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# A Theory of Aid as Trade with Special Reference to Small Islands\*

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This article presents a theoretical model explaining how the amount of bilateral aid allotted by rich donor countries to poor developing countries is determined. My main assumption is that aid is trade—in other words, aid is a payment for an invisible strategic service. This service consists of the strategic advantage provided to the donor nation by the geographical position of the receiving country (e.g., Cuba's strategic location offered a strategic service to the Soviet Union during the cold war).

This assumption is presented in the first section, with special reference to small island countries and overseas territories. The second section presents a formal model of a two country–two goods trade framework, where one of the goods is a strategic service. The third section is an empirical test of this theory, based on data concerning 61 islands. I chose to study islands because they have greater strategic value on average than do continental developing areas and, therefore, receive more aid per capita.

## I. Why Aid Is Trade

According to H. Morgenthau, “of the seeming and real innovations that the modern age has introduced into the practice of foreign policy, none has proven more baffling to both understanding and action than foreign aid.”<sup>1</sup>

The reason that rich industrial countries allot aid to poor developing countries or territories needs to be explained. According to official claims, aid is provided to help induce Third World development, to relieve the burden of poverty, and to reduce north-south income inequalities. Using such reasoning, some have defined aid as a public good supplied by governments of rich countries to satisfy their altruistic electorate.<sup>2</sup>

Should this be the case, we would observe invariably an amount of

aid per capita inversely related to the per capita gross national product (GNP) of the receiving countries. Yet, the countries with the lowest per capita income do not receive the most aid per capita. For example, small island countries with a population of less than 1 million receive on average nine times more aid per capita than do other less-developed countries, even though their average per capita GNP is much higher (\$5,024).<sup>3</sup> What also needs to be explained is why small island territories or associated states receive on average 36 times more aid (\$3,099) than do small independent island states (\$87), especially when they host military bases or nuclear testing grounds, such as French Polynesia (\$3,664), Guam (\$4,921), the Commonwealth of the Northern Mariana Islands (CNMI; \$3,789), and the Republic of the Marshall Islands (\$2,000), which are of respective strategic importance for France and the United States.<sup>4</sup> How is it that American Samoa receives five times more aid (\$1,592) than does neighboring independent Western Samoa (\$308), even though American Samoa's GDP per capita is 7.5 times as high as that of Western Samoa? Similarly, the French overseas departments and territories, part of the French Republic, receive \$3,642 per capita, 366 times the average amount per capita granted to LDCs, even though their average per capita GNP (\$9,047) is higher than that of countries such as Greece, Ireland, or Portugal.<sup>5</sup> This article posits that official bilateral development assistance, in reality, is payment for strategic services provided to the donor country.<sup>6</sup> In other words, aid is trade.

Offshore islands are often of great strategic importance. Many examples exist, such as Cuba, Grenada, Hawaii, Guam, Truk Islands, Bikini, Eniwetok, Kwajalein, Johnston, and Diego Garcia for the United States, the Falkland Islands for Argentina and the United Kingdom, and the Polynesian atolls of Moruroa, Hao, and Fangataufa (and therefore all of French Polynesia) for France (at least until 1996, when atomic testing ended). Islands can be military bases, nuclear weapons testing grounds, radar bases, missile bases, chemical weapons destruction sites (Johnston atoll), or advanced outposts from which to launch or guard against an attack. World War III almost started during the famous 1962 Cuban missile crisis, which developed when the Soviet Union installed nuclear missiles in Cuba. This explains why the United States still maintains a military base at Guantánamo. The British-Argentinean war for control of the Falkland Islands and the American invasion of Grenada in 1983 to expel Cuban troops tell us much about the crucial role islands play in the military rivalry between world powers, in times of war, in times of "cold wars," or even during peacetime. All Pacific islands became most valuable strategically during the World War II conflict between Japan and the Western allies, as they provided vital landing and refueling stops for airplanes (e.g., the South Pacific supply route, which started in Hawaii and used the islands of Johnston, Christmas, Bora Bora, Penrhyn, Aitutaki, Fiji, and New Caledonia to create the Pacific southern front).

This strategic importance explains why islands receive significantly more aid per capita than do continental developing countries: nine times more aid when they are independent states and 310 times more when they are colonies, territories, or associated states (discussed in detail in Sec. III, see esp. table 1 in Sec. III), even when their GDP per capita rivals that of industrialized states (e.g., French Polynesian and New Caledonian GDP per capita is similar to New Zealand's). A strategic service may be provided on an island with local or expatriate labor, as is the case with military bases or testing facilities. But this service can also be provided in the absence of military activity. For instance, maintaining close political ties and defense agreements with the donor country represents such a service, as does being an "associated state," or being a country with self-government and with free immigration access to the donor state. An autonomous territory with a partially sovereign government (such as French Polynesia) or a French "overseas department" fully integrated with the French Republic (Martinique, Guadeloupe, Réunion) also have a political status compatible with invisible strategic export. Indeed, such status insures the goodwill and loyalty of the client country or territory toward the donor state. For example, French Polynesia helped the French test atomic weapons from 1962 to 1996, something France could not have done on the French mainland (where there are no unpopulated zones). The French state also benefits from a 5 million square kilometer oceanic exclusive economic zone in the Pacific. A similar strategic service was offered by the Marshall Islands to the United States. There Americans tested their atomic weapons (Bikini, Eniwetok) and long-range missiles (Kwajalein). This explains why some remote locations with apparently no strategic value suddenly may seem very important. Such was the case of tiny islands and atolls in the Pacific during World War II, including French Polynesia, when French atomic tests had to be moved after Algerian independence in 1962.

It should be noted that in 1970 Algeria was the second largest recipient of French aid (receiving 8.8% of total aid) but it regressed to twenty-first place in 1988 (with 1% of total aid). French Polynesia, in contrast, moved from twelfth place in 1970 (with 1.9% of total aid) to third place in 1988 (with 4.7% of total aid for its 189,000 inhabitants, compared with 1% for Algeria with 25 million people). Since the per capita GDP of French Polynesia (\$15,450 in 1992) is much higher than Algeria's and even higher than New Zealand's (\$12,900), this clearly shows that strategic interest, not development needs, guides the allocation of public development aid. The fact that the 189,000 inhabitants of French Polynesia received as much French development aid (in 1989) as the populations of China, India, Egypt, and Algeria combined, confirms this point.

Even if a given island has no apparent strategic interest, it may become strategic because it belongs to a nation. Such are the cases of Hawaii, American Samoa, Guam, or French overseas territories and de-

partments. Although not a first-rate world power, France enjoys prominence and international prestige as a result of its overseas departments and territories.

Thanks to its overseas possessions, France, a state of modest geographical size when compared with giants like the United States, Canada, Australia, China, or Russia, is the third largest maritime nation in the world with an oceanic exclusive economic zone spanning 10.8 million square kilometers. This explains why 30% of French development aid goes to its overseas departments and territories.

Regional powers surrounded by small island states, such as the United States, Australia, and New Zealand, try to insure that no potentially hostile country installs military bases on any of these islands (e.g., Cuba and Grenada). This justifies the financial aid granted to, and defense agreements signed with, these tiny island states or territories to secure close political, diplomatic, and military ties. The Compact of Free Association between the United States and the Federated States of Micronesia, the Republic of the Marshall Islands, and Palau is an example of such a strategy: in exchange for a substantial aid package, the United States retained exclusive rights to use land, sea, and air space from the newly associated states (former U.S. trust territories) for military purposes.<sup>7</sup>

Australia distributes 36% of its Country Program Aid to Papua New Guinea, its closest island neighbor, which also possesses abundant mineral resources. France allocates more than 30% of its development aid to overseas departments and territories, and most of the remainder of its aid to its former African colonies with whom privileged monetary and military ties are maintained.

The Falkland Islands are another example of the strategic importance of island territories: the rivalry between the United Kingdom and Argentina for sovereignty over these islands, which permits control of the Cape Horn maritime route, led to a war in 1982. Since then, the British have transferred to the 2,100 inhabitants the highest ever per capita aid in the world to any island: \$7,142 in 1987 (for a per capita GNP of \$8,200).<sup>8</sup> At the present time, fishing rights in the 150-mile economic exclusive zone have replaced to some degree British military expenditure as the island's chief resource.

The above-mentioned examples support the theory that aid is trade. They emphasize how aid can be a fee paid for a strategic service that is provided by a small country or territory to a donor nation. Why international aid is a modern age innovation (read Morgenthau's quotation above) can be explained as follows. Prior to the decolonization era, political influence and strategic services were obtained by annexing islands. Since the end of World War II, colonization and forceful annexation have become unacceptable, and thus island territories or associated states with strategic value are now being lured with rents to obtain the services

they are able to offer. This is especially true of independent islands states with limited natural resources that have agreed to offer strategic privileges, such as use of land for military bases, or have refused to grant such privileges to rivals of the donor state.<sup>9</sup> In other words, the payment of a strategic rent, generally qualified as aid, has replaced military conquest and colonization as a means of securing strategic outposts throughout the world.

Next, I discuss the theoretical implications of this form of international trade.

## II. A Model of International Aid

### *Assumptions*

Let us assume there are two countries, one a large, high-income industrial nation and the other a small, low-income island country. Let us further assume that there is no factor mobility between these two countries, a standard assumption in international trade theory.

We assume there are two goods: (1) good  $X$  is a traded composite private material good as well as our numéraire (unit of value), and (2) good  $Y$  is a nonmarket public good (more precisely, a public service). It may be called "strategic influence," or "national security" (as viewed by the large nation). Good  $Y$  represents a value only to the citizens of the large nation, not to the islanders, who only value good  $X$ .

National security is a pure public good for the citizens of the big country. There is no international market for  $Y$  (although competition may come from other islands offering similar "export services" to the large nation; this case will not be considered here). Obviously, at the outset  $Y$  is produced only in the big country, since it is of no interest to the citizens of the small island. To produce  $Y$  on the island, it is necessary to use some local input, mainly labor.

Because the island's geographical location is best suited to strategic purposes we assume now that the small island country has a comparative advantage in the production of  $Y$ , while the big nation has a comparative advantage in the production of  $X$ . This induces higher island labor productivity in the production of  $Y$ . For example, it takes less time, fewer aircraft carriers, smaller missiles or planes, and less fuel to send bombs to an enemy territory from the island, so that one additional labor unit used on the island military base yields more value units of "national security" than it would on any homeland base.<sup>10</sup> In the large nation, superior technology insures comparatively higher labor productivity in the production of  $X$ .

To illustrate this, let us plot the island country's production possibility frontier (hereinafter designated  $PPF$ ), the slope of which indicates the "rate of product transformation" of  $X$  in  $Y$ . The small island can transform a given quantity of  $X$  into a relatively larger quantity of  $Y$ . In the big nation, the opportunity cost of obtaining more  $Y$  in terms of  $X$

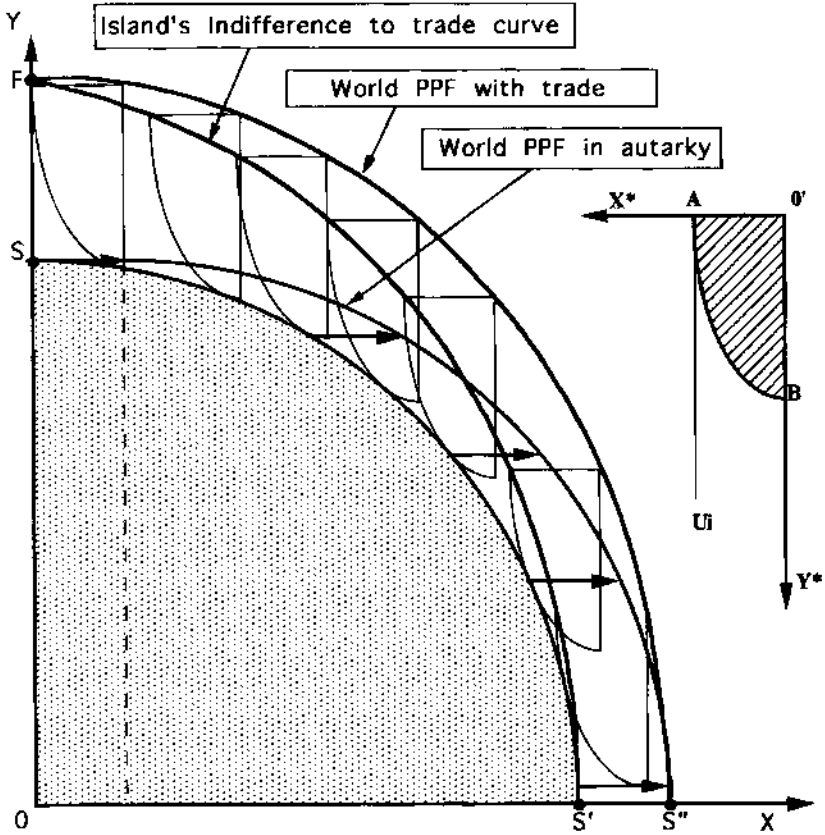


FIG. 1.—Deriving the indifference to trade curve

tends to become higher much earlier. Geometrically, this means that the PPF will be more extended along the Y axis in the small island than in the big nation. In both locations, of course, there are increasing opportunity costs in the production of both goods, and therefore PPFs are “bowed outward.”

*Gains from Trading Strategic Services against Aid:  
A Diagrammatic Approach*

Let us assume that at first both countries live in autarky, then engage in trade. In figure 1, I drew the PPF  $SS'$  for the big nation using the  $XOY$  axis system. On the right side of the diagram, I draw a much smaller PPF  $AB$  for the small island using a reversed  $X^*O^*Y^*$  axis system. Its shape is such that  $O^*B/O^*A > OS/OS'$ , which means that domestic factors have a relatively higher productivity in the production of  $Y$  on the small island and in the production of  $X$  in the big country.



In autarky, the small island specializes in  $X$ . Because  $Y$  has no value for the islanders, the island's social indifference curve is the vertical line  $U_i$ ; the islanders' welfare is determined only by their consumption of  $X$ . Devoting all the island's factors to the production of  $X$  yields a quantity  $O'A$ . Should both countries live in autarky, the "world"  $PPF$  arrived at by horizontally adding the quantity  $O'A$  of  $X$  to the  $PPF$  of the big country  $SS'$ , is  $SS''$  (note that  $S'S'' = O'A$ ).

Now let us assume both countries decide to trade. The world  $PPF$  with trade  $FS''$  is obtained by sliding the reversed island production possibility block  $AO'B$  along the big country's  $PPF$   $SS'$  in such a way that a common tangency point between the two frontiers is maintained. This insures that the marginal rate of product transformation is equal in both countries, meaning that no further exchange and specialization would improve efficiency in world production. The locus of the origin points  $O'$  as the  $AO'B$  island production possibilities block slides along the  $SS'$  frontier becomes the world's  $PPF$   $FS''$  whenever trade takes place. Recalling that  $X$  is a composite numéraire good, the horizontal distance between the autarkic world  $PPF$   $SS''$  and the "after trade" world  $PPF$   $FS''$  indicates the increase in world income gained from trading  $Y$  for  $X$ . It can be noted that the closer we get to point  $F$ , the higher are the world gains from trade, and the more the island specializes in the production of  $Y$ . This is because the small island is relatively more efficient in the production of  $Y$ , which it does not produce at all in autarky. Therefore, the world gains from trade are at their peak when the island is most specialized in the production of  $Y$  and imports all  $X$  from the big nation, which has a higher productivity in the manufacture of this good.

To be willing to engage in international trade, both countries should be at least as well off as they were while in autarky. For the small island, this means it should obtain at least as much  $X$  as previously (i.e., the amount  $O'A$ ). If we subtract the amount  $O'A = S'S''$  horizontally from the world  $PPF$  with trade  $FS''$ , we arrive at the indifference to trade ( $ITT$ ) curve of the small island  $FS'$ . The small island will only be willing to trade if it reaches a point on the left of the  $FS'$  frontier, starting from any of the origin points  $O'$  on the  $FS''$  curve. The  $FS'$  frontier also limits the set  $FOS'$  of the big nation's consumption bundles available with trade. If the latter managed to reap all the gains from trade, leaving nothing to the island (i.e., paying nothing in exchange for the strategic service), it would be somewhere on the  $FS'$  curve. Of course, in practice, this is not attainable, since the small island will never trade unless it gains from it. The set of consumption bundles  $SFS'$ , inside the  $FOS'$  set and outside the  $SOS'$  autarkic production possibilities set, represents the potential gains from trade for the big nation. Any point inside this set is better than autarky. Negotiations will have to determine how those gains will be shared between the big nation and the small island.

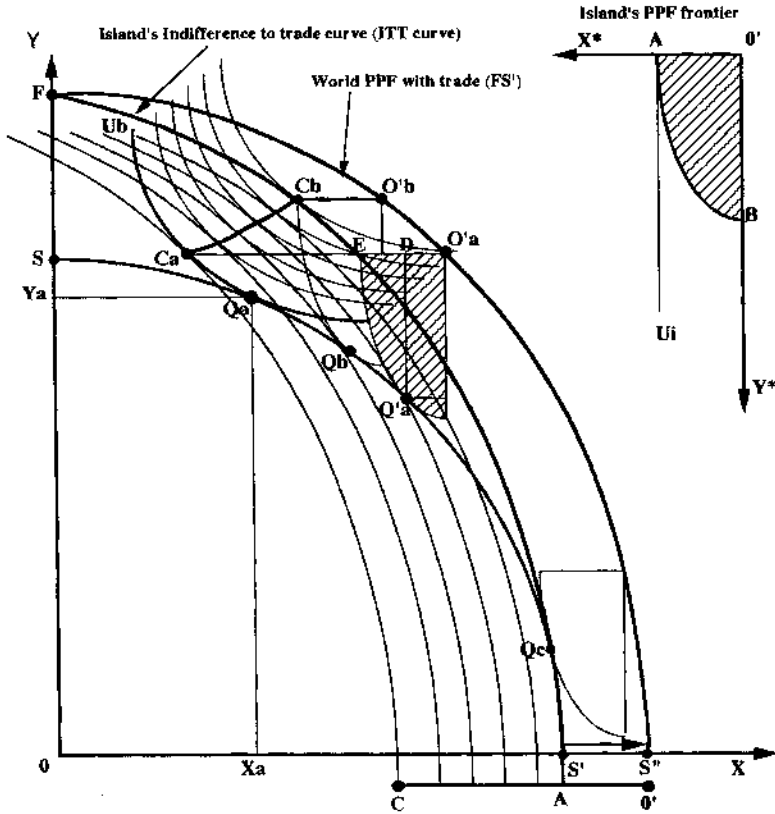


FIG. 2.—Deriving the contract curve

*Trading Aid: The Strategic Rent*<sup>11</sup>

The higher the big nation's preference for the Y good, the higher its potential gains from trade will be, the more "aid" the big nation will be willing to pay for the island's invisible strategic service, and the more the island will import from the big nation.

Let us look at figure 2, where  $U_b$  is the big country's social indifference curve between Y and X, tangent in  $Q_a$  to the big country's PPF.  $Q_a$  is the optimum production and consumption bundle in autarky. The price the big country is willing to pay in X units for an additional unit of Y ( $-dX/dY$ ) is given by the inverse of the slope of the tangent through  $Q_a$  to curve  $U_b$  and the  $SS'$  frontier. The more the big country's citizens "love" Y, the lower the absolute value of  $-dY/dX$  at the autarkic optimum, and the higher the price the big country will be willing to pay for strategic services.

After trade, the equilibrium point lies somewhere in the area north-east of the  $U_b$  curve, but southwest of the  $FS'$  frontier (this frontier being

the island's *ITT* curve). In figure 2, while horizontally sliding this *FS'* frontier to the left, we obtain a family of *ITT* curves, corresponding to increasing levels of  $X^*$  consumption and social welfare for the island citizens. While sliding the  $U_b$  curve to the northwest, we obtain a family of social indifference curves for the big nation. The locus of tangency points between the  $U_b$  curves and *ITT* curves produces the Pareto-efficient consumption bundles; anywhere along this curve, it is impossible to improve one country's social welfare without lowering the other country's social welfare.

Therefore, the after-trade equilibrium (as seen from the big nation) should lie somewhere along this "contract curve." If it lies on  $C_a$ , all the gains from trade go to the island country. If it lies on  $C_b$ , all the gains from trade go to the big nation. Going from  $C_b$  to  $C_a$ , the gains from trade are transferred from the big nation to the island. With each point on the contract curve  $C_aC_b$  we can associate a full set of consumption, production, and net export bundles for each country. Point  $C_a$  is an example. The amount of world consumption after trade can be identified by drawing a horizontal line from  $C_a$  to the world *PPF* curve:  $O'_a$  is the world's consumption bundle. The amount of  $X$  consumption in the island country after trade corresponding to  $C_a$  can be read in the horizontal difference between the world consumption bundle after trade  $O'_a$  and  $C_a$  (segment  $O'_aC_a$ ). It can also be found on the horizontal reversed axis  $O'X^*$  beneath the main horizontal axis  $OX$ , where the *ITT* curve intersects  $O'X^*$ . For instance, here  $O'C$  is the island consumption of  $X$  corresponding to  $C_a$ . The after-trade production bundle in the big nation, corresponding to consumption bundle  $C_a$ , is  $Q'_a$ . The amount of  $Y$  "exported" by the island is  $DQ'_a$ , and the amount of  $X$  "imported" by the island (i.e., the amount of "aid") is  $C_aD$ .

Thus, one may associate with each point on the  $C_aC_b$  curve (corresponding to a consumption bundle  $C$  for the big nation after trade) a production bundle  $Q$  for the big nation, a production bundle for the island, the island's export of  $Y^*$ , and the amount of  $X^*$  (aid) received by the island in exchange for  $Y^*$ .

The  $C_aC_b$  portion of the contract curve (and the associated set of consumption, production, and net exports for both countries that correspond to each point on this curve) is known in game theory as the core of the game. If we consider the citizens of each country as a coalition of individuals trying to obtain the highest utility for its members, any point outside the  $C_aC_b$  contract curve is blocked by the big country coalition southwest of  $C_a$ , or by the island coalition northwest of  $C_b$ , or by the coalition of all individuals outside the contract curve (since such a point would not maximize  $U_b$  for a given value of  $U_i$  or  $U_i$  for a given value of  $U_b$ ). Therefore, the set of points between  $C_a$  and  $C_b$  on the contract curve is the core of the game, that is, the set of consumption bundles for the big country and the associated set of island consumption bundles  $X^*$ ,

which are not blocked by any coalition. Which point will be chosen within the core set of points depends on the bargaining power of each government. It depends on the availability of other strategic islands for the big country or, conversely, on the willingness of other big industrial nations to "help" the small island country.

In autarky, the islanders consume  $O'_aE = O'A$ . After trade, their consumption lies between  $O'A$  and  $O'C$  on the  $O'X^*$  reversed axis. The islanders' gains from trade lie between zero and  $AC$ . The distance  $AC$  measures the strategic rent in units of the numéraire  $X$ , that is, the maximum amount of  $X$  that the citizens of the big country are willing to pay to lease the strategic resource that the island represents. They are willing to pay this rent only because the strategic service can be obtained more efficiently on the island than in the big nation. Thus, the strategic rent can be considered the equivalent of royalties on oil resources or fishing rights on marine resources, that is, a "natural" rent gained by the citizens of a country that possesses scarce natural resources that other countries lack. Note that the strategic rent does not depend on the number of people living on the island (the same applies to royalties paid to oil-rich countries), and therefore, the smaller the island's population, the higher the amount per capita.

#### *The Theory's Predictions*

If one considers that aid is trade, in other words that aid is granted in exchange for strategic services, then the amount of aid will be set by the strategic value of an island and, therefore, depends on the shifting preference for  $Y$  in the large nation. The demand price it is willing to pay for each additional unit of  $Y$  depends on the intensity of preference for  $Y$  (the social marginal rate of substitution in consumption between  $Y$  and  $X$ ). If we allowed the existence of more than two countries in the theory, the amount of aid would then be influenced by the world supply and demand for  $Y$ .

Therefore, the theory's first prediction stipulates that when the world geopolitical situation becomes less threatening, the world price of strategic services tends to fall.

Such has been the case since the collapse of the Soviet Union, the end of the cold war, and nuclear disarmament talks. Indeed, as citizens of world powers feel less threatened by major military conflicts, the autarkic production bundle of the big nation shifts toward  $S'$  on the  $PPF$   $FS'$ , and, therefore, potential gains from trade decline, making negotiations less productive for island states. This phenomenon is currently observable in the South Pacific where United States, Australian, and British aid donors are decreasing bilateral transfers and introducing "trade, not aid" policies. Soviet aid has vanished similarly in Cuba and Angola.<sup>12</sup>

The second prediction of the theory is that the value of strategic

services offered to donor nations can be measured on a decreasing scale: the most valuable services are offered by island territories, followed by associated island states, then independent islands, and, finally, by continental independent states.

Indeed, a fully sovereign nation can decide suddenly and unilaterally to expel foreign military forces or testing facilities. Such events occurred in the Philippines with the cancellation of the Clark and Olongapo base leases, in France when de Gaulle called for the dismantling of NATO bases and headquarters, and when Soviet troops were expelled from Egypt after the Yom Kippur War. It is much more difficult for an associated state to act in such a way and next to impossible for a dependent territory. Therefore, the more limited the island's sovereignty, the more valuable it is for the long-term strategic purposes of a world power. This explains why some major powers still maintain a chain of territories around the world although their immediate strategic value might not be clear. An example is the sudden increase in the strategic value of Micronesian or Polynesian atolls isolated in the middle of the Pacific with the advent of medium-range aircraft (an atoll equals a carrier) and again when vast, isolated ocean stretches became necessary for the testing of "nuclear deterrence" weapons created during the cold war. In contrast, continental independent countries will generally present less strategic interest, with the exception of some peninsulas commanding important straits, such as Gibraltar, Singapore, or important canals, such as Panama and Suez.

The theory's third prediction is that the more isolated and the less populated an island is, the more valuable it becomes for strategic purposes. This paradoxical prediction becomes clear if we consider that most military activities require confidentiality. It is much more difficult for a rival power to spy on military bases when they are isolated in the middle of an ocean. Security and confidentiality are much easier to maintain in such surroundings. This becomes an especially important factor for nations that do not have great expanses of desert within their own territory, namely, France and Great Britain.

The theory's fourth prediction is that the less populated an island is, the higher aid per capita its population will receive in exchange for strategic services, and the higher the ratio of aid per capita to GDP per capita will be (which is the same as the aid to GDP ratio). Thus, the rent a rich nation is willing to pay to an island for strategic services has no relation to the island's population.

Consequently, governments and citizens of less populated islands may more readily perceive the advantages of trading strategic services for aid and may be more willing to specialize in this kind of export than are governments and citizens of more populated islands, for which foreign aid may not mean much difference in their per capita income and standard of living. Therefore, sparsely populated islands are easier to

convince in terms of commitment to a special relationship with a great world power. These islands also provide a higher level of strategic service per dollar of aid than more populated islands do. As an example, the amount of aid granted by France to Guadeloupe (\$1,022 million) is greater than that granted to French Polynesia (\$746 million), a group of islands of greater strategic importance to the French because they needed it for nuclear weapons testing (from 1963 to 1996). But as Guadeloupe's population is triple that of French Polynesia, French Polynesians get more aid per capita (\$3,664) than Guadeloupe islanders do (\$2,555), even though French Polynesia's GDP per capita is almost twice as high, thanks to military expenditure and higher civil servant salaries.

If an island already has a high standard of living as a result of valuable export activities like tourism, financial services, fishing rights, or the export of phosphates or oil, it will be less inclined to provide strategic services. Indeed, its need for aid is then not as crucial, and the sacrifices of sovereignty in defense and foreign relations that are required in exchange might seem less acceptable. Therefore, one might expect that islands with very high per capita revenues from exports of goods and services (like Hawaii) do not get much aid per capita.

This leads to the prediction that the amount of aid per capita is inversely related to the island's population size, to the island's export per capita, and to the degree of sovereignty in defense and foreign affairs. However, it is directly related to its long-term political loyalty to the donor country.

Of course, aid per capita is also positively related to the island's strategic interest, which may be tied to its proximity to the donor nation or to a potential enemy of the donor nation, or (for an archipelago of islands) to its commanding position on a vast portion of ocean in a strategic location. The demand price for strategic services is a long-term affair. It is not likely to fluctuate wildly in the short term because an unstable aid donor would lose credibility on the world market for aid. Receiving countries would not trust such a donor and would prefer a more stable and reliable partner. This explains why aid is a quite sustainable source of revenue for island countries, even when world geopolitical realities change. Moreover, in the long run, islands can rely on competition for strategic influence among donor countries.

Thus, aid can be considered a rather stable and sustainable resource that compares favorably with revenues from traditional exports such as copra, bananas, fish, coffee, phosphates, and tourism services.

### **III. Empirical Test of the Theory**

#### *Aid, Political Status, and Island Population*

Table 1 (derived from appendix table A1) shows the average amount of bilateral aid received by islands according to their political status. On average, islands received more than all LDCs did: independent islands

TABLE 1  
AVERAGE AID PER CAPITA AND AID/GDP RATIO ACCORDING TO GEOGRAPHICAL AND POLITICAL STATUS (1992)

	BILATERAL AID		GDP		AID/GDP (%)	COMPARED WITH LDCs = 1	
	POPULATION (Thousands)	Millions of Dollars	Per Capita	Millions of Dollars			Per Capita
Independent islands > 1 million population	45,676.0	865.6	19	37,602.2	823	2.3	2
Independent islands < 1 million population	5,402.4	470.6	87	27,143.3	5,024	1.7	9
Independent Pacific islands	5,511.4	563.0	102	5,580.3	1,013	10.1	10
Island territories or associated states	2,812.9	8,716.1	3,099	26,983.4	9,593	32.3	310
Pacific island territories or associated states	839.0	2,640.3	3,147	10,047.2	11,975	26.3	315
French overseas territories and departments	1,897.8	6,721.9	3,542	17,168.7	9,047	39.2	354
All Pacific islands	6,350.4	3,203.3	504	15,627.6	2,461	20.5	50
All LDCs	4,278,384.0	43,067.0	10				1

SOURCE.—See appendix table A1.

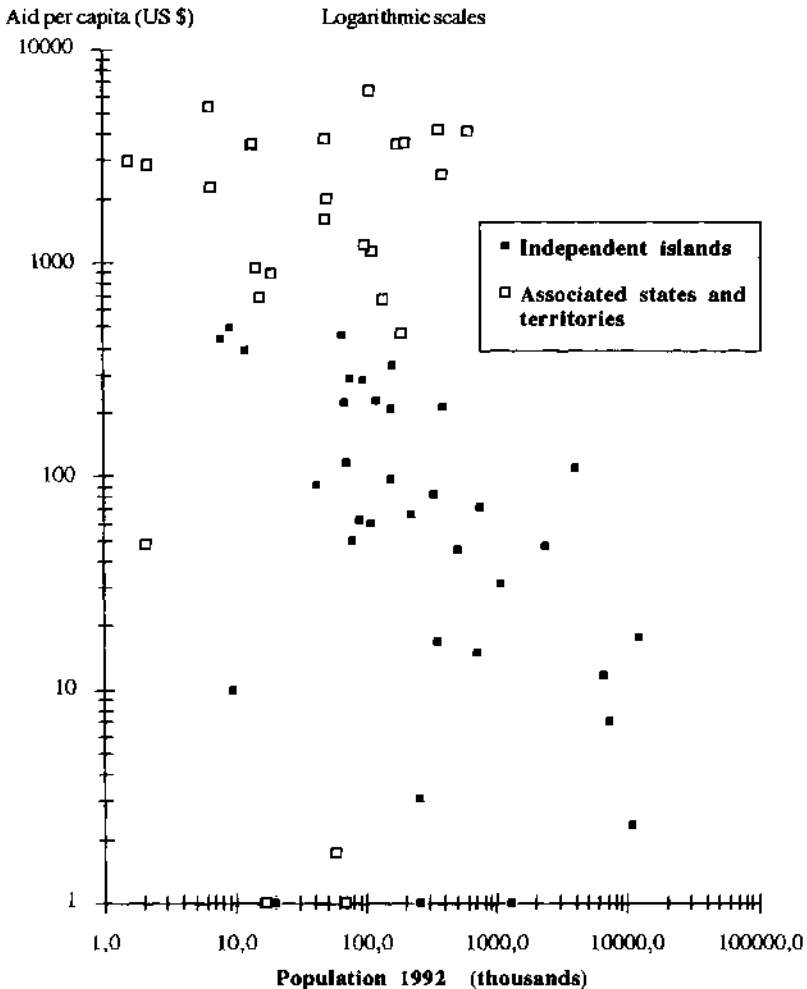


FIG. 3.—Bilateral aid per capita and population for small islands (1992). Source: appendix table A1.

with a population of more than 1 million obtained twice as much; independent islands with a population of less than 1 million received nine times as much; independent Pacific islands received 10 times as much; island territories or associated states obtained 310 times as much; French island departments and territories obtained 354 times as much, and French Polynesia, site of the French nuclear testing facilities until 1996, received 366 times as much aid.<sup>13</sup>

Figure 3 shows that bilateral aid per capita is inversely related to population and directly related to political status. Notice that all associated states and territories have small populations of less than 1 million,



TABLE 2  
REGRESSION OF AID PER CAPITA (52 Islands)

VARIABLE NAME	DEPENDENT VARIABLE: LOG A/P			
	Coefficient	Standard Error	t-Statistic	Probability > t
Constant	5.775	1.373	4.207	.000
S	2.763	.399	6.930	.000
Log P	-.233	.087	-2.670	.010
Log Y/P	-.026	.167	-.156	.877
Coefficient of determination	.657			
Adjusted coefficient	.636			
Coefficient of correlation (R)	.811			
Standard error of estimate	1.215			
Durbin-Watson statistic	2.044			

NOTE.—Excluding nine “rich” islands: the Bahamas, Barbados, Bermuda, the British Virgin Islands, the Cayman Islands, Iceland, Isle of Man, Nauru, and Trinidad and Tobago, for which per capita GDP is between \$10,000 and \$25,000.

often much less than that, and receive on average much more, whatever their population. It is no coincidence that for the donor nation, the cost of securing close political ties for strategic purposes is much less when it deals with sparsely populated islands. This explains why most former big island territories have been granted independence, whereas many small islands have been willing to maintain close political ties and sometimes have even refused to become independent (Tuvalu, Mayotte) in exchange for significant increases in aid.<sup>14</sup>

Some islands are exceptions to the rule: they have a small population, yet receive almost no aid per capita. These are rich islands with established high export activity, such as Nauru (phosphates); Trinidad and Tobago (oil); Isle of Man, Cayman Islands, and Bahamas (financial services); Iceland (fisheries); Bermuda, Barbados, and the British Virgin Islands (tourism), and so forth. In these islands it is obvious that donor countries would get much less political mileage for the same amount of aid per capita than they would in a low-income island.

### *Econometric Test*

Figure 3 suggests an inverse linear relationship between the logarithm of aid per capita and the logarithm of population, especially for independent islands. For further verification, a regression analysis was performed with the logarithm of aid per capita (Log A/P) as the dependent variable. The independent variables are the logarithm of population (Log P), the logarithm of GDP per capita (Log Y/P), and a dummy variable representing political status (S), which has a value of one for associated states or territories and zero for independent states. The regression, using a 1992 data set restricted to the 52 aid-receiving islands, yields the following results (see table 2).<sup>15</sup>

Notice that  $S$  is positive and highly significant, as expected. The inverse relationship for population ( $\text{Log } P$ ) is also confirmed, verifying the small country bias already observed in many studies since 1976.<sup>16</sup> The regression coefficient for GDP per capita ( $\text{Log } Y/P$ ) is not significant, meaning there is no tendency to favor "poor" islands. As prior studies (not specific to islands) have already shown, this suggests that aid is not granted according to the recipient's need but, rather, according to the donor's interest.<sup>17</sup>

According to the coefficient of  $\text{Log } P$ , an island population with double the population of another gets 23% less aid per capita (assuming the same political status) than does the sparsely populated island. The overall regression fit is satisfactory, the adjusted  $R^2$  is 0.636.

A quick glance at figure 3 suggests that the amount of aid per capita granted is more sensitive to variations of population levels in independent islands than in territories or associated states. To verify this conclusion, a regression was run separately on 35 independent islands in the data set. As expected, the population variable turned out to be much more significant and the negative population coefficient much higher: independent islands with double the population received 64% less aid per capita. The coefficient of  $\text{Log } Y/P$  is also significant and negative. The elasticity of aid per capita with respect to GDP per capita is close to  $-1$  (results available on request).

This result could be interpreted as a confirmation of the recipient need theory, but this conclusion would be wrong, since the previous finding, that rich island territories and associated states receive much more aid per capita than do poor island states, clearly contradicts this recipient need theory. Instead, this result can be explained by the "aid is trade" theory as argued above. Political leverage exercised on an independent island by a donor state is much more efficient, per dollar spent, in poor and sparsely populated islands where the same amount of aid has greater impact on standards of living.

#### **IV. Conclusion**

The theory proposed here starts with the hypothesis that bilateral aid is motivated essentially by the strategic needs of the donor states. The empirical evidence seems to support this theory. The theory yields testable predictions that are confirmed by the data: (1) islands receive more aid per capita, (2) nonindependent islands receive more aid per capita than independent ones do, (3) an inverse relationship exists between aid per capita and population.

The theory reveals that gains from trade are high for island states at times when donor nations are in need of strategic services. The theory also shows why small islands with few resources and export opportunities tend to engage in a special relationship with a world or regional power seeking to secure strategic services. This explains the tendency

for increasing political and economic integration of small islands, as noted by John Connell: "In the smallest island microstates (IMS) and dependent territories where aid (and remittances) have been substantial, the structure of the economy has been transformed from subsistence towards subsidy. . . . The smallest colonies and IMS, by choice, and larger IMS, for want of a superior option, have increased their ties with metropolitan powers and moved from productive towards rentier status."<sup>18</sup>

If my claim that "aid is trade" is correct, then the current "trade, not aid" policy introduced recently in less developed countries by the United States and their development agencies appears to be a hypocritical statement. It means, in fact, that we don't need your strategic services any more; please find something else to trade with us.

Yet such a policy might be shortsighted, as many aid donors still consider securing close political and economic ties with island states or territories of actual or potential strategic interest a long-term policy of securing goodwill, trust, and loyalty. History has shown that a remote island may suddenly become a major strategic asset: Midway, Truk Islands, Bikini, Eniwetok, Johnston, Kwajalein, Cuba, and Grenada for the United States; Moruroa, Hao, and Fangataufa for France, and the Falkland Islands for Great Britain.<sup>19</sup>

This explains why sudden changes in world geopolitics such as the dismantling of the Soviet Union, the end of the cold war, and the nuclear test ban are not likely to induce a sharp decline in the per capita aid received by customary aid recipients (French overseas departments and territories, U.S. territories) as long as the close relationship with the island continues to be considered a valuable long-term strategic investment.

Moreover, international competition among donor nations to secure strategic services insures a certain continuity in transfers to island communities. Should some traditional donors reduce bilateral aid, as is presently the case with the United States and Great Britain in the Pacific, new donors such as Japan, the European Union, and France are now ready to step in with replacement aid to acquire goodwill and establish new political ties in the region.<sup>20</sup>

# Appendix

TABLE A1  
POPULATION, BILATERAL AID, AND GDP FOR SMALL ISLANDS (1992)

	POPULATION (Thousands)	BILATERAL AID		GDP		Aid/GDP (%)	POLITICAL STATUS
		Millions of dollars	Per Capita	Millions of dollars	Per Capita		
Island territories and associated states:							
American Samoa	49	78.0	1,592	269.5	5,500	28.9	Territory of the United States
American Virgin Islands	102	644.6	6,320	1,611.6	15,800	40.0	Territory of the United States
Bermuda	58	.1	2	1,334.0	23,000	.0	Colony of the United Kingdom
British Virgin Islands	17	2.1	126	166.4	10,000	1.3	Colony of the United Kingdom
Cook Islands	20	11.8	605	56.3	2,889	20.9	Associated state of New Zealand
Falkland Islands	2	.4	190	17.2	8,200	2.3	Colony of the United Kingdom
Federated States of Micronesia	114	128.0	1,123	286.8	2,516	44.6	Associated state of the United States
French Polynesia	204	746.4	3,664	3,147.0	15,449	23.7	Territory of France
Guadeloupe	400	1,022.2	2,555	2,816.2	7,040	36.3	Overseas department of France
Guam	139	684.0	4,921	2,913.2	20,958	23.5	Territory of the United States
Isle of Man	70	.1	1	840.0	12,000	.0	Colony of the United Kingdom
Republic of the Marshall Islands	52	102.5	2,000	85.3	1,640	120.2	Associated state of the United States
Martinique	369	1,537.1	4,166	3,116.8	8,447	49.3	Overseas department of France
Mayotte	100	118.8	1,191	99.8	1,000	119.1	Territory of France
Montserrat	12	4.7	392	48.0	4,000	9.8	Colony of the United Kingdom
Dutch West Indies	192	88.9	463	1,536.0	8,000	5.8	Territory of the Netherlands
New Caledonia	178	630.5	3,542	2,668.3	14,990	23.6	Territory of France
Niue	3	4.5	1,800	7.1	2,825	63.7	Autonomous republic of New Zealand
Mariana Islands (CNMI)	50	189.5	3,789	573.6	11,472	33.0	Associated state of the United States
Republic of Palau	16	10.7	686	18.1	1,162	59.0	Associated state of the United States
Réunion	627	2,583.8	4,121	5,283.8	8,427	48.9	Overseas department of France
Saint Helena	7	15.2	2,171	14.4	2,050	105.9	Colony of the United Kingdom
St. Pierre and Miquelon	6	34.0	5,305	16.0	2,500	212.2	Territory of France
Tokelau	2	5.3	2,963	1.2	667	444.2	Territory of France
Turks and Caicos Islands	12	23.8	1,983	36.0	3,000	66.1	Territory of New Zealand
Wallis and Futuna	14	49.0	3,528	20.9	1,500	235.2	Colony of the United Kingdom
Total territories and associated states	2,813	8,716.1	3,099	26,983.4	9,593	32.3	Territory of France

Independent states:

Anguilla	9.0	3.5	389	9.0	1,000	38.9	Independent state
Antigua and Barbuda	67.0	4.0	60	453.6	6,770	.9	Independent state
Aruba	71.2	29.9	420	781.1	10,970	3.8	Independent state
Bahamas	262.0	.0	0	3,162.3	12,070	.0	Independent state
Barbados	259.0	.8	3	1,693.9	6,540	.0	Independent state
Cape Verde	389.0	82.0	211	330.7	850	24.8	Independent state
Cayman Islands	20.0	.0	0	440.0	22,000	.0	Independent state
Comoros	510.0	23.1	45	260.1	510	8.9	Independent state
Cuba	10,713.0	24.9	2	10,177.4	950	.2	Independent state
Cyprus	718.0	10.6	15	7,050.8	9,820	.2	Independent state
Dominica	72.0	8.3	115	175.7	2,440	4.7	Independent state
Dominican Republic	7,321.0	52.0	7	7,687.1	1,050	.7	Independent state
Fiji	750.0	54.1	72	1,566.0	2,088	3.5	Independent state
Grenada	91.0	5.6	62	210.2	2,310	2.7	Independent state
Haiti	6,593.0	76.9	12	2,505.3	380	3.1	Independent state
Iceland	261.0	.0	0	6,232.7	23,880	.0	Independent state
Jamaica	2,396.0	112.7	47	3,210.6	1,340	3.5	Independent state
Kiribati	77.4	22.0	284	58.8	760	37.4	Independent state
Madagascar	12,366.0	215.5	17	2,844.2	230	7.6	Independent state
Maldives	229.0	15.0	66	114.5	500	13.1	Independent state
Malta	357.0	6.0	17	2,606.1	7,300	.2	Independent state
Mauritius	1,099.0	34.7	32	2,967.3	2,700	1.2	Independent state
Nauru	9.6	.2	21	122.9	12,800	.2	Independent state
Papua New Guinea	3,920.0	348.9	89	3,214.4	820	10.9	Independent state
Saint Vincent and Grenadines	109.0	6.5	60	216.9	1,990	3.0	Independent states
Santa Lucia	155.0	15.0	97	452.6	2,920	3.3	Independent states
Sao Tomé and Principe	121.0	27.0	223	43.6	360	62.0	Independent states
Seychelles	69.2	15.4	223	377.8	5,460	4.1	Independent state
Solomon Islands	335.0	27.4	82	197.7	590	13.9	Independent state
Kiitiis-Nevis	41.6	3.8	91	166.0	3,990	2.3	Independent state
Tonga	92.0	19.7	214	116.1	1,262	17.0	Independent state
Trinidad and Tobago	1,268.0	.0	0	4,995.9	3,940	.0	Independent states
Tuvalu	9.4	8.4	894	3.5	376	237.7	Independent state
Vanuatu	156.0	32.4	208	182.7	1,171	17.7	Independent state
Western Samoa	162.0	49.9	308	118.3	730	42.0	Independent state
Total independent states	51,078.4	1,336.2	26	64,745.5	1,268	2.1	
Population < 1 million	5,402.4	470.6	87	27,143.3	5,024	1.7	
Population > 1 million	45,676.0	865.6	19	37,602.2	823	2.3	

**Notes**

\* I thank Alex du Prel and Sandya Patel for their help on editing the manuscript.

1. H. Morgenthau, "A Political Theory of Foreign Aid," *American Political Science Review* 56, no. 2 (1962): 301–9.

2. "The approach of this paper is to treat foreign aid as a public good for which there is a market, albeit a highly imperfect one because the consumers—donor country taxpayers—are ignorant about the very nature, let alone the price, of the commodity they are buying" (Paul Mosley, "The Political Economy of Foreign Aid: A Model of the Market for a Public Good," *Economic Development and Cultural Change* 33, no. 2 [1985]: 373–93, p. 373). "This study approaches the question by considering aid as a good which is consumed indirectly by the residents of the donor country. The supply of foreign aid is then explained by the demand by the donor country for the impact its aid has on the recipient country" (Leonard Dudley and Claude Montmarquette, "A Model of the Supply of Bilateral Foreign Aid," *American Economic Review* 64, no. 1 [1976]: 132–42, p. 132). Other theories of aid as an international public good include: J. Pincus, *Economic Aid and International Cost-Sharing* (Baltimore: Johns Hopkins University Press, 1965); and Mancur Olson and R. Zechauser, "An Economic Theory of Alliances," *Review of Economics and Statistics* 48 (August 1966): 266–79.

3. All figures refer to 1992. The figures are found in table 1 and appendix table A1.

4. Territories are part of a larger nation; associated states are independent but have an agreement of free association with a larger nation (e.g., Cook Islands with New Zealand).

5. Guadeloupe, Martinique, Réunion, and French Guyana are French overseas departments, part of the French nation (just as Hawaii is an overseas state of the United States). French Polynesia, New Caledonia, Wallis, and Futuna are French overseas territories, similar to what American Samoa, Guam, and the U.S. Virgin Islands are to the United States.

6. Multilateral aid is different because it is provided through international organizations. Having theoretically no political leverage, it therefore cannot be considered a bilateral "trade."

7. Jean Pierre Reymondet-Commoy, "La libre association avec les Etats-Unis comme stratégie de développement de la Micronésie" (The free association with the United States as development strategy for Micronesia), *Colloque Stratégies de développement des économies insulaires à pouvoir d'achat élevé* (Saint-Denis de La Réunion, Région Réunion, November 7–10, 1988).

8. However, since détente set in between Argentina and the United Kingdom after the Falkland Islands war, the level of British aid has declined from \$15 million in 1987 to \$400,000 in 1992. OECD, *Geographical Distribution of Financial Flows* (Paris: OECD, 1994).

9. The striking exception is the U.S. base in Guantánamo, Cuba. Since 1903 rent has been paid to the Cuban government for the lease of this part of their territory, revocable only by agreement of both parties. Another exception is Argentina's attempt to annex the Falkland Islands with a military expedition in 1982, which resulted in the Falklands War between the United Kingdom and Argentina.

10. The crucial role of Guam, Olongapo, and Clark air and naval bases during the Vietnam War illustrates this theory, as does the crucial strategic advantage gained by the Soviet Union when it started to install missile bases in Cuba in 1962.

11. Due to space limitations, I cannot develop here the analysis concerning an island territory that yields slightly different results, since there is only one social indifference curve for the nation, and therefore the island has no say in the resulting allocation of  $X$  and  $Y$  between the mother nation and the island territory (although the territory has representatives who are supposed to defend the island's interests) in the national assembly.

12. However, the problem of unstable world commodity prices is not limited to geostrategic exports; to the contrary, the amount of aid can be negotiated for a long time span (15 years between Micronesian states and the United States with the Compact of Free Association, 10 years for French Polynesia and France under a recent "Loi d'orientation pour le développement de la Polynésie Française"), whereas the price of copra, coffee, or vanilla fluctuates widely from one year to the next, and revenues from tourism are also very unstable. Thus any specialization in export activity is risky, and islands have no other option than to specialize, since their narrow resource base and small domestic markets do not allow diversification of exports.

13. See appendix table A1. Military expenditures are excluded from the aid figures, but net civil transfers by the French government to French overseas departments and territories (including social security benefits) are included.

14. Recently the people of Anjouan Island have voted their independence from the Federal Islamic Republic of the Comoro Islands. Their (unofficial) president stated that Anjouan wished to become a French territory again. Many Anjouan islanders have fled to neighboring Mayotte, an island in the same archipelago, where the standard of living is much higher, since in 1976 its people chose by referendum to stay in the French republic after the Comoros became independent in 1974. The French government, however, chose to ignore the (unofficial) request of the Anjouan islanders to become again a French territory (in 1974 the island had voted overwhelmingly in favor of independence).

15. The following nine "rich" islands, receiving no aid, for which the per capita GDP varies between \$10,000 and \$25,000, were taken out of the sample: Bahamas, Barbados, Bermuda, British Virgin Island, Cayman Islands, Iceland, Isle of Man, Nauru, and Trinidad and Tobago. Hawaii was excluded from the sample because it is a state, not a territory, of the United States. The fact that "rich" islands receive no aid only serves to confirm our theory. As explained above, it is not wise for donors to waste aid money on "rich" islands, as it offers little advantage to the local population, while the political leverage for similar sums is more powerful in a small, "poor" island. There it has a bigger impact on the standard of living, inducing local governments to grant strategic privileges and political allegiance in exchange for the "aid." In other words, rich islands do not have a comparative advantage in the production of strategic services, and therefore they have no interest in accepting "aid" in exchange for geostrategic services.

16. Paul Isenman, "Biases in Aid Allocation against Poorer and Larger Countries," *World Development* 4, no. 8 (1976): 631-41.

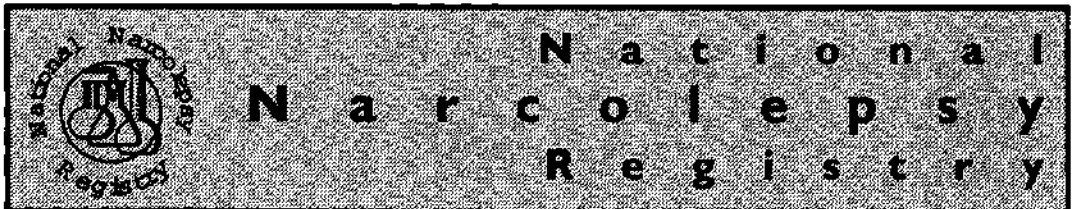
17. For a survey of the literature on the motivations of overseas aid, the "donor interest model," and the "recipient need model," read Rukmani Gounder, "Empirical Results of Aid Motivations: Australia's Bilateral Aid Program," *World Development* 22, no. 1 (1994): 99-113. Most empirical studies show evidence in favor of the "donor's interest" model against the "recipient's need" model. See R. D. McKinlay and R. Little, "The U.S. Aid Relationship: A Test of the Recipient Need and the Donor Interest Model," *Political Studies* 27, no. 2 (1979): 236-50, "our results provide strong confirmation for the donor interest model, and in general indicate a U.S. aid relationship compatible with the realist image of the international system" (p. 236). McKinlay and Little reach similar

conclusions when studying British and French aid behavior ("A Foreign Policy Model of the Distribution of British Bilateral Aid, 1960-1970," *British Journal of Political Science* 8, no. 3 [1977]: 313-31, and "The French Aid Relationship: A Foreign Policy Model of Distribution of French Bilateral Aid, 1964-1970," *Development and Change* 9, no. 3 [1978]: 459-78). Others, such as A. Maizels and M. H. Nissanke, "Motivations for Aid to Developing Countries," *World Development* 12, no. 9 (1984): 879-900, reach similar conclusions. Paul Isenman finds that dependent political links with Western Europe, "political salience," and being a U.S. ally bordering Russia, China, or Indonesia were all significant variables in explaining the amount of U.S. aid received. He also shows that per capita aid is greater in small countries and in middle income countries than in lower income LDCs. All of these results are in accord with the predictions of my theory of "aid as trade."

18. John Connell, *Sovereignty and Survival, Island Microstates in the Third World*, Research Monograph no. 3 (University of Sydney, Department of Geography, 1988).

19. These three atolls in the Tuamotu Archipelago in French Polynesia had been used for nuclear testing since 1962. The tests had been conducted underground since 1975. Suspended by President Mitterrand in 1988, the nuclear tests were resumed in September 1995 by President Chirac and ended in January 1996. All military installations on Moruroa were dismantled in 1997 and 1998, yet Moruroa and Fangataufa remain a military off-limits area.

20. Roman Grynberg, "Goodbye Uncle Sam," *Pacific Islands Monthly* (January 1994), p. 13.



## N a r c o l e p s y R e g i s t r y

The National Narcolepsy Registry (NNR) seeks individuals who have been diagnosed with narcolepsy and their families. The National Narcolepsy Registry, a genetic database supported by the National Sleep Foundation, assists researchers in the search for the cause, and eventual cure of narcolepsy. For more information, contact the NNR coordinator at the National Sleep Foundation, 729 15th St., NW, Box NNR, 4th Floor, Washington, DC 20005. By phone, 202-347-3471, or by E-mail, <natsleep@erols.com>.