

**Was Luce Right? Simulating the Growth of U.S. Client States**

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## **Abstract**

United States foreign policy in the twentieth century has arguably been built around the creation and protection of client states. This tendency both antedates the cold war and continues after its end. We lay out the elements of a theory of client state acquisition based on the decay of European colonial empires, on a U.S. concern with stability and order, and on bandwagoning effects among potential clients. This theory is then modeled using simulation; the model contains certain agent-based elements. Preliminary analysis of the model indicates that 1) the model generates fairly stable results; 2) it tracks the historical cycles in US client acquisition (periodic spikes) and imperial decay fairly well.

## Introduction

In a prior paper, we argued and demonstrated that one of the fundamental components of U.S. foreign policy has been the acquisition and protection of client states.<sup>1</sup> This aspect of U.S. foreign policy appears to have remained unchanged for over a century. We argued that it existed prior to the Cold War, continued during that period, and is still operative after the Cold War. We demonstrated that the surveillance and protection of client states (including the potential for intervention of various forms) could be explained -- at least in a proximate sense -- by the microstructure of foreign policy making mechanisms. In particular, an understanding of the morphology of foreign policy recommendations and of how certain such recommendations win out over others turns out to shed light on built-in escalatory tendencies (and hence the frequency of intervention) and on why such tendencies are far more prevalent than de-escalatory ones. We also argued in a more speculative vein, that, at least to date, no significant countervailing factors have emerged to undermine the U.S. focus on and acquisition of client states. We showed that none of the phenomena often cited as likely to lead to the U.S. dropping existing clients or failing to acquire new ones -- e.g., concern about U.S. casualties; the supposed rise of isolationism; the absence of a single enemy -- have counteracted the micro-processes that underlie client state policy. The conclusion we reached was that, for the foreseeable future, the United States would protect its client states, if need be by military intervention, and will, on occasion, acquire new clients.

What is missing in our prior analysis is an explanation for why and how the U.S. acquires client states. Until now, our focus has been more on how the U.S. seeks to support and protect its clients once they have achieved client state status. In this paper, we construct and test a model of how the U.S. acquires client states. It is based on two key ideas: "freedom" and "availability." For it to be possible for a state to become a U.S. client, it must not be a client of another patron. Those patrons may be friends of the U.S. (indeed they may themselves be clients of the U.S.) or enemies of the U.S. Only those nation states that are free from other patrons are in a position to become U.S. clients. Of those that are free, the U.S. will consider only those that make themselves available to be clients. The model of client acquisition is developed in detail below.<sup>2</sup> The model is formalized in the agent-based modelling tradition, and implemented in Java and RePast. In order to assess the model, simulations are run to determine whether a variety of expected characteristics of U.S. client acquisition for the period from 1945 to the present are captured.

Before presenting the model and some simulation results, we provide a short review of what we mean by client states, and historical record of U.S. client acquisition in the twentieth century.

## Client States

At least as far back as ancient Rome, powerful political units have acted through a network of clients.<sup>3</sup> To the patron, the advantages of having clients rather than, say, imperial provinces are twofold: the administrative and political costs of administering clients are considerably less than

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<sup>1</sup> David Sylvan and Stephen Majeski, "The Continuity of Client States and Military Intervention in United States Foreign Policy," Paper prepared for presentation at the 42nd Annual Convention of the International Studies Association, Chicago, 20-25 February 2001.

<sup>2</sup> We intend to add to this model of client acquisition a model of U.S. policy to protect clients. Such a model involves various types of escalatory and deescalatory policies that the U.S. engages in to meet problems that its clients are not capable of handling on their own. Given that de-escalation is possible, this will allow for the U.S. to drop or eventually give up on clients, an event that we know occurs historically.

<sup>3</sup>A preliminary definition: clients are regimes whose performance is overseen by patrons; the latter consider themselves responsible for the former.

those occasioned by direct rule; and to have clients (referred to by the Romans as “friends”) is significantly more flattering to one’s self-image as a free political unit than to have subjects. Counterbalancing these benefits, of course, is an obvious disadvantage: clients, by virtue of their formal independence, are often obstreperous and able to manipulate the patron for their own ends. If two or more clients enter into conflict with each other, or if they are judged to be utterly incompetent, the patron will feel compelled to step in; this, historically, is how client networks were transformed into formal empires.

The reverse is also true. When imperial provinces revolt, especially when such revolts take place simultaneously or in rapid succession, the costs of putting down the rebellion are often too high for the empire as a whole to be maintained. The temptation is then great to grant formal independence to the remaining provinces. If regimes deemed to be compliant can be set up (often staffed by former provincial officials and by bureaucrats from the metropole), provinces can be transformed into clients. This, in sum, is what the French and to a lesser degree the British succeeded in doing during the era of decolonization; it is what the Russians have been attempting after the disintegration of the Soviet Union.

As these examples illustrate, client state networks also require considerable resources to maintain. Frequently, the patron needs to provide economic and military aid; and if the client in question is faced with an insurgency, the patron also needs to move troops and ships to help in stamping out the revolt. This can be an expensive proposition, particularly over long distances and in the face of well-armed rebel forces. Similarly, the costs of maintaining military bases are quite high. These various resource requirements help explain why the British engaged in successive retrenchments and why, quite apart from any concerns about democracy, the French have found it increasingly difficult to maintain their network of African clients.

For several decades, the United States has had the single largest network of client states. They fall into several, quite distinctive, categories. First come states with whom the U.S. has a formal military alliance. These include most of Latin America (via the Rio Pact); the NATO countries (now including Poland, Hungary, and the Czech Republic); Australia and New Zealand; Japan; and South Korea. A second group comprises states with whom the U.S. has intimate military ties, furnishing extensive military aid and maintaining close links with the indigenous armed forces. These include several states in the Middle East, such as Israel, Jordan, Egypt, and Saudi Arabia; they also include states with whom the U.S. formerly was allied, such as the Philippines, Thailand, and Pakistan, or with whom there are long-standing political links, such as Indonesia and Morocco. Most states in this category also receive U.S. economic aid. Third come pro-Western states with whom the U.S. has economic and military ties. These include various states in the Caribbean and Pacific, as well as several African countries, such as Uganda and Kenya; Liberia fell into this category for many decades. Fourth are formally neutral but pro-Western states with whom the U.S. maintains not only significant economic connections but, increasingly, military links as well: Sweden, Switzerland, and Finland. Fifth, although their status as U.S. clients is by no means firmly cemented, are newly independent states in Eastern Europe and Central Asia, such as Bosnia, Kyrgyzstan, and possibly Georgia and Afghanistan. In our view, well more than half of all states in the world are therefore American clients.<sup>4</sup>

What these states all have in common is that the maintenance of their type of regime (though not by any means the individual leaders or political groupings comprising any given regime) is a)

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<sup>4</sup> The web of formal and informal relations that the United States has with its clients is extensive. The list of bilateral treaties and other international agreements on a all kinds of topics is available from the Department of State website <http://www.state.gov/s/1/c3431.htm>. An examination of these agreements provides a fascinating view into the extensive relations that the U.S. has with its clients and also non-clients. We are particularly interested in the kinds of defence and other types of security related agreements and the timing of those agreements that the U.S. has established with its clients. We have found this source to be quite helpful in developing a chronology of client acquisition by the U.S.

considered by the U.S. government as a legitimate matter of concern, which b) is worth considerable political and, if need be, economic and military efforts, should it be seen as endangered. In addition, the dominant political forces in each of these states also c) consider that characteristics a) and b) are themselves normal and legitimate. This, then, is a more complete definition of client states.

In order for regime maintenance to be an American goal and for that goal to be accepted as legitimate by the regime, the U.S. must receive explicit permission to engage in surveillance. Most U.S. clients are states with perfectly stable regime types. They do not require obtrusive surveillance or (except for economic and military aid) significant assistance. However, if the situation is deemed to warrant it, surveillance can easily become more intensive and assistance granted. Some regimes are seen as considerably more endangered. In such cases, U.S. officials engage in active policies aimed at buttressing the regime. These policies go well beyond transferring resources; they frequently involve daily advice to politicians, bureaucrats, the military, and various other political forces in the country. Of course, certain regimes are sufficiently thin in trained administrators that they rely routinely on the U.S. for advice even when there is no imminent danger in sight. At times, however, the client is faced with a problem for which its own resources, even buttressed by U.S. aid, are insufficient. In those cases, U.S. intervention may be resorted to.<sup>5</sup>

#### Historical Acquisition of Clients by the United States

The United States acquired its clients in several waves. The first came with the Spanish-American War, in which Cuba became a formally independent country subject to stringent U.S. supervision. Within a short time, the U.S. had set up Panama as a new state and intervened in Honduras, Nicaragua, Haiti, and Santo Domingo; other Central American and northern South American states were under U.S. surveillance and control.<sup>6</sup> The Second World War saw British colonies in the Caribbean become formal U.S. security responsibilities, this long before those islands became independent.

The second wave came in the immediate post-World War II period. At war's end, the U.S. set about creating a South Korean state at the same time as it was trying to reconstitute Germany and Japan. In 1947, the U.S. took over responsibility for Greece and Turkey from Great Britain; that same year, the Rio Treaty extended U.S. supervision to the rest of South America. By 1949, the North Atlantic Treaty was signed, formalizing the military counterpart to the Marshall Plan. In 1951, the U.S. formally established military ties with its one African neocolony, Liberia; the same took place the next year with Ethiopia.

A third wave concerned former British and French clients in Asia and the Pacific. In 1951, Australia and New Zealand joined with the U.S. in the ANZUS Pact, though again, this merely formalized what during the war had already become a patron-client relationship. The next year, Israel signed a mutual defense assistance agreement with the United States; so too did Saudi Arabia, which already during World War II had become a U.S. client. The CIA coup against

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<sup>5</sup> For a detailed discussion of various forms of U.S. support for clients and various types of intervention see Sylvan and Majeski, *Continuity*. For a more detailed discussion of many of the interventions, see Stephen Majeski and David Sylvan, "From Easy Win to Basket Case: Extending a Theory of U.S. Overt Military Interventions to Cases of Covert Operations," presented at the 39th Annual Convention of the International Studies Association, Minneapolis, 1998; and Stephen Majeski and David Sylvan, "Client States and U.S. Intervention in the Cold War and Post-Cold War," presented at the 40th Annual Convention of the International Studies Association, Washington, D.C., 1999.

<sup>6</sup> The United States has an extensive record of using its military forces to protect U.S. interests (lives and property) even prior to 1898 (see William Blum *The CIA: A Forgotten History*, Zed Books: London, 1986 for a detailed chronology of the use of U.S. military forces abroad up to the outbreak of World War II), particularly in Central and South America. Indeed, by 1898 the U.S. had established a number of clients in the Caribbean and Central America. However, it is in 1898 that the US acquired its first colony, began to project in a serious way its power outside of the Western hemisphere, and began the process of taking over clients from other patrons.

Mossadegh in 1953 signalled that Iran was henceforth a U.S. client. Three years later, SEATO was created, adding Thailand, Pakistan (formerly part of the British crown colony of India), and an existing U.S. client, the Philippines, to an organization whose members could be called on by three “protocol states” -- Laos, Cambodia, and South Vietnam, all former French colonies or colonial provinces -- for help against direct or indirect aggression. In 1958, the U.S. intervention in Lebanon signalled that that former French mandate had become a U.S. client; the covert and abortive overt intervention in Indonesia also made clear that that state, too, was in the process of becoming a U.S. client (though this did not occur definitively until the overthrow of Sukarno the next decade). The preceding year, the U.S. set up formal military relations with its already existing client, Libya.

A fourth wave involved the Middle East and North Africa. The support that King Hussein received during 1970 crisis in Jordan marked its transformation from a British to a U.S. client. Following the Yom Kippur War, Egypt and Morocco became U.S. clients (the former rapidly becoming one of the top recipients of U.S. aid); a few years later, this was also true of Tunisia. After the Iranian revolution (which ended Iran’s status as U.S. client), the U.S. gradually replaced Britain as patron in a number of the states in the Persian Gulf.

A fifth wave has taken place since the end of the Cold War. In various African countries, the U.S. is in the process of replacing European patrons. The same is true in Central Europe, with the addition of Poland, Hungary, and the Czech Republic to NATO signalling their movement toward U.S. client status. In 1995, American bombing and sponsorship of Bosnia was indicative that this newly created state had become a U.S. client; arguably, Macedonia is in the same category. Even before its intervention in Afghanistan, the United States had begun establishing closer links with several former Soviet republics in Central Asia, and arguably several of them have now become clients. It is possible that in the next few years, other Russian clients in the “near abroad” will be taken over by the U.S.

What is striking about this chronology is that each wave of client acquisition was marked by the United States replacing other patrons. This began prior to World War II, with the U.S. taking over patron status from the British in several Latin American cases. It then continued during the Cold War, with the U.S. gradually filling the gap when the British and French proved unable to do so. (This of course was made easier by the fact that the British and French by then were themselves U.S. clients.) For these reasons, what appears to be happening in Central and Eastern Europe, as well as in Central Asia, is simply one further episode in what appears to us to be a general process. To a great degree, each wave of client acquisition involved a significant “inheritance” process, in which the client was passed from another patron to the United States. This was done because the older patron was unable to solve the problems facing its client. It did not, as far as we can tell, involve a deliberate pursuit by U.S. policy makers of either power or profit; instead, as we will argue below, U.S. acquisition of clients was and is undertaken to maintain or restore order and stability, which were or are at that moment threatened (or potentially threatened).<sup>7</sup> Of course, American policy makers are not averse to promoting economic interests, nor are they shy about projecting power. But, as various scholars have already emphasized,<sup>8</sup> U.S. policy is that of a hegemon, who sees itself as beset by problems which it (often reluctantly) has to solve, since its clients (who themselves may be patrons) are simply unable to do so themselves. We would note that this sense of being dragged into new commitments is not uncommon among hegemons; British policy in the nineteenth century was marked by a similar sense of self.

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<sup>7</sup> We have noted elsewhere the micro-processes of U.S. foreign policy making reveals a similar process of “inheritance,” not in the addition of clients but in the way in which the U.S. determines policy (i.e., solves problems) for already existing clients.

<sup>8</sup> Franz Schurmann, *The Logic of World Power* (New York: Pantheon, 1974); Bruce Cumings, *The Origins of the Korean War*, vol. 2 (Princeton: Princeton University Press, 1990).

## Why and How Does the U.S. Acquire Clients?

From the prior discussion, it is clear that the U.S. has been in the business of acquiring and protecting clients for a long time. Why have generations of U.S. foreign policymakers chosen to acquire clients? Since 1898, and arguably before, the United States has had political, economic and security interests to foster and protect on an increasingly global scale. For sure, particular interests have emerged, evolved, and changed. Threats, created by the particular enemies of the day that threaten those interests (revolutionaries, communists, drug traffickers, authoritarian despots, narcoterrorists, religious fanatics, kidnappers, pirates, among others), have come and gone. In our view, what has been a constant, across time and space, are the overarching U.S. goals of law and order, and stability. U.S. foreign policymakers have consistently believed that their political, economic, and security interests of the day require order and stability.<sup>9</sup> From time to time, of course, those interests may indicate that certain regimes should be countered or even overthrown (or, for many decades, that U.S. clients should lose their colonial empires), but such actions are always seen as a restoration or, conversely, the initial establishment of a certain kind of just international order.<sup>10</sup>

In the American view, the way in which order is indicated is via the existence of states with regimes which know their place in this order and which uphold its current principles. Such regimes must be defended; otherwise order is by definition threatened. This defense is partly against external threats. To U.S. policymakers, the principal threats to such regimes are internal. Accordingly, existing clients must be scanned and surveilled on a regular -- ideally, a daily -- basis; and such is precisely the role of the enormous U.S. foreign policy bureaucracy as it is implanted in each U.S. client.<sup>11</sup> (Of course, this bureaucracy took quite a while to be built up, but by the late 1940s it was well in place.) But since U.S. clients may themselves have clients, those clients too should be scanned regularly to check on their health, even if this scanning might not be as frequent as for U.S. clients and even if it is directed more at “sub-clients” with regimes reported already to be shaky.<sup>12</sup> So too should “free agents” -- i.e., clientless states -- be scanned, since if they are threatened or plunge into chaos, this risks spreading and undermining international order. If such signs appear in either sub-clients or free agents, then, other means failing, it is a natural step for the U.S. at least to consider solving those problems itself; and this implies taking on the actor in question as a client.

As we have presented it, there is an intimate tie between client acquisition and client defense. This link becomes clearer when considering the way U.S. foreign policy has been (and appears to

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<sup>9</sup> U.S. foreign policy makers often make remarks articulating this position. It is perhaps no more clearly stated than in the famous national security document NSC-68. “Our overall policy at the present time may be described as one designed to foster a world environment in which the American system can survive and flourish. ... This broad intention embraces two subsidiary policies. One is a policy which we would probably pursue even if there were not a Soviet threat. It is a policy of attempting to develop a healthy international community.” (p. 252) “Even if there were no Soviet Union we would face the great problem of the free society, accentuated many fold in this industrial age, of reconciling order, security, the need for participation, with the requirement of freedom. We would face the fact that in a shrinking world the absence of order among nations is becoming less and less tolerable.” (p. 262-3) (in *Foreign Relations of the United States, 1950*, Volume 1. U.S. Government Printing Office: Washington D.C.)

<sup>10</sup> *Pace* Kissinger, this is not at all a Metternichian goal but a Wilsonian, or, if you will, an Achesonian one.

<sup>11</sup> For a discussion of the vast bureaucracies and the administrative apparatus constructed and deployed by the United States in the post-World War II era see David Sylvan and Stephen Majeski, “Overseeing a War: The 1961 Military Commitments,” APSA paper, 1993. Our intention eventually is to construct a model of client state management (i.e., not only acquisition but also protection), and in this regard, we will want to include daily scanning and updating mechanisms. Agent-based models lend themselves nicely to this task.

<sup>12</sup> We originally had thought that the U.S. would not be surveilling clients of its clients (e.g., Britain’s clients). However, a careful reading of one of the classic cases where the U.S. took over a client from its former patron (Greece in 1947) suggests that the U.S. was scanning the situation in the non-client well before the patron (Britain) gave up on its patron status (see Stephen Ambrose, *Rise To Globalism Second Revised Edition*, Penguin Books: New York, 1980, p. 125.)

continue to be) made. We have argued elsewhere that high level U.S. foreign policy making regarding security has been the province of a small, largely autonomous, normatively cohesive, and secretive group of persons.<sup>13</sup> These groups of policymakers are constantly dealing with new and recurring problems and attempting to solve them. Such problems are typically brought to the attention of high level policy makers by the reports of the foreign policy bureaucracy. Thus, when serious problems arise, information about them is passed upward to the high level policy makers, who in turn are faced with the question of how to solve that problem. As one might expect cybernetically, the way a solution is constructed is by looking around at which actors (the client's military or bureaucracy; the client's patron's military or bureaucracy) are currently failing in the immediate task at hand. Solutions then present themselves quite simply: can the actor carrying out those tasks augment its efforts? If so, the U.S. should help it to do so. If not, then the issue on the table is whether the U.S. should take over responsibility for carrying out those tasks; and this obviously implies the possibility, if things go badly, of some kind of intervention. In this sense, the "inheritance" of tasks is the key micro-aspect of U.S. policy making, and it applies equally to existing U.S. clients (hence the notion of client defense) and to free agents and sub-clients (hence the notion of client acquisition).

A second link between client acquisition and client defense comes in what could be called (following Harold Garfinkel) the indexical character of policy making problems. High-level policy making involves a rhetoric of problem solving built up from situation descriptions regarding specific places.<sup>14</sup> For high-level U.S. foreign policy makers dealing with questions of war, diplomacy, client acquisition, and military intervention, problems and descriptions of them are about particular places, at particular times, characterized by particular situations. Should the United States intervene in a particular place and if so how should it be done? In the world of high-level U.S. foreign policymakers, places usually are countries or regions; if the latter, then a set of countries or potential countries. Thus, policy making about problems in a given place means, typically, that policy makers have to consider the situation faced by the regime ostensibly governing that place; and here we return once more to the issue of clients and their acquisition. However, if places are really considered as inchoate, with complete lack of clarity regarding who is supposed to be in charge or even who is on the U.S. "side," then policy makers may well shy away from acquiring a client there (at least until such time as the place becomes clearer to them).<sup>15</sup> This, we think, goes some way toward explaining various officials were reluctant to intervene in Indochina during the siege of Dien Bien Phu; why the first Bush administration thought that, in the now famous words of James Baker, it had "no dog" in the Bosnian war; and why the Clinton administration was so reluctant to organize an intervention against the Cedras regime in Haiti.

Why the U.S. predilection for seeing the world in terms of clients? We have suggested elsewhere that part of the answer historically might have to do with the particular U.S. experience of empire, i.e., via settlement, the territory's white population enjoying citizenship rights and the eventual hope of statehood. In the late 19th century, this option was not open for Central America and the Caribbean, whereas there was a model -- the British and their clients in those regions -- which could be followed. At some point the patron-client relationship became part of

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<sup>13</sup> We treat this problem-solving culture as engaged in three central activities: constructing recommendations, choosing among recommendations, and reopening debate. On the first of these, see Stephen Majeski and David Sylvan, "How Foreign Policy Recommendations are Put Together: A Computational Model with Empirical Applications." *International Interactions*, 1999 25: 301-332, for a detailed discussion of how solutions to problems are generated as part of the routine process of recommendation construction.

<sup>14</sup> Of course, certain problems, such as those concerning nuclear deterrence, may have a global quality, but even then, certain of the problems are place-specific. Recall, for example, the Reagan Administration's struggles over Pershing missile installations in Germany.

<sup>15</sup> See David Sylvan and Stephen Majeski, "Rhetorics of Place Characteristics in High Level U. S. Foreign Policy Making," in Frank Beer and Robert Hariman, eds., *Post-Realism: The Rhetorical Turn in International Relations* (East Lansing, Michigan: Michigan State University Press, 1996), pp. 309-330.



the U.S. foreign policy repertoire and, once established provided an easy template for U.S. policy makers to employ. Part of the answer seems to be bureaucratic inertia. The foreign policy bureaucracy learned how to set up clients. Once it stumbled onto this policy, it did not need to innovate. It is also the case that the acquisition and maintenance of client states has proven in many instances to be a successful policy. The vast majority of clients have not presented insuperable problems for the U.S. and are content with their own status as clients. Indeed, the U.S. has experienced a high success rate by any standard, especially in comparison with that of other 20th century patrons.

### A Theory of U.S. Client State Acquisition

As we have seen, U.S. client state acquisition should be understood as part of a general problem of client state policy. An integrated theory of this latter would therefore involve explanation of both acquisition and maintenance (i.e., defense). For reasons of practicality (the place-specific character of problem-solving suggests that acquisition and maintenance can be modularized) and of focus (up to now, almost all our work has been on client defense), we choose in this paper to concentrate on acquisition by itself. In later work, we will add a second, client maintenance, module.

We can abstract from the discussion in the preceding sections to characterize U.S. client acquisition as a two-step process. First, clients are “freed” from other patrons, either because those latter are unable to defend the former or because they are unwilling to envision doing so (whether or not the client is at that point imperilled).<sup>16</sup> Second, free agents (whether recently liberated or independent for many decades) become “available” to become U.S. clients; this availability has both client-initiated aspects (e.g., a feeling of being threatened) and U.S.-initiated ones (e.g., a feeling that a given agent must be defended or, conversely, that it is too inchoate to help out. Our theory stylizes each of these two steps.

The first key feature as to whether or not the U.S. might acquire a new client is whether or not that potential client is **free**. By free, we simply mean whether or not a current non-U.S. client is a client of another state. To put it slightly differently, as the U.S. scans that state, one of its features is whether or not it has a patron. If the nation in question has a patron then it is not free. Only when the nation is free (has no patron) does it become possible to become a U.S. client. For the period from 1898 to the present, a significant number of states have had clients: the United States, the United Kingdom, France, Germany, Belgium, Portugal, and the Soviet Union,<sup>17</sup> to name the most prominent. With the exception of the United States, these patrons, over the course of the twentieth century in general and specifically the post-World War II period, have lost clients at varying rates over time.<sup>18</sup> Some like the United Kingdom have experienced a slow and even decline. Germany, following World War I experienced an abrupt drop in the number of clients to zero. France has experienced a slow decline (e.g., its defeat in Indochina) to a moderate number of African clients it currently maintains. The reasons why these patrons experience a decline in their ability to handle client problems and maintain their clients varies

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<sup>16</sup> Historically, many non-U.S. clients were formal colonies, even, as in the case of Algeria, considered part of national territory. Strictly speaking, many colonies were not clients, because they did not have regimes of their own whose performance was overseen by the patron. However, there was considerable oversight and surveillance nonetheless, along with felt obligations for defense. In the end, since our focus here is on U.S. client acquisition, it does no great harm to characterize formal European colonies as non-U.S. clients.

<sup>17</sup> Per the preceding footnote, we treat Soviet republics as clients.

<sup>18</sup> The period before and directly after World War II saw some patrons increase the number of clients. In the model described shortly, we have the power of other patrons described by different decay functions. As the simulation will cover only the Post World War II period, this seems appropriate. When we examine the entire time frame, some patron power functions will have to be represented by functions that simply do not decay or time.

substantially and we do not propose to explain these processes. Rather, we shall assume that these patrons have varying decay functions representing their declining ability to hang on to clients. This means that over time, clients of these patrons will with varying probabilities become free and only when they become free are they then in a position to become U.S. clients.

As noted earlier, places that become free do not necessarily rush to become U.S. clients nor does the U.S. always want to make a newly free state a client. At a minimum, a free agent must become **available** before it can become a U.S. client. In broad terms, availability means having a willingness to align. There are many reasons why a free nation may become available. It may simply be opportunistic and observe that becoming a U.S. client carries a number of economic and security benefits. It may face explicit internal and/or external security threats and seek U.S. client status as a way to solve its problems. It may be the target of significant U.S. pressure to become a client. Or it may observe that countries much like itself have become clients and decide that it will imitate the decisions of those who have become clients. Similarly, availability also involves the U.S. having an interest in taking on the country in question as a client. As argued above, this interest involves the U.S. seeing the place in question as characterized or potentially characterizable by certain problems. If those problems are deemed to be present and if the place in question is seen as “clear,” i.e., as internally well-structured, the U.S. will take on the place as a client.

It should be apparent that availability is a complex phenomenon, so much so that, in our view, it is best represented as a random process. However, we do observe two features of availability that we do wish to incorporate. First, countries that are free tend to become available and become U.S. clients either very rapidly or after a considerable amount of time. Thus, while the process appears to be random, the likelihood at any given moment in time that a free state becomes available appears to be bimodally distributed. For some free states the probability of becoming available is quite high and for the rest it is quite low.<sup>19</sup> Countries that have never been colonies or have not been a colony for a long time take a long time to become available. Those free nations that have recently decolonized appear to become available rapidly.

Second, the probability that a free agent becomes available also appears to be affected by whether or not another free agent that is in some way similar to the agent in question has recently become a U.S. client. Similarity here should be understood as both a function of geography and of other factors such as political or cultural characteristics. If one free agent becomes a U.S. client, others, similar agents, may well perceive that this must have occurred for a good reason. Hence they will be tempted to imitate the recently aligned “neighbor” and themselves become U.S. clients. Here we have a kind of bandwagoning or contagion effect, which is tantamount to moving the agent in question from the lower to the higher mode of the availability distribution.

Our argument about how the U.S. acquires clients is therefore quite simple. Only countries that are free, i.e., not clients of other patrons, are possible candidates; and only those free agents that become available, via a modified random process, become U.S. clients. In order to see whether or not this simple theoretical argument allows us to predict or generate, among other things, how many countries will become U.S. clients and when they will do so, we need to build a model of these theoretical arguments and it is here that simplicity gets left at the door. We turn next to our approach to modelling this process and the actual model itself.

### An Agent-Based Modeling Approach

The approach we take to modelling the U.S. client acquisition process is based upon the agent-

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<sup>19</sup> Historically, there are a number of free states that did not become U.S. clients for a long time. These tend to be located in Latin America and in Europe.

based modelling approach pioneered by Epstein and Axtell.<sup>20</sup> The general logic of this approach is to stipulate agents (micro-level phenomena) and their rules of interaction and then observe what macro-level social patterns or structures emerge in a simulated environment (computer simulation). Agent-based models typically have three constitutive components; agents, an environment or world those agents inhabit, and rules that stipulate how agents interact with other agents and their environment.<sup>21</sup>

Agents can represent all kinds of phenomena depending upon the artificial world being constructed. In abstract terms, agents are bundles of rules that define various internal states of the agent, and dictate how the agent will respond to various stimuli from other agents and the environment.<sup>22</sup> Examples of internal features or states of agents include sex, metabolic rate, and, as discussed in the model to follow, the agent's patron's identity and region tag. Examples of behavioral rules (often represented as if-then stimulus-response production rules) include such things as mating processes, and trading relations. The environment or world is "a medium separate from the agents, on which the agents operate and with which they interact."<sup>23</sup> Environments can be quite abstract or concrete. Finally, there typically are rules that stipulate agent and environment interaction such as resource consumption.

Thus, an agent-based model begins with an explicit set of assumptions about the three constitutive features of the artificial world (agents, the environment, and rules of interaction) and uses them to generate simulated data of that world.<sup>24</sup> Axelrod refers to agent-based modelling as a way to do thought experiments and suggests that it is a third way of doing science in contrast to the traditional inductive and deductive methods.<sup>25</sup> For related arguments about agent-based modelling see Epstein and Axtell's (1996) discussion about using computer simulations to "grow" artificial societies and generate social structures. Most scholars employing this approach search for patterns in the simulated data, particularly the large-scale effects from the interactions of locally interacting agents.

Underlying this logic is the notion that the ability to "grow" such structural or system-wide properties implies that the micro-level properties of agents and the rules stipulating their interactions are "sufficient conditions" to generate those structural properties. One can also ask a different question. Are there essential features of agents, those that define various internal states of the agent and those that define how they interact, that are necessary for the structural or system-wide property of interest to occur? If we systematically vary features of the agents or the

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<sup>20</sup> Epstein, J.M. and R. Axtell. 1996. *Growing Artificial Societies: Social Science from the Bottom Up*. Washington, D.C.: The Brookings Institution.

<sup>21</sup> Agent-based modeling in political science (Schelling, T.C., 1978. *Micromotives and Macrobehavior*. New York: Norton. Axelrod, R. 1984. *The Evolution of Cooperation*. New York: Basic Books.; Axelrod, R. 1997. *The Complexity of Cooperation: Agent-based Models of Competition and Collaboration*. Princeton: Princeton University Press.; Epstein and Axtel, 1996; Cederman, L. 1997. *Emergent Actors in World Politics*. Princeton, N.J.: Princeton University Press.; Majeski, S.J., G. Linden, C. Linden, and A Spitzer. 1999. "Agent Mobility and the Evolution of Cooperative Communities *Complexity*, Vol 5:1, 16-24; Lustick, I. 2000. "Agent-based Modelling of Collective Identity: Testing Constructivist Theory," *Journal of Artificial Societies and Social Simulation*," Vol 3, No.1.

<<http://www.soc.surrey.ac.uk/JASSS/3/1/1.html>> has a complex lineage and set of connections to a number of other approaches; cellular automata (von Neuman, J. 1966. *Theory of Self-Reproducing Automata*. Edited by A.W. Burks, Champaign, IL: University of Illinois Press; Wolfram, S. 1994. *Cellular Automata and Complexity*. Reading, MA: Addison-Wesley.); cybernetics (Ashby, W.R., 1956. *An Introduction to Cybernetics*. New York: Wiley.; Steinbruner, J. 1975. *The Cybernetic Theory of Decision. New Dimensions of Political Analysis*. Princeton: Princeton University Press.); complex adaptive systems (Holland, 1995), Artificial Life (Langton, C.G., ed. 1989. *Artificial Life*. Redwood City, CA: Addison-Wesley.); and evolutionary game theory (Smith, J.M. 1982. *Evolution and the Theory of Games*. Cambridge: Cambridge University Press.).

<sup>22</sup> Holland, J.H. 1995. *Hidden Order: How Adaptation Builds Complexity*. Reading, MA.: Addison-Wesley.

<sup>23</sup> See Epstein and Axtel, 1996, 5.

<sup>24</sup> See Axelrod, R. 1997. *The Complexity of Cooperation: Agent-based Models of Competition and Collaboration*. Princeton: Princeton University Press.

<sup>25</sup> Axelrod, 1997, 3-4.

way the agents interact and discover that the event (system-wide cooperation) or social structure (institution) occurs only when agents have certain features or interact in certain ways, then we can say that the existence of agents with those features or interactions of a certain type are necessary or essential for the system level result. Or put another way, given the features of agents and the rules specifying their interactions, what kinds of system level (social) outcomes are possible?

Social scientists are often interested in what kinds of institutions are generated by the practices of agents, who have various desires, preferences, strategies, and material capabilities, and the interactions among those agents. They are also interested in the effects that various practices of agents and the interactions among them have on the social structures that are generated. Agent-based modeling is an effective way of analyzing such relations and, while most modeling efforts tend to analyze simplified and more abstract versions of the social process of interest, the technology available now allows for quite complex and more “realistic” representations of the social processes than earlier simulation modeling in international relations.

Modelling via computer simulation provides the researcher with several advantages compared to more typical formal approaches. While the power of analytical solutions of such formal approaches as game theory and differential equations is undeniable, computer simulation are far more flexible and allow for the modelling of more complex phenomena. More complex models containing more elements, variables, parameters, interactions among variables, a variety of probabilistic components, and various kinds of relations among variables can be constructed and assessed. In addition to doing standard sensitivity analysis by varying initial conditions and parameters, simulation is an excellent medium to perform counterfactuals. Do various phenomena emerge if different agents features are incorporated or different interaction rules posed. Not only can one do “experiments” by varying one feature or some combination of features and observe the effects on the dynamics and outcomes, but also we can stop the simulation in mid-course and query information about the behavior and features of agents or change the internal features of agents and rules of interaction in midstream and observe the results. The agent-based modelling approach, because it allows for heterogeneous agents (not just classes of agents such as in predator-prey models), a physical space that agents interact with but are distinct from, and local interaction among agents, provides some advantages over more traditional simulation approaches applied in the social sciences.

In the model of U.S. client acquisition we develop below, in typical agent-based modeling fashion, we establish a set of agents in an environment, provide them with particular features and rules, establish a set of initial conditions, and then run the simulation to see what behavior is generated or “emerges.” However, our approach differs in several important ways from most agent-based models. First, our model does not have any explicit sense of space (i.e., geography or spatial neighborhoods). While agents are displayed on a grid, their location on that display is not theoretically relevant to our modelled theory of U.S. client acquisition (even the agent similarity “tags” are only partly geographical). Second, the U.S. is not represented as an agent in the typical fashion of agent-based modeling (though this will change when we begin to model U.S. client state maintenance). The model consists of agents that are U.S. clients to start with and those that either become U.S. clients and those that do not (or remain free). Third, unlike most agent-based models, there is very little interaction among the agents. Indeed, the interaction among the agents is only indirect and is based upon locality in a sense of similarity rather than a local neighborhood.

But in a deeper sense, our modelling enterprise captures the spirit of agent-based models. The fundamental point of such models is to represent events not as single, atomic phenomena but as concatenated sets of interactions. By definition, such interactions take place between actors, and even if the actors in question are rather “stupid” (i.e., without much memory or reasoning abilities), their interactions can be made as concatenated and multidimensional as one might wish. For the moment, our model treats the U.S. as an absent, though looming actor (the quasi-

theological language here is deliberate); but our intention, when expanding the model to take into account U.S.-client interactions, is to make it visible and to model client state status as precisely a concatenated set of interactions.

A technical note. The model is written using the University of Chicago's RePast software framework for creating agent-based simulations.<sup>26</sup> This provides us with a library of procedures for creating and running Swarm-like simulations, though it is much easier to use than Swarm. The code for the model is itself written in Java and is available from the authors upon request.

### A Model of U.S. Client Acquisition

The simulation is initially seeded with 200 agents (this is a changeable parameter). For display purposes, agents are randomly located on a two-dimensional grid. For now, the agents have two defining features (eventually, we will add a number of other ones, such as resources, insurgency levels, and so forth): they have a patron identification tag and a "regional" tag, this latter representing our notion of a vector of characteristics along which agents may be similar. Ten agents are set initially as U.S. clients, 50 as British clients, 30 as French clients and 20 as Soviet clients (these, too, are changeable parameters). The rest (90) are not clients. Each one of the 200 agents is also assigned a region tag from one of ten regions.<sup>27</sup> In the display, we have shown free agents as grey, US clients as blue, British clients as yellow, French clients as green, and Soviet clients as red.

We assume that an agent can be, in effect, in three possible "states." It can be a U.S. client, a client of another patron, or not be a client (i.e., free). How do clients become free and possibly eventually available? We assume that patrons -- including the U.S. (we will later model this explicitly) lose clients over time. Each patron has a time-varying probability distribution (patronDecay\*) in which the chance of the client becoming free from that patron declines with time. This function, represented as an array, takes the form of 5 threshold integers for each patron, one for each decade after 1945 (in later versions of the model, when we add insurgency levels and other variables, we will move the starting point back to 1898 and build in patron growth functions). These integers are in effect probabilities (multiplied by 100 for ease of entry and reading) that a given client of a given patron will become free of that patron's control over the next year. Hence, for a given patron, a figure of 10 should be interpreted as a 10% chance that a client of that patron would, during the course of that decade, become free of that patron's control. The four patron decay functions are initially set to:

```
patronDecayBrit[] = {10, 60, 90, 100, 100};
patronDecayFran[] = {10, 40, 60, 60, 75};
patronDecaySov[] = {0, 0, 0, 0, 90};
patronDecayUS[] = {1, 1, 2, 2, 1}.
```

although these parameters are themselves changeable. The parameter values for these decay functions suggest that Britain and France are increasing likely to lose clients, that the U.S. has a consistently low probability of losing clients, and that the Soviet Union has an abruptly high probability of losing clients after a very long time with zero probability of losing clients over the first 40 years of the simulation.

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<sup>26</sup> Available at <http://repast.sourceforge.net> for downloading.

<sup>27</sup> We initialize the simulation by setting all U.S. clients at the beginning of the run as having a Western Hemisphere tag; all Soviet clients as having a "neighbor of Russia" tag; all British and French clients as randomly distributed among seven other regions (there are a total of 10 regions); and all "free agents" as randomly assigned either to the Western Hemisphere or to Western Europe (this to capture the long-standing independence of states in both regions).

The `updateOtherClientStatus` function, which is called for all clients of non-US patrons, then draws an integer randomly from a distribution ranging between 1 and 1200 (i.e., between 1 and  $100 \times 12$ , to do this on a monthly basis) and compares it to the threshold number for that decade for the patron's client. If the randomly drawn integer is less than or equal to the threshold integer, the client becomes free; otherwise, the client stays a client of that patron. This is done for each client of a non-US patron. The `updateUSClientStatus` function performs the same task for U.S. clients, enabling their status to be updated as U.S. or free (notice the very low, but non-zero, probabilities for the U.S. decay function). Both of these updating functions, as is the case with the availability function described below, are performed once a “tick”; we interpret this tick as a month. In later versions of this model, when we add explicit U.S. surveillance and policy making regarding its clients, we will not only extend the model back to 1898 but re-interpret the ticks as daily.

The process by which a free agent becomes available is modeled in the following fashion. For each free agent, a probability is drawn from one of three normal distributions. If the probability is higher than an availability threshold (this changeable threshold parameter is initially set at 50.0) then the agent is deemed “available” and becomes a US client. If the probability is below that threshold, then the agent stays free. There are three normal distributions. The first distribution applies to agents which have been independent for a long time, thus in either the Western Hemisphere (region 1) or in Western Europe (region 2), and which presumably are relatively unwilling to become available as US clients. These are the distributions with “low” means and standard deviations. (The means and standard distributions have for now been hard-wired into the code; we plan on making them changeable parameters as well.) The second distribution is for agents in other regions that presumably are more willing to become available as US clients. These distributions have medium means and standard deviations. To understand the third distribution (“hi” for considerable availability), we add a bandwagoning factor: the agent “looks” at other agents of the same region who have become US clients in a recent period of time (specified as a changeable parameter and initially set to 12 months), and if there are more than some bandwagon threshold number (specified as another changeable parameter and initially set to 2) of such clients, then the agent's availability probability is drawn from the next higher normal distribution (i.e., if it was low, it will now be medium, and if it was medium, it will now be high).

What then happens is that, each free agent is randomly assigned a number drawn from one of the three distributions. Each month, that number is compared against the availability threshold. If the randomly drawn number exceeds the threshold, then the agent is deemed available and becomes a U.S. client; otherwise, the agent remains free.

### Analysis

To begin with, we attempted to calibrate the model so as to capture how rapidly Britain and France clients were lost, how quickly the U.S. establishes clients in the Western Hemisphere and Western Europe, and whether the pattern of newly acquired U.S. clients shows the same “wave” pattern discussed earlier in this paper. We determined that we needed to recalibrate a number of the parameters. The initial availability threshold was set too low making U.S. client acquisition too easy. In addition, the initial French and British decay functions were set too high as they “lost” clients too rapidly. After considerable variation of parameter combinations, we produced two sets of initial parameters that seem to capture the historical picture discussed earlier. They both slow down U.S. client acquisition by raising the availability threshold. They both reduce the British and French decay functions considerably. The difference is that in one set the decay functions are reduced more but the Region Bandwagon time period parameter is set considerably longer (27 months) which increases bandwagoning of free clients. So one slows down more the process by which clients of other patrons become free but at the same time increases the likelihood of free agents becoming clients by increasing the bandwagoning time period. They

two sets of initial parameters are;

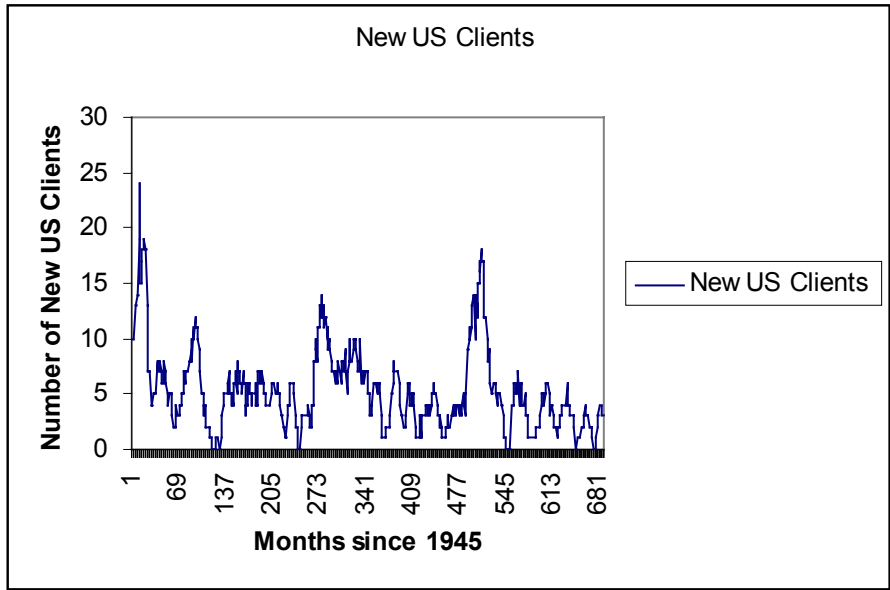
Availability threshold	58.0	60.0
Region Bandwagon Agent number	2	2
Region Bandwagon Time period	27	12
British decay function	5,5,10,10,25	10,20,30,40,100
French decay function	2,4,1,1,20	10,10,20,30,40
Soviet decay function	0,0,0,0,50	0,0,0,0,50

Given the number of probability functions and the number of parameters involved in the model, we wanted to first assess the robustness of the results. We ran the simulation twenty times for each of the two sets of initial parameters. Not surprisingly there is variation across the simulation runs. The simulation outputs of particular interest are Total number of U.S. clients, Total number of Non-U.S. clients, and number of waves of client acquisition. For the first set of initial parameters, the mean, range and standard deviation for the three outputs respectively are (190.2, 179-197, 5.6), (9.15, 3-24, 5.4), and (4.75, 3-7, 1.37). For the second set of initial parameters the mean, range and standard deviation for the three outputs respectively are (183.5, 160-196, 9.8), (16.6, 4-40, 9.8), and (5.0, 3-7, 1.1). The ranges and standard deviations for the output variables are reasonably tight and the mean numbers for total U.S. clients (190.2, 183.5) and total non-U.S. clients (9.15, 16.6) certainly appear reasonable given the historical record. Overall the results suggest that the model set with these parameterizations appears to be relatively stable.

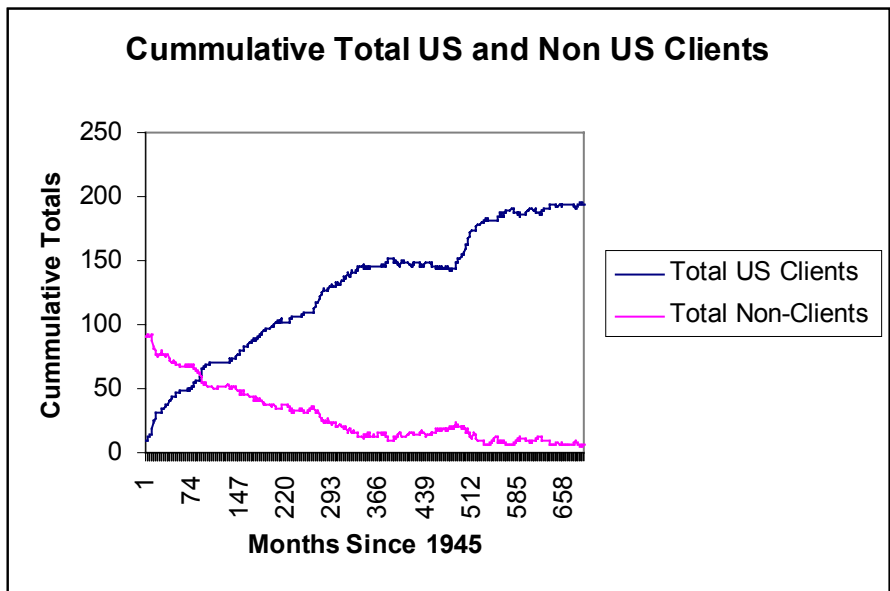
As noted earlier, the historical record indicates four (in the Post WWII ear) waves of U.S. client acquisition. The simulation results overshoot this number (4.75 and 5.0). However, the qualitative determination of what constitutes a wave is a bit tricky. For this preliminary analysis, if U.S. client acquisition for the time period was greater than 10 clients, this was arbitrarily selected as indicating a wave. Note as well, if several spikes occurred together, that was only counted as one wave. Also if a spike remained over the criterion for a considerable time period before dropping down, this was also counted as one wave. This indicator clearly needs more calibration but the fact that the number of waves is on average one higher than expected is not too worrisome at this point.

To get a better sense of the dynamics of the simulation, graphs for the entire time horizon (1945 to approximately 2000 by month) of the number of new U.S. client, total cumulative number of U.S. and non-U.S. clients, and the number of clients of Britain, France, and the Soviet Union of one representative run are presented below.

The first, graph showing the number of U.S. clients acquired over time, highlights several typical results. First, the initial wave of client acquisitions shortly after World War II is captured by the big initial spike. This occurs in all the simulation runs we have done so far. Second, a second spike or “wave” of client acquisitions occurs between 70 and 90 months. This corresponds to the second historical wave of client acquisition between 1951 and 1954. Most runs have a spike or more than one during this time period. Third, there is a spike or wave between 280 and 350 months. This corresponds to the third wave that occurs around 1970. Many runs have spikes in this time frame but some do not although some have spikes close to this time frame. Fourth, there is a large spike between 475 and 500 months. This corresponds to the fourth historical wave around 1990 with the collapse of the Soviet Union. Essentially all runs have spikes in this time frame. Of course, most runs have spikes in other time frames and some miss one or more of these four time frames. All in all, the model does appear to capture the waves of U.S. client acquisition.

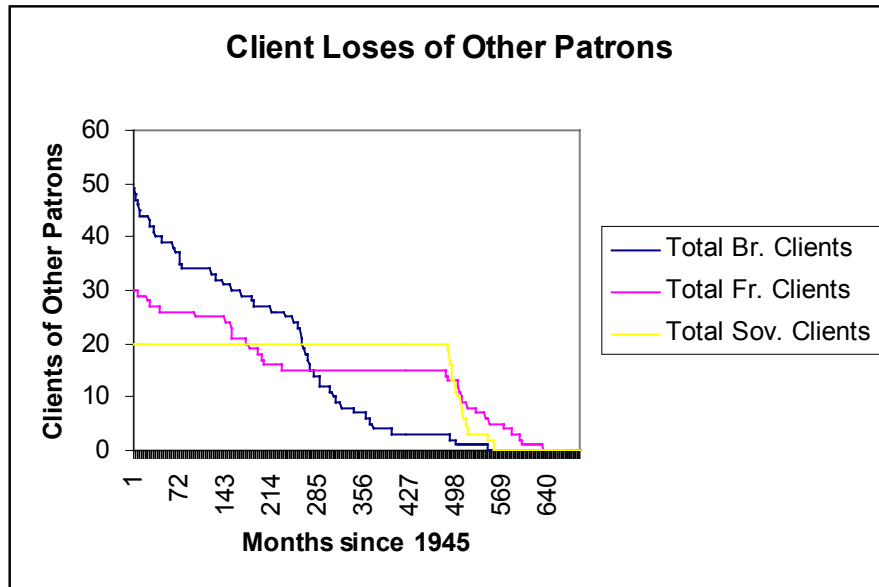


The second graph shows a typical pattern of the cumulative totals of U.S. and Non U.S. clients as the simulation moves through time. The number of non-U.S. clients slowly decays to a small but non-zero number. The U.S. accumulation shown in this representative run is very typical. The U.S. picks up clients rapidly initially but it tapers off from months 300-500 (1079-1990) and then takes off again. This pattern is suggestive of the period of time during and following the Vietnam War when the U.S. appears to be reluctant to acquire new clients.



The third graph shows a typical pattern of the loss of clients by the British, French and Soviets. The losses, not surprisingly, mirror our historical expectations with British declines being steeper and quicker than French losses. One interesting aspect to note is that part of the fact that the U.S. does not acquire clients in the 1970-1990 period is that few become free from other patrons during this time.





### Conclusion

We have argued that United States foreign policy in the twentieth century has been built around the creation and protection of client states. We laid out the elements of a theory of client state acquisition based on the decay of European colonial empires, on a U.S. concern with stability and order, and on bandwagoning effects among potential clients. This theory was then modeled using simulation; the model contains certain agent-based elements. The preliminary analysis of the model indicates that 1) the model generates fairly stable results; 2) it tracks the historical cycles in US client acquisition (periodic spikes) and imperial decay fairly well. Clearly there is much more to do in both assessing the model and in adding the client maintenance component. Also, we are very interested in using the simulation to assess various counterfactuals.