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**The Geographical Allocation Pattern
of Spanish Official Development Assistance**Sergio Tezanos Vázquez^{1*}

The geographical allocation of Spanish aid has been little studied, despite the fact that it is unusually concentrated on middle-income countries. This paper sets out a model of Spanish ODA policy based on an integrated approach reflecting recipient needs and donor interests with an aim of analysing the “censored” nature of aid-partner selection and quota allocation. The results show that Spain has followed a hybrid pattern involving recipient needs, but where self-interest predominates and performance criteria, such as recipient governance and absorptive capacity, are absent. Spain has differentiated two distributional patterns in terms of its geographical preferences and has carried out a balanced strategy between altruist motivations and foreign policy interests with its former colonies. This insufficient progressiveness of allocation is due mainly to the influence of the post-colonial links –although these links have characterized the allocation patterns of all donor countries that were once colonial metropolises.

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1. INTRODUCTION

The analysis of the geographical aid allocation started in the 1970s and combined both the study of the different donors' patterns of aid giving and the aspiration to improve the management of the *–per se scarce–* resources committed to furthering the progress of the developing world. To date, the geographical allocation of Spanish aid has been little studied, despite the fact that it is unusually concentrated on middle-income countries, a fact which brings about an apparent “regressive bias” of aid allocation and blurs Spain's commitment with the *Millennium Development Goals* (MDG) and its special attention to the poorest countries.

This paper analyses the Spanish *official development assistance* (ODA) pattern of geographical specialization within an “integrated” *recipients' needs and donor's interests approach* (*RN–DI*). After this first introductory section, the second briefly reviews the analytical framework of the *RN–DI* models and summarizes the studies applied to the Spanish case. Section 3 develops a *theoretical framework* for a Spanish aid allocation policy, simplifying the complex Spanish policy in a three-step decision process in order to answer the two main questions of research: given that Spain does not co-operate with a certain number of developing countries, what factors determine whether a country is deemed eligible for assistance?, and, within the group of “aid-partner countries”, what factors determine the aid-quotas eventually allocated? The fourth section sets out the econometric equations used for the estimation of an accurate *RN–DI* model of Spanish assistance, as well as explain the nature of the dependent variable (the participation in the ODA) and the explanatory variables,

the model specification, the sample characteristics and the period of analysis. Section 5 offers the empirical results, analysing, on the one hand, the *aid selection stage* and, on the other, the *aid-quotas stage*, distinguishing between two groups of partner countries in terms of their post-colonial links with Spain. Finally, section 6 points out the main conclusions of the analysis and proposes policy criteria that seek to improve the impact of the geographical allocation of Spanish aid.

2. STUDIES OF THE GEGRAPHICAL ALLOCATION OF SPANISH AID

The early studies of aid allocation tried to establish the methodological basis for the analysis of the variables that determine the donors' distributive patterns, thus developing the theoretical framework of the initially denominated *recipients' needs versus donor's interests approach (RN vs. DI analysis)*. McKinlay and Little (1977) defined the differences between these two explanatory models:

The two competing views that have emerged to explain [the transfer of aid between independent countries] are differentiated primarily by the rationale underlying the allocation of aid. The humanitarian view emphasizes the economic-assistance utility, suggesting that the provision of aid is designed to promote economic development in low-income countries, while the foreign policy view emphasizes the instrumental utility of aid, suggesting that its provision is designed to promote the foreign policy interests of the donor (pp. 58–59).

Both approaches consider the donor country's aid budget as *predetermined* and therefore the Government deliberates on the geographical allocation regarding the different sets of variables. On the one hand, the *recipient needs approach* may be represented by means of a function that expresses the aid allocation in terms of a series of variables correlated with the developing countries' needs, in such a way that aid is inversely related to the levels of development and directly related to the population sizes:

$$RN \text{ model:} \quad A_t = f(N_{jt}); \quad j = 1, \dots, J \quad [1]$$

where A_t is the donor's aid budget in period t , and N_j is a vector of variables that explains the level of necessity of the recipient country j , which determines its aid allocation.

On the other hand, the *donor's interests approach* can be expressed by means of a function that expresses the ODA allocation in terms of a set of indicative parameters of the donor's economic and geo-strategic interests. This is formally written as:

$$DI \text{ model:} \quad A_t = f(I_{jt}); \quad j = 1, \dots, J \quad [2]$$

where I_j is a vector of variables that explains the donor's interests in the recipient country j , which determines the levels of aid allocated.

This way it is possible to identify which of these two models most accurately explains the determinants of a donor's geographical specialization. Nevertheless, there is an alternative economic specification that consists of integrating in the same model both vectors of variables: the donor's self-interests and the recipient countries' needs. Moreover, a set of variables related to the *determinant factors of aid effectiveness* (such as the recipient countries' *good governance, institutional quality and absorptive capacity*) can be added to this approach. This *integrated –hybrid– model of aid allocation* can be expressed in the following way:

$$\text{RN-DI integrated model: } A_t = f(N_{jt}, I_{jt}, G_{jt}); \quad j = 1, \dots, J \quad [3]$$

where G_j is a vector of variables representative of the “quality” of the recipient governments’ policies, institutions and absorptive capacity.

Although a number of studies have analysed the geographical aid allocation patterns of the main bilateral and multilateral donors², the Spanish case has received very limited attention.

Alonso (1999) carried out a cross-section analysis of the Spanish 1996 ODA allocation, verifying that, although the aid distribution was guided by both “aid demand and supply factors”, the foreign policy’s regional preferences determined, to a great extent, the allocation pattern. However, once this regional factor was considered, the aid disbursements were directly related to the recipients’ developmental needs. As a conclusion –the author claimed– “it is necessary to correct the historical regional preferences of the Spanish co-operation system if we want to put an end to the bias that, to-date, can be found in its geographical distribution and grant a clearer priority to the less developed countries” (pp. 135-136).

Sánchez Alcázar (1999) studied the Spanish aid disbursed to Latin America between 1989 and 1993, ascertaining that the donor’s self-interests (exports, especially) determined the aid allocation, whereas the recipients’ needs did not affect the distribution. These results partially disagree with those offered by Alonso (1999), although these two studies refer to different periods, and therefore the discrepancies can be explained by changes in the allocation pattern over time. In any event, the trade bias pointed out by Sánchez Alcázar belongs to the “gestation period” of the Spanish co-operation system –a period not included in the present paper–, when aid loans contributed to 60% of the gross bilateral ODA disbursements (in contrast with the 32.2% share in the two-year period 1998–99 and the 19% in 2004–05).

Other studies have compared the allocation patterns of different donors, using “standard” models of analysis –i.e. applying the same general model to different bilateral and multilateral donors–, although few of them have specifically looked into the case of Spain:

Berthèlemy and Tichit (2002) carried out a panel-data analysis of the aggregated ODA allocation of the 22 DAC donors for the period 1980–99, using the same set of explanatory variables for each donor country (and, therefore, “assuming that all the donors have the same behaviour”, p. 9), but included dummy variables in order to reflect their peculiar interests, such as the colonial links. In accordance with their Tobit estimates, Spain was strongly specialized in its former colonies –as has occurred with other former metropolises–, giving them, on average, during the 1990s decade, between 2.3 and 2.7 additional dollars of *per capita* aid.

Alesina and Weder (2002) analyzed the aid allocation of 13 DAC donors using a Tobit panel data model for the period 1970–94. In the case of Spain (with the analysis restricted to the period 1990–94), none of the considered explanatory variables (*per capita* income, population, trade openness and political rights) were found statistically significant in the aid *per capita* allocation. However, as they used the same “standard” model for analysing different donors’ allocations, they did not consider the colonial past as an explanatory variable in the Spanish specialization, which may bias the estimates due to the omission of a relevant

² McGillivray and White (1993), Tarp *et al.* (1998), McGillivray (2003a), Jones *et al.* (2005) and Tezanos (2008) review the economic contributions to the studies of aid allocation.

regressor³. In any case, this failure to identify a systematic pattern of aid allocation responds – to a great extent – to the high resources’ fragmentation among those countries that do not share post-colonial links with Spain.

Isopi and Mavrotas (2006) analysed the ODA *per capita* allocation of 20 DAC donors during the period 1980–2003 using a Tobit panel data model. Regarding the Spanish case, their broad study concludes that –for the period 1991–2003– “the elements that influence Spain’s aid allocation are a mixture of the donor self-interests and recipient needs” (p. 14). This analysis includes different model specifications and uses several sets of explanatory variables. In accordance with their full-model, Spanish aid allocation has been positively related to the share of “social aid” (the percentage of bilateral ODA devoted to the sector of “social infrastructure and services”), although Isopi and Mavrotas emphasize that “the trade relations seem to play a leading role in foreign aid allocation” (p. 14), which –in their opinion– is due to the strong trade links maintained with the former colonies. The allocation also favours the countries with more egalitarian income distributions and higher growth rates in the previous year⁴. They also included two additional regressors in the model: the aid “past outcomes” (i.e. aid effectiveness⁵) and the infant mortality rate⁶, which were shown to be significant and positively related with the *per capita* aid distribution. Finally, arms transfers, *per capita* income, population and the quality of democratic institutions were found irrelevant in the allocation, thus concluding that “political and strategic factors do not exert a relevant impact in the allocation process” (p. 15). However, Isopi and Mavrotas do not include any cultural affinity variable, although they mention the post-colonial links in order to explain most of their results; moreover, some of the variables used in their analysis may bias the estimations due to a non-random sample selection (as it happens with the inequality data), and they introduce assumptions that are not appropriate for the particular Spanish co-operation policies (among others, the assumption that the effectiveness of the World Bank’s projects is equivalent to that of Spain’s projects is far from clear, given the strong discrepancies that can be found in the geographical interests of both donors).

All in all, the Spanish pattern of aid giving shows some similarities with those of the USA, Japan and France –which are also strongly determined by their preferences towards their respective geographical interests– and differs greatly from the aid allocation of the Scandinavian countries, UK, and Canada –which are, to a larger extent, oriented towards the most needed developing countries.

³ Alesina and Weder measured the historical links between donors and recipients by means of the number of years that the developing countries were colonies of the metropolises during the 20th Century, thus excluding all Spanish colonies. They also used a variable of political alliances (the frequency of cases in which the receiving country voted in the UN in the same way as the donor) that could not be used in the case of Spain due to the lack of information.

⁴ The Gini index used in the analysis raises serious concerns, as it is not available for the vast majority of developing countries, and, in those cases where the information is available, there is not complete time series data, but decades values. Furthermore, the *Human Development Report* prevents that “because the underlying household surveys differ in method and in the type of data collected, the distribution data are not strictly comparable across countries” (UNDP, 2006, in: <http://hdr.undp.org/hdr2006/statistics/indicators/147.html>).

⁵ Isopi and Mavrotas used the World Bank’s *Operations and Evaluations Department* calculations of the aid projects’ rates of return, assuming that the levels of effectiveness obtained by the analyzed bilateral donors are identical to those of the World Bank (*inter alia* effectiveness).

⁶ In the context of the model proposed by Isopi and Mavrotas, reductions of the infant mortality rate can stem from greater levels of investment in social infrastructure, which may imply a lost of efficiency in the estimations due to the existence of colinearity between these two explanatory variables.

3. THEORETICAL FRAMEWORK OF SPANISH ODA ALLOCATION

This section proposes a theoretical framework for the Spanish ODA geographical allocation which follows the seminal contribution of Dudley and Montmarquette (1976) by focusing the analysis on the economic behaviour of the decision-makers responsible for the aid allocation⁷. This model adopted a microeconomic approach in which aid is considered as a good indirectly consumed by the donor's citizens. The donor country expects from its aid-partners support for its own foreign policies and benefits in economic relations, and also the "satisfaction" stemmed from perceiving that its aid contributes to the improvement of the standard of life of the recipients –i.e., that aid is effective–. The final allocations maximize each donor function, which combine both altruist and self-interest criteria.

Contrary to other theoretical contributions, the model proposed in this paper puts forward a *specific* framework for a Spanish co-operation policy, understanding that more general approaches do not consider the peculiarities of the policy management of the donor States, thus offering less precise interpretations of their specialization patterns⁸. The model conceives the Spanish ODA geographical allocation as a three-step decision process, taking into account the censored nature of the dependent variable –an approach that has not been previously applied to the study of the Spanish case⁹–: in the first stage, the Spanish Government decides both the total amount of resources that will be devoted to international co-operation, and the share of multilateral and bilateral aid; in the second stage, the Government chooses the group of partner countries which will receive bilateral aid from the list of "eligible" developing countries according to the OECD DAC's directives; finally, in the third stage, the aid-quotas of each partner country in the Spanish budget are determined.

3.1. First decision stage: determination of the Spanish ODA budget and the shares of multilateral and bilateral aid

Given the particularities of the Spanish aid management policy, it is assumed that the first-step decision is *exogenous* to the geographical allocation of aid: the Spanish Government decides annually both the total ODA budget, and the share that will be actually managed by the Spain's public sector (bilateral aid) and that by international organizations (multilateral aid), independently of the eventual geographical distribution of resources among developing countries¹⁰.

The Government decides on the annual aid budget within the Spain's General Public Budget (*Presupuestos Generales del Estado*), within the "foreign policy" item¹¹. The Public Budget specifies the endowment of the several Central Government aid agents that carry out bilateral

⁷ Other theoretical models that followed Dudley and Montmarquette are: Trumbull and Wall (1994), Tarp *et al.* (1999), Feeny and McGillivray (2002) and Feeny (2003). However, based on this theoretical framework, several empirical applications have been carried out, using increasingly sophisticated econometric techniques, from the initial regression analyses with cross-section data (*vid.*, for example, Levitt, 1968; Mckinlay and Little, 1977; Maizels and Nissanke, 1984; and Alonso, 1999), to the most complex panel data models with limited dependent variables (such as Alesina and Dollar, 1998; Tarp *et al.*, 1999; Berthélemy and Tichit, 2002; Alesina and Weder, 2002; Neumayer, 2003; McGillivray, 2003b; Dollar and Levin, 2004; Canavire *et al.*, 2005; and Isopi and Mavrotas, 2006).

⁸ Only Tarp *et al.* (1999) developed a theoretical model adapted to the singular characteristics of the analysed donor: the Danish State.

⁹ Neither Alonso (1999), nor Sánchez Alcázar (1999), considered in their studies the censored nature of aid.

¹⁰ It should be recalled that the Spanish ODA/GNI ratio has been increasing in the last two decades, from 0.08% in 1986-87 to 0.27% in 2005.

¹¹ However, there are also extra-budgetary items, such as debt forgiveness, which is internationally coordinated.

policies (therefore not including local and regional governments’ aid budgets) and the contributions to international organizations (multilateral aid). The Budget is finally approved by the Parliament and, thus, the Government decides the geographical allocation of aid as far as it determines the endowment of the main aid instruments managed by the different aid decision-makers.

Moreover, the Government is also responsible for elaborating the Spanish Aid Strategic Plan (*Plan Director de Cooperación*), which specifies the strategy for the next 4 years, including the geographical priorities. Finally, the Spanish Aid Department (*SECI*) elaborates the Annual Plan of International Co-operation (*PACI*), which details the aid budget and the endowments of the different official aid policy agents (including, in this case, the local and regional governments), with the purpose of advancing towards fulfilling the goals set forth in the four-year Aid Plan.

All in all, the central Government is the first “aid policy-maker”, deciding both the volume of resources, and its preliminary geographical distribution. Nevertheless, eventually different economic agents take charge of the aid administration: these are mainly the Spanish Aid Agency (AECI, attached to the *Ministry of Foreign Affairs and Co-operation*), several Ministries, local and regional governments, NGOs and the international organizations financed by Spain¹².

The proposed model considers that the result of this first-step decision is determined *ex ante*. The Government decides every year the amount of resources set aside for co-operation for development in accordance with its own preferences for different public policies that compete for the resources endowment. However, there are two political commitments that determine the aid budget: on the one hand, the Monterrey’s financial commitment of achieving the 0.33% ODA/GNI ratio by 2006, and, on the other hand, the Government’s own commitment of achieving the 0.5% ratio by 2008 (as foreseen by the Aid Plan), and the 0.7% by 2012 (in the event of being re-elected). Finally, the ODA budget (\tilde{A}_t) is specified each year in the PACI, delimiting the maximum amount of resources finally distributed among international organizations or directly managed by the different public agents of the Spanish State. Formally, this trade-off can be written as follows:

$$\tilde{A}_t \leq \sum_j^J (A_{jt} - c_B (A_{jt})^{\tau_B}) + \sum_m^M (A_{mt} - c_M (A_{mt})^{\tau_M}) \quad [4]$$

where $\sum_j^J A_{jt}$ is the *total bilateral ODA* allocable among J possible developing countries and

$\sum_m^M A_{mt}$ is the *multilateral ODA* available for financing M different international organizations.

¹² Hence –according to direct sources of the Aid Department–, the Government is conscious of the fact that the budget allocated to the AECI (given the aid instruments that it administrates, mostly grants and micro-loans) is more oriented towards lower income countries. On the contrary, the resources allocated to the concessional loan scheme (the so-called FAD loans) are mainly oriented to middle income countries (mainly, East Asia, given the high participation of China and Latin America in the scheme).

The previous constraint includes positive aid administrative costs, since not all the aid budget is geographically allocable; i.e. the administrative costs reduce the quantity of resources finally disbursed to developing countries¹³. A similar reasoning can be applied to the administrative costs of multilateral institutions. Thus c_B is a constant which represents the incidence of these costs on bilateral aid and c_M is the incidence on multilateral aid. Finally, the parameters τ_B and τ_M represent the bilateral and multilateral aid-costs elasticities, respectively¹⁴.

Equation [4] formulates the Spanish State's trade-off between bilateral and multilateral aid. In particular, during the period 2000–05, Spain distributed, on average, almost 40% of its resources via multilateral organizations (well above the average of most donor countries). The multilateral/bilateral trade-off implies different advantages and disadvantages for the Spanish State:

- i) Bilateral aid accords greater international, bilateral, influence for Spain, since aid can be used as a *means* to further the donor's foreign policy interests. Also, the State obtains greater "political returns", as bilateral aid is more visible for its own citizens (a fact which is especially outstanding in the cases of local and regional governments – which are the closest Public Administrations to the citizenship– and the financing of NGOs).
- ii) On the other hand, greater financial contributions to international organizations mean greater Spanish influence and presence in the multilateral scenario.
- iv) Different levels of aid effectiveness between bilateral and multilateral policies would determine the allotment of the Spanish resources. Furthermore, it makes sense to think that the Spanish State is willing to alleviate its own constraints to efficiently manage the ever-increasing aid resources by delegating part of the management to international organizations.
- v) MILNER (2005) claims that multilateral aid can contribute to solve a "principal-agent problem" for donor countries¹⁵. Her study of the aggregated behaviour of 27 bilateral donors suggests that countries with more citizens sceptical about the value of aid tend to delegate a greater proportion of their resources to international organizations.
- vi) In accordance with the existing aid allocation literature, the variables governing multilateral allocation have been systematically different from those determining bilateral donors' allocations, specially, due to the supranational interests promoted by international organisms –*vid*, for example, Trumbull and Wall (1994), Neumayer (2003), Burnside and Dollar (2004), Canavire *et al.* (2005) and Levin and Dollar (2005).

In fact, the Spanish geographical priorities do not always match the multilateral interests. During the period 2000–05 the discrepancies were remarkable: in the case of the *aggregated multilateral aid*, the main recipient regions were Africa (especially the Sub-Saharan region) and Asia (especially South and Central Asia), which shared 43% and 34% of the total net disbursements, respectively (**Table 1**). On the other hand, *Spanish bilateral ODA* went mainly

¹³ There are also aid resources committed to finance *horizontal co-operation strategies* that cannot be geographically allocated to specific recipient countries.

¹⁴ The parameters τ_B and τ_M can have different values. For example, if $0 < \tau < 1$, it implies decreasing marginal returns to the aid administrative costs; if $\tau = 1$, there are constant returns; and if $\tau > 1$, there are increasing marginal returns.

¹⁵ In the case of aid, the principal-agent problem is further exacerbated since "aid goes to recipients in foreign countries who cannot vote in the donor country, and taxpayers in donor countries have little knowledge of how their tax dollars are spent in these foreign countries" (MILNER, p. 32)

to Latin America (totalling 45%, almost 6 times more than multilateral aid), followed, at great distance, by Africa (21%, i.e. less than half of the multilateral allocation), being specially lower the participation of the Sub-Saharan region¹⁶.

Table 1. Geographical distribution of aggregated multilateral ODA and Spanish bilateral ODA (percentages)

	Aggregated Multilateral ODA							Spanish bilateral ODA						
	2000	2001	2002	2003	2004	2005	Average 2000-05	2000	2001	2002	2003	2004	2005	Average 2000-05
Africa	37,3	38,7	43,6	42,4	46,4	47	42,6	14,9	12,5	23,2	18,3	20,9	34,6	20,7
<i>North Sahara</i>	3,2	3,5	2,1	2,7	3,7	3,7	3,2	2,2	4,8	6,8	4,6	8	4,3	5,1
<i>South Sahara</i>	33,4	34,8	40,9	39,3	42,4	43	39	12,7	7,6	16,3	13,7	12,9	30,1	15,5
America	7,2	8,8	6,4	8,2	7,5	7,7	7,6	44,4	60,3	41,4	44,9	45,1	31,4	44,6
<i>North and Central</i>	4,7	4,6	4,0	4,1	4,9	3,9	4,4	21,4	46,2	20,7	19,3	26,6	14,9	24,8
<i>South</i>	2,2	3,8	1,9	3,3	2,1	3	2,7	15,7	11,0	17,9	20,7	15,1	13,3	15,6
Asia	34,7	34,4	34,7	34,8	31,2	30,9	33,5	18,7	11,5	12,4	12,9	13,1	19,5	14,7
<i>Far East</i>	11,4	9,9	8,1	9,5	6,7	6,5	8,7	15,2	6,4	5,2	5,6	3,6	4,5	6,7
<i>South and Central</i>	17,5	18,5	20,7	18,4	17,9	17,7	18,5	0,2	1,9	4,3	1,0	2,4	2,2	2
<i>Middle East</i>	5,5	5,5	5,4	6,4	6,1	5,7	5,8	2,9	3,1	2,6	6,3	6,9	12,8	5,8
Europe	12,0	9,8	8,5	6,7	7,5	6,7	8,5	9,7	5,2	10,7	10,1	7,0	2,7	7,5
Oceania	0,8	0,5	0,3	0,4	0,5	0,8	0,5
Unspecified regions	7,9	7,9	6,5	7,6	6,8	6,9	7,3	12,4	10,4	12,3	13,8	13,9	11,9	12,5
Total Developing Countries	100	100	100	100	100	100	100,0	100	100	100	100	100	100	100

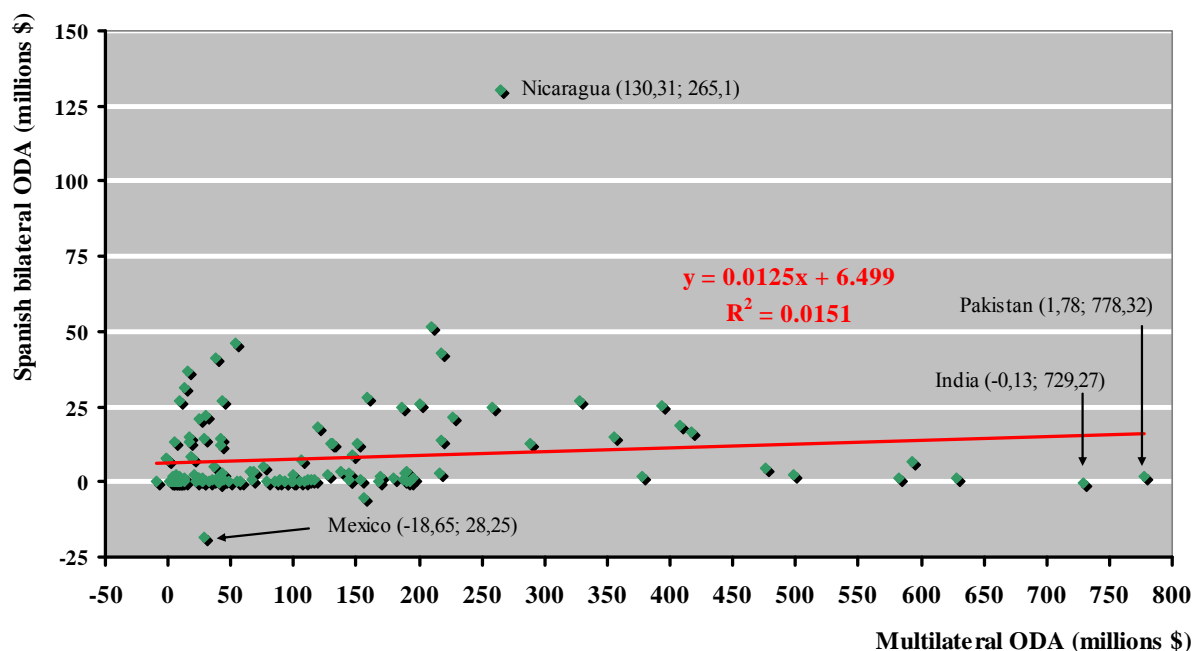
Percentages of ODA net disbursements

Source: OECD: DAC (2007). Developed by author

Hence, there is no clear association between the patterns of geographical aid distribution of the aggregated multilateral organizations and the Spanish State. **Graph 1** depicts, in a tentative way, the level of association of both allocations in the period 2000–05, which appears to be statistically non-significant ($R^2 = 0,015$) and with no clear trend. Spain's partner countries concentrate on the left-half of the two-way scatter chart –i.e. among the countries with smaller receptions of multilateral aid–. There are some outstanding outliers: Nicaragua (with a Spanish disbursement of more than 130 million dollars, in comparison with the, relatively, much lower multilateral assistance) and Mexico (with a negative net Spanish disbursement, and a positive multilateral one). On the other hand, the main recipient countries of multilateral ODA (Pakistan and India) drew less attention from Spain –furthermore, the Spanish net disbursement to India was negative.

¹⁶ Sub-Saharan Africa historically has not been a high-priority region for Spain. However, it has attracted a greater attention from Spanish foreign policy in the last years, especially due to the increase in immigration, which has resulted in larger aid-quotas. In particular, the 2005 figure is partially driven by the debt cancellations of the Congo Republic, Madagascar, Senegal and Ghana, which amounted to more than two thirds of the aid disbursed to this region.

Graph 1. Two-way scatter plot of aggregated multilateral ODA and Spanish bilateral ODA geographical allocations. 2000–05



ODA net disbursements. Average 2000–05. Current USA dollars
 The regression analysis includes only Spain’s aid recipient countries
 Source: OECD: DAC (2007)

Moreover, it should be born in mind that, to a large extent, financial contributions to international organizations are compulsory for their members, and have previously determined quotas and time schedules (usually, biannual), that cannot be easily affected by individual bilateral donors¹⁷. All in all, it is assumed that the decision on how much aid to allocate to multilateral organizations (as a share of the Spanish total aid budget) is “predetermined”, and, therefore, its effect on Spain’s geographical allocation is *exogenous*, given the limited influence that bilateral donors exert on the orientation of multilateral aid¹⁸. Thus, the first summing-up expression of equation [4] yields the aid budget –exogenous and politically predetermined–. Once subtracted the administrative costs, the *geographically allocable ODA* (A_{Bt}) constitutes the dependent variable of this analysis¹⁹:

¹⁷ However, donor countries can make voluntary subscriptions to multilateral institutions. They can also voluntarily contribute to funds and programmes, which are recorded by the DAC as “multi-bilateral aid” – therefore, as the recipient countries are identifiable, these resources are included in the present analysis.

¹⁸ Nevertheless, it is possible that Spain conceives the pattern of multilateral ODA allocation as *complementary* to its own geographical preferences. This way, the large share of Spanish assistance received by Latin America would compensate for the lower attention received by this region on the part of the multilateral co-operation.

¹⁹ *Official development assistance* (ODA) is defined by the DAC as grants and loans to developing countries which are:

- (a) undertaken by the official sector;
- (b) with promotion of economic development and welfare as the main objective;
- (c) at concessional financial terms (if a loan, having a Grant Element of at least 25 per cent). In addition to financial flows, Technical Co-operation is included in aid. Grants, Loans and credits for military purposes are excluded. Transfer payments to private individuals (e.g. pensions, reparations or insurance payouts) are in general not counted (OECD: DAC, June 2007, <http://www.oecd.org/dac>).

$$A_{Bt} = \sum_j^J (A_{jt} - c_B (A_{jt})^{\tau_B}) \quad [5]$$

3.2. Second decision stage: selection of aid-partner countries

Secondly, the model assumes that the Spanish State selects the group of aid-partner countries each year. The *selection stage* can be analysed according to the following *attraction index*²⁰:

$$\Lambda_{jt} = e^{\alpha_j} \cdot N_{jt}^{\beta} \cdot I_{jt}^{\delta} \cdot G_{jt}^{\varphi} \cdot H_{jt}^{\gamma}$$

$$0 \leq \alpha_j \leq 1; \quad 0 \leq \beta \leq 1; \quad 0 \leq \delta \leq 1; \quad 0 \leq \varphi \leq 1; \quad 0 \leq \theta \leq 1 \quad [6]$$

where Λ_{jt} measures the interest of the donor for a developing country j . N , I , G and H are vectors of explanatory variables regarding the recipient countries' needs, the donor's interests, the aid effectiveness determining factors and the allocation's path dependence (history), respectively. β , δ , φ , and θ are sets of weights; all of them are constrained within the interval $[0, 1]$ so as to reflect the possible existence of decreasing marginal returns²¹. The parameter α_j measures the fixed effects associated with each recipient country that are not determined by the variables N , I , G and H .

Once the donor estimates the attraction indexes for each partner country, the following selection rule is applied:

$$D_{jt} = 1 \quad \text{if} \quad \Lambda_{jt} \geq k \cdot A_{Bt}^{\mathcal{G}}$$

$$D_{jt} = 0 \quad \text{if} \quad \Lambda_{jt} < k \cdot A_{Bt}^{\mathcal{G}}$$

$$\Pr(D_{jt} = 1) = \Pr(\Lambda_{jt} \geq k \cdot A_{Bt}^{\mathcal{G}}) = \Pr(\Lambda_{jt} - k \cdot A_{Bt}^{\mathcal{G}} \geq 0); \quad -\infty < \mathcal{G} < \infty \quad [7]$$

where $D_{jt} = 1$ indicates that country j is chosen as a partner, A_{Bt} is the predetermined amount of bilateral ODA geographically allocable among J possible developing countries, and k is a constant. Recipient countries are ranked following their respective scores on the attraction indexes, which determine their selection probabilities, so that those above the *selection threshold* $k \cdot A_{Bt}^{\mathcal{G}}$ are finally chosen as aid-partners.

The parameter \mathcal{G} reflects the donor's *aversion/pre disposition to disperse* its aid budget among the J eligible countries: if $\mathcal{G} > 0$, there is *aversion* to dispersion (as \mathcal{G} tends to ∞ , the dispersion of the resources is penalized and the selection probability decreases); on the other hand, if $\mathcal{G} < 0$, there is *pre disposition* to dispersion (as \mathcal{G} tends to $-\infty$, both the dispersion of the resources and the probability of being chosen as an aid-partner increases). Also, if $\mathcal{G} = 0$, the selection rule does not depend on the volume of aid. This parameter of aversion to dispersion is especially outstanding in the context of a donor, as Spain, that is experiencing a gradual increase of its resources: as the volume of ODA increases, so does the financial capacity to disburse aid to a greater number of countries and –therefore– the probability of being selected as a partner. Nevertheless, if $\mathcal{G} > 0$, the donor's aversion to dispersion will compensate the previous effect.

²⁰ The use of a “selection threshold” follows the approach of TARP *et al.* (1999).

²¹ The existence of decreasing marginal returns guarantees that the donor will not concentrate all its resources in one recipient: the one with the highest score in the attraction index.

$$\begin{aligned} \lim_{g \rightarrow \infty} \Pr(D_{jt} = 1) &= \Pr(\Lambda_{jt} \geq \infty) \rightarrow 0 \\ \lim_{g \rightarrow -\infty} \Pr(D_{jt} = 1) &= \Pr(\Lambda_{jt} \geq 0) \rightarrow 1 \end{aligned} \quad [8]$$

The result of choosing the country j as a partner is thus interpreted as the difference in the utility obtained by Spain between giving and not giving aid to this country, being positive in the event of selection and zero or negative otherwise.

Substituting [6] into [7] and using logarithms yields the following linear probability function:

$$\Pr(D_{jt} = 1) = \Pr(\alpha_j + \beta \ln N_{jt} + \delta \ln I_{jt} + \varphi \ln G_{jt} + \theta \ln H_{jt} - \ln k - \vartheta \ln A_{Bt} \geq 0)$$

$$\begin{aligned} j &= 1, 2, \dots, J \\ t &= 1, \dots, T \end{aligned} \quad [9]$$

The following relations in the process of selecting aid-partners are expected:

$$\begin{aligned} \frac{\partial \Pr(D_{jt} = 1)}{\partial N_{jt}} &> 0 & \frac{\partial \Pr(D_{jt} = 1)}{\partial G_{jt}} &> 0 \\ \frac{\partial \Pr(D_{jt} = 1)}{\partial I_{jt}} &> 0 & \frac{\partial \Pr(D_{jt} = 1)}{\partial H_{jt}} &> 0 \end{aligned} \quad [10]$$

i.e. the probability of being selected as a partner for Spanish assistance depends on, simultaneous and positively, the developing country’s relative level of aid need, the interest it has for Spanish foreign policy and the factors determining aid effectiveness. Moreover, the allocation’s path dependence directly affects probability of being “re-selected”.

3.3. Third decision stage: allocation of aid-quotas

Once a subset of K -partner countries has been selected (being $K \leq J$), the Spanish State passes to the aid-quotas stage, in which it decides the specific quotas of each country in the ODA budget:

$$a_{jt} = \frac{A_{jt}}{A_{Bt}} \leq 1 \quad [11]$$

where a_{jt} measures the share of country j in Spain’s aid and A_{Bt} is the total amount of *bilateral ODA* geographically allocable among K -recipient economies: $A_{Bt} = \sum_{j=1}^K A_{jt}$.

The Spanish objective function for geographical aid allocation is then defined as follows:

$$\Phi_a = f(a, N, I, G, H) \quad [12]$$

where the variables are interpreted as in previous equations. Specifically, the objective function can be written as:

$$\Phi_a = \sum_{j=1}^K \left(a_{jt}^{\alpha_j} \cdot N_{jt}^{\beta} \cdot I_{jt}^{\delta} \cdot G_{jt}^{\varphi} \cdot H_{jt}^{\theta} \right)$$

$$0 \leq \alpha_j \leq 1; \quad 0 \leq \beta \leq 1; \quad 0 \leq \delta \leq 1; \quad 0 \leq \varphi \leq 1; \quad 0 \leq \theta \leq 1 \quad [13]$$

where the parameters α_j , β , δ , φ and θ are constrained within the interval $[0, 1]$ so as to indicate the possible existence of decreasing marginal returns.

The aim of the Spanish co-operation policy is to maximize the total utility derived from the aid allocations to K -partner countries, subject to the budget constraint (assuming that the aid budget is totally disbursed):

$$\text{s.t.} \quad \sum_{j=1}^K a_{jt} = 1 \quad [14]$$

This restriction implies that a marginal increase in the aid-quota assigned to a specific partner country will decrease the share of, at least, another country.

The *lagrangian* resulting of maximizing [13] subject to [14] is:

$$\text{Max}_{a_{jt}} L = \sum_{j=1}^K \left(a_{jt}^{\alpha_j} \cdot N_{jt}^{\beta} \cdot I_{jt}^{\delta} \cdot G_{jt}^{\varphi} \cdot H_{jt}^{\theta} \right) + \lambda \left(1 - \sum_{j=1}^K a_{jt} \right) \quad [15]$$

The first order conditions are:

$$\frac{\partial L}{\partial a_{jt}} = \alpha_j \cdot a_{jt}^{\alpha_j-1} \cdot N_{jt}^{\beta} \cdot I_{jt}^{\delta} \cdot G_{jt}^{\varphi} \cdot H_{jt}^{\theta} - \lambda, \quad \text{and} \quad [16]$$

$$\frac{\partial L}{\partial \lambda} = 1 - \sum_{j=1}^K a_{jt} \quad [17]$$

Working out the value of a_{jt} we get the shares received by each developing country from the Spanish ODA:

$$a_{jt} = \left(\frac{\lambda}{\alpha_j \cdot N_{jt}^{\beta} \cdot I_{jt}^{\delta} \cdot G_{jt}^{\varphi} \cdot H_{jt}^{\theta}} \right)^{\frac{1}{\alpha_j-1}} = \left(\frac{\alpha_j \cdot N_{jt}^{\beta} \cdot I_{jt}^{\delta} \cdot G_{jt}^{\varphi} \cdot H_{jt}^{\theta}}{\lambda} \right)^{\frac{1}{1-\alpha_j}} \quad [18]$$

Taking logarithms in equation [18] yields the linear function:

$$\ln a_{jt} = \alpha_j^* + \beta^* \ln N_{jt} + \delta^* \ln I_{jt} + \varphi^* \ln G_{jt} + \theta^* \ln H_{jt}$$

$$j = 1, 2, \dots, K$$

$$t = 1, \dots, T \quad [19]$$

where:

$$\alpha_j^* = \frac{\ln\left(\frac{\alpha_j}{\lambda}\right)}{1 - \alpha_j}; \quad \beta^* = \frac{\beta}{1 - \alpha_j}; \quad \delta^* = \frac{\delta}{1 - \alpha_j}; \quad \varphi^* = \frac{\varphi}{1 - \alpha_j}; \quad \theta^* = \frac{\theta}{1 - \alpha_j}$$

The expected relations in the allocation of the aid-quotas are²²:

$$\frac{\partial a_{jt}}{\partial N_{jt}} > 0; \quad \frac{\partial a_{jt}}{\partial I_{jt}} > 0; \quad \frac{\partial a_{jt}}{\partial G_{jt}} > 0; \quad \frac{\partial a_{jt}}{\partial H_{jt}} > 0 \quad [20]$$

Therefore, equations [9] and [19] specified a *RN–DI hybrid* model, and its specification allows us to consider a different set of explanatory variables in each decision-step²³.

Finally –as Tarp *et al.* (1999) pointed out–, there is a potential econometric risk of *simultaneity* in the determination of the total aid budget (\tilde{A}_t , see equation [4]) and the share of aid finally allocated to each partner (a_{jt} , see equation [18]). This problem would be serious if, either the total aid budget or the distribution among bilateral and multilateral aid, were to depend also on the same *RN–DI* function. However, the assumption that the first-step decision (see equation [4]) is exogenous with regard to the selection stage (equation [9]) and the share stage (equation [18]) minimizes the simultaneity bias.

3.4. Determinant factors for Spanish aid allocation

As equations [6] and [12] establish, Spain’s aid allocation decision depends on several variables that, for reasons of simplicity, may be grouped into four explanatory factors: recipient countries’ needs, donor’s foreign policy interests, aid effectiveness determining factors and the allocation’s path dependence:

i) Regarding the *recipient countries’ relative needs*, aid should be concentrated in the poorest countries, as it is explicitly pointed out by the OECD, which attributes to the ODA “the promotion of the economic development and welfare of developing countries as its main objective” (OECD: DAC, *op cit.*). In the particular case of Spain, the Aid Law establishes that the main objective of aid is to contribute to the “eradication of the World poverty, in all its manifestations” (*1st article*), and understands that the human being is the main protagonist of the co-operation policies. Especially clear is the aspiration to allocate the resources in accordance with the basic criterion established in the *article 5*: “[...] less economically and socially developed countries will receive special attention from the Spanish co-operation”.

Moreover, Spain should take into account the relative level of need of each partner country in terms of their *share in the global ODA* (i.e. total aid disbursed by multilateral and bilateral donors). On this matter, there are two possible scenarios:

- A negative relation between the Spanish allocation and the rest of the donors’ allocations shall reflect certain coordination among donors’ interventions, avoiding infra and supra-allocations in specific regions. In this scenario, it is reasonable to consider

²² We could also define *cross-elasticities* so as to reflect the fact that the allocation to a particular partner country does not depend only on its *RN–DI* scores, but also on the scores of the *K–1* remaining recipients. For reasons of simplicity, the model only considers the direct elasticities indicated in equation [19].

²³ i.e. there is not an *a priori* reason for the parameters of these two equations to be the same.

that the Spanish *middle-income country bias* is due to a specialization pattern with Latin America, agreed within an international coordination scheme.

– On the contrary, a positive relation shall reflect the existence of the so-called “bandwagon effect”. As Dudley and Montmarquette (1976) first explained, this behaviour implies that the donor’s perception of the impact of its aid on a specific developing country is positively influenced by the volume of aid that this country attracts from the rest of donors.

ii) With regard to *foreign policy interests*, traditionally Spain has oriented its aid towards Latin America, Equatorial Guinea, the Philippines and Morocco, due to the historical links. Specifically, the Spanish Aid Law clearly establishes that the geographical priorities are “[...] Latin American countries, the Arab countries of North Africa and Middle East, as well as other less developed countries that maintain special historical and cultural links with Spain” (6th article). These historical links are determined by a series of cultural affinities, such as language, religion and legislative tradition, factors that Spain has considered facilitate more effective co-operation relations. Supporting this argument, the DAC’s review on Spanish aid (2002) pointed out the existence of a “comparative advantage” with Latin America, based on strong linguistic, cultural and historical ties.

Furthermore, Spain may be stimulating its *trade and investment interests* through the allocation of aid to its main economic partners. In fact, this was the original aim of the FAD loans scheme, which was set up in 1976 in order to foster the exports of the Spanish enterprises.

iii) Regarding the *determinant factors of aid effectiveness*, the international community has increasingly reached a consensus on the significance of the recipient countries’ economic, social, political and institutional environment in the development process and the effectiveness of aid²⁴. Good governance has been one of the main DAC’s concerns since 1989, which points out the existence of a “vital connection between open, democratic and accountable political systems, individual rights and the effective and equitable operation of economic systems”²⁵.

Thus, Spanish aid should promote good public policies of the recipient governments, as is expressly ratified both in the Aid Law and the current Aid Plan: the latter claims that one of the aid’s main goals is “[...] the promotion of democracy and the respect of the fundamental rights, from a real and effective citizen participation, and the exercise and respect of human rights, as they are recognized within the United Nations framework” (MAE, 2005, p. 37). Moreover, the Plan claims that the geographical specialization should be guided by the “greater commitment of recipient countries to the development goals, and, in particular, the adoption of appropriate policies to fulfil the goals of the Millennium Declaration and other international agreements signed by the country” (p. 99). With this in mind, in 2006, Spain elaborated a “Strategy for the promotion of democratic governance, citizen participation and institutional development”.

In the end, it is assumed that aid is more effective in those countries with sound political and institutional environments. This assumption is the heir of the pioneer studies on aid effectiveness carried out by Burnside and Dollar (1997, 2000 and 2004) –promoted by the

²⁴ Good reviews on aid effectiveness literature can be found in Alonso (2003) and McGillivray (2003c).

²⁵ Policy statement by DAC aid ministers and heads of aid agencies on development co-operation in the 1990s, reprinted in the 1989 DAC Development Co-operation Report, OECD (1989). Available in: http://www.oecd.org/LongAbstract/0,2546,en_2649_34435_2755285_119814_1_1_1,00.html

World Bank's *Development Research Group*— which claimed that the impact of aid on growth depends both on the recipient countries' policies and institutions, and on the management by the donor. Although these results have been highly controversial, Collier and Dollar (2001 and 2002) developed the so-called “anti-poverty efficient allocations”, which were published in the World Bank's report *Assessing Aid* (World Bank, 1998), arguing that a re-allocation towards poor countries with sound policies could free from poverty a greater number of people than the current resource allocation²⁶.

Furthermore, the recipient economy's absorptive capacity is included in the model so as to take into account the productive constraints of additional aid allocations and the existence of decreasing marginal returns on aid²⁷.

iii) With regard to the *aid's path dependence*, the proposed model measures the “inertial effect” exerted by previous allocations, which has several explanations:

a) Donors tend to co-operate with a steady group of partner countries so as to minimize the aid administrative costs; i.e. adding new partners means incurring in additional expenses due to the necessity of implementing new bilateral mechanisms in order to assure that aid is effective. Moreover, the donor's aid management may be benefited by “learning economies”, based on previous experiences of assisting the same group of countries, which lead to increased administrative efficiency levels. Spain's current effort of acquiring greater administrative capacity in the so-called “priority countries” determines, to some extent, these countries future probabilities of being aid recipients—and, in the end, their permanence in the list of priorities²⁸.

b) Closely related to the previous argument, the donor is responsible for providing their partners with a stable assistance so as to generate long-term sustainable development processes—provided that the terms of co-operation are fulfilled—. This is the case of Spanish aid which is reinforced by the current increasing emphasis on *programme* aid, instead of short-term *projects*. A greater stability in the relations with partner countries is also caused by the use of new aid instruments (such as global funds, budget support and sector wide approaches), which have longer term perspectives, grant a greater role to the recipient and require greater coordination among donors.

c) The inertia is led by previous experiences where aid was shown to be particularly effective. Thus it may include the factor of “previous results” identified by Isopi and Mavrotas (2006), but without the controversial assumption of *inter alia* effectiveness²⁹.

d) Spain's co-operation with Latin America has been especially stable over time. The Aid Plan gives a set of institutional and geo-strategic reasons, which constitute an inertial movement in the assistance and why “Latin America has been, and will be, a priority region for Spanish aid” (MAE, 2005, p. 104). Moreover, Spanish NGOs' assistance to Latin America also has a structural character, and the inertia of this co-operation is partially due to the reduced size of these organizations (which determines

²⁶ McKinlay and Little (1977) were the first authors to test the role of “political stability” and “democracy” in the aid allocation.

²⁷ *Vid.*, among others, the studies of Dudley and Montmarquette (1976), Lensink and White (2001) and Hansen and Tarp (2000).

²⁸ Most of these countries already have *in situ* technical co-operation offices and country strategic plans.

²⁹ In this respect, the current Aid Plan is committed to make progress in aid planning and management procedures, based on previous results, in order to increase the effectiveness levels.

their specialization in this region) and the cultural and linguistic affinities with the Latino countries.

e) Long-running political commitments between donor and recipient have an outstanding importance in the allocation process and contributes to an additional factor of stability, as it is specially complicated to retract resources from a long-running aid-partner.

4. EMPIRICAL MODEL OF SPANISH ODA GEOGRAPHICAL ALLOCATION

4.1. Econometric specification of the model

The estimation of the theoretical model explained in the preceding section requires tackling the censored nature of ODA allocations. From a statistical point of view, when the explained variable's data is only available for some limited observations, the analysis deals with a so-called *censored sample*: the exclusion of some developing countries from the Spanish assistance implies that aid is partially continuous with positive probability mass at the value of zero. This characteristic of the aid flows is represented by the selection of a *threshold* – which is a *latent variable*– where the donor starts to disburse positive amounts of aid (*vid* the *attraction index* defined in equation [6])³⁰.

If the observations for $a_{jt} = 0$ (*vid* equation [11]) were excluded from the sample, the estimation will violate one of the assumptions of the linear regression model: given the set of explanatory variables, the expected value of the errors is equal to zero ($E[u_j] = 0$). Therefore, the estimates will be biased and inconsistent, as would be the case of an *ordinary least square* estimation (although it has been frequently used in the aid allocation literature). By contrast, *limited dependent variable regression models* do not omit these null observations, allowing the “latent” decision of excluding those countries that lie under the threshold level to be analysed.

Three alternative econometric models have been previously used in the aid allocation analysis³¹: the TOBIT model; the type 2 TOBIT model (HECKMAN or sample selection model); and the two-part model:

- The *TOBIT model* strictly describes a one-step decision process, where the donor only considers the final aid disbursements without first determining the list of aid-partner countries. Thus it partially answers the two research questions previously raised in this paper since the variables determining the partners' selection process and the allocation of the aid-quotas must be the same and exert the same degree of influence. As was explained in the previous section, this procedure does not intuitively fit the Spanish aid allocation policy.

- The *type 2 TOBIT model* estimates two –correlated– allocation stages, but the efficiency of the estimation depends upon the inclusion of an “exclusion restriction” that determines the aid eligibility, but not the aid-quotas eventually allocated. However, it has not been an easy task for the aid allocation studies to find such a restriction.

³⁰ A *latent variable* is a critical value determined by a set of explanatory variables in such a way that if a developing country surpasses this threshold, it will receive a positive aid disbursement. Thus the threshold level can be determined by *RN* and *DI* variables, as it was explicitly established in the *attraction indexed* defined in equation [6].

³¹ NEUMAYER (2003) offers a good review of the econometrics of these models within the context of the aid allocation analysis.

– By contrast, the *two-part model* estimates two –independent– allocation stages, rendering the estimation less vulnerable to the omission of explanatory variables and the estimates more efficient in the absence of an exclusion restriction than the type 2 TOBIT ones. However, as the two-part model considers that both decision-steps are independent (i.e. the error terms of both estimations are not correlated), if they were actually correlated, the type 2 TOBIT estimates would be more accurate.

For these reasons, given the difficulty of finding a measurable exclusion restriction for the Spanish aid allocation process, the present analysis uses a two-part model. Besides, as Manning *et al.* (1987) demonstrated by means of Monte Carlo experiments, any potential bias of the model is likely to be small in typical situations³².

The *aid selection stage* defined in equation [9] is therefore estimated by means of the following regression function with a binary dependent variable and a panel data set³³:

$$\Pr(D_{jt} = 1) = \alpha_j + \beta \ln N_{jt} + \delta \ln I_{jt} + \varphi \ln G_{jt} + \theta \ln H_{jt} + u_{jt} \quad [21]$$

where $\alpha_j, \beta, \delta, \varphi$ and θ are the parameters to estimate.

The *aid share stage* defined in equation [19] is estimated separately for the group of partner countries that has post-colonial links with Spain and those countries without these historical ties. This procedure avoids the constraint of the fixed-effect model regarding the estimation of explanatory variables which do not vary over time. The panel data regression function used in both cases is written as³⁴:

$$a_{jt}^* \Big| (D_{jt} = 1) = \alpha_j' + \alpha_j' + \beta' \ln N_{jt} + \delta' \ln I_{jt} + \varphi' \ln G_{jt} + \theta' \ln H_{jt} + u_{jt} \quad [22]$$

$$a_{jt} = a_{jt}^* \quad \rightarrow \quad \text{if} \quad D_{jt} = 1$$

$$a_{jt} = 0 \quad \rightarrow \quad 0 \quad \text{otherwise}$$

where the variables are defined as in previous equations and a_{ij}^* represents the potential aid endowments.

4.2. Measurement of the dependent variable: Spanish bilateral ODA

This paper only analyses the *bilateral resources* classified by the DAC as *official development assistance* (ODA). The amount of aid can be measured in accordance with the donor’s *commitments* or the final (net or gross) *disbursements*. A commitment is defined as a “firm written obligation by a government or official agency, backed by the appropriation or availability of the necessary funds, to provide resources of a specified amount under specified financial terms and conditions and for specified purposes for the benefit of a recipient country or a multilateral agency” (OECD: DAC, 2007, *op. cit.*). WHITE and MCGILLIVRAY (1995) pointed out that aid administrators decide on

³² Moreover, the statistical software used in this analysis, *STATA 9.2*, does not have a direct routine for running type 2 TOBIT regressions with panel data, which in practice determines the choice of the two-part procedure.

³³ Specifically, equation [21] is estimated by means of a *logit* regression model. As there is not an easy routine implemented in *STATA 9.2* for *logit* (unconditional) fixed-effect estimation, it uses a random-effects model.

³⁴ In accordance with the results of the *Hausman specification tests*, the allocation equation for the ex-colonial countries is estimated by means of a fixed-effects panel data model and the equation for countries without historical links uses a random-effects model (*results available upon request*).

commitments, since the amount of aid eventually disbursed is not totally under their control (as it depends on the recipient country acceptance of the aid conditions and the eventual fulfilment of the agreement). Nevertheless, donor countries are not obliged to report the DAC on aid commitments –despite the advantages that doing so implies for both the donor’s aid planning and the partner countries’ resource anticipation–, as is the case of Spain³⁵.

Moreover, while aid commitments and *gross* disbursements are strictly positive, *net* disbursements can be negative due to the paying-off of previous “concessional loans” computed as ODA. The differences between gross and net aid disbursements are relatively small for most donor countries, due to the high share of grants. However, Spain’s gross disbursements have been historically much greater than its net disbursements, and the proportional difference between both amounts has been well above the average of the UE and DAC donors. Given the historical importance of loans within the Spanish assistance (the so-called loans of the *Development Assistance Found: FAD*), gross disbursements may be a biased measure of the real transfer of resources to developing countries. Nevertheless, the FAD loans are managed by the *Ministry of Industry, Tourism and Trade* with a high degree of independence with respect to the *Ministry of Foreign Affairs*. The latter does not directly consider in its geographical orientations the loans pay-off schedule so as to compensate the negative disbursements (SECI’s official communication)³⁶. Thus, in order to analyse the most realistic image of the aid transfers and the Spanish aid management policy, the present proposed model uses ODA gross disbursements as the dependent variable of the model³⁷.

Emergency aid is subtracted from the ODA gross disbursements because this kind of aid responds to “an urgent situation created by an abnormal event which a government cannot meet out of its own resources and which results in human suffering and/or loss of crops or livestock” (OECD: DAC, March 2007, *op. cit.*). Therefore, we can assume that emergency aid is disbursed to countries under emergency situations in an “additive” way –i.e. additional to the resources that were already allocated to them–, being its geographical distribution independent of the previously resolved one.

With regard to the *debt relief actions*, these are multilateral programs in which the Spanish State is taking part (mainly, the HIPC Initiative and the negotiations of the Paris Club), that impose a specific calendar and map of execution, where individual donors cannot exert a direct influence on the geographical orientations. However, debt forgiveness cannot be considered as strictly *exogenous* from each bilateral donor’s process of allocating aid, as donors could bring forward the amount of resources previously assigned to the countries favoured by debt cancellations. In fact, multilateral debt programmes specify detailed time schedules for the relief flows, which are often negotiated in international forums before bilateral donors decide the geographical allocation of their own resources. Despite this fact, the Spanish geographical allocation has occasionally been affected by major debt actions³⁸,

³⁵ However, in accordance with official sources of the SECI, Spain will report on aid commitments from 2007 onwards.

³⁶ This fact explains the incoherencies between the Spanish geographical priorities defined in the Aid Plan and the aid eventually disbursed: e.g. there is a number of “preferential countries” that have received negative net disbursements, such as Mexico in the last 7 years.

³⁷ Other aid magnitudes –alternative to the data provided by the DAC– are the so-called “effective development aid” measured by Chang, Fernandez-Arias and Serven (1998) for the period 1975–95, and the “aid quality-adjusted” measured by Roodman (2006).

³⁸ Especially outstanding were the debt relief of Guatemala, in 2001, and Iraq, Madagascar and the Republic of Congo, in 2005, which turned these countries into the main recipients of Spanish ODA.

partially because debt relief programmes are managed by the *Ministry of the Exchequer* irrespectively of the *Ministry of Foreign Affairs and Co-operation*. The interviews carried out with aid managers of the SECI confirm that this highly independent management implies a lack of coordination between both Ministries, which consequently impedes anticipating the eventual aid allocation to those countries benefited by debt relief. Thus, the present analysis detracts debt actions from the ODA gross disbursement and considers that the resulting amount is a better approximation of the resources finally allocated by the aid decision-makers.

Once the Spanish ODA gross disbursements are obtained –netted of emergency aid and debt cancellations–, the dependent variable of the *aid-partners selection stage* is computed by means of a dummy variable that classifies the group of developing countries into two possible categories: “ $D = 1$: selected partner country” and “ $D = 0$: otherwise”. The classification rule is the existence of a “significant” disbursement of aid. As McGillivray and Oczkowski (1992) pointed out, it is convenient to use a “minimum threshold” of aid receptions so as to compensate the limited impact of highly scattered aid allocations that renders a certain number of recipients with particularly low shares –as is generally the case among the largest donors, although it is also typical of Spain–. While choosing a specific threshold level can be, ultimately, an arbitrary procedure, it is especially convenient in the case of the Spanish ODA, given the high level of geographical dispersion. Therefore, the first-step estimation defines a partner country only if it receives, at least, a 1% share of Spain’s ODA. Otherwise, the *logit* regression would be seriously unbalanced, with a greater share of category 1 (i.e. the number of selected countries are greatly superior to the number of non-selected ones), over-estimating the probabilities of being selected³⁹. Besides, given the censored nature of aid allocations, regression models with limited dependent variables require explained variables greater or equal to zero, which excludes negative aid disbursements.

The dependent variable of the *aid share stage* is measured as each partner country’s quota in the predetermined annual amount of Spanish aid (see equation [11]). This definition in percentage terms has two relevant virtues. On one hand, it eliminates the bias introduced by the comparison of figures coming from different years, being possible to use gross disbursements data in current dollars; and it also eliminates the measurement error due to the fluctuations of the euro/dollar exchange rate. On the other hand, it avoids the bias due to the fact that the Spanish aid budget is increasing over time. Ultimately, since the aid figures reported by the DAC are measured in current dollars, we assume for simplicity that the euro/dollar real exchange rate remains constant among the recipient countries, not considering the discrepancies in the aid “real purchasing power”.

4.3. Measurement of the explanatory variables

The selection of the corresponding proxy variables for the determinant factors of the Spanish aid allocation explained in *section 3.4* follows three different criteria: firstly, it includes those variables that best capture the peculiarities and interests of the Spanish ODA policy. Secondly, it is guided by the literature review of precedent studies on geographical aid allocation. Finally, –from a more practical perspective– it tries to both maximize the data available for developing countries (avoiding in this way a sample selection bias due to a non-random omission of data), and to avoid informative redundancy (that may cause multicollinearity problems). The variables included in the analysis are listed in **Table 2**.

³⁹ Different threshold values change the probability of being selected as an aid-partner. However, they do not considerably affect the magnitudes and signs of the estimated parameters. Therefore, the model remains consistent.

4.3.1– Recipients’ needs

The present model proxies the recipient countries’ relative needs of aid by means of the following variables:

The *per capita GDP* (USA constant dollars 2000, PPP) is used as an indicator of the average economic welfare of the recipient societies. It tests the existence of a “progressive distributional criterion” in relation to the partner countries’ income levels, assessing the coefficient of the income’s natural logarithm⁴⁰.

Recipient countries’ *population sizes* are included so as to test the sensitivity towards the most populated countries. Given the special interest of Spain in its former colonies (the majority of which were, except Mexico and Philippines, countries of less than 45 million inhabitants in 2005), it tests the existence of a *small countries bias* (i.e. whether the population coefficient is smaller than 1).

Table 2. Variables and sources of the RN–DI model

Variable	Code	Estimation stage	Kind of variable	Number of lags	Main source
Dummy: Spanish aid-partner	<i>D</i>	SE	dependent variable	...	OECD: DAC (2007)
Share on Spanish ODA gross disbursements	<i>A</i>	QE	dependent variable	...	OECD: DAC (2007)
GDP <i>per capita</i> PPP	<i>GDPpc</i>	SE, QE	RN	2	WORLD BANK (2006)
Population	<i>POP</i>	SE, QE	RN	2	WORLD BANK (2006)
Death rate	<i>DR</i>	SE, QE	RN	2	WORLD BANK (2006)
Share on global ODA (excluding Spanish aid)	<i>a_others</i>	SE, QE	RN	...	OECD: DAC (2007)
Colonial <i>dummy</i>	<i>d_COL</i>	SE, QE	DI	...	CIA (2007)
Share on Spanish exports	<i>EXP</i>	SE, QE	DI	1	UN ComTrade DataBase (2007)
Cumulative net <i>stock</i> of Spanish foreign investment	<i>FDI</i>	SE, QE	DI	1	Ministerio de Industria, Turismo y Comercio (2007)
POLITY2	<i>P2</i>	SE, QE	AE	1	Polity IV Project (2005)
Absorptive capacity (ODA/GDP)	<i>AC</i>	SE, QE	AE	2	WORLD BANK (2006)
Share on Spanish ODA _{t-1} gross disbursements	<i>a_t_1</i>	SE	H	1	OECD: DAC (2007)

Notes: SE: selection stage; QE: aid-quotas stage; RN: recipients’ needs; DI: donor’s interests; AE: aid effectiveness determinants; H: aid’s path dependence

Moreover, as *per capita* income levels only offer average information on economic wellbeing, other aspects of social wellbeing are approximated by means of the *death rate*. This variable is both less correlated with *per capita* income than other synthetic indicators (such as the *Physical Quality of Life Index* and the *Human Development Index*), therefore reducing the risk

⁴⁰ As the model is specified in natural logarithms (both the dependent variable and the independent variables), it thus facilitates the interpretation of the coefficients in terms of elasticities.

of multicollinearity, and is widely available among developing countries, thus reducing the risk of a no-random sample selection bias⁴¹.

The share of each recipient country on the global ODA (i.e. total aid disbursed by multilateral and bilateral donors), excluding Spanish aid, is included in the analysis so as to test the existence of a “bandwagon effect” in the allocation.

4.3.2– Donor’s interests

Spain’s economic and geo-strategic interests are proxied by means of the following variables:

The analysis shall test the importance of the special historical and cultural links in the aid allocation by means of a qualitative, dummy, variable, with two categories: “ $d_col = 1$, if the country was part of the Spanish colonial Empire” and “ $d_col = 0$, otherwise”.

Trade interests are evaluated by means of the share of each developing country on Spanish exports; on the other hand, the investment interests are measured by the net stock of Spanish investment in each developing country, accumulated since 1990. It should be pointed out that, given that part of the ODA consists of “tied loans” (i.e. conditional credits upon the purchase of Spanish equipment), there is a potential risk of simultaneity between exports and aid disbursements. Nevertheless, exports are lagged one year, which reduces the risk of simultaneity, since tied aid stimulates, mainly, the current year exports.

4.3.3– Determinant factors of aid effectiveness

In order to approximate the partner countries’ commitment with democracy and the respect of human rights, this paper uses the aggregate indicators of the *Polity IV Project* (Marshall and Jaggers, 2005), which offer comprehensive information on the characteristics of the different countries’ political regimes⁴². In particular, it will use the *POLITY2* synthetic indicator, which treats different aspects related to the institutionalization of democratic and autocratic regimes, codifying them within the interval between -10 (strong autocratic regime) and $+10$ (strong democratic regime). Thus, the coefficient of this variable is expected to be positive, reflecting Spanish support for more democratic countries. However, it should be pointed out that the level of democracy can also be interpreted as indicative of a country’s need for aid, thus expecting an indirect relation with the allocation⁴³. In fact, the Spanish Aid Plan defines the so-called group of countries “with special attention” as those suffering “special circumstances”, such as the necessity of preventing conflicts or contributing to building peace and the weak respect for human rights and the democratic system.

Moreover, the recipient economy’s absorptive capacity is proxied by means of the ratio of the total ODA –bilateral and multilateral– received by the country to its GNI (ODA/GNI ratio). Nevertheless, to date there is not a clear consensus on an objective and measurable variable in which to trace the threshold where aid becomes unproductive. Some studies have used the ratio of foreign direct investment to the recipient country’s GNI as an indicator of its capacity to absorb external financial resources, assuming that capital imports are a good indicator of the absorptive capacity if aid is used to finance the capital accumulation. However, this

⁴¹ The use of the infant mortality rate raises serious concerns, as there are not available complete time series data, but five-year values.

⁴² The *Polity IV Project* comprises all independent States with more than 500,000 inhabitants.

⁴³ *Vid* a review on the recent literature on fragile States in McGillivray (2006).

criterion does not consider other aid policies that are not targeted to finance capital accumulation, but the provision of public services. Other studies have used the ratio of ODA commitments to disbursements, which partially reflects the capability of the recipient government to administrate the committed resources. However, Spain does not report on aid commitments, whereas the ODA/GNI ratios are widely available among developing countries, offering a reasonable measure of the recipient economy's aid-dependency level⁴⁴.

4.3.4– Aid's path dependence

The present model includes the variable $A_{j,t-1}$ (previous year ODA-quota) in the aid-partners selection stage in order to capture the path dependence of the geographical allocations, assuming that previous disbursements positively influence the probability of being “re-selected” as a aid-partner⁴⁵. This factor has scarcely been considered in the literature, although authors such as Isopi and Mavrotas (2006) used, *inter alia*, a proxy variable of the “past results” so as to measure the aid effectiveness and estimate its inertia on the allocations⁴⁶, and Feeny and McGillivray (2002) and Feeny (2003) used, on the other hand, previous year aid disbursements (although this option was possible within a time-series SUR analysis, but it turns more complicated within a panel data regression⁴⁷).

Moreover, it should be born in mind that, to a certain extent, aid is middle-term oriented (e.g. programme aid and those projects that are extended over time⁴⁸) and, in certain occasions, it has a structural character for the recipient economy which implies a political commitment between donor and recipient; both reasons therefore constitute a relevant factor of inertia in the aid allocation. In the end, the inclusion of the lagged dependent variable in the aid-quotas allocation stage with panel data introduces an important bias in the estimation due to the existence of autocorrelation, and for this practical reason the lagged dependent variable is not included in this estimation stage.

4.4. Model specification

As equations [9] and [19] specify, the model is transformed in a linear function by means of the natural logarithm, thus facilitating the interpretation of the coefficients in terms of elasticities and reducing the heteroskedasticity among observations⁴⁹.

⁴⁴ It is worth mentioning that high rates of ODA/GNI may stem from a “bandwagon effect” among donors' allocations; however, this variable, in the case of Spanish aid, is not significantly correlated with the ODA received by the rest of the donors ($r^2 = -0.0304$), ruling out the existence of a simultaneity problem.

⁴⁵ In the Spanish context, there has been a high year-by-year variation of the aid-quotas, in contrast with the relative stability of the list of partner countries. In fact, the average coefficient of variation of these quotas between 1993 and 2005 was 0.655: i.e. on average, the inter-annual variation of a partner country's quota was 65.5%. In this sense, the aid's inertia has been especially important in the selection stage, but not as much in the aid-quota stage, which vary considerably year by year *Author calculations* with OECD: DAC (2007) data: developing countries' quotas on Spanish ODA gross disbursements.

⁴⁶ Isopi and Mavrotas (2006) study the aid giving patterns of 20 DAC bilateral donors. They used the World Bank's *Operations and Evaluations Department* (OED) aid economic rate of return of the World Bank projects. They assumed that bilateral donors' efficiency levels are the same as those ones of the World Bank (*inter alia* effectiveness). This assumption is due to the fact that the World Bank is the only donor that systematically measures the results of its projects.

⁴⁷ Their analysis was actually restricted to the 11 main recipient countries.

⁴⁸ As Bulir and Hamann (2003) pointed out, aid projects also have a relevant inertial character, since they flow gradually according to multi-year disbursement schedules and their sudden cancellation or interruption may be very costly.

⁴⁹ The only exception is the *POLITY2*, which is expressed in its original rank units, since it does not accept reasonable interpretations in terms of elasticities.

In order to access the information available for the Spanish aid decision-makers in a realistic way, the explanatory variables are specified with different time lags. As was previously explained, the Spanish co-operation budgetary process begins with the approval, at the end of the preceding year, of the General Public Budget. Furthermore, the lengths of the lags are specified in accordance with the time-delay that takes place in the provision of international statistics⁵⁰: in the case of *per capita* incomes, population levels, death rates and absorptive capacities, decision-makers faced a 2-year information lag (see **Table 2**). The share on Spanish exports, foreign investment and *POLITY2* are lagged one year⁵¹. Finally, as explained previously, the inertia variable is measured with a one year lag. This lag structure also reduces the potential simultaneity bias between the aid allocation and the explanatory variables.

4.5. Sample and period of analysis

The sample includes the 178 developing economies referred by the successive DAC lists of ODA recipient countries, published from 1993 to 2005. 130 of these countries received Spanish ODA at least one year. 74 countries were eventually excluded from the analysis due to a lack of information; nevertheless, the missing countries respond to very different socio-demographic and economic profiles, a fact which limits the existence of a sample selection bias: they are countries in conflict or post-conflict situations (such as Iraq, Afghanistan and Somalia), territories whose independence have not been formally reconnoitred (Palestine and Western Sahara), countries which lack statistical information (Cuba, North Korea, East Timor, Liberia and Libya) and/or islands and regions with less than one million inhabitants (a great deal of them are the least-developed countries: Wallis and Futuna, Turks and Caicos Islands, Tuvalu, Tokelau, Santa Helena, Niue, Nauru, Montserrat, Mayote, Cook Islands and Anguila), which have received very limited attention from Spanish co-operation. The **Annex** shows the 104 developing countries included in the analysis.

The period of analysis comprises 13 years of Spanish assistance, from 1993 to 2005 (the last year with available information). For those variables with one or two year lags, the information was analyzed starting from 1992 or 1991, respectively. The period of analysis excludes the first “gestation” stage of the Spanish aid system (1986–92), so as to focus the study on the time when it was already consolidated.

5. THE SPANISH PATTERN OF GEOGRAPHICAL AID ALLOCATION

5.1. Selection of aid-partner countries

During the period 1993–2005 Spain has selected its aid-partners mainly guided by factors of interest and inertia of its foreign policy (**Table 3**): in particular, it has been directly influenced by the post-colonial links, the reception of Spanish aid and exports in the previous year and the resources received by the rest of the donors. Nevertheless, the selection process has neither systematically taken into account the recipients’ needs variables, nor their level of democracy.

⁵⁰ In fact, the Aid Plan explicitly points out that less developed countries will be identified by means of the socioeconomic indicators elaborated by international organizations.

⁵¹ The share on global ODA is not lagged. The specification test pointed out that the Spanish aid allocation is specially related to the current year aid disbursements of the rest of the donors; moreover, the estimation results do not change upon the number of lags included in this variable.

Table 3. Estimation of the Spanish selection of aid-partner countries. 1993–2005

Random-effects logistic regression	Number of obs	=	1279
Group variable (i): n	Number of groups	=	104
Random effects u_i ~ Gaussian	Obs per group: min	=	4
	avg	=	12.3
	max	=	13
	Likelihood ratio chi2(10)	=	245.43
Log likelihood = -255.15245	Prob > chi2	=	0.0000

D	OR	Std. Err.	z	P> z	[95% Conf. Interval]
lnGDPpc _{t-2}	1.237373	.456867	0.58	0.564	.600091 2.551433
lnPOP _{t-2}	.8354529	.1471694	-1.02	0.307	.5915321 1.179955
lnDR _{t-2}	1.381162	.5396969	0.83	0.409	.6421441 2.970684
lna_others	1.410425	.227055	2.14	0.033	1.028776 1.933657
lnEXP _{t-1}	1.338513	.192901	2.02	0.043	1.009139 1.775392
lnFDI _{t-1}	.8846312	.0908555	-1.19	0.233	.723336 1.081893
d_COL	5.772276	2.516516	4.02	0.000	2.456135 13.56569
P2 _{t-1}	.9966861	.0264699	-0.12	0.901	.9461332 1.04994
lnAC _{t-1}	1.238793	.2931163	0.91	0.365	.7790985 1.969724
lna _{t-1}	3.714909	.504239	9.67	0.000	2.847156 4.847134
/lnsig2u	-2.015583	1.722081			-5.390799 1.359633
sigma_u	.3650243	.3143006			.0675154 1.973515
rho	.0389244	.0644219			.0013836 .5420965

Note: White’s (heteroskedasticity-adjusted) robust errors

The *OR* column in **Table 3** shows the *odds ratio* of being selected as a partner country (i.e. the ratio between the probability of being selected and the probability of not being so) when one of the explanatory variables of the model increases one-unit, *ceteris paribus*⁵². Hence the highest odds ratio is associated to the variable of Spanish colonial past. The interpretation of this coefficient in the case of two-category dummy variables is relatively simple: for two developing countries with identical values in the set of explanatory variables, but with different post-colonial links, it shows the difference between their probabilities of being selected partners. According to the estimation, the odds ratio for a former colony is 5.8 times greater than for a country without this historical link, a result that stems from the fact that only 79 of the 273 observations of the colonial past included in the panel data set (20 ex-colonies analyzed along 13 years⁵³) did not –significantly– participate in the Spanish AOD⁵⁴. The aid’s path dependence also exerts an outstanding effect, imprinting a certain character of “persistence” in the selection process, in such a way that a one-percentage increase in the Spanish ODA-quota allocated the previous year to a developing country multiplies by 3.7 its odds of being re-selected as a partner. This path dependence of the Spanish aid is strongly linked to the special inclination towards the ex-colonial countries, which is further reinforced by the strong specialization of the Spanish NGOs’ in Latin America, Equatorial Guinea and North Africa.

⁵² Formally, when variable x_i increases one-unit, *ceteris paribus*, the odds ratio is multiplied by a factor equal to e^{x_i} .

⁵³ Cuba is not included in the analysis due to the lack of information.

⁵⁴ Particularly: Argentina (1999–2001), Colombia (1993), Costa Rica (1992–95, 1998, 2001, 2004 and 2005), Cuba (1992–94), Chile (1997–2005), Dominican Republic (1992–94), El Salvador (1992–94), Equatorial Guinea (2003), Guatemala (1992–94), Honduras (1992), Mexico (1996, 1997, 1999–2001, 2003 and 2004), Nicaragua (1992), Panama (1992–95 and 2002–05), Paraguay (1992–94, 1996, 2000, 2002, 2004 and 2005), Peru (1992–94), Philippines (1992 and 1996), Uruguay (1996–2002 and 2004) and Venezuela (1992–95, 1998, 2004 and 2005).

The other two statistically significant variables have a less decisive influence in the selection process: on the one hand, a one-percent increase in the share of Spanish exports increases the odds of selection by 34%, which, to a great extent, reflects the convergence of trade and aid interests. On the other hand, a one-percent increment in the share of global aid increases the odds of selection by almost 41%. This result confirms that Spain has been influenced by a “bandwagon effect”, which suggests three –not necessarily exclusive– possible explanations: either Spain perceives that ODA is more effective in those countries that receive more resources from the rest of the donors; or that the donors’ international community –including Spain– agrees when assisting the “neediest” countries, thus selecting a fairly similar group of partners; or, finally, that the regions where donors share strong geo-strategic interests (mainly, the Middle East and the largest developing countries) are, in turn, regions of interest for Spain; such is the case of countries like Israel (which received ODA until 1996, being one of the world’s main aid recipients), Egypt, China, India and Indonesia, which –except for India– have been aid partners during the 13 years analysed⁵⁵. In the end, a positive coefficient of this variable reflects a lack of coordination with the rest of international donors in the definition of their “intervention areas”, which may reinforce the existence of the so-called aid “darlings” and “orphan” countries, or a excessive fragmentation of the Spanish interventions due to the attempts to catch up with the interests of the international community, even at the expense of over-scattering the resources.

The implications of this selection pattern can be illustrated with an example of the year 2005: the Dominican Republic and Tunisia had similar levels of *per capita* income, population, death rates, net stocks of Spanish investment and absorptive capacities, but they had outstanding differences regarding their colonial past, the aid receptions (both from Spain and from the rest of the donors) and the share of Spanish exports (i.e. they differ in the four statistically significant variables in the selection stage). The probabilities of these two countries being selected as aid partners are calculated by means of the probability model estimated in **Table 3**, using the following expression⁵⁶:

$$Z = 1,1554 + 0,213 \cdot \ln GDP_{pc,t-2,j} - 0,1798 \cdot \ln POP_{t-2,j} + 0,323 \cdot \ln DR_{t-2,j} + 0,3439 \cdot \ln a_others_{t,j} + 0,2916 \cdot \ln EXP_{t-1,j} - 0,1226 \cdot \ln FDI_{t-1,j} + 1,7531 \cdot d_col_j + 0,0033 \cdot P2_{t-1,j} + 0,2141 \cdot \ln AC_{t-2,j} + 1,3123 \cdot \ln a_{t-1,j} + u_{t,j} \quad [23]$$

Hence, substituting the corresponding values for Tunisia and the Dominican Republic yields that, whereas the probability of selecting the first country is 0.47, the probability of the second rises to 0.9 (**Table 4**)⁵⁷. In fact, the recipient’s colonial past and the aid’s inertia determine, to

⁵⁵ Since this estimation-stage only analyses whether a developing country is chosen or not as aid-partner, it does not consider the amount of resources finally disbursed.

⁵⁶ **Table 3** offers the odds ratio coefficients, whereas equation [23] uses the coefficients of the logistic probability model.

⁵⁷ The calculations are as follows, with the variables logarithmically transformed:

$$Dominican\ Rep.: Z = 1,1554 + 0,213 \cdot 6.784,92 - 0,1798 \cdot 8.640.648 + 0,323 \cdot 6,46 + 0,3439 \cdot 0,1 + 0,2916 \cdot 0,14 - 0,1226 \cdot 597,06 + 1,7531 \cdot 1 + 0,0033 \cdot 8 + 0,2141 \cdot 1,14 + 1,3123 \cdot 4,05 = 2,3695$$

$$P_j = E(AOD_{2005,Dom.R.} = 1 | X_{2005}) = \frac{1}{1 + e^{-2,3695}} = 0,90042$$

$$Tunisia: Z = 1,1554 + 0,213 \cdot 6.790,8 - 0,1798 \cdot 9.839.800 + 0,323 \cdot 6,1 + 0,3439 \cdot 0,52 + 0,2916 \cdot 0,39 - 0,1226 \cdot 301,01 + 1,7531 \cdot 0 + 0,0033 \cdot (-4) + 0,2141 \cdot 1,63 + 1,3123 \cdot 1,11 = -0,1635$$

$$P_j = E(AOD_{2005,Tunisia} = 1 | X_{2005}) = \frac{1}{1 + e^{0,1635}} = 0,4653$$

a large extent, the different probabilities of being aid partners (if Tunisia were a Spanish former colony, its selection probability would have been 0.54).

Table 4. Probabilities of selecting Tunisia and the Dominican Republic as Spanish aid-partners

	Dominican Rep.	Tunisia
<i>GDPpc</i>	6.784,92	6.790,80
<i>POP</i>	8.640.648	9.839.800
<i>DR</i>	6,46	6,1
<i>a_others</i>	0,1	0,52
<i>EXP</i>	0,14	0,39
<i>FDI</i>	597,06	301,01
<i>d_COL</i>	1	0
<i>P2</i>	8	-4
<i>AC</i>	1,14	1,63
<i>a_{t-1}</i>	4,05	1,11
<i>Pr(D=1)</i>	0,90	0,47

Regarding the *goodness-of-fit* of the model, the χ^2 test of overall significance rejects the hypothesis that all the variables exert a simultaneously null effect in the selection (*vid p-value in Table 3*)⁵⁸. From a different perspective, the classification **Table 5** evaluates the model’s overall accuracy by means of the *R² count*. Since the dependent variable of the *logit* model takes values between 0 and 1, if a country’s predicted probability for a specific year is greater than 0.5, the case is classified as *D = 1* (“selected partner”) and, otherwise, it is classified as *D = 0* (“non selected partner”). The statistic is defined as follows:

$$R^2 \text{ count} = \text{Nº of correctly classified cases} / \text{Total Nº of cases} \quad [24]$$

The model correctly classifies 91.8% of the cases, offering a reasonable fit that allows us to trust the accuracy of the estimates. Nevertheless, it should be pointed out that the model “gets wrong” in a slightly asymmetric way, since the percentage of “actual partners” incorrectly classified as non-recipients (16.1%, *vid* “false – rate for true *D*”) is greater than the percentage of “actual non-recipients” incorrectly classified as partners (5.6%, *vid* “false + rate for true $\sim D$ ”): i.e. most of the prediction errors are located among the group of countries that were actually aid-partners (50 cases were erroneously predicted as non-partners, when they actually received Spanish aid, among 310 observations of positive aid disbursements). Moreover, the high “sensitivity ratio” (83.9%, the percentage of observations with a probability greater than 0.5 given the event *D = 1*) and “specificity ratio” (94.4%, the percentage of observations with a probability smaller than 0.5 given the event *D = 0*) confirm the reliability of the estimated model.

⁵⁸ Nevertheless, as Gujarati (2003, p. 585) points out, “the goodness-of-fit of a binary independent variable model is not as important. What matters are the predicted signs of the regression coefficients and their practical and/or statistical importance”.

Table 5. Classification table

Logistic model for D

Classified	True		Total
	D	~D	
+	260	54	314
-	50	915	965
Total	310	969	1279

Classified + if predicted $\Pr(D) \geq .5$
 True D defined as $D \neq 0$

Sensitivity	$\Pr(+ D)$	83.87%
Specificity	$\Pr(- \sim D)$	94.43%
Positive predictive value	$\Pr(D +)$	82.80%
Negative predictive value	$\Pr(\sim D -)$	94.82%
False + rate for true ~D	$\Pr(+ \sim D)$	5.57%
False - rate for true D	$\Pr(- D)$	16.13%
False + rate for classified +	$\Pr(\sim D +)$	17.20%
False - rate for classified -	$\Pr(D -)$	5.18%
Correctly classified		91.87%

There is, however, a certain number of observations that deviate from the historical criteria. **Graph 2** points out the model’s erroneously classified cases. The value of the Cook’s dD distance statistic measures to what extent an individual observation affects the model’s estimation, identifying the outliers. Moreover, the diameters of the circles depicted in the graph are proportional to the dD statistics, indicating the levels of “influence” of each observation. The points are distributed along two curves that intercept each other forming an X : the curve with a negative slope depicts those cases classified as $D = 0$, and the curve with positive slope, those cases with $D = 1$. Hence, the points located above the intersection (i.e. $\Pr(D=1) = 0.5$) represent the incorrectly classified cases. As previously remarked, most of the prediction errors are located among those countries that were actually chosen as partners (upper right-side cross); nevertheless, the cases with greater dD statistic values (i.e. those that have a greater influence in the estimation of the model) are in fact those where the model gets wrong in the opposite way, i.e. the cases incorrectly predicted as $D = 1$ (*vid* upper-left-side cross).

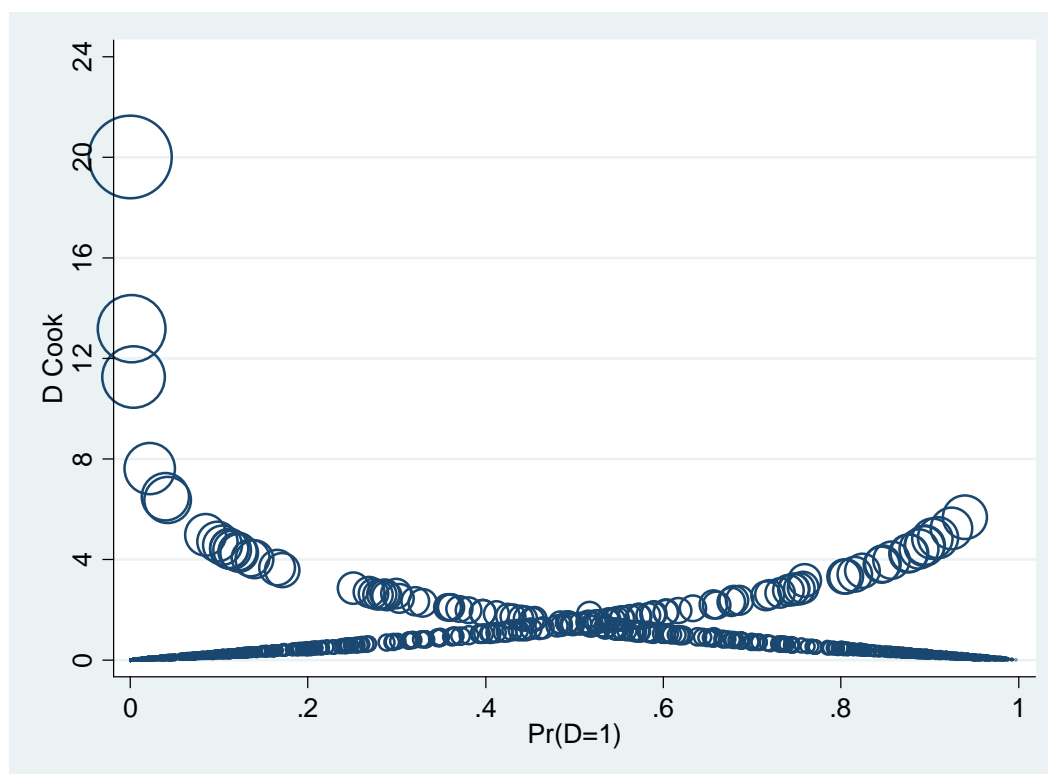
Graph 2. Observations' pattern of influence (dD statistics)

Table 6 gathers those cases with especially high dD statistics (greater than 4), showing the values of the explanatory variables that are statistically significant. In particular, there are 25 outliers among the cases erroneously classified. Since the binary variable of colonial past does not vary over time, the prediction errors stem from the time changes in the rest of the explanatory variables, mainly in the previous year Spanish aid-quota (which is the variable that exerts a greater influence in the selection process, after the colonial past). For example, the non-selection of Algeria (DZA) as an aid partner in 1996 is atypical since this is the only year when this country did not receive a quota greater than 1%⁵⁹. In short, in spite of these prediction errors, only 4 observations exert considerable influence in the estimation (with dD statistics greater than 7): Kazakhstan (KAZ), which, since 2001, started to be selected as a partner, in spite of the fact that its share of the global aid decreased to less than half the percentage of 2000, and its share of Spanish exports increased more than 64% coinciding with the boom of the energy sector; Pakistan (PAK), which was selected as an aid partner for the first time in 1995, despite the 52% reduction of its share of the global aid (remaining constant its share of Spanish exports); Serbia and Montenegro (YGU), which participated for the first time in Spain's aid in 1999 (the same year of the NATO's bombing and the eventual withdrawal of Serbian military forces from Kosovo); and Zimbabwe (ZWE), which only in 1998 received more than 1% of the Spanish resources, just before its involvement in the war in the Democratic Republic of the Congo between 1998 and 2002, which drained hundreds of millions of dollars from the economy (including ODA)⁶⁰. All in all, it should be noticed that all these outliers are not Spanish ex-colonies.

⁵⁹ Algeria has mainly received concessional loans: on average, during the period 1993–2005, 84% of the ODA gross disbursements were loans. Nevertheless, in 1996 Spain granted a 3.91 million dollars loan, which amounts for 1.5% of the 266.8 million dollars loans disbursed during this period.

⁶⁰ In 1998, the Spanish aid to Zimbabwe was especially high due to the financing of two NGO projects that amounted for 504.779 euros (i.e. 78% of the aid).

Table 6. Outliers of the panel data set*

code	<i>D</i>	<i>t</i>	<i>dD</i>	<i>Phat</i>	<i>a_others</i>	<i>EXP_{t-1}</i>	<i>a_{t-1}</i>	<i>d_col</i>
ALB	1	1999	6.504288	.0394723	1.281035	.0073781	.1398881	0
DZA	0	1996	4.872884	.9100598	1.407114	1.106966	4.476449	0
ARG	0	1999	4.565558	.8948497	.1514462	1.170665	2.996065	1
CMR	1	1997	6.358152	.0420865	.7513528	.0246994	.1369418	0
IDN	0	1998	5.665606	.9394612	6.97345	.3502355	6.938419	0
IDN	0	2002	4.429478	.8876536	3.416168	.1482162	6.119036	0
IDN	1	2004	4.423911	.1117623	2.68214	.1363075	.3266251	0
JOR	1	2001	4.978118	.0852307	.8090472	.052949	.2379527	0
KAZ	1	2001	13.19212	.0013698	.2562773	.0089432	.0214925	0
KEN	1	2001	4.697541	.0980744	.8190375	.0189441	.3914706	0
MEX	0	1996	4.538678	.8939921	.2553762	.6327707	3.182768	1
MEX	0	1999	4.223968	.8760008	.2375984	1.092884	2.897682	1
NAM	1	2004	4.012984	.1396786	.2515925	.0201021	.4496264	0
PAK	1	1995	20.00433	.0000453	1.906945	.0725852	0	0
PRY	1	1995	4.24597	.1227246	.2376639	.0217508	.149554	1
PHL	0	1996	4.239976	.8771372	1.729418	.0779721	2.026248	1
SEN	1	2001	4.056742	.1353324	1.090491	.0589565	.2594452	0
YUG	1	1999	11.25733	.0036249	2.188222	.0212174	.019984	0
YUG	0	2000	4.817358	.9028446	3.280104	.0249088	5.610472	0
YUG	1	2001	4.572191	.1042901	2.588447	.0242505	.1995732	0
TUN	1	1995	4.379813	.1149575	.8877262	.2942725	.2051404	0
URY	0	1996	5.225182	.9247659	.0602164	.2081395	3.176533	1
URY	1	2003	4.452602	.111934	.037646	.0728301	.239482	1
URY	1	2005	4.310884	.1210616	.0746806	.0407584	.2471433	1
ZWE	1	1998	7.618703	.0225087	.7757553	.0136811	.0874056	0

* Cases with $dD \geq 4$ *Phat*: estimated probability of selection

However, these 4 especially influential outliers do not significantly affect the estimates. **Table 7** shows the regression results once these outliers are excluded. The list of statistically significant variables is exactly the same as in **Table 3**, although the strong influence of the colonial past is partially reduced in favour of the other 3 determinant variables.

Table 7. Estimation of the Spanish selection of aid-partner countries. 1993–2005*

Random-effects logistic regression	Number of obs	=	1276
Group variable (i): n	Number of groups	=	104
Random effects u_i ~ Gaussian	Obs per group: min	=	4
	avg	=	12.3
	max	=	13
	Likelihood ratio chi2(10)	=	267.06
Log likelihood = -238.03726	Prob > chi2	=	0.0000

D	OR	Std. Err.	z	P> z	[95% Conf. Interval]	
lnGDPpc _{t-2}	1.0559	.3906761	0.15	0.883	.511309	2.180528
lnPOP _{t-2}	.8227497	.1450992	-1.11	0.269	.5823054	1.162478
lnDR _{t-2}	1.20029	.4635791	0.47	0.636	.563032	2.558818
lna_others	1.343871	.2208526	1.80	0.072	.9738021	1.854576
lnEXP _{t-1}	1.4792	.222873	2.60	0.009	1.10097	1.987369
lnFDI _{t-1}	.875197	.0893941	-1.31	0.192	.7164116	1.069176
d_COL	5.121348	2.174357	3.85	0.000	2.228393	11.77001
P2 _{t-1}	1.014479	.0267608	0.54	0.586	.9633619	1.068309
lnAC _{t-2}	1.376701	.3301993	1.33	0.183	.8603607	2.202921
lna _{t-1}	4.381146	.6354891	10.18	0.000	3.29701	5.821773
/lnsig2u	-3.019102	4.221723			-11.29353	5.255322
sigma_u	.2210091	.4665197			.0035289	13.84136
rho	.0146299	.0608598			3.79e-06	.9831179

Notes: White's (heteroskedasticity-adjusted) robust errors

* Excluding the outliers with $dD \geq 7$

5.2. Allocation of aid-quotas among partner countries

The analysis of the second-step allocation decision distinguishes between two groups of partner countries: those that have post-colonial links with Spain, and those without this historical legacy. These two groups received, respectively, 57.8% and 42.2% of the accumulated aid resources during 1993–2005, despite their unequal participation in the sample, both in terms of the number of countries (20 and 84 countries, respectively, in the panel data set of the first-step estimation), and population (which, consequently, implies a strong ODA *per capita* allocation bias in favour of the ex-colonies, which, on average, received 12.91 dollars per person, in contrast with the 0.95 dollars received by the second group of partners)⁶¹.

Firstly, 25 *countries without post-colonial links* took part, for at least one year, in Spain's ODA with quotas greater than 1%. The analysis reveals the lack of a systematic pattern of *humanitarian* aid allocation which has not been guided by the recipients' needs and specially benefits those countries with higher levels of income *per capita*, although it has been sensitive to population sizes. Spanish trade interests have reinforced the aid allocation, unlike the investment interests, which have been inversely related to aid. Moreover, Spain has benefited those countries with higher aid dependency ratios (**Table 7**).

⁶¹ Calculations based on accumulated 1993–2005 aid gross disbursements –netted of emergency aid and debt relief.

Table 7. Estimation of the Spanish pattern of ODA geographical allocation. Countries without post-colonial links. 1993–2005

Random-effects GLS regression	Number of obs	=	117
Group variable (i): n	Number of groups	=	25
R-sq: within = 0.1802	Obs per group: min	=	1
between = 0.5000	avg	=	4.7
overall = 0.5417	max	=	13
Random effects u_i ~ Gaussian	Wald chi2(8)	=	72.75
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

lna	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
lnGDPpc _{t-2}	.5626937	.1562729	3.60	0.000	.2564044	.8689829
lnPOB _{t-2}	.2797479	.0836134	3.35	0.001	.1158687	.4436272
lnDR _{t-2}	.0419105	.2226739	0.19	0.851	-.3945223	.4783433
lna_others	.0548938	.10018	0.55	0.584	-.1414554	.251243
lnEXP _{t-1}	.1549511	.0553858	2.80	0.005	.046397	.2635052
lnFDI _{t-1}	-.3356915	.0741509	-4.53	0.000	-.4810246	-.1903583
P2 _{t-1}	-.0173776	.0113052	-1.54	0.124	-.0395354	.0047801
lnAC _{t-2}	.3900336	.115643	3.37	0.001	.1633775	.6166897
_cons	-7.419358	2.126794	-3.49	0.000	-11.5878	-3.250919
sigma_u	.22739736					
sigma_e	.42330668					
rho	.2239497	(fraction of variance due to u_i)				

Note: White’s (heteroskedasticity-adjusted) robust errors

In particular, a one-percentage increase in the recipient country’s *per capita income* –*ceteris paribus*– has been associated with a 0.56% increase in the ODA disbursement, which does not correspond with a progressive allocation criterion. By contrast, Spanish assistance has been sensitive to the partners’ different *population sizes*, although a one-percentage increase in the receiving population has led to a less than proportional increase in the aid disbursement (0.28%). These last two results are due to, to a large extent, the distribution pattern with the highly populated countries: on the one hand, Spain has continuously co-operated with China (which has attracted a large share of the FAD loans), and, for several years, with Indonesia, Brazil, Pakistan, Vietnam, Egypt and Turkey (each of these countries had more than 75 million inhabitants in 2005, and only two of them are not middle-income economies: Pakistan and Vietnam); on the other hand, the poorest and highly populated countries (especially India, Nigeria and Bangladesh) did not ever receive aid-quotas greater than 1% (thus, not being considered in this estimation stage). These facts explain the preference for the more populated partners and the regressive middle-income countries bias.

The aid-*exports* elasticity has been positive (0.15%), thus supporting Spanish trade interests, which coincides with the previously remarked result of the partners’ selection process. At the same time, some of the main trade partners are middle-income and highly populated countries (particularly China, Brazil and Turkey) that offer especially attractive markets for Spanish products.

Furthermore, a one-percentage increase in the *stock of Spanish investment* has led to a –0.34% decrease in the aid-quota, and a similar increase in the partner country’s *ODA/GNI ratio* has increased it by 0.39%. These results reflect a special attention towards those highly aid-dependent developing economies that attract less investment. In some ways, the lower provision of financial resources (mainly, foreign direct investment) is being compensated by

disbursing greater amounts of concessional resources. This has been the case of highly aid-dependent economies (with ODA/GNI ratios over 20% in several years) that have been aid partners of Spain, such as Mozambique, Bosnia-Herzegovina, Equatorial Guinea and, more recently, Mauritania, Senegal and Angola, which, besides, have attracted less Spanish investment than other developing economies⁶². All these countries are, on the other hand, prioritised in the current Aid Plan.

Secondly, there is a significantly different pattern of aid allocation regarding the 20 *countries with post-colonial links with Spain*, which corresponds to a more balanced strategy of *altruist* motivations and foreign policy interests (**Table 8**). The aid-quotas have been distributed in direct proportion to the partner countries’ needs (assessed by means of the *per capita* GDP and the population size), and have backed Spanish trade interests, being, by contrast, inversely related to the investment orientations. However, other variables related to the recipients’ absorptive capacity and level of democracy have not exerted a significant influence in the distribution.

Table 8. Estimation of the Spanish pattern of ODA geographical allocation. Countries with post-colonial links. 1993–2005

Fixed-effects (within) regression	Number of obs	=	193
Group variable (i): n	Number of groups	=	20
R-sq: within = 0.2677	Obs per group: min	=	4
between = 0.2727	avg	=	9.7
overall = 0.1045	max	=	13
	F(8,165)	=	6.50
corr(u_i, Xb) = -0.9962	Prob > F	=	0.0000

<i>lna</i>	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
<i>lnGDPpc</i> _{t-2}	-.4640383	.1414169	-3.28	0.001	-.7432582	-.1848184
<i>lnPOB</i> _{t-2}	4.021031	.9840364	4.09	0.000	2.078105	5.963958
<i>lnDR</i> _{t-2}	.1085396	.9641113	0.11	0.911	-1.795046	2.012125
<i>lna_others</i>	-.0354341	.0574121	-0.62	0.538	-.1487912	.077923
<i>lnEXP</i> _{t-1}	.3359423	.082892	4.05	0.000	.1722765	.4996081
<i>lnFDI</i> _{t-1}	-.2550163	.0555764	-4.59	0.000	-.3647489	-.1452836
<i>P2</i> _{t-1}	-.0357236	.0306168	-1.17	0.245	-.0961749	.0247277
<i>lnAC</i> _{t-2}	-.0028646	.1268188	-0.02	0.982	-.2532614	.2475322
_cons	-58.12898	16.52016	-3.52	0.001	-90.74714	-25.51082
sigma_u	4.8877226					
sigma_e	.41780618					
rho	.99274605	(fraction of variance due to u_i)				

Note: White’s (heteroskedasticity-adjusted) robust errors

In particular, regarding the variables related to the recipients’ needs, the following results are worth remarking: on the one hand, a one-percentage increase in the partner’s *per capita income* –if other variables stay the same– has been less than proportionally compensated by a –0.46% decrease in the aid-quota. This results shows certain sensitivity towards the recipients’ levels of economic development, although it does not characterize a strictly progressive allocation, since the *per capita* income coefficient is smaller than one. Furthermore, a one-percentage increase in the *population size* has led to a more than proportional (4%) increase in the aid-quota, which rules out the existence of a small country

⁶² However, Equatorial Guinea has gradually reduced its aid-dependency ratio since the late 1990s.

bias within the group of ex-colonies; on the contrary, countries with higher populations have tended to receive proportionally greater amounts of resources than the smaller ones –once the effects of the rest of the explanatory variables are controlled.

Regarding the trade and investment interests, on the one hand, Spain has tended to concentrate its aid on its main trade partners (with the export coefficient equal to 0.34%). This result is due to, to a certain extent, the distribution criteria in proportion to the recipient's population, since the largest countries offer broader markets for Spanish products. Moreover, it should be born in mind that Spanish exports are specially concentrated on the group of ex-colonies: these 21 economies (among 126 countries included in the initial data set, i.e. without excluding those that lack the necessary information) absorbed, on average, 5.82% of the period's aggregated exports, in contrast with the 9.36% of the remaining 105 countries. Consequently, given the high concentration of resources in this group of recipients –both in terms of aid and exports–, trade interests have exerted a greater influence among the former colonies than among the more heterogeneous group of non ex-colonial countries. On the other hand, a one-percentage increase in the stock of investment has led to a marginal decrease in the aid-quota (–0.25%), since the lower relative development of the ex-colonies that received higher shares of aid implies less opportunities for Spanish investors. In the end, both results show that trade and investment priorities have two different association patterns with aid –as also happened in the selection stage.

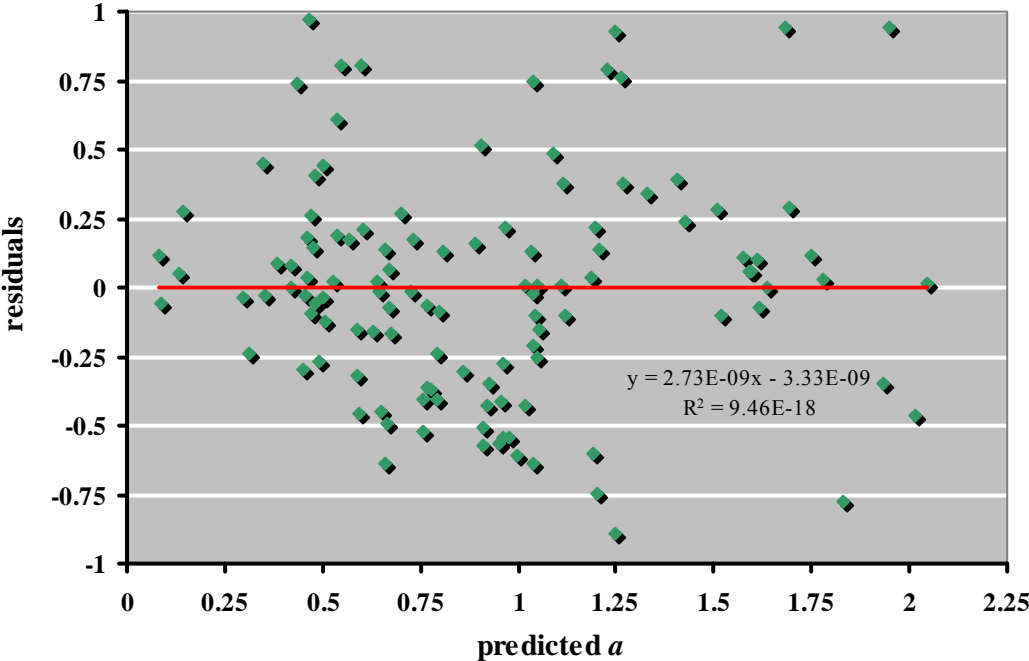
Moreover, it should be pointed out that, although Spain's selection of aid-partners has been affected by the “bandwagon effect” –as it was shown in the previous section–, this has not been the case in the process of allocating the aid-quotas. This is due to, on the one hand, the different “implications” of both decision-steps: the first stage deals with the partners selection, but does not measure the “intensity” of the eventually established co-operation relations (i.e. the model captures the similarities between Spain's and the rest of donors' selections, without assessing the final disbursements). On the other hand, the separate estimation of the aid-quota stage between countries with historical links with Spain (most of them middle-income countries) and countries without these links hinders the geographical coincidences with the rest of the donors. In fact, the partial correlation between the Spanish and the rest of donors aid allocations has been positive (0.23), although it has not been possible to estimate its effect on the full sample of partner countries due to the impossibility of including the colonial dummy variable in the fixed-effects panel data model. When the group of ex-colonial countries is separately analysed (again, **Table 8**), Spanish aid disbursements appear to have been negatively correlated with those of the rest of donors, although its effect has been economically and statistically non significant. In any event, the aid bias towards middle-income countries –consequence of the specialization in the ex-colonies, with only Equatorial Guinea classified as a non middle-income economy– cannot be interpreted as an effort to coordinate the Spanish interventions with the rest of the donors, but it may rather respond to the interest of both compensating these countries for their lower participation in the global aid (especially Latin Americans), and taking advantage of the cultural affinities –affinities that, on the other hand, this group of countries does not share with any other donor.

With respect to the model's goodness-of-fit, the *F test* verifies the null hypothesis whether or not all coefficients of the model are simultaneously equal to zero; hypothesis that is flatly rejected in both estimation groups (*vid p-values* = 0,0000 in the upper-left corners of **Tables 7** and **8**).

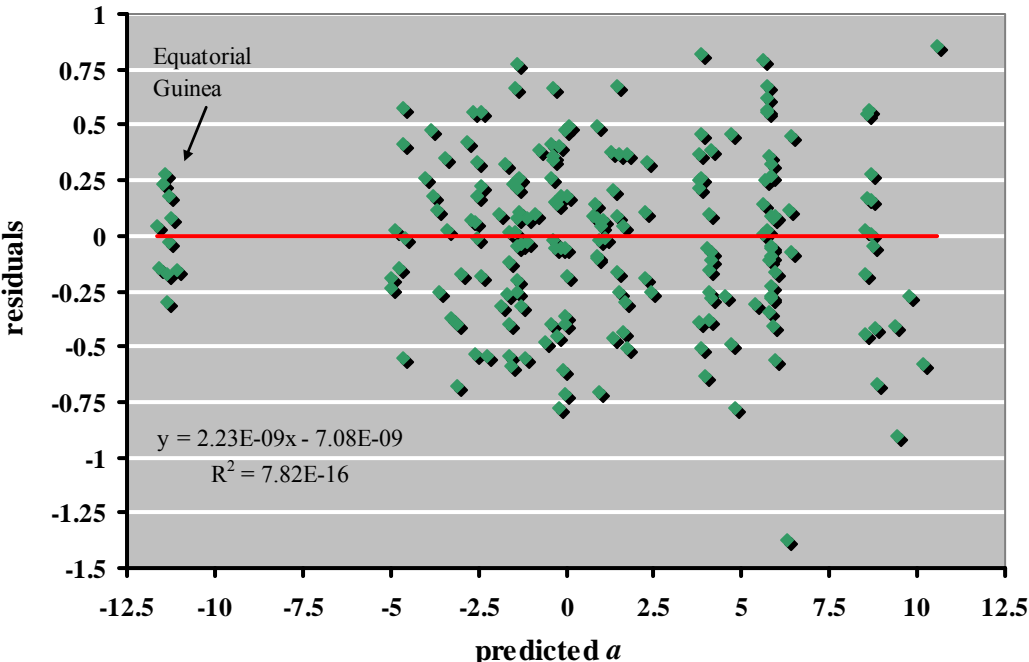
Also, both estimations offer reasonable adjustments. **Graphs 3 a** and **b** show the dispersions among the residuals (\hat{u}_{jt}) and the predicted aid-quotas (\hat{a}_{jt}), which do not reveal the existence of a systematic distribution pattern. Nevertheless, there is a certain number of outliers that should be carefully analysed:

Graphs 3. Residuals *Vs.* predicted aid-quotas

a) Countries without post-colonial links



b) Countries with post-colonial links



With regard to the countries without Spanish post-colonial links, 18 observations have residuals greater than $|0.6|$ (**Table 9**). Among them, 5 countries had outliers that may be especially influencing the estimation (with residuals greater than $|0.8|$):

Table 9. List of outliers. Countries without Spanish post-colonial links *

code	a	t	a_{hat}	$resid$	$GDPpc_{t-2}$	POB_{t-2}	EXP_{t-1}	FDI_{t-1}	AC_{t-2}
DZA	7.555785	1994	1.22578	.7865841	5249.76	2.65e+07	1.296022	41.4426	1.285
AGO	6.819229	1997	1.263572	.761645	1655.23	1.23e+07	.0920603	10.29244	12.024
AGO	5.360352	1999	1.035831	.7486699	1656.071	1.29e+07	.0905685	10.29244	6.223
AGO	1.417663	2001	1.203541	-.7490601	1901.438	1.35e+07	.0574195	10.29244	8.906
CMR	3.60588	1997	.5349435	.6072571	1666.15	1.33e+07	.0246994	30.07298	6.659
CHN	15.76505	1993	1.682873	.9453929	1720.847	1.15e+09	.4215704	31.96746	1.203
CHN	20.43199	1994	1.948584	.9389876	1944.442	1.16e+09	1.066117	32.03767	1.407
CHN	3.283527	1998	1.832606	-.7732178	2971.178	1.22e+09	.4591171	44.37808	1.004
IDN	2.072849	1999	1.189574	-.6024644	3300.046	1.98e+08	.0944877	36.0723	1.077
IDN	10.14139	2000	1.248149	.9266611	2909.631	2.01e+08	.1437383	37.09064	2.095
IDN	1.713587	2004	1.037011	-.6402369	3073.792	2.12e+08	.1363075	44.17144	1.363
IDN	1.697675	2005	.9969718	-.6095268	3212.742	2.15e+08	.1070798	50.36673	1.449
SEN	3.639389	2003	.4371834	.7424297	1459.988	1.06e+07	.0693755	35.21477	9.881
YUG	5.610472	1999	.4666017	.9722767	4700	1.06e+07	.0212174	30	1.277
TUR	4.296774	2003	.5457157	.8057522	6038.418	6.85e+07	1.091035	291.771	.808
TUR	4.529744	2004	.5963083	.8079603	6404.543	6.96e+07	1.257686	294.6033	.915
TUR	1.130324	2005	.6571608	-.6410528	6667.618	7.07e+07	1.769192	292.2866	.759
VNM	1.04031	2001	1.248587	-.8913491	1907.903	7.75e+07	.0436889	30	5.738

Notes: * Observations with $|\hat{u}_{jt}| > 8$

a_{hat} : predicted aid-quota

In first place, the case of China (CHN) stands out: in 1993 and 1994 it received 15.8% and 20.4% of the Spanish ODA, respectively, whereas the model predicts quotas of less than 2%. These discrepancies owed to the 140.1 and 153.12 million dollars of FAD loans granted in these two years (that amounted to 99.12% and 99.18% of the Spanish aid disbursed to China, respectively). Nevertheless, one year later (1995), Spain's ODA decreased almost to a third of its previous-year value, so that the gross disbursements have been, up to 2005, around 50 million dollars per year (which represents between 4.6% and 8.9% of the donor's aid).

In second place, Indonesia (IDN), in 2000, received 10.14% of the Spanish aid, in contrast to the 1.25% predicted quota, thus increasing 4.8 times its 1999 share due to the grant of a 65.87 million FAD loan, which amounted to 99.7% of the received aid. Nevertheless, three years later (2003), Spain had to condone 6.52 millions of this debt.

In third place, in 1999, Serbia and Montenegro (YGU) received an aid-quota 12 times greater than the predicted one. In this case, most of the resources were grants aimed at promoting the peacemaking process of the Balkans.

In fourth place, Turkey (TUR) received in 2003 and 2004 much greater quotas than the predicted ones, due to the grant of 40.32 and 48.1 million dollar FAD loans, respectively, that almost tripled their receptions of Spanish aid in 2002.

In fifth place, Vietnam (VNM) received in 2001 an aid-quota 20% smaller than the predicted one. This country has only taken part in the Spanish aid for two years with quotas greater than 1%: in 1998, due to the grant of a 10.79 million FAD loan (99.4% of the donor's aid disbursed to Vietnam), and in 2001, with another loan of 5.38 million (76.5% of the ODA).

All in all, the characteristics of these outliers point to three conclusions: firstly, there is an obvious divergence of geographical priorities between the concessional loan scheme (independently managed by the *Ministry of Industry, Tourism and Trade*) and the rest of the Spanish bilateral ODA. Secondly, most of the outliers are cases of “over-allocation” (in comparison with the historical pattern identified by the model), which indicates that these observations are causing an “over-prediction” of the parameters showed in **Table 7**; this way, the allocation bias that favours those countries with relatively higher income levels and population sizes is reinforced by the presence of outliers among middle-income and highly populated countries, such as China, Indonesia and Turkey. Finally, it stands out that, in spite of the erratic –in terms of developmental criteria, but not in terms of the donor’s economic interests– allocation pattern detected with this group of partners, the current Aid Plan includes all of them in some of the three levels of geographical priorities: this way, Vietnam figures among the “high-priority countries”, Indonesia among the “areas with special attention” –due to having suffered the 2004 Tsunami– and China, Serbia-Montenegro and Turkey among the “preferential regions” –these last two as beneficiaries of the *Stability Pact for Southeast Europe*–. Among these 5 countries, only Vietnam is not a middle-income economy.

Regarding the countries with post-colonial links, 20 observations had residuals greater than |0.6| (**Table 10**). Among them, 5 outliers had a special influence in the estimation (with residuals greater than |0.8 |):

Table 10. List of outliers. Countries with Spanish post-colonial links*

code	a	t	a_hat	resid	GDPpc _{t-2}	POB _{t-2}	EXP _{t-1}	FDI _{t-1}
ARG	10.94641	1995	5.707275	.6778482	11174.36	3.39e+07	1.218057	594.4139
ARG	1.061423	2002	4.826903	-.7751808	12173.68	3.69e+07	.5749757	23000.98
BOL	2.170838	1997	-.186064	-.7786487	2265.805	7481694	.0374985	35.01234
BOL	2.898095	1999	-.065771	-.6100017	2356.471	7813387	.0612191	77.01134
COL	1.041584	1994	6.321113	-1.36991	6150.435	3.64e+07	.3108127	57.83556
COL	4.187877	2001	5.720581	.6220736	6106.98	4.14e+07	.1980391	2816.104
CRI	1.119415	2003	-3.118248	-.6751104	8257.619	4014435	.0994604	59.945
DOM	1.366938	1995	-.0545994	-.7124659	4575.27	7442183	.1104007	44.34831
DOM	4.050961	2004	-.349151	.6684666	6754.03	8513900	.1610744	632.1388
ECU	8.630158	1996	1.459267	.6776907	3340.331	1.12e+07	.113951	67.82926
SLV	5.515272	2001	-1.451301	.6655865	4602.782	6157863	.0507957	118.0318
SLV	6.658564	2002	-1.373508	.7761761	4594.274	6280482	.057532	153.2376
GTM	1.153403	1995	.9177209	-.7068531	3509.873	9526771	.0427263	30.48366
MEX	24.39601	1993	10.33084	1.315734	7758.041	8.48e+07	1.501187	105.6611
MEX	19.59025	1994	10.57532	.8518648	7884.847	8.64e+07	1.940295	129.338
MEX	1.083921	2005	9.437422	-.904687	8784.444	1.02e+08	1.556524	14789.53
MAR	9.083199	2004	5.636839	.7883205	3728.44	2.85e+07	1.34841	1947.854
PHL	1.397365	2005	8.852309	-.6709189	4074.524	8.02e+07	.104007	347.809
VEN	1.146358	1996	3.964651	-.6369036	6068.425	2.16e+07	.2935037	183.3131
VEN	4.258585	2000	3.823938	.8161561	6153.747	2.34e+07	.2746032	1054.325

Notes: * Observations with $|\hat{u}_{jt}| > 8$

a_hat: predicted aid-quota

Firstly, the case of Mexico (MEX) stands out as it received 24.4% of the Spanish ODA in 1993, and 19.6% in 1994, which was well above the predicted quotas, due to the FAD loans granted gradually since 1992 (which amounted to 162.65, 216.69 and 144.65 million dollars in 1992, 1993 and 1994, respectively). Although in the 10 following years Mexico has received additional loans for 14.33 million dollars, the magnitudes disbursed at the beginning of the 1990s explain its position as a “long-term debtor” of the Spanish assistance, as well as the existence of another atypical observation in 2005, in this case due to an aid “infra-allocation” (8.7 times smaller than the predicted one).

Secondly, Venezuela (VEN) in 2000 received an aid-quota greater than the predicted one, again due to the grant of a FAD loan that amounted to 21.39 million dollars (77.1% of the Spanish aid disbursed to this country).

Other outliers of smaller influence in the analysis belong to Argentina (ARG, 2002 for the revitalization of ODA disbursements experienced during the economic crisis), Bolivia (BOL, 1997 and 1999, for the decrease in aid disbursements that especially affected the FAD loans), El Salvador (SLV, 2002, due to the grant of 31.54 million dollars of FAD loans, 57% of their aid that year) and Morocco (MAR, 2004, which tripled the 2003 quota, mainly due to the disbursement of further grants).

Moreover, it should be pointed out that the proposed model predicts negative aid-quotas for several countries with colonial past. Since the endogenous variable (gross disbursements) is strictly positive, these results should be interpreted as null quotas. These are the cases, among the outliers, of Bolivia in 1997 and 1999, the Dominican Republic in 1995 and 2004, El Salvador in 2001 and 2002, and Costa Rica in 2003, which are relatively small countries (with less than 9 million inhabitants), with low shares in the Spanish exports (less than 0.16%) and relatively high stock of Spanish investment (being these, precisely, the variables that determine the allocation). Costa Rica is, also, one of the ex-colonies with highest income levels.

Among these countries with predicted negative ODA-quotas, the most singular one is Equatorial Guinea (*vid Graph 3b*). Although it is not an outlier in terms of the value of its residuals (which is the reason why it is not included in **Table 10**), the model predicts negative quotas in every single year, due to its small population size (it is the smallest country in the sample, with less than half million inhabitants), limited share of the Spanish exports and relatively high income *per capita* (above 10,000 dollars since 1999). Hence its aid-quotas between 1993 and 2003 have been actually fairly limited (of less than 1.9%)⁶³.

Finally, two additional tests have been carried out, verifying the overall significance of those irrelevant variables at a 90% confidence level (*vid* variables with *p*-values greater than 0.1 in **Tables 7** and **8**). The results of the corresponding Wald tests (**Tables 11 a** and **b**) for each estimation (countries with and without Spanish colonial past) verify whether the coefficients of these variables are simultaneously equal to zero. In both cases these hypotheses are not rejected, being especially worrisome the fact that democracy levels have not exerted significant influences in the allocation, not even when jointly considered with other regressors. Moreover, among the group of ex-colonies, the absorptive capacity has also been jointly insignificant.

⁶³ Nevertheless, Equatorial Guinea is not included in the panel data set in the years 2004 and 2005, due to the lack of information on *per capita* income. In spite of being classified as a *least developed country*, the CIA's database estimates a *per capita* GDP (PPP) of 50,200 dollars in 2005, due to the abundant oil revenues. If this data were included in the model, the country would figure as a clear outlier in the last years, given the increase in its aid-quotas, which rose to 3.1% in 2004 and 1.9% in 2005, more than duplicating the previous year's ones.

Tables 11. Wald tests of joint significance of the irrelevant variables

a) *Countries without post-colonial links:*

$$\begin{aligned} \underline{\underline{H_0: \ln DR_{t-2} = \ln a \text{ others} = P2_{t-1} = 0}} \\ X^2(3) = 2.57 \\ \text{Prob} > \text{chi2} = 0.4624 \end{aligned}$$

b) *Countries with post-colonial links:*

$$\begin{aligned} \underline{\underline{H_0: \ln DR_{t-2} = \ln a \text{ others} = P2_{t-1} = \ln AC_{t-2} = 0}} \\ F(4, 165) = 0.40 \\ \text{Prob} > F = 0.8083 \end{aligned}$$

In order to check the robustness of the results and reduce the bias that stems from the inclusion of irrelevant variables, both models are re-estimated excluding the non-significant regressors (**Tables 12 a** and **b**). These new estimations corroborate that the results showed in **Tables 7** and **8** are reasonably robust, showing very limited variations of the estimated coefficients and –more importantly– being consistent in their signs.

Tables 12. Sensitivity test. Estimation excluding the irrelevant variables

a) *Countries without post-colonial links:*

Random-effects GLS regression	Number of obs	=	121
Group variable (i): n	Number of groups	=	26
R-sq: within = 0.1466	Obs per group: min	=	1
between = 0.5033	avg	=	4.7
overall = 0.5357	max	=	13
Random effects u_i ~ Gaussian	Wald chi2(5)	=	64.89
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

lna	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
lnGDP _{pc,t-2}	.5810232	.120022	4.84	0.000	.3457843 .816262
lnPOB _{t-2}	.3160071	.0598542	5.28	0.000	.1986951 .4333191
lnEXP _{t-1}	.1488598	.0567002	2.63	0.009	.0377293 .2599902
lnFDI _{t-1}	-.3653635	.0753269	-4.85	0.000	-.5130015 -.2177254
lnCA _{t-2}	.4010279	.0974541	4.12	0.000	.2100213 .5920344
_cons	-7.986398	1.725883	-4.63	0.000	-11.36907 -4.603729
sigma_u	.21611769				
sigma_e	.43405264				
rho	.19866082	(fraction of variance due to u_i)			

b) Countries with post-colonial links:

Fixed-effects (within) regression	Number of obs	=	193
Group variable (i): n	Number of groups	=	20
R-sq: within = 0.2537	Obs per group: min	=	4
between = 0.2679	avg	=	9.7
overall = 0.1032	max	=	13
corr(u_i, Xb) = -0.9961	F(4,169)	=	13.21
	Prob > F	=	0.0000

lna	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
lnGDPpc _{t-2}	-.4820266	.0868162	-5.55	0.000	-.6534106 - .3106426
lnPOB _{t-2}	3.872101	.7156634	5.41	0.000	2.459309 5.284892
lnEXP _{t-1}	.3423339	.0807648	4.24	0.000	.1828962 .5017717
lnFDI _{t-1}	-.2612989	.0596405	-4.38	0.000	-.3790353 -.1435625
_cons	-55.48891	10.97694	-5.06	0.000	-77.1585 -33.81933
sigma_u	4.7508669				
sigma_e	.41677383				
rho	.99236295	(fraction of variance due to u_i)			

6. CONCLUSIONS

The geographical allocation of Spanish aid has been little studied by the specialized literature, despite the fact that it is unusually concentrated on middle-income countries. The present analysis contributes additional elements to understand this peculiar middle-income specialization, offering statistical evidence which points out that the geographical orientation of the ODA has not been specially determined by “altruistic” criteria –i.e. development promotion and poverty reduction, as the Spanish International Co-operation Law advocates–, but neither by merely “self-interest” criteria –the promotion of Spain’s foreign policy conveniences–. Consequently, the resource allocation has followed a “hybrid” pattern, although it does not seem to have considered those aspects related to the partners’ levels of democracy and absorptive capacities.

However, this general conclusion should be clarified, distinguishing the two-decision stages of the geographical ODA allocation:

Regarding the *selection process of aid-partners*, the analysis shows an insufficient developmental orientation:

- i) Spain’s assistance has been strongly influenced by the historical –colonial– links; as a result, the odds ratio of being selected as an aid-partner for a former colony virtually assures its participation in the ODA. Furthermore, aid allocations have supported Spain’s trade interests.
- ii) The aid’s path dependence has exerted an outstanding influence in the selection process, conferring certain “stability” over-time on the list of partner countries. This result responds to several factors: firstly, the interest to co-operate with a stable group of countries so as to minimize the aid administrative costs; secondly, the possible existence of “learning economies” in the donor’s administration; thirdly, the efforts carried out by Spain in order to build a greater management capacity in those countries prioritized by the Aid Plan, which determines their future probabilities of selection and, in the end, their permanency in the list of high-priority partners; fourthly, the responsibility of providing sufficiently stable aid so as to generate sustainable development processes; fifthly, the identification of previous experiences

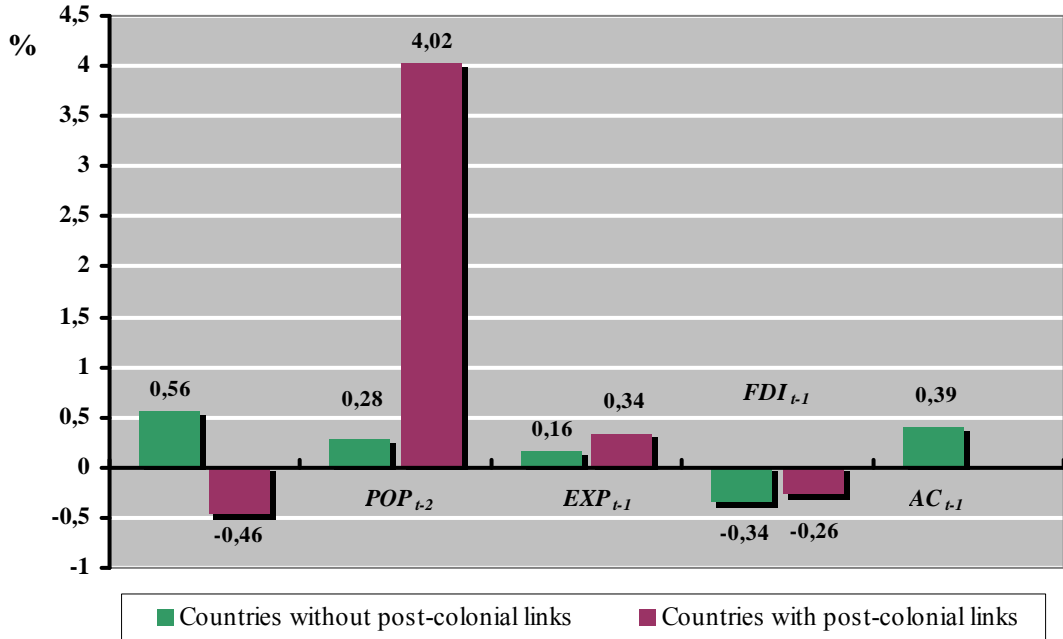
where aid was shown to be specially effective; and, finally, the outstanding importance played by long-run political commitments between donor and recipient in the allocation process.

iii) The Spanish ODA reveals to have been directed with greater probability to the countries highly benefited by the global aid system, but without considering other factors of the recipients’ needs (such the relative levels of *per capita* income, population sizes and death rates). The conjunction of both results fails to fulfil –in certain cases– the humanitarian allocation approach, and shows the –well-known– lack of international coordination in the definition of the geographical areas of the donors’ interventions, taking place the so-called “bandwagon effect” in the selection process, which can reinforce the existence of aid “darlings” and “orphan” regions, and the excessive fragmentation of the Spanish policies.

iv) On the other hand, other aspects related to the partners’ governance have not played a relevant role in the selection process, which contrasts with the proclaimed Spanish support for democracy and humans’ rights.

Regarding the *geographical allocation of the aid-quotas among the previously selected aid-partners*, the analysis differentiates between two groups of countries in terms of the geographical areas of interests for Spain –evaluated by means of the post-colonial links–, identifying two notably different allocation patterns (**Graph 4**):

Graph 4. Relative elasticities: ¿how much does the aid-quota vary when a partner country undergoes a 1%-increase in its ...?



The allocation among the group of *countries without post-colonial links with Spain* reveals that, until a recent period, the Spanish co-operation system lacked a clear selectivity –pro-developmental– strategy:

- i) The allocation has not been strictly guided by the recipients’ need levels; instead, it has especially benefited those partners with higher *per capita* incomes, although it has also rewarded the most populated ones.
- ii) The aid allocation has reinforced the Spanish trade interests.

- iii) The Spanish investors' interests have been negatively related to the aid allocations, and, at the same time, countries with high rates of aid-dependency have tended to receive more resources. This allocation pattern towards the high aid-dependent economies that receive lower foreign investments may be compensating the scarce Spanish provision of financial resources through the disbursement of further aid.
- iv) The allocation pattern has not considered in an appropriate way other factors related to the partner countries' levels of democracy and respect for civil and political rights.
- v) The presence of a certain number of outliers in the analysis evidences the divergence between the geographical interests of the FAD loan scheme (independently administrated by the *Ministry of Industry, Tourism and Trade*) and the rest of the Spanish bilateral ODA. Also, it highlights that, in spite of this erratic –in terms of development goals– allocation pattern, the current Aid Plan is trying to include some of these outlier countries within the Spanish co-operation strategy.

Regarding the group of *countries with post-colonial links*, Spain has had a more progressive and balanced pattern of allocation in comparison with the previous group of recipients, although some notes of caution should be made:

- vi) The ODA allocation has been sensitive to the different levels of economic development and population sizes of the partners, which discards the existence of both a regressive distribution bias, and a small countries bias.
- vii) However, it has especially favoured Spain's main trade partners; this priority has not coincided with the geographical interests of the investors, who have tended to concentrate their resources in those countries that received less aid –and have greater income levels.
- viii) The allocation has not either been especially selective regarding the absorptive capacities of the former colonies, and the levels of democracy and respect for political rights – in spite of being this the group of countries with which Spain shares a greater cultural likeness and is able to exert a greater influence.
- ix) The existence of a certain number of outliers points out the cases of “over-allocations” in comparison with the historical distributional pattern depicted by the model. Most of these atypical observations stem from the divergent geographical interests of the FAD loans.

The identification of a hybrid pattern in the case of the Spanish aid allocation coincides with the results obtained by previous studies (Alonso, 1999; Sánchez Alcázar, 1999; Berthèlemy and Tichit, 2002; Alesina and Weder, 2002; and Isopi and Mavrotas, 2006), which estimated different weights of the *RN* and *DI* factors, but agreed by pointing out the importance of the foreign policy interests and the insufficient attention paid to issues related to the recipient Governments' governance.

All in all, the concurrence of self foreign policy interests and developmental motivations identified in the Spanish aid geographical specialization does not have to infringe the main goal of supporting the progress of developing countries, but, rather, the synergies of these different motivations should be channelled so that they redound in a full conception of “partnership” between recipients and donor. Nevertheless, given the strong specialization in those countries with greater cultural affinities with Spain, the geographical priorities should be defined in a clearer and more selective way, explicitly including considerations about the capacity of effectively using the resources –both on the part of the recipients, and on the part of the donor–, as well as the existence of sound governance policies and institutions in the partner countries.

The insufficient progressiveness of the Spanish allocation is mainly driven by the influence of the post-colonial links; links that are, in a certain way, “revitalized” and “re-updated” by means of the international assistance. Nevertheless, post-colonial links have characterized the allocation patterns of all donor countries that were colonial metropolises. The peculiarity of the Spanish case is that the countries that were part of its Empire have, precisely, higher income levels than the former colonies of other European donors. This fact brings about the apparent regressive bias of the allocation, and blurs Spain’s commitment with the MDG and the special attention to the poorest countries. These historical links –which not only affect aid policies, but influence the entire Spanish foreign policy– have acquired a structural character for the partner economies, and represent a long-run political commitment of the Spanish State, thus stamping certain “persistence” on the aid geographical priorities.

Nevertheless, these links have to be updated in order to develop “dynamic” co-operation partnerships, which should evolve as the relative necessities of the recipient countries change. Spain’s aid policy towards its ex-colonies have positively advanced in recent years, more clearly defining its geographical strategy and committing itself to concentrate the resources on the list of “high-priority” partners, which has been recently expanded to more relatively needed countries, thus shaping a process of –necessarily gradual– adaptation of its international specialization. Moreover, Spain has improved its co-operation strategy with middle-income countries, advocating for a greater specialization of the interventions, according to the levels of development of the partners.

Regarding the most heterogeneous group of developing countries without historical links to Spain, the developmentally undefined aid allocation strategy is due to –to a large extent– the excessive fragmentation of the resources and the divergent geographical interests of the concessional FAD loan scheme. However, Spain has recently added some of these countries to its regional priorities, integrating them in the resource’s planning and evaluation cycle. Although this has implied an increase in the number of prioritized countries –which, in the end, determines the level of dispersion–, this process can contribute to strengthen the effectiveness and reduce the excessive aid fragmentation, as long as the bulk of the resources is reallocated to the 54 economies prioritized by the Aid Plan –classified in three different levels of priority–, and where Spain’s co-operation has better chances of optimizing its resources in terms of developmental outcomes. Furthermore, the policies carried out in the broad group of partners receiving marginal aid-quotas needs to be more selective, specific and clearly oriented towards contributing to overcome their peculiar situations of vulnerability.

Regarding the FAD loans, although their participation in Spanish aid has been considerably reduced, it is still necessary to integrate their geographic priorities within the whole co-operation strategy, which in turn implies a greater co-ordination between the *Ministry of Foreign Affairs and C-operation* –genuine co-ordinator of the Spanish aid– and the *Ministry of Industry, Trade and Tourism* –responsible for the loan scheme.

The integrated *RN–DI* model for the Spanish ODA proposed in this paper contributes some methodological advantages. Firstly, it develops an allocation model adapted to the political and management peculiarities of the Spanish official co-operation system, thus offering more precise interpretations than “standardized” models. Secondly, it uses a wide panel data set that covers the last 13 years of Spanish assistance to 104 developing economies. Thirdly, it appropriately considers the censored nature of the dependent variable, both analysing the decision of selecting aid partners, and the decision of allocating aid-quotas. Fourthly, it uses a coherent set of explanatory variables that captures the especial relations maintained with the

former colonies, the inertia of the allocations, and the information lags faced by the aid policy-makers.

A few words of caution are worth mentioning since there is a series of inherent limitations to the study of the geographical aid allocation:

Firstly, in spite of the increasing sophistication of the econometric procedures available for the analysis, it is complicated to control the different factors of heterogeneity existing among the aid receiving countries; heterogeneity that is not only captured by the variables included in the model, but is also present in the different capacities of the recipients economies to efficiently take advantage of external resources, the existence of *difficult aid partnership* relations between donor and recipients, as well as other qualitative variables of difficult quantification –such as ethical and institutional factors, political affinities, the existence of immigrant lobbies in the donor country, etc.–. Furthermore, it should be born in mind that the eventual allocation of aid is contingent on its *fungible* character, which hinders, in some circumstances, the assurance that the resources disbursed to the neediest countries finally benefit their poorest citizens⁶⁴.

Moreover, it would be necessary to consider, in the particular case of Spain, that the recent escalation of the immigration flows may constitute a decisive variable in the evolution of the pattern of aid giving, which may be affected by the arrival of immigrants of nationalities different from those historically linked with Spain⁶⁵.

Secondly, this paper contributes an analytical model of the geographical aid specialization that allows the identification of the particular –current– orientations of the official Spanish co-operation and assesses them with respect to the –by law– aid strategy and the international commitments and consensus ratified by Spain. However, although the model identifies different types of determinants that capture the heterogeneous interests that are present in the allocation, it does not control other “qualitative” aspects of aid, such as its composition –grants and loans; tied status; etc.–, its sectorial distribution, the use of appropriate aid instruments, the efficiency levels of the different interventions, the donor’s self-capacity to usefully administrate the disbursed resources, etc.

Finally, it is worth mentioning that the definition of a more effective strategy of Spanish ODA geographical specialization will also require a greater co-ordination among the donors’ international community, which should aim to avoid the existence of aid “darlings” and “orphan” countries, as well as taking advantage of the synergies of the different donors’ interventions, allowing less fragmentation of the Spanish resources and greater effectiveness of the interventions.

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⁶⁴ See the studies on aid fungibility of Feyzioglu *et al.* (1998), Devarajan and Swaroop (1998) and Pack and Pack (2003).

⁶⁵ Lahiri and Raimondos-Møller (2000) developed an aid allocation model focusing on the influence exerted by the different immigrant nationalities present in the donor country. Nevertheless, in the case of Spain, the information that facilitates the *State Secretary of Immigration and Emigration* does not offer complete time series data on the immigrants’ countries of origin, which is limited to the most recent years.

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ANNEX

The sources of each variable are detailed in **Table 2**. However, some remarks on the procedures for building the data are worth mentioning:

The DAC database only provides with complete information on the geographical allocation of the Spanish ODA gross disbursements for 1996 onwards. Hence, the data for the period 1992–96 was built by the author using the net disbursements reported in Table DAC.2a, deducting the item (205) “ODA loans received”, as well as the aggregate “emergency aid” and the “total debt relief”⁶⁶.

Each developing country’s share on the Spanish exports is measured as the ratio of the total exports bought by the country to the annual aggregated Spanish exports.

The stock of Spanish FDI in each developing country accumulated since 1993 uses the online database of the *Ministry of Industry, Tourism and Trade*. However, the data for the years 1990–92 was compiled by the author from the monthly publication *Boletín Económico ICE*.

The countries that were part of the Spanish colonial Empire, according to the CIA online database, are: Argentina, Bolivia, Colombia, Costa Rica, Cuba, Chile, Ecuador, El Salvador, Philippines, Guatemala, Equatorial Guinea, Honduras, Morocco, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay and Venezuela. However, Cuba is excluded of the analysis due to a lack of information; Equatorial Guinea was only excluded for the years 2002–05.

⁶⁶ In accordance with direct sources of the DAC, the total amount of debt relief includes the following items from Table DAC.2.a: (212) “debt forgiveness grants” + (214) “reorganised debt” + (215) “offsetting entries for debt relief”. Moreover, the item (94) “other action on debt” from Table DAC.1 should be also added up. However, there is not geographical detail to do so, although the DAC plans to report on this data for 2006 flows onwards. In any case, this item has had a very marginal importance in Spanish ODA.

Finally, although there is a certain number of possible explanatory variables that approximate the recipients' needs –such as the indebtedness levels, poverty headcounts, inequality levels, etc.–, they were not included in the model since information redundancy causes multicollinearity problems among the independent variables. Furthermore, in order to control the estimation bias resulting from a non-random sample selection, the data needs to be widely available among developing countries.

Table A.1. Developing countries included in the selection stage (1993–2005)

Albania	Gabon	Nicaragua
Angola	Gambia	Niger
Saudi Arabia	Georgia	Nigeria
Algeria	Ghana	Pakistan
Argentina	Guatemala	Panama
Armenia	Guinea	Paraguay
Azerbaijan	Equatorial Guinea	Peru
Bangladesh	Guinea-Bissau	Central African Rep.
Benin	Haiti	Rep. Congo
Bolivia	Honduras	Rep. Dem. Congo (Zaire)
Bosnia-Herzegovina	India	Dominican Rep.
Botswana	Indonesia	Rwanda
Brazil	Iran	Senegal
Burkina Faso	Israel	Sierra Leone
Burundi	Jamaica	Syria
Cambodia	Jordanian	Sri Lanka
Cameron	Kazakhstan	South Africa
Chad	Kenya	Sudan
Chile	Laos	Thailand
China	Lesotho	Tanzania
Cyprus	Lebanon	Tajikistan
Colombia	Madagascar	Togo
Korea	Malaysia	Trinidad & Tobago
Costa Rica	Malawi	Tunisia
Croatia	Mali	Turkmenistan
Djibouti	Morocco	Turkey
Ecuador	Mauricio	Uganda
Egypt	Mauritania	Uruguay
El Salvador	México	Uzbekistan
Eritrea	Moldavia	Venezuela
Ethiopia	Mongolia	Viet Nam
Fiji	Mozambique	Yemen
Philippines	Namibia	Zambia
FYROM-Macedonia	Nepal	Zimbabwe

Chart A.2. Developing countries included in the aid-quotas allocation stage (1993–2005)*a) Countries with post-colonial links:*

Argentina	El Salvador	Panama
Bolivia	Equatorial Guinea	Paraguay
Colombia	Guatemala	Peru
Costa Rica	Honduras	Philippines
Chile	México	Uruguay
Dominican Rep.	Morocco	Venezuela
Ecuador	Nicaragua	

b) Countries without post-colonial links:

Angola
Albania
Bosnia-Herzegovina
Brazil
China
Cameroon
Algeria
Egypt
Ghana
Indonesia
Jordanian
Kazakhstan
Kenya
Mozambique
Mauritania
Namibia
Pakistan
Rwanda
Senegal
Serbia y Montenegro
Tunisia
Turkey
Uganda
Viet Nam
Zimbabwe

