could be still tentatively defined on the base of empirical results. Nonetheless, this would not solve the problem because available data do not provide alternative-varying variables as all variables concern the project/proposer not the alternative (select and fund or not). Therefore, as within-case variability is missing, the nested Logit model can not be specified and estimated in this case. For this same reason also the conditional Logit specification is not viable here (Cameron and Trivedi, 2005).
[10] The choice of the Probit specification instead of the Logit in the multinomial case is due to the fact that the multinomial Logit model incurs in the violation of the assumption of independence of irrelevant alternatives (IIA) (Cameron and Trivedi, 2005).

ordered specifications (Tables 3 and 4)[11]. On the other hand, however, also other elements matter: it emerges that the Region tends to prefer, given the scientific merit, projects of a considerable cost if proposed by an ORD: in this context, presumably a higher cost becomes an indicator of greater public relevance and the presence of the ORD ensures reliability and competence. The duration of the project, in contrast, does not show a significant effect, though it is negative thus indicating that the greater duration of the project, *ceteris paribus*, implies an excessive financial burden and increases the uncertainty about the outcome. With regard to the sector of the projects, it emerges that a project belonging to "farm management and rural development" area apparently incurs a lower likelihood to be selected; the opposite holds true for projects of the "environment" sector. Political priorities about these various issues, therefore, seem to significantly overlap the purely scientific merit.

For what concerns the financing years, 2003, 2004 and 2006 dummies are significant and show an order of magnitude comparable to the parameter associated to the ORD variable; this confirms that the probability of being selected, *ceteris paribus*, remarkably reduces over time, probably as effect of the already mentioned stronger budget constraint.

The binomial model, however, does not use all the available information as it does not consider that among funded projects there are cases that have been selected on a purely scientific basis. This additional information may be useful to better identify those factors additional to scientific evaluation that eventually decide about funding. Tables 3 and 4 report the estimates of the multinomial Probit and the ordered Logit, respectively. In the first case only marginal effects are reported,[12] as in multinomial models coefficients can not be directly interpreted as changes of the j-th option probability in response to changes of the independent variable. On the contrary, marginal effects do indicate the change in the probability of the different options such that these probabilities continue to sum up to unity (Cameron and Trivedi, 2005).

According to the Probit model, a higher score significantly increases the probability of a project to be funded ($j=2$), while reduces, at the same time, the probability associated to the other two choices. The scientific evaluation, therefore, affects both stages of selection but, as mentioned, mostly separates the unselected projects from those selected and funded. The result of the binomial Logit is also confirmed for what concerns the cost of the project and the presence of an ORD, as both are significant and positively affect the probability of a project to be funded. The unit cost, however, does not seem to affect very much the probability of a selected project to be eventually

[11] Even though it loses significance for the group of projects selected but not funded, choice obviously guided by other criteria and evaluations of merit.
[12] Multinomial Probit estimation is performed by taking choice $j=0$ as reference; estimated coefficients, therefore, should be interpreted accordingly.

funded, while, on the contrary, the presence of an ORD substantially reduces the probability that a selected project is not funded.

Duration shows a significant and positive effect on $j=1$, while it is not significant for $j=0$ and $j=2$. In both these cases, however, it shows a negative sign: beside the scientific merit, duration encourages selection but discourages actual funding as, evidently, it is seen as a factor that increases overall financial burden and outcome uncertainty. It seems to be the complement to the score and, to a lesser extent, to the cost variables: they primarily drive the selection while duration and ORD, though working in opposite directions, mostly influence the final choice about funding. Time dummies behave similarly as, when significant, they negatively influence the probability of the project to be funded ($j=2$) but not to be selected ($j=1$). This would suggest that the increasing financial constraint over the years does not affect project selection but only decision on actual funding[13].

Finally, only the dummy relative to "farm management and rural development" is significant among sectoral dummies for all the possible alternatives. Under this sector, it is less likely for a project to be selected and funded. A similar condition, though with lower significance, also applies to "livestock" projects while results confirm a preference given to the "environment" projects both in scientific selection and funding. With ordered Logit (Table 4)[14], all the quali-quantitative information is used. Estimated coefficients and marginal effects confirm. Evidence about score, cost and presence of an ORD. Also project duration confirms previous results but in this case respective parameter is not statistically significant. Many sectoral and time dummies lose statistical significance compared to previous specifications. The only significant time dummies concern years 2003 and 2004, still confirming the interpretation of an increasing budget constraint. Finally, no sectoral dummy is significant except the "farm and rural development" sector which confirms lower probability, *ceteris paribus*, of both of selection and funding.

Across alternative specifications empirical results confirm that, beyond the scientific merit, other factors are relevant, and sometimes even to a greater extent, as determinants of both selection and funding. In this respect, however, two major questions remain open. On the one hand, it should be assessed to what extent additional criteria overlapping the scientific merit may represent an element of lower transparency and, therefore, greater information asymmetry and uncertainty to the detriment of the proponents (researchers), making the competitive mechanism less rational. On the other hand, and consequently, doubts may be raised on whether and how this induces strategic behaviour by the researchers themselves like adverse self-

[13] Data prove that the number of funded projects gradually decreases over the time (from 142 projects funded in 2001 to 70, in 2006), as well as the total volume of funds granted (Materia and Esposti, 2009).

[14] Even in this case, we also estimated the ordered Probit model, but results do not differ substantially.

selection or preparation of projects that does persuade the funding institution to a higher selection propensity but without a real higher scientific merit, thus making the characteristics of the projects themselves endogenous to the selection process. On these aspects, further theoretical analysis and empirical tests may be helpful.

Table 1 - Variables adopted in empirical investigation and their link with the theoretical model

Variable	Description	Unit of measure	Corresponding model parameter
SCORE	Peer-reviewers evaluation	*Scores*	-
COST	Project unit cost (per month)	*Thousands Euros/Month*	C_i - project cost
MONTH	Project duration	*Months*	e_i - project effort
ORD	ORD proposing	*Dummy (0= no, 1=yes)*	θ_i - skill/reliability
SEC_L	Sector: Livestock	*Dummy*	
SEC_RD	Sector: Rural development	*Dummy*	
SEC_E	Sector: Environment	*Dummy*	
D_02	Year: 2002	*Dummy*	B_i - budget constraint
D_03	Year: 2003	*Dummy*	
D_04	Year: 2004	*Dummy*	
D_05	Year: 2005	*Dummy*	
D_06	Year: 2006	*Dummy*	

Table 2 - Binomial Logit estimates- standard errors in parenthesis

Variable	*Coefficient*		*Marginal effect (dy/dx)*		*Variable*	*Coefficient*		*Marginal effect (dy/dx)*	
SCORE	1,667	**	0,413	**	SEC_RD	-0,533	**	-0,128	**
	(0,125)		(0,030)			(0,219)		(0,050)	
COST	0,135	*	0,033	*	D_02	-0,266		-0,065	
	(0,072)		(0,018)			(0,223)		(0,054)	
MONTH	-0,089		-0,022		D_03	-0,957	**	-0,222	**
	(0,070)		(0,017)			(0,222)		(0,046)	
ORD	0,636	**	0,158	**	D_04	-0,606	*	-0,145	**
	(0,147)		(0,036)			(0,225)		(0,051)	
SEC_L	0,048		0,012		D_05	-0,167		-0,041	
	(0,172)		(0,043)			(0,241)		(0,060)	
SEC_E	0,590	*	0,146	*	D_06	-0,715	**	-0,169	**
	(0,339)		(0,082)			(0,226)		(0,049)	
SEC_RD	-0,533	**	-0,128	**	CONSTANT	0,105		-	
	(0,219)		(0,050)			(0,170)		-	
Pseudo R^2: 0,219									

**,* denote statistical significance at 5% and 10% confidence level, respectively

Table 3 - Multinomial Probit estimated marginal effects (dy/dx) - standard errors in parenthesis

Variable	*j=0*		*j=1*		*j=2*		*Variable*	*j=0*		*j=1*		*j=2*	
SCORE	-0,360	**	-0,039	*	0,398	**	SEC_RD	0,249	**	-0,109	**	-0,140	**
	(0,024)		(0,021)		(0,028)			(0,054)		(0,039)		(0,050)	
COST	-0,028	*	-0,012		0,040	**	D_02	0,013		0,056		-0,069	
	(0,014)		(0,018)		(0,018)			(0,047)		(0,055)		(0,055)	
MONTH	-0,015		0,035	**	-0,020		D_03	-0,009		0,238	**	-0,229	**
	(0,015)		(0,015)		(0,017)			(0,044)		(0,054)		(0,047)	
ORD	-0,052	*	-0,095	**	0,148	**	D_04	-0,009		0,177	**	-0,168	**
	(0,030)		(0,029)		(0,035)			(0,045)		(0,056)		(0,051)	
SEC_L	0,087	**	-0,082	**	-0,005		D_05	-0,155	**	0,216	**	-0,061	
	(0,040)		(0,033)		(0,042)			(0,036)		(0,062)		(0,060)	
SEC_E	-0,010		-0,136	**	0,146	*	D_06	-0,192	**	0,382	**	-0,190	**
	(0,070)		(0,057)		(0,082)			(0,030)		(0,055)		(0,051)	

**,* denote statistical significance at 5% and 10% confidence level, respectively

Table 4 - Ordered Logit estimates - standard errors in parenthesis

Variable	*Coefficient*		*Marginal effect (dy/dx)* *j=0*		*j=1*		*j=2*	
SCORE	1,888	**	-0,320	**	-0,146	**	0,467	**
	(0,112)		(0,022)		(0,020)		(0,029)	
COST	0,120	*	-0,020	*	-0,001	*	0,030	*
	(0,067)		(0,011)		(0,005)		(0,017)	
MONTH	-0,018		0,003		0,001		-0,004	
	(0,063)		(0,011)		(0,005)		(0,156)	
ORD	0,537	**	-0,086	**	-0,047	**	0,133	**
	(0,135)		(0,020)		(0,014)		(0,033)	
SEC_L	-0,101		0,017		0,007		-0,024	
	(0,156)		(0,027)		(0,011)		(0,038)	
SEC_E	0,330		-0,051		-0,031		0,082	
	(0,313)		(0,044)		(0,034)		(0,078)	
SEC_RD	-0,870	**	0,172	**	0,028	**	-0,200	**
	(0,198)		(0,044)		(0,009)		(0,040)	
D_02	-0,200		0,035		0,014		-0,050	
	(0,211)		(0,038)		(0,013)		(0,051)	
D_03	-0,701	**	0,133	**	0,033	**	-0,166	**
	(0,204)		(0,042)		(0,007)		(0,045)	
D_04	-0,340		0,061		0,021	**	-0,083	*
	(0,209)		(0,040)		(0,010)		(0,049)	
D_05	0,165		-0,270		-0,014		0,041	
	(0,222)		(0,035)		(0,020)		(0,055)	
D_06	-0,157		0,027		0,011		-0,038	
	(0,203)		(0,036)		(0,013)		(0,049)	
CONST_1[15]	-1,471	(0,170)**			CONST_2		0,029	(0,161)**
Pseudo R^2:	0,219							

**,* denote statistical significance at 5% and 10% confidence level, respectively

[15] In the multinomial specifications these constant terms should be interpreted as threshold values of the latent variable that discriminates between the different options (Cameron and Trivedi, 2005). With three possible options, there are two threshold values: one for the passage from "unselected" projects to "selected but not funded" ones; the second from the latter to the "selected and financed" projects. Note that the first constant assumes a negative value because of the standardization made on independent variables. In addition, the usual test of statistical significance on these parameters is of little relevance. It is more useful to test whether these parameters are statistically different or not. Taking into account the estimated standard errors, the outcome of this test clearly shows that the two thresholds are different, confirming the real distinction of the three options.

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