Chapter 2

Federal Expenditures and "Personalism" in the Mexican "Institutional" Revolution

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I. Introduction

Although economists have been rapidly swelling the volume of literature dealing with the application of economic tools to political problems, most of their work deals with theoretical models of constitutional (or institutional) democratic government. The little empirical work in this area is almost wholly the product of the historian and the political scientist.[1] The purpose of this paper is to redress partly this balance between empirical and theoretical work by economists. The paper sketches, very briefly, the concept of "personal" government in which the governors use the power ceded to them to maintain themselves in office and to collect large returns. Most of the paper is concerned with using Wilkie's data on the twentieth-century Mexican experience to empirically test the applicability of this personal model against the more well-known economists' institutional model.

The economists' study of government revolves around Arrow's paradox of social choice — the general impossibility of reaching a stable collective decision.[2] Buchanan and Tullock have challenged this paradox with a theory of constitutions. In heuristic fashion they explain that the individual is willing to form a society that has certain rules for collective

choice or a constitution because he wishes to benefit from a long-term sequence of collective decisions.[3] Buchanan and Tullock argue that this benefit will in general outweigh the cost of an occasional, particularly harmful decision which has to be imposed by the governors and which could be voted down by a new coalition.

Buchanan and Tullock are mainly interested in the constitutional division between social and private choices and do not consider how any choice might be implemented.[4] In particular, they neglect the need for representation, without which costs of decisions would be enormous. Downs attacks just this problem by analyzing how a social choice is obtained within the simple constitution of representative government.[5] Whereas Buchanan and Tullock assume some accurate representation and consider the choice of a constitution to govern, Downs assumes a constitution and then asks how representation will work to obtain the collective decisions which society "wants."

Downs treats the parties and thus the government as vote-maximizing entrepreneurs. The assumed motivation for such acute political entrepreneurship is self-interest — the combination of rewards for staying in office, whether graft or prestige, must exceed that in alternative occupations. These assumptions will guarantee a representative government that follows the majority's wishes.

Although Down's theoretical construct seems to yield some propositions that hold in the Western democracies, it neglects the fact that the electorate's delegation of power to a representative government also provides a temptation — to

[1] See Wilkie (1969, 1970, 1974) and Baloyra (1974 and chapter 1, above), respectively. Some exceptions to the economists' lack of concern for empirical work are Barro (1973), Nordhaus (1975), Fair (1975), and Meltzer and Vellrath (1975).

[2] Arrow (1963). To show the difficulty of reaching a collective decision consider three groups of voters. One group prefers no government action on a particular problem, but if action is necessary prefers a major rather than minor change; the second group's preferences run from small action to no action to large action; the third prefers large action to small and dislikes no action. Under this set of preferences there is, in general, no stable majority in favor of a partic-

ular action, even with weighted voting. Only imposed decisions may be possible. As Black (1958) shows, this problem can be avoided only if individual preferences are such that *all* collective actions can be arranged on the *same* linear scale so that *all* voters prefer a policy nearest to their most preferred choice. This restriction would eliminate the first group of voters in the preceding example.

[3] Buchanan and Tullock (1965).

[4] Elsewhere Tullock (1959) mentions two schemes that permit the necessary intertemporal trading of votes on issues: (1) small, direct democracy or representative units; and (2) political parties.

[5] Downs (1965).

prolong the stay in office through an expansion of the day-to-day administrative power. The benefits of office are sought through power rather than through competition, in a fashion analogous to the seller in a competitive market who seeks profits by forming a monopoly (with its corresponding market power) rather than by competing. This type of government should not be treated as a vote-maximizing entrepreneur but as a group that obtains benefits from running the government rather than by dealing with it, as the other interest groups do. In the words of Buchanan and Tullock the state is too strong for society.[6]

The disparity of power between governed and governing is particularly common in less-developed countries (LDC). Moreover, if the percentage of the populace in LDCs who can effectively demand participation in government decision making is low, then the government can probably withhold actual participation and offer compensation through favorable government policies at the expense of the nonparticipants.[7] This situation may be quite unstable, as described above, with groups forming and reforming to change the division of the spoils of government. Examples of such changes of the guard can easily be found in the nineteenth-century history of many of the Latin American republics.

A second problem that has been ignored by the economic theorists of democracy is that the constitution must prevail over time, for citizens who did not frame or originally approve it. In particular, economic development increases the number of claimants to participation through time and they may succeed in abruptly changing the governmental structure, that is, in revolutionizing the constitution described by Buchanan and Tullock.

These revolutionary changes in governing structure are much rarer in Latin American history than the previously mentioned insurrections; the distinction is between the change of faces that occurs in an insurrection and the actual broadening of participation under a revolution. Rarer still are those revolutions which have succeeded in maintaining and implementing the goals that generated the initial enthusiasm. Instead the revolutionary goals are often redefined and the revolutionary government ceases to serve those for whom and by whom the revolution was waged. The regime's decision-making processes are manipulated or circumvented, until they are again coincident with the interests of a ruling individual or group and the revolution becomes another changing of the guard.

Since an individual figure often dominates the government in such a case, we shall term the result as "personalist" in nature. It should be noted, however, that "personalism" is also a group phenomena.

The economists' constitutional model suggests that one way to reduce the diversion from the original revolutionary goals involves greater participation in or "democratization" of the decision-making processes, with those who rule being more closely identified with the interests of those who waged the revolution. Clearly this is only a theoretical possibility because the cost of permitting citizens to participate in all, or even most, of the decisions would be enormous — in actual fact representatives make the decisions. Given the adversary nature of government and its ability to confer specific as well as general benefits, citizens form groups to defend their common interests; however, if many different interest groups of relatively similar strength actually participate in politics, their efforts can largely be offsetting or can be played off against one another, narrowing only slightly the ruling group's freedom to maneuver and benefit itself. In a sense the ruling group charges large fees for mediating conflict between the interest groups. To reduce these fees, the interest groups seeking participatory power gradually band together to establish an institutional framework within which they will negotiate their differences; they agree on "how to disagree."[8]

Institutionalized policy making can therefore be thought of as Buchanan and Tullock's constitutional or governing operations that adhere to generally accepted and publicly known procedures of reaching decisions which are not readily subject to manipulation by those in authority. At the same time agreement is reached on reducing the governors' or administrators' benefits for mediating conflict. The governors are forced, then, to operate within a system of constraints which they, the populace, and the interest groups recognize. Usually a series of criteria for judging the decision-making process and the day-to-day administrative decisions and a mechanism for obtaining new administrators are developed.

This paper investigates the success of the Mexican attempt to reduce "personalism" through the "democratization" of the Mexican revolution. Thus it seeks to empirically assess the progress of Mexican government in moving from the "personal" model of government to the institutional democracy of the economists. In Section I the Mexican case is seen as especially interesting, for it has been lauded by many, both within and outside the republic, as providing an example *par excellence* of an institutionalized social revolution of national proportions, which has been sustained over a period of several decades without losing the momentum of its infancy and adolescence.[9] In the next two sections of this paper the lines are drawn over the degree to which various observers believe popular participation has been achieved, personalism reduced, and the benefits of government activity diffused. Those more interested in empirical results, or those familiar with the controversy over the degree of power retained by the president and the administrators and the evidence on the distribution of benefits, might go directly to

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[6]Buchanan and Tullock (1965, p. 339). Niskanen (1971) discusses these problems in some detail.

[7]Some hints of these problems are contained in Buchanan and Tullock (1965, pp. 234-295), and Downs (1965, chapter 2).

[8]See Levine (1973) for two case studies of this process in Venezuela. Weber and Wagner (1975) discuss the use of competitive government, e.g., local versus state governments, to reduce monopoly costs of providing public services.

[9]See *La República*, the magazine published by the PRI; also see Ross (1966, pp. 129-134, 156-160, 169-174, and 195-209).

section IV, which presents some obvious tests of the relative strength of presidential power and party-popular control and rejects them. Section V presents a more sophisticated test of "personalism" versus institutional restraints based on the variation in expenditures over a presidential term. Although the results are not clearcut, they suggest other tests of the two models. Section VI discusses one of these tests of "personalism," based on the pattern of public spending; Section VII offers a second test, based on the relationship between the proposed budget and the additional spending which is controlled by the president. These two tests seem to indicate that a high point in institutionalization was reached during the thirties and personalism seems to have been on the increase since then. The last section summarizes these results and makes some projections about future Mexican political problems and budgetary policies.

II. A Sympathetic View of the Party and of the Institutionalized Revolution

In the view of many, the development of an official party was a crucial element in the democratization and institutionalization of the ongoing Mexican revolution.[10] The party first appeared in an organized fashion in 1929 as the Partido Nacional Revolucionario (PNR). At that time the outgoing president, Calles, sought to avert violence by the Agrarista party and other supporters of the recently assassinated, president-elect General Alvaro Obregón through the formation of a national political party.[11] All groups supporting the revolution participated in the party which provided established procedures for nominating officials and making decisions. According to some observers, it was only the development of allegiance to the party, wrapped as it was in revolutionary nationalism, and the aggregation of interests within it, that prevented a military take-over and permitted the orderly changes of civilian administration during the early depression years. In addition, Calles's adherence to the party's choice of candidates permitted the philosophical changes toward peaceful social revolution implied by Cárdenas's nomination and later prevented open warfare between the conservative and radical groups.[12]

Under Cárdenas, the loose regional-functional structure of the PNR was reorganized into the Partido de la Revolución Mexicana (PRM) and the process of nomination to the party's National Assembly was formalized into four organized, functional sectors; military, agricultural, labor, and popular. In the new process each sector received a certain number of

delegates to the National Assembly. The delegates were then chosen by the sectoral leaders, with a majority of the sectors necessary for presidential nomination. All sectors then united in compaigning for the election of the Assembly's nominees. The party offered participation to the Army as an alternative to military coup; however, the formal organization of the other sectors provided a growing counterweight to military pressure, as well as support for Cárdenas in his quarrel with Calles. Further, the party's corporate structure helped to reduce the importance of regional caciques.[13] Since the sectors represented the majority of the Mexican electorate, Cárdenas felt there was little chance for the government to swing off on a personalistic course.[14]

Since the thirties, the party's "continuismo" of the revolutionary tradition has provided the public support which made charismatic presidents in the tradition of Calles and Cárdenas unnecessary and permitted the choice of administrative types.[15] With Avila Camacho's defeat of the conservative general Almazán without military intervention in 1940, the formal military sector was dissolved in 1946; henceforth military participation was on an individual basis in the popular sector, showing the success of the search for political counterweights to the Army.[16] The process of reducing military power and increasing participation continued in 1946 with the nomination of the first president of completely civilian origins, Miguel Aléman Valdés and the institution of nominations for all offices (except the presidency) through party-wide primaries. Also in 1946 the PRM was renamed Partido Revolucionario Institucional (PRI). Although sectoral nominations were restored in 1950, the PRI still tried to include as many interests as possible. It declared itself the "organizer and control over the middle class, as well as the defender of the municipio, of agrarian reform, of the rights of women, of youth and Indians, of morality in citizens and government officials, of civic education, of economic intervention of the state of protection of public interests, without by this limiting the opportunities of private enterprise for its development."[17]

In 1959 still further steps were taken to increase participation and communication between the grass roots and the hierarchy. Since then some provision has been made for the nomination of conflicting slates within the PRI.[18] Moreover, the role of the PRI as political entity, independent of both the government and the sectors, has increased. Preassembly decision making has been reduced, party nominations have been democratized, and an independent party organization involving more active recruitment and grass roots financial support has developed.[19]

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[10]See, e.g.: Scott (1964), Padgett (1966), Sigmund (1970, pp. 3-44), entitled "Mexico: The Institutionalization of the Revolution"), Calvert (1968), and Wilkie (1970).

[11]Calles's troubles and the degree to which revolutionary goals had been subverted are outlined in Padgett (1966, pp. 30-32); Scott (1964, pp. 117-120); and Wilkie (1970, pp. 63-64). Recent interpretations also suggest that Portes Gil, Obregón's replacement, was an important force in the early party. See Calvert (1968, pp. 476-477), and Wilkie (1970, p. 64).

[12]Padgett (1966, pp. 49, 50); Calvert (1968, pp. 476, 477).

[13]Scott (1964, pp. 127-135).

[14]Brandenberg (1964, p. 315).

[15]Padgett (1966, pp. 40-43, 50, 143-145); Calvert (1968, pp. 474, 477); Scott (1964, pp. 246-248, 310).

[16]Scott (1964, p. 134); Calvert (1968, p. 477); Lieuwen (1960, chap. 4).

[17]Tiempo, Feb. 17, 1950, cited in Scott (1964, p. 143).

[18]Scott (1964, pp. 143, 144).

[19]Padgett (1966, pp. 54-62).

Surveying these changes it would seem that every twist and turn of party structure has been designed to increase public participation, thereby bringing the revolution closer to the individual. The success of this policy has been lauded by many scholars. According to Padgett, the changes in party structure have resulted in an institution which is "a legitimizing symbol for the selection of candidates and a repository of procedural desires for minimizing arbitrary choice in the nominations of candidates at various levels. It should also be viewed as a vital communications center . . . and a mediating and liaison device."[20] "As an institution the party has durability beyond the personal popularity of individuals and it is this fact which has contributed to a change from personal continuism to a pattern of party continuism."[21] Leaders have acted less on individual whim than on limitations imposed by public opinion."[22] An even more enthusiastic interpreter of the party's role, Scott, sees it as "an interest aggregator for Mexico's proliferating functional interests [who] feel growing dependency upon the party mechanism for adjusting their conflicts."[23] Scott's view is that "the PRI is the most influential mechanism in Mexico's political system but it is only one of a large number of subsystems."[24] The final measure of this growing political participation is his estimate that 65 percent of the population have begun to play political roles.[25]

Lest there be any doubt in Mexico about the party's intentions along these lines and its overall role, the policy statements which radiate from the huge office on Avenida Insurgentes are designed to convince even the most skeptical Mexican of the PRI's unswerving loyalty to the three tenets of the revolution: (1) *la democracia,* the right of the people to participate in the conduct and management of public affairs and in the orientation and planning of vital problems concerning the collectivity; (2) *el nacionalismo,* the sovereign decision of the people to determine their present and their future in accord with their respective genius and the imperatives of their own history and to achieve their greatness in conformity with what corresponds to their highest interests; (3) *la justicia social,* the firm and constant will to transform decrepit social institutions, with the aim of satisfying the increasingly urgent needs of the disadvantaged and to fashion a strong and free Mexico in which everyone has the right to reap the benefit of his work in a climate of peace and concord.[26] It is also claimed that the PRI, as its name implies, has the leading role in effecting the peaceful reforms and transformation within the nation, which are necessary to achieve these goals.[27]

[20] *Ibid.,* p. 62.

[21] *Ibid.,* p. 50.

[22] Wilkie (1970, p. 75).

[23] Scott (1964, p. 175); see also *Ibid.,* pp. 146, 257-258, 301-302.

[24] *Ibid.,* p. 315.

[25] *Ibid.* (1965, p. 345).

[26] "Cuatro Años de ALM; Así se Gobierna, Señor Presidente." *La República.* 251 (1962), pp. 2-4.

[27] Martínez Domínguez (1968, p. 24).

III. A Critical View of the Presidency and the Institutionalized Revolution

Not all students of the PRI agree with the foregoing description of the party's role in maintaining revolutionary goals and curbing personal and governmental excesses. Some observers agree with Brandenburg that "Mexico is ruled by an elite to which we assign the label of revolutionary family" and that the head of this family is usually the president.[28]

Interpreters of this persuasion view the period before the formation of the PNR as one in which the revolutionary aims were blunted, class conflict muted, and the revolutionary leaders grew rich and fat.[29] Under this interpretation, the formation of the party simply meant the transformation of Calles from caudillo to a more modern machine boss;[30] and most observers agree that Calles controlled the actions of Ortiz Rubio and Abelardo Rodríguez, who downgraded revolutionary goals.[31]

Later, "as the official party constantly grew stronger, the president of Mexico grew stronger still. . . . He tied the whole political system together, making possible the party's very existence. To this end the president used his power to enforce discipline among the functional sectors [and] the state politicians. . . . It was the president who balanced the competing demands of the many interests."[32] As the locus of power gradually shifted from the party to the presidential government, the formal government became the focal point of political action,[33] until one observer has claimed that it is "the orientation of the president and those close to him which are decisive in determining which groups and interests receive priority in the decision making choices";[34] and another has argued that "the power of the president has no limit but that of time, his six years in office."[35] Also it is argued that those interests and groups which cannot be overlooked and are less subject to manipulation or control can often be played off against one another by the president as "Liberal Machiavellian."[36] Given this interpretation, it is not surprising that most of the 65 percent who play political roles

[28] See Brandenburg (1965, p. 27).

[29] Padgett (1966, p. 20); Wilkie (1970, pp. 61-65).

[30] D. James, *Mexico and the Americans* (New York: Praeger, 1963), p. 246. cited in Padgett (1966, p. 48). See also Scott (1964, pp. 123, 124). See also Purcell and Purcell (1976).

[31] For example, the Labor Code of 1931 restricted labor's rights and, compared to the administration of Portes Gil, the rate of land distribution was substantially slowed, largely at the whim of Calles, who disciplined those who disagreed. Although some provision was made for agricultural credits, no money was actually allotted in 1933 and 1934. See Wilkie (1970, pp. 68, 137-139); Scott (1964, p. 123); Padgett (1966, pp. 30, 33, 91).

[32] Scott (1964, pp. 136, 137). See also Padgett (1966, pp. 155-156).

[33] Scott (1964, pp. 244, 257, 280).

[34] Almond and Powell (1966, p. 270). See also Scott (1964, pp. 261-282).

[35] Statement of Enrique Parra Hernández, an inner circle politician in the Alemán epoch, quoted in Brandenburg (1964, p. 312).

[36] This title is used by Brandenburg (1964). For some examples see Scott (1964, pp. 210, 259, 309), where the development of a rival labor organization is discussed. Also see Huizer (1970) for a discussion of early manipulations for the benefit of officialdom within the agrarian reform program.

are subjects; it is estimated that only 10 percent, drawn mostly from the urban middle and upper classes, are truly participants and provide inputs to the political process.[37]

It is also not surprising that "the personality of each president is apt to influence the political process,"[38] each administration comes to be identified with the president and all policies and public works bear his stamp.[39] It is still the president who gives public works to the nation.[40] This tendency toward personalism is reinforced by the president's first act, the replacement of all government officials with those loyal to him, which means a turnover in roughly 18,000 elected and 25,000 appointive posts.[41]

As suggested earlier, personalistic rule can easily result in a redefinition of the revolution and divert programs from the fulfillment of revolutionary goals — critics of the Mexican regime suggest this has been the case. According to them and contrary to Cárdenas's hopes, "decision making in Mexico has been dominated by the urban middle sectors since the early 1940's"[42] — the so-called popular sector plus the business interests. In many cases the latter have bypassed the PRI and dealt directly, effectively, and quite profitably with the various executive offices.[43] As a result the building of infrastructure and industrialization received first priority after 1940[44] and most of the benefits of these programs were obtained by these dominant groups, while the lower classes, workers, and farmers benefited much less.

The evidence on this last point is not completely clear and comes from a variety of sources. For example, one critic, Brandenburg, suggests that there is a conscious government tendency to provide jobs for college graduates as well as revolutionary offspring.[45]

Another, more quantitative measure of the government's impact is the available information on income distribution. These figures show that income distribution was not materially altered between 1950 and 1957 and there may have been some absolute decline in real incomes of the lowest income group and some expansion of the share of middle and upper middle income groups.[46]

In terms of functional categories, wage earners seem to have suffered some relative decline between 1940 and 1950 and scarcely improved themselves between 1950 and 1957. Most of the absolute rise in their incomes seemed to have occurred as a result of the shift from agricultural to non-agricultural employment.[47] During much of this period the rate of inflation exceeded wage increases[48] and, despite the PRI's self-proclaimed role as a labor party, strikes were held down.[49] Moreover, comparisons between industry and agriculture show that average income per agricultural worker is much lower than average income in the rest of the economy, and the improvement in agriculture's relative status between 1940 and 1950 was largely the result of increases in entrepreneurial income.[50]

As would be expected, given the unequal earnings in industry and agriculture and the regional concentration of industrial employment, there are large differences in per capita regional incomes.[51] Further support for this view can be found in a state poverty index computed by Wilkie. Wilkie's index of deprivation is an unweighted average of the percentage of the population who are illiterates, speak only Indian languages, live in villages under 2,500 inhabitants, go barefoot, wear sandals, eat tortillas, and have no sewage disposal in their residence. Wilkie calculates his index for each state and for the nation as a whole. Using the figures by state, the decile figures, as a percentage of the national mean, are shown in Table 2-1.

Obviously the component parts of Wilkie's poverty index are interrelated and may reflect government policy. For example, the areas with many Indians score high in index but that may reflect the wavering of the Mexican government between permitting the Indians to retain their own culture and language and integrating them into national life. Similarly, it is easier to go without shoes on the unpaved streets of small villages than in Mexico City, and sewage needs may also be less. Finally the government may simply have found it cheaper to reduce poverty in Mexico City and let those who seek escape from the deprivation of the countryside move there, although external diseconomies must now be rising rapidly. Nevertheless, Wilkie's figures show a significant and growing spread between the Mexican center (Mexico City)

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[37]Scott (1965, p. 345).

[38]Scott (1964, p. 280).

[39]Ibid., p. 137.

[40]"El Señor Presidente Da a los Mexicanos" quoted in Brandenburg (1964, p. 346).

[41]Brandenburg (1965, p. 29). Of course, many simply switch positions. See also Scott (1964, pp. 248-258). Cf. Smith (1976).

[42]Johnson (1959).

[43]See Padgett (1966, pp. 123-129); and Vernon (1963, p. 130) for some evidence on the extent to which these groups dominate the party. On the role of the business "camaras" and their extraparty links to the evidence, see Mosk (1950, chaps. 2-5, 10).

[44]See Wilkie (1970, pp. 82-88, 149-150); Vernon (1963, pp. 88-127).

[45]Brandenburg (1964, pp. 333-334).

[46]Navarrete (1960). A partial translation is Navarrete, "Income Distribution in Mexico," M. Uriquidi, trans., *Mexico's Recent Economic Growth* (Austin, Texas: University of Texas, 1967). Much of the available work on Mexican income distribution is summarized in Singer (1969, pp. 119-139). Estimates of income distribution are subject to the problem of imputed income and subsistence consumption (which are particularly important to the lower classes) and the substantial differences in class consumption habits (which makes two different price deflators almost necessary, although only one exists). However, since the Navarrete result neglects the differential provision of uncharged-for-government services (such as roads for pleasure driving and education) which largely benefit the urban middle and upper classes, it may actually understate the relative improvement in welfare of these groups. Cf. Gollás and García Rocha (1976).

[47]Singer (1969, pp. 134-139).

[48]Wilkie (1970, p. 88); Vernon (1963, p. 93).

[49]Singer (1969, pp. 66-80, 153-157); Wilkie (1970, p. 89). According to Singer organized labor did somewhat better, but their gains merely kept pace with inflation.

[50]Singer (1969, p. 140). Since farmers tend to have larger families, the per capita distribution is even worse.

[51]Ibid., pp. 144-158.

Table 2-1

RECALCULATION OF WILKIE'S INDEX TO SHOW POVERTY LEVELS OF DECILES OF POPULATION AS A PERCENTAGE OF NATIONAL AVERAGE

Year	Decile of population									
	10th	20th	30th	40th	50th	60th	70th	80th	90th	100th
1940	133	122	120	110	109	103	95	74	66	24
1950	140	127	123	114	109	103	88	69	22	22
1960	150	133	119	118	108	95	82	66	26	26
1970	163	134	124	115	114	93	80	75	26	26

SOURCE: Calculated from Wilkie (1970, p. 236) and data for 1970 supplied by Wilkie.

and the periphery: while there has been a substantial overall reduction in the poverty index, there has been little or no change in the relative position of the states and regions and, as Table 2-1 shows, a widening of the dispersion about the national average between 1940 and 1970.[52]

Singer suggests that the slow growth of social welfare programs necessary to cure this deprivation, as well as the slow growth of the whole Mexican economy in the early 1960s, was caused by a lack of tax revenues. According to him, it was difficult to raise taxes for these programs because political participation was not diffused enough to permit the lower classes to offset the negative voices of the urban middle classes on whom the taxes would fall.[53] Of course, the interpretation, that participation had not increased enough to force higher taxes on the upper classes, is just the opposite of Vernon's argument that so many groups had become participants, with veto power, that nothing could be done.[54]

More recently the need to seek a "balanced revolution"[55] under López Mateos provides prima facie evidence of the previous deviation from these revolutionary goals. Moreover, the disorders that preceded the 1968 Olympics in Mexico City and the complaints of the participants seem to indicate some dissatisfaction with the achievements of the revolution on behalf of the poor, the favoritism shown the urban upper middle class, and the general lack of public participation and control over the government.[56]

Alleged failures of the Mexican revolution to achieve its goals immediately raise larger questions: Has the revolution been effectively institutionalized? To what extent have political decisions come to be made by politicians and bureaucrats pursuing the revolutionary goals that originally bought mass support on the basis of the ongoing PRI-revolutionary ideology rather than on the personal whim of the

president and the ruling classes? The party leaders claim they have effectively institutionalized participation and the revolution, but hopefully we can find more substantial proof than their political statements. Otherwise, we must conclude that, despite all efforts to the contrary, the Mexican cuadillo and cacique, in the tradition of Porfirio Díaz and Santa Ana, still exist; they have merely swapped a serape for a three-piece suit and a caballo for a Mercedes Benz.

IV. Institutionalization Measured by Trends in Expenditure

One area that permits statistical assessment of the growth or decline in institutionalization and personalization is the federal budget. Not only does the budget lend itself more readily to measurement and comparison over time than do speeches and legislative programs (or political and sociological indexes, which might change independently of government policy), but it also represents one obvious area in which the government's commitment to the revolutionary program, as well as its own goals, clearly manifests itself. This is not to imply that other policies such as laws on discrimination, working conditions, minimum wages, the right to strike, tariffs, land distribution, and so on, are not important in achieving political goals, but only that the federal budget is the most easily measured tool of government policy.[57] Finally Wilkie's work makes available comparable figures on the budgets of various presidents.

In simplest terms one could argue that the differences between each president's commitment to the revolutionary

[52]See also González Casanova (1965, pp. 30-33).

[53]Singer (1969, pp. 273-275). Brandenburg (1965, p. 29); idem (1964, p. 316). This problem is not confined to Mexico; see, e.g., Cooke (1966, pp. 171-174).

[54]Vernon (1963, pp. 188-193).

[55]On "balanced revolution," see Wilkie (1970, pp. 89-91).

[56]See "Documents of the Student Revolt," in Sigmund (1970, pp. 33, 36).

[57]Even confining the investigation to budgetary figures does not solve all the empirical problems of political economy. First one may question the correctness of the figures, for there may be large unconcealed expenditures. Wilkie suggests, however, that expenditures are not so much hidden as inflated (1970, pp. 8-9). This suggests that comparisons between administrations might require a correction for changes in the rate of contract inflation as well as price inflation. That items providing similar services cost significantly different amounts is well demonstrated by Wilkie's example (1970, pp. 135-136) of the different costs of a hectare of irrigated land under López Mateos (27,693 pesos) and Ruiz Cortines (3,798 pesos). But even if estimates of graft were available, more difficult problems would be encountered in judging the extent to which the budgets were made taking graft into account. Though these are interesting questions, this paper must ignore them.

goals of the party could be observed through a comparison of the percentage of spending devoted to the three broad categories of expenditure defined by Wilkie: administrative, economic, and social.[58]

The general trend in administrative expenditures, including the military, and in interest and amortization of the public debt has been to reduce the proportion of federal funds spent in this area. Whereas in 1916 Venustiano Carranza spent as much as 85.6 percent of the annual budget on his administrative apparatus, by 1963 López Mateos assigned only 36.1 percent of federal funds to that sector.[59] Presidents Cárdenas, Avila Camacho, Alemán, and López Mateos all left office with a lower percentage of administrative expenses than had been obtained during the initial year of their respective administrations; of course, departures from this trend also occurred during their terms of office.

Economic expenditure has received increasingly larger proportions of the national budget, most notably during the Alemán and Ruiz Cortines administrations, when for nine out of twelve years it accounted for more than half of the funds spent. The three presidents succeeding Cárdenas appear to have made a definite decision to give national economic development priority over attention to the social needs of the people. Party leaders have attempted to justify this policy, interpreted by many as a departure from the tenets of the revolution, by claiming that development of the country's economy would eventually result in greater social welfare through a "trickle down" process. The admirably rapid growth of the Mexican economy since World War II probably reflects this emphasis and certainly represents a striking achievement.[60] During the López Mateos administration economic development did not receive quite the same priority that it had enjoyed previously.

Social development has been the least favored of the expenditure categories. Even under Cárdenas, the president most often associated with high social priorities, the portion of the budget allotted to social development did not reach 20 percent. During the administrations of Avila Camacho, Alemán, and Ruiz Cortines, the very strong emphasis upon strictly economic development expenditures required more funds than were made available through growing revenues and declines in the percentage of administrative expenditure. Therefore, the percentage spent on social development fell. This decline marked a reversal of the pattern established by Calles and, to a greater extent, by Cárdenas. For this reason, by the time of López Mateos's inauguration it was clear that a renewed emphasis on social development was essential. López Mateos ushered in the period of "balanced revolution" and by 1962 social development expenditures for the first time reached one-fifth of federal expenditure. To be

sure, many in Mexico complained vociferously that the original aims of the revolution demanded an even larger effort in the social sphere. But, the election of the rather conservative Gustavo Díaz Ordaz in 1964 insured that Mexico was not on the verge of a renaissance of *cardenismo*, even if progress had been made toward the realization of "balanced revolution."

The differences in budgetary emphasis between administrations are fairly large and could be interpreted as an indication of a relatively unconstrained presidency. It is easy, though, to pose an alternative hypothesis of an institutionalized revolution that could also be supported by this budgetary data. Under this interpretation the various presidents have actually followed the dictates of the PRI, which in turn enunciated very early a long-run development strategy consistent with the revolution: "the big push."[61] Under this strategy, during the first years of the official party's existence social needs were sacrificed to build un infrastructure; later this sacrifice would make possible a large increase in income which could be used to satisfy social needs.[62] If the members of the PRI actually followed the "trickle-down" theory, emphasis on economic growth with a later switch to the "balanced revolution" would be an effective and optimal growth strategy.[63] The same alternative hypothesis would face students of budgetary policy in other countries who seek to interpret, over time, differences between spending patterns of democracy and dictatorship.[64]

Recently some doubt has (also) been cast on whether the differences portrayed by Wilkie are large enough to permit distinctions to be made between regimes. Thus, K. Coleman and J. Wanat (1975) ask whether the difference of 6 percentage points in the proportion of the total budget allocated to social expenditures by the Aleman and López Mateos regimes is significant. Surely the answer to this question depends upon the hypothesis being tested and, for statistical reasons, the variability of expenditures. After all, when measured in another way, social expenditures, as a share of the budget, rose 40 percent between the two administrations, a very impressive figure. Presumably Coleman and Wanat are suggesting a test of the hypothesis that the percentage of the budget spent on the various categories was constant. In that case if the standard deviation of social expenditures were roughly 10 percent of the average value, about 1.6 percentage points, then the aforementioned rise would be more than significant. In the following pages I attempt to explicitly state and test such hypotheses about presidential behavior.

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[58]For an exact description of the items included in each category, see ibid., p. 13.

[59]*Ibid.,* pp. 98-99.

[60]Vernon (1963, pp. 88-102).

[61]See Rosenstein Rodan (1961, pp. 57-67 and comments). See also Nurkse (1953).

[62]See the statements of Alemán and Ramón Beteta in Wilkie (1970, pp. 82, 84, 90-91) for this view.

[63]Wilkie suggests the balanced revolution was not really so balanced (ibid., pp. 91-93, 164).

[64]See, e.g., Baloyra (1974).

V. Institutionalization Measured by Deviatiations from Trends in Expenditure

As an alternative to interadministration comparisons of the percentages spent in each category, the deviations from the trends[65] in budgetary expenditure could be used as a measure of growing or declining institutionalization. While this measure is far from perfect, as we shall see, it provides the most logical starting point for statistical examination of the budget.

The rationale for comparing the deviations from trend arises from what one author has called "The Political Cycle of Public Expenditure."[66] Since presidents cannot constitutionally succeed themselves and wholesale changes in the civil service occur every six years, there is a tendency for each administration to compartmentalize itself. The president, in order to define his administration to the public and establish himself within the "Revolutionary Family," launches his term with a budgetary splash and great public fanfare, concentrating his efforts on the areas of concern which he has staked out as his special province. After this initial impact is made and the tone set, the growth of expenditure slackens. Then the presidential term closes with a rush of expenditure and public dedications for there is a reluctance to allow the benefits of expenditure, whether measured in prestige or graft, to fall to a successor and members of his administration.[67] Moreover, the first year of the new administration will generally be one of low spending; no retiring president can commit his successor to major expenditures,[68] and presidents have traditionally been free of their predecessor's influence since the time of Cárdenas. [69] In keeping with this tradition the budget that is passed by the outgoing president and left for the new president to admisister usually contains no new major commitments.

Such variations in expenditure over a presidential term, with their implication of personalism, are not unique to Mexico, or even to less-developed countries, as students of U.S. monetary history have noted.[70] It is the changes in these variations between administrations which are important. The continued existence of the compartmentalized pattern, with whatever benefits an administration reaps from it, would result in a large, relatively constant variation around the trend in expenditures, with some increase in variations if the political cycle and personalism increased between administrations. On the other hand, if it were true that the party, rather than the president, is important, then the need to initiate projects at the beginning of an administration and complete them within a six-year span should diminish. Instead the projects could start at any economically optimal time, with the variance in the trend caused by lumpiness of projects. Thus the variations from the trend of expenditures should diminish over time as the revolution became less personal and more controlled by the party.[71]

Alternatively one might counter that the "political cycle" is really a natural administrative phenomenon unconnected with personalism. Because of administrative improvement (or institutionalization), however, one might expect that variations in receipts and expenditures should also diminish through time. Purely as a result of better forecasting there should be less need to change programs unexpectedly. Further, earlier administrations suffered through much larger external fluctuations, namely the Great Depression, World War II, and the Korean War, and the impact of external fluctuations should have declined as the Mexican economy became more diversified and industrialized. As Mexican political stability became an established fact and U.S. claims on Mexico were settled, the cost of borrowing to maintain the desired pattern of expenditure decreased. Also, changes in tax rates to cover any desired expenditure pattern would have become easier if participation had really increased. Finally, many former functions of the state have been taken over gradually by quasi public government agencies, often created by the president to cope with a "new" problem. While transfers and subsidies to these agencies from the federal government are included in the figures used here, the agencies also obtain funds in other ways, such as by floating international loans and from operating revenues.[72] Therefore, fluctuations in spending by these agencies are understated by the data on government spending used here.[73]

On the basis of these observations the following test of personalization-institutionalization was made:

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[65]The term "trend" is used here interchangeably to refer to the arithmetic and to the semilogarithmic time trends. While expenditures might obviously be determined by more complicated variables such as urban population and percentage of the population of school age, we have chosen a relatively simple hypothesis, as is appropriate to this exploratory paper.

[66]Kohler (1968). See also Wilkie (1970, p. 107).

[67]Brandenburg (1964, pp. 332-340). Barro (1973) points out the costs to the policy of limiting the number of terms. He neglects, however, the possibility that representatives will use their power to entrench themselves and obtain still larger benefits.

[68]See, e.g., the discussion of the fate of the Plan de Once Años for education in Wilkie (1970, p. 164).

[69]Padgett (1966, p. 144).

[70]In their view a large part of the 1973 and 1974 inflation could be attributed to the rapid rise of the money supply preceding the 1972 presidential election. See also Nordhaus (1973).

[71]Of course, this argument assumes that optimal policy is a steady increase or decrease in projects or spending.

[72]See Wilkie (1970, pp. xxvii, 6, 273). Vernon (1963, p. 119) suggests that the lack of control over agencies such as Pemex, the railroads, and the electricity commission led to a tremendous rise in public investment and capital goods imports when López Mateos took over. This phenomenon may continue, leading to a new type of political cycle of expenditures in which not the president but the bureaucrats in charge of the agencies determine spending patterns. In that case it is likely that a big upsurge in spending will occur in the first year of an administration, before the president really gains control. Of course, this is not presidential personalism but it does represent relatively uncontrolled spending by the governing class and thus falls under our broad definition of personalism. For a further treatment of this question see Sections VII and VIII. below.

[73]Cf. Reynolds (1970).

H_o The variation in the trend of expenditure from administration to administration is declining through time, that is, the ratio of variation from the trend is significantly less than 1 or at most 1.

H_a The variation in the trend of expenditure from administration to administration has not fallen, that is, the ratio of variation from the trend between administrations is greater than 1.

(A separate test on the expenditures in the first year of administrations is performed in Section VII, below.)

The test was performed on total expenditures and on the following individual classes of budgetary expenditures which were deflated and calculated on both a per capita and actual basis by Wilkie (1970) and which I judge to be particularly important in the revolutionary framework: education, public health, public works, agriculture, and investment and other economic expenditures.

Assuming that total government expenditure and spending in each category was made with the aim of increasing expenditures at some constant, real, peso rate or at some constant real growth rate per year, regressions were run in the form:

$$Y_t = a + bT + u_t$$
T = time measured from the midpoint of the administration ($t = 5, 3, 1, -1, 3, 5$)
y_t = log or expenditure or actual value of expenditure in year t, where expenditure is measured in 1950 pesos.[74]
u_t = random normal variable, mean = 0, variance = v^2.

The results of these regressions for each administration, together with their variances, which I compare to measure personalism, are shown in the Statistical Appendix below.

The most obvious result is the small difference between the regressions for per capita and actual figures. The available population figures used are too similar to a time trend to substantially change the results. Second, it is easy to see that differences between the coefficients of the time trend and the constants or mean expenditures in each administration are often statistically significant. These differences are the statistical manifestation of the different presidential emphases discussed in Section IV. Although these

differences in emphasis are interesting, it is the variations from the trends which, as discussed above, represent one possible measure of increased or decreased personalism.

In the Statistical Appendix, the ratios of deviations from the regression equations are shown in matrix form. The results of the statistical tests on these rates are summarized in Table 2-2 for the actual levels of spending; the per capita results are quite similar.

It is clear from the table that in many categories of expenditure the deviations from the arithmetic or natural time trends have increased phenomenally and decreased in only a few cases. Thus, under our hypothesis personalism has increased significantly, and no institutionalization or democratization has occurred. The lower portion of the table makes clear, however, that in most cases the ratios of deviations from the semilogarithmic time trend of expenditures, which would be one if deviations, expressed as a percentage of spending, were the same in two administrations, are not significantly different from one at even the 10 percent level of significance. In fact, some categories of expenditure show significant declines in the variation of the semilogarithmic regression.

Three interpretations of these results seem reasonable. The first is that only the variations in actual expenditure and particularly per capita expenditure are relevant. As discussed earlier, these are analogous to fees charged for mediating conflicts and, particularly when deflated by population, they should decline or at least not rise. In other words, our theory really provides no hypothesis about the ratio of percentage variations and only the results obtained with regressions on the natural values of expenditures are relevant.

Alternatively one could argue that percentage and arithmetic variations are equally important. In many cases, though, the declines in percentage variation apparently are another representation of presidential decisions to maintain expenditure at a relatively constant, low level in the areas of little presidential interest, while generally devoting administrative talent and the substantial amounts of non-budgeted revenues to areas of interest.[75] Thus, Cárdenas and López Mateos stressed the social side of the revolution and concentrated their efforts in fields like public health and education. Also under Cárdenas, large agricultural expenditures were made. On the other hand, the three intervening presidents neglected these areas and concentrated on public works and economic expenditures. Thus it would be easy to predict the positive, significant increases in percentage variation in the trend of public health expenditures during the López Mateos and earlier administrations, as well as the significant declines in variation between Cárdenas and the next three administrations. Similarly, the large variation in agricultural expenditure in the Cárdenas administration, rela-

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[74]See Wilkie for expenditure data, except for the last year which was calculated from Dirección General de Estadística (1967a). For the price index see Banco de México (1956). The Banco de México's wholesale price index (210 articles) was used as it was felt to be more comprehensive than the food price index (16 articles) which Wilkie, who was concerned with a longer period, had to use. (But cf. Wilkie [1974, p. 142]). The price index for the first three years of the Cárdenas administration was calculated by using the ratio of the food price index to the wholesale price index in the next three years. For the public works expenditure category the deflator was calculated by using slightly different weights for the following subsets of the wholesale price index: consumption articles (.60), metals (.15), construction materials (.15), and vehicles (.10). Population figures were the same as Wilkie's, with 1963 and 1964 calculated using Wilkie's 3.3 percent annual growth rate.

[75]Tests of the growing importance of nonbudgeted spending as a measure of personalism are discussed in Section VII, below.

Table 2-2

INCREASES AND DECREASES IN VARIANCE OF EXPENDITURES IN MEXICAN PRESIDENTIAL ADMINISTRATIONS

Level of significance	Category	Administrations showing a significant increase in deviations from the trend of real expenditures (SEE) Actual expenditures $(Y = a + bt)$	Administrations showing a significant decrease in deviation from the trend of real expenditures
.05	Total Budget	Alemán/Avila Camacho, López Mateos/Ruiz Cortines (also the nonconsecutive comparisons A/C, RC/C, LM/A, LM/C, LM/C)	
	Education	López Mateos/Ruiz Cortines (also LM/A, LM/AC, LM/C, RC/AC, RC/C)	
	Public Health	López Mateos/Ruiz Cortines (also LM/A, LM/AC, LM/C)	Alemán/Avila Camacho
	Agriculture	(A/C, LM/C)	
	Investment	Alemán/Avila Camacho (also RC/AC, LM/AC)	
.10	Total Budget	(AC/C)	
	Education	(RC/AC)	
	Public Health	Ruiz Cortines/Alemán	
	Public Works	López Mateos/Ruiz Cortines	
	Agriculture	López Mateos/Ruiz Cortines	
	Investment	López Mateos/Ruiz Cortines	
		Log of expenditures $(\log y = A + bt)$	
.05	Public Health	López Mateos/Ruiz Cortines	Alemán/Avila Camacho (A/C, RC/AC, RC/C)
	Public Works		(RC/AC, RC/C, LM/AC, LM/C)
	Agriculture		Ruiz Cortines/Alemán (RC/C, LM/C)
.10	Total Budget	(LM/AC)	Alemán/Avila Camacho (A/C)
	Public Works		(A/C)
	Education		

Note: Parentheses refer to nonconsecutive administrations.

A = Alemán; AC = Avila Camacho; C = Cárdenas; LM = López Mateos; RC = Ruiz Cortines.

tive to the significantly smaller variances in the other administrations, is predictable. Finally, the relatively large difference in variations of the total budget between the López Mateos and Ruiz Cortines administrations seems mainly due to the former's well-documented concern for paying off the national debt.[76] Concerning ourselves only with the expenditure classes of administrations which stressed similar goals, a comparison of educational and public health expenditures between the Cárdenas and López Mateos administrations shows a significant increase in absolute deviations but no significant change, plus or minus, in the percentage deviations. Thus, by this measure, personalism

[76]See Wilkie (1970, pp. 91-93, 164). The deviation from the trend is 30 to 50 percent smaller when payments on the national debt are removed from the total budget.

did not decline and may have gotten worse. A comparison of the deviations in public works and in economic expenditure among the Avila Camacho, Alemán, and Ruiz Cortines administrations, however, shows a significant decline in the percentage variations over time in some cases and, therefore, some decline in personalism. In summary, these results are inconclusive, particularly when we take into account the idea of a party-imposed, big push in economic expenditure, voiced earlier.

Still another explanation of these inconclusive results is simply that there is an "identification" problem. While greater personalism creates an increasing "demand" for variation in absolute terms, the growth of Federal revenues permits an increasing absolute variation to be hidden more easily. In effect, "supply" or ability to vary expenditure has increased

simultaneously, and in percentage terms the net result may be a decline in variation. Thus, a more sensitive hypothesis is necessary. The next section is devoted to testing another, perhaps more sensitive, hypothesis about the political cycle, taking into account the sign pattern of variation. Section VII deals with still another test based on the rate of spending from nonbudgeted revenue.

VI. Institutionalization Measured by Sign Patterns in the Regression Residuals

The previous section showed that the tests on the total deviations from the time trend yield results that depend crucially on the interpretation of government behavior. This is particularly true when the deviations from the semi-logarithmic time trends were examined. It was then suggested that this ambiguity may be due to a poorly formulated hypothesis and perhaps to an identification problem. In addition, there is a purely statistical problem which makes hypothesis testing difficult — the correctness or incorrectness of the assumption regarding the independence, through time, of the residuals. Of course, this is an important question when determining the critical region for testing the hypothesis of unchanged variance particularly when our sample size is small. The problem arises directly from the political cycle of public expenditure; if such a cycle exists, the deviations from the trend line will not be random normal variates and the critical regions chosen to accept or reject the hypothesis are less meaningful.

The political cycle of expenditure implies that the sign pattern of residuals from the regression equation for presidential administration should be minus, plus, plus, minus, minus, plus. If we regard each correct sign as a success we can test the hypothesis that there is a political cycle against the alternative that the signs are purely random, with no pattern. In that case the chance of success would be one half. The Statistical Appendix lists the number of correct signs or successes obtained under the political cycle hypothesis in each administration for each type of expenditure and each form of the regression (log, actual, per capita, actual).

Summing across administrations there are thirty trials for each type of expenditure.[77] Except in public health and agriculture, the number of successes is significantly greater than the expected number of fifteen at the 5 percent level and, in many cases, at the 1 percent level. In the case of the total budget the number of successes is significantly different from fifteen at the 1 percent level. Therefore, the hypothesis that the residuals or deviations are random is rejected and the alternative hypothesis of a political cycle of expenditures is accepted.

As an alternative to this sign test, the coefficient of a dummy variable, taking on the value +1 in years 2, 3, and 6,

−1 in years 1, 4, 5, was estimated as a measure of constant "seasonal" variation for deviations from the trend over the political cycle in each administration. It generally proved to be not significantly different from zero except when a single coefficient was estimated over the last three administrations. The relatively high standard error, despite the favorable result of the sign test, indicates substantial differences between the high and low years of the political cycle. For example, even including the effect of the "seasonal" dummy the sixth-year regression residual was usually positive, and the first-year residual negative, indicating nearly every administration started very slowly but finished very strong. Since year-to-year variations within the cycle result in a nonsignificant "seasonal" coefficient of the political cycle, it would make little sense to use differences in the seasonal coefficients as a test of the relative strength of the cycle in different administrations.

The results with a dummy and a casual examination of the signs of the residuals seems to indicate that there has been some tendency for the political cycle of expenditures to become more prevalent in the recent administrations. The number of correct signs in the three administrations of Alemán, Ruiz Cortines, and López Mateos is usually five or six, while in the administrations of Cárdenas and Avila Camacho the number is only three or four. This observation supports Brandenburg's view that "the high point of official party domination [of the nominating process] was reached in 1933,"[78] and it is confirmed by statistical test. Using a 2 x 2 contingency table to test for a difference between the number of successes in the first two administrations and the last three, we find that there is a significant, positive difference between the number of successes or correct residual signs obtained in the last three administrations and the first two in the following categories: total expenditures, public works, and public health, and no significant difference in educational expenditure.[79]

In conclusion the sign tests confirm the existence of a political cycle of expenditure and seem to show that it has become more prevalent in the three most recent administrations. By this test, personalism increased rather than decreased between the time of Cárdenas — Avila Camacho and the three relatively colorless administrators, Alemán, Ruiz Cortines, and López Mateos. This observation might also imply that the Mexican presidents and administrations have used some of the decline in externally caused variation and some of their increased ability to resist it to impose the political cycle of expenditure upon the country.

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[77]The number is twenty-four for agriculture and investment, owing to missing observations in the Avila Camacho and Cárdenas administrations, respectively.

[78]Brandenburg (1964, p. 314).

[79]The lack of a significant number of successes in the test for a political cycle of public expenditures in the area of public health (whether per capita or total expenditure) is thus seen to be the result of the lack of a cycle in the earlier administration, for the later administrations show almost complete adherence to the hypothesized cycle. Agricultural and investment expenditures cannot be used to test the hypothesis because of the absence of data for the Avila Camacho and Cárdenas administrations, respectively.

VII. Institutionalization Measured by the Proposed Budget and Actual Expenditure

A second test of growing or declining institutionalization-personalism is available — the ratio between proposed and actual expenditures. This comparison is largely based on the presidential role in Mexican budget making and expenditure and to a lesser extent in the "political cycle." Although deadlines for submission of the budget, adjustment, and its approval would appear to have institutionalized Mexican budget making,[80] the president is actually left with large discretionary powers of expenditure. The proposed budget is typically rubber stamped by the Congress with little or no change,[81] not only because of technical reasons (the congressman holds his seat at the pleasure of the president, Congress has too little time to consider the request, and its members cannot legally upset the proposed balance between expenditure and revenue) but also because actual spending typically differs radically from proposed levels. The items in the proposed budget usually include a provision for discretionary amplification by the president should more funds become available.[82] Moreover, when necessary, the presidents can send initiatives to cover increased expenditures. The usual reaction to and treatment of these requests is well described by a representative of the opposition party (PAN) when confronted by López Mateos' additional requests: "It would really be grave to approve, or disapprove an amplification of the [total] budget which is equal to 40 percent over the amount originally authorized for the fiscal year. ... [Since only 33 days remain in the fiscal year, a vote] would be more an approval of accounts than an authorization to spend an additional 40 percent of public funds."[83]

Of course, this presidential discretion should not be attributed to the requirement of balanced budgets. Many U.S. states function under such a system; all that is required is good forecasting or the acceptance of a cash reserve. Moreover, "balance" is generally achieved through substantial, though authorized, debt issue in both systems.

The presidents have typically amplified those areas which interested them the most, leaving expenditures in other areas at projected levels. This procedure allows the government to make significant propaganda claims, while actually pursuing other ends. Moreover, because of the difficulty of relating actual expenditures to the projected amounts, it causes significant confusion among those who attempt to analyze the budget.[84] While a system of legislative control might not eliminate this public confusion, it would certainly diffuse the present, personalized power and perhaps increase the party's role.[85]

Given these observations, three tests of growing or declining presidential control or personalism, as manifest in the difference between proposed and actual budgets, suggest themselves. First, since the president has such control over additional spending and since the difference between proposed and actual spending has been a source of confusion, the existence of a significant, negative time trend in the ratio of proposed to actual expenditures would indicate some growth in personal presidential power or at least a relatively uncontrolled presidential government. Second, since spending can be either switched from one category to another after the proposed budget is approved or augmented discretionarily, we might also test for the existence of a significant time trend in the ratio between the sum of absolute deviations from the proposed budget and the proposed budget. Finally, if the party rather than the president is really becoming more important, then we might expect that there should be a significantly positive time trend in the ratio of proposed to actual spending in the first year of each administration. As mentioned above, this budget is actually constructed and approved by the new president's predecessor. If the party is gaining control and "continuismo" of the party is becoming the rule, there should be no need to leave the incoming president free reign; conversely, growing presidential power and maintenance of the tradition of noninterference with successors would dictate a lower and lower ratio of proposed to actual expenditure and a significantly negative coefficient.

Regarding the ratio of proposed to actual spending, time trend regressions of the ratio of proposed to actual spending, were run in natural and semilogarithmic form. The results were, respectively:

(a) $Y = .6883 - .0034t$
$$(.0883)\ (.0007)$$

(b) $\log Y = -.3817 - .0050t$
$$(.1280)\ (.0010)$$

where

Y = proposed expenditure/actual expenditure

t = time ($t = 1, 2, \ldots 30$) and standard errors are shown below the corresponding coefficients.

[80] See Scott (1955, pp. 3-20).

[81] Wilkie (1970, p. 17).

[82] Ibid., pp. 19-20 and 274; Padgett (1966, pp. 147-148); and Scott (1964, pp. 260-266).

[83] El Día, Nov. 28, 1964, quoted in Wilkie (1970, pp. 274-275).

[84] For example, see the discussion of the "balanced revolution" of the López Mateos administration and the debate over López Mateos's educational expenditures described in Wilkie (1970, pp. 91-93, 164). Although López Mateos, in comparison with his predecessors, budgeted and spent large sums of money for education and public health, almost all the additional funds of his administration, which amounted to 40 percent of total spending, were channeled into investments and payments on the public debt. See Wilkie (1970, pp. 160-161, 166-167). One of Wilkie's contributions was, of course, the tracing of these additional expenditures.

[85] For example, consider the considerable furor created in the United States by Nixon's "impoundment" of funds and "unbudgeted" defense spending in Southeast Asia. Of course, U.S. budgets, though under more legislative control, generate considerable public confusion through the distinctions between budgeted, authorized and appropriated spending. See also Nordhaus (1973).

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As can be seen, the trend coefficients are significantly below zero at the .01 percent level, indicating a significant decline in the ratio of proposed to actual spending, supporting the hypothesis of growing presidential power and control.

As to the ratio between absolute deviations from the proposed budget and the actual budget, the absolute deviations for important categories of expenditures were calculated,[86] summed, and divided by the proposed budget. Regressions of the time trend in actual and semilogarithmic form were run. The results were, respectively:

$$Y_t = .4073 + .0091t$$
$$(.1992)\ (.0013)$$
$$\log Y_t = .0397 + .0254t$$
$$(.5697)\ (.0040)$$

where

Y_t = Σ actual expenditure $_t$ – proposed expenditure$_t$/Σ proposed expenditure$_t$

t = time (t = 1, 2, 3, ... 30).

Thus, not only did the percentage of budgeted spending, as opposed to presidentially motivated additions to the budget, actually decline, but, even taking into account switches between expenditure categories at presidential order, which appear to have been more common in the Cárdenas and Alemán administrations, there has been a significant increase since 1936 in the percentage of federal expenditure which is made at presidential discretion, after the proposed budget has been approved by Congress. Interestingly, regressions on the last three administrations alone, where coverage is very similar, yield almost the same trend coefficients and intercepts. According to our hypothesis this indicates increasing presidential power or "personalism," as opposed to democratization within the last three administrations.

Finally, a regression was run on the time trend of the ratio between proposed and actual spending in the first year of each of the six administrations since Cárdenas.[87] The results in actual and semilogarithmic form were:

$$Y = .7352 - .0272t$$
$$(.1049)\ (.0072)$$
$$\log Y = .3178 - .0372t$$
$$(.1431)\ (.0096)$$

where

Y = ratio of proposed to actual expenditures in the first year of each administration.

t = time (t = 0, 1, ... 6) and standard errors are shown below the coefficients.

The coefficients are significantly less than zero at the 1 percent level, indicating a significant decrease in the ratio of proposed to actual expenditures through time and, according to our hypothesis, an increase in presidential-administrative control, with a corresponding decrease in the constraints placed on the new administration by party "continuismo."

VIII. Summary and Conclusions

The results of all the tests presented here — increasing variance in expenditure, increased imposition of the political cycle of expenditure, expanding differences between proposed and actual expenditures — seem to indicate a growing tendency toward presidential control with a corresponding decline in institutional restraints. By our definition this is an increase in "personalism." Thus our results not only support Brandenburg's contention that "personalism persists," as it does everywhere, but suggests that it increased in Mexico up to the time of Diaz Ordaz.

This is not to imply that the Mexican system of government is completely unsuccessful. Adherence to the system provided some of the pressure for orderly transitions of power in the depths of the depression, when many other Latin American governments were sinking into military dictatorships; and it has held together, even as the number and percentage of active political participants has significantly increased since the prerevolutionary time of Porfirio Díaz. Even if we accept Brandenburg's contention that "Mexicans avoid personal dictatorship by retiring their dictators every six years"[88] this is certainly an improvement over the 35-year personal rule of Porfirio Díaz. The corresponding increase in political mobility permits any politically ambitious Mexican to enter the administrative elite and work his way up, obtaining some of the benefits of government policy and perhaps even attaining the presidential jackpot.[89] Finally the system has benefited some of the nonparty citizenry through the unparalleled economic growth in urban areas. Thus, although most Mexicans would probably agree that the party's propaganda claims remain unfulfilled, the system has its good points.

[86]The categories used were agriculture and irrigation, public health, education, communications and public works, investments and additional economic spending, public debt, military, industry and commerce, and additional social spending. These categories amounted to almost 90 percent of spending in the last three administrations. The coverage is somewhat less in the first two administrations (roughly 80 percent under Cárdenas, 85 percent under Alemán), but the addition of the Treasury expenditures to the figures brings the coverage to roughly 85 percent in the Cárdenas administration and 90 in the Alemán administration. The alternative regression results are almost unchanged.

[87]For the administrations from Cárdenas to López Mateos figures were obtained from Wilkie (1970, pp. 23-24). Figures for the Diaz Ordaz administration were calculated from Dirección General de Estadística (1967a and Anuario Estadístico Compendiado 1967b) on a basis comparable with the earlier data, i.e., excluding the proposed and actual expenditures of the autonomous institutes and public enterprises which were included in the budget for the first time under the Budget Reform Act of 1965. Interestingly enough, the ratio between proposed and actual expenditures in the autonomous institutes was higher than in federal government spending. This would indicate tighter government control over this spending and seems to contradict Vernon's view that their spending is uncontrolled in the first year of a new government. See Vernon (1963, pp. 118-119).

[88]Brandenburg (1964, p. 313).

[89]Brandenburg (1965, p. 29), and idem (1964, pp. 327-340). Although benefits of government office at low levels are not very great, there are benefits at higher levels. See Wilkie (1970, pp. 8 and 9), and Vernon (1963, pp. 149-153).

Unfortunately, statistical analysis supports Brandenburg's view that most of the gains in institutionalization came in the thirties when the party was relatively strong. Since that time presidential power has been on the upswing by our budgetary measures and a more traditional analyst would probably agree that no recent change was as significant as the six-year term and convention-selected presidents.

A difficult question is whether political stability, and the benefits of jobs for the party members and urban white-collar workers, will continue to be valued so highly by the future Mexican polity, which will probably expand greatly and demand more general participation and benefits at the expense of the present governing classes and the present beneficiaries of government policy. The analysis of the budget has shown that the ruling groups have operated with less and less institutional restraint, yet the number of claimants for participation and government benefits has also increased as a percentage of the population. Whether participation can continue to increase and whether the benefits can continue to be spread over larger and larger groups is not clear; as mentioned earlier, the hesitation in Mexican growth in the early 1960s, the student riots of the late 1960s and the land invasions of the 1970s may well be manifestations of the difficulty in adjusting to greater demands for participation and a wider distribution of government benefits.

Another manifestation of this problem is the roadblock to upward mobility in the upper echelons of the trade unions and the army.[90]

If the twin problem of greater participation and better distribution of benefits can be solved through a combination of interest group manipulation by a "Liberal Machiavellian" president who is really not a vote aggregator, but a social reformer, and by the urban middle group giving up some of their power and benefits to forestall more serious threats to their position, then budgetary policy may become less erratic. As discussed in the introduction, assuming always that stable or steadily growing expenditures are more productive, it seems reasonable for the growing number of participants to develop an institutional system which constrains the government to reduce deviations from the trend in expenditures which benefits only the governors. Moreover, a larger number of more equal participants will decrease the need to use the confusing tactic of large supplementary appropriations. In fact, the representatives of the participants might even develop an interest in more accurate published appropriations in order to pinpoint deviations from "fair" shares and thereby mobilize support within their interest groups.

[90]Brandenburg (1964, p. 336).

Statistical Appendix

SUMMARY OF REGRESSION RESULTS FOR VARIOUS TYPES OF ANNUAL EXPENDITURE DURING 5 PRESIDENTIAL ADMINISTRATIONS

Methodological note: Budgetary figures for period 1939-64 were deflated by the Banco de Mexico's wholesale index covering 210 items rather than Wilkie's price index. Wilkie was interested in analyzing expenditure over longer periods and so could not use the wholesale price index which begins in 1939. For the years 1935 through 1938 it was essentially assumed that the wholesale index was 2 percent higher than Wilkie's index. This linking factor is the result of using the average ratio between Wilkie's index and the Banco de Mexico's index in the period 1939 to 1941.

For Public Works a slightly different index was used, based upon figures taken from the aforementioned Banco de Mexico index and weighted as follows: consumption articles (representing wages), .60; metals, .15; construction material, .15; vehicles and accessories, .10.

Per capita figures for 1935-62 were calculated using Wilkie's population figures (1970, p. 24). Population for 1963 and 1964 calculated from 1962 population using a 3.3 percent growth rate in order to develop consistent estimate.

Form of regression equation

$$Y_{it} = a_o + a_1 T_t + u_t$$

where

Y_{it} = expenditure in budget category i in year t

T_t = (−5 when $t = 1$; −3, $t = 2$; −1, $t = 3$; 1, $t = 4$; 3, $t = 5$; 5, $t = 6$)

u_t = random, normal variable, mean = 0, variance σ^2.

Statistical Appendix (Continued)

SUMMARY OF REGRESSION RESULTS FOR VARIOUS TYPES OF ANNUAL EXPENDITURE DURING 5 PRESIDENTIAL ADMINISTRATIONS

Budget category (i) of annual expenditure	President	Constant (a₀)	Standard deviation of constant	Coefficient of time (a₁)	Standard deviation of coefficient of time	t statistic	SSE	Correlation coefficient	Number of residuals with correct signs	SSE of recent president / SSE of earlier president			
										Cárdenas	Avila Camacho	Alemán	Ruiz Cortines
Total Budget													
Per capita	Cárdenas	84.07	8.27	2.07	.628	3.30	110.4	.86	4	•			
	Avila Camacho	106.42	6.58	1.09	.795	1.36	177.2	.56	3	1.605	•		
	Alemán	146.92	21.68	4.80	2.080	2.31	1,210.2	.70	6	10.961	6.83		
	Ruiz Cortines	195.03	21.50	5.66	1.376	4.12	529.9	.90	4	4.799	2.991	.438	
	López Mateos	287.69	38.16	7.27	4.240	1.71	5,032.5	.65	6	45.58	23.407	4.158	9.498
Log of per capita	Cárdenas	4.427	1.03	.0255	.0081	3.14	.0185	.84	4	•			
	Avila Camacho	4.666	.63	.0106	.0075	1.41	.0156	.58	3	.843	•		
	Alemán	4.979	1.46	.0327	.0138	2.37	.0534	.76	6	2.886	3.423		
	Ruiz Cortines	5.267	1.16	.0301	.0080	3.77	.0178	.88	5	.957	1.135	.331	
	López Mateos	5.653	1.31	.0250	.0146	1.72	.0595	.65	6	3.216	3.814	1.114	3.361
Total amount (measured in millions)	Cárdenas	1593	195	52.3	11.5	4.5	37,127[a]	.92	4	•			
	Avila Camacho	2286	203	49.7	16.3	3.0	75,227[a]	.83	3	2.026[a]	•		
	Alemán	3724	714	175.0	57.1	3.1	912,575[a]	.84	6	24.579[a]	12.131[a]		
	Ruiz Cortines	5981	933	261.8	38.9	6.7	422,638[a]	.96	5	11.384[a]	5.618[a]	.463[a]	
	López Mateos	10617	1859	439.9	160.1	2.7	7,177,213[a]	.81	6	193.314[a]	95.408[a]	7.865[a]	16.981[a]
Log of total amount (measured in thousands)	Cárdenas	14.27	.129	.0340	.0082	4.14	.0188	.90	4	•			
	Avila Camacho	14.64	.092	.0026	.0074	3.07	.0152	.84	3	.803	•		
	Alemán	15.11	.188	.0469	.0145	3.23	.0588	.85	6	3.128	3.894		
	Ruiz Cortines	15.59	.164	.0452	.0080	5.67	.0178	.94	5	.947	1.179	.303	
	López Mateos	16.16	.172	.0411	.0145	2.83	.0592	.82	6	3.149	3.921	1.007	3.326
Education													
Per capita	Cárdenas	10.63	.97	.194	.103	1.88	2.98	.69	5	•			
	Avila Camacho	10.79	.82	.150	.094	1.60	2.45	.63	3	.821	•		
	Alemán	12.05	.52	.080	.065	1.24	1.18	.53	3	.396	.483		
	Ruiz Cortines	17.47	2.33	.616	.145	4.25	5.87	.90	5	1.970	2.400	.303	
	López Mateos	33.43	6.44	1.813	.261	6.95	19.06	.96	5	6.392	7.786	4.970	3.25
Log of per capita	Cárdenas	2.358	.097	.0190	.0106	1.80	.0312	.67	5	•			
	Avila Camacho	2.375	.076	.0139	.0088	1.57	.0219	.62	3	.702	•		
	Alemán	2.497	.041	.0066	.0051	1.29	.0073	.54	3	.233	.333		
	Ruiz Cortines	2.852	.131	.0350	.0080	4.40	.0177	.91	5	.5	.808	2.425	
	López Mateos	3.490	.187	.0534	.0062	8.61	.0108	.97	6	.343	.488	1.466	.605

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Statistical Appendix (Continued)

SUMMARY OF REGRESSION RESULTS FOR VARIOUS TYPES OF ANNUAL EXPENDITURE DURING 5 PRESIDENTIAL ADMINISTRATIONS

Budget category (i) of annual expenditure	President	Constant (a₀)	Standard deviation of constant	Coefficient of time (a₁)	Standard deviation of coefficient of time	t statistic	SSE	Correlation coefficient	Number of residuals with correct signs	SSE of recent president / SSE of earlier president			
										Cárdenas	Avila Camacho	Alemán	Ruiz Cortines
Education (Continued)													
Total amount (measured in millions)	Cárdenas	201	22	5.30	1.88	2.82	992[a]	.82	5	•	•	•	•
	Avila Camacho	232	25	6.11	2.07	2.95	1,196[a]	.83	3	1.205[a]	•	•	•
	Alemán	304	26	6.43	2.26	2.84	1,432[a]	.82	3	1.444[a]	1.198[a]	•	•
	Ruiz Cortines	536	98	27.09	4.69	5.78	6,150[a]	.95	4	6.200[a]	5.143[a]	4.295[a]	•
	López Mateos	1240	307	86.98	11.25	7.73	3,541[a]	.97	4	5.705[a]	29.617[a]	27.731[a]	5.758[a]
Log of total amount (measured in thousands)	Cárdenas	19.11	.120	.0280	.0105	2.66	.0310	.80	5	•	•	•	•
	Avila Camacho	19.25	.107	.0256	.0090	2.85	.0225	.82	3	.726	•	•	•
	Alemán	19.53	.086	.0207	.0071	2.92	.0141	.82	3	.452	.622	•	•
	Ruiz Cortines	20.08	.180	.0500	.0081	6.15	.0185	.95	5	.597	.822	1.321	•
	López Mateos	20.91	.243	.0700	.0061	11.44	.0105	.99	6	.335	.462	.742	.562
Public Health													
Per capita	Cárdenas	4.08	1.403	.388	.067	5.75	1.273	.94	1	•	•	•	•
	Avila Camacho	5.60	.988	-.248	.076	-3.23	1.623	.85	3	1.275	•	•	•
	Alemán	5.16	.436	-.123	.017	-7.16	.082	.96	5	.064	.051	•	•
	Ruiz Cortines	5.91	.897	.251	.039	6.39	.431	.95	3	.338	.265	.524	•
	López Mateos	10.08	1.402	.133	.194	.67	10.540	.32	5	8.286	6.498	12.854	24.41
Log of per capita	Cárdenas	1.343	.362	.099	.018	5.42	.094	.94	1	•	•	•	•
	Avila Camacho	1.703	.202	-.049	.016	-2.94	.077	.83	3	.817	•	•	•
	Alemán	1.635	.085	-.024	.003	-7.16	.003	.96	5	.033	.040	•	•
	Ruiz Cortines	1.765	.148	.042	.006	7.26	.009	.96	3	.099	.121	3.00	•
	López Mateos	2.302	.149	.015	.021	.71	.119	.34	5	1.263	1.546	38.29	12.76
Total amount (measured in millions)	Cárdenas	78	28	8.0	1.3	6.2	46,326[a]	.95	1	•	•	•	•
	Avila Camacho	119	18	-3.9	1.7	-2.2	82,043[a]	.75	3	1.770[a]	•	•	•
	Alemán	129	6	-1.2	.7	-1.9	12,191[a]	.69	5	.263[a]	.148[a]	•	•
	Ruiz Cortines	182	37	10.5	1.4	7.6	51,927[a]	.97	3	1.120[a]	.633[a]	4.259[a]	•
	López Mateos	371	60	10.5	7.0	1.5	13,799,631[a]	.60	5	297.650[a]	168.200[a]	11,319.400[a]	265.7[a]
Log of total amount (measured in thousands)	Cárdenas	18.1	.39	.107	.018	6.0	.0932	.95	1	•	•	•	•
	Avila Camacho	18.6	.16	-.037	.016	-2.2	.0765	.74	3	.817	•	•	•
	Alemán	18.7	.05	-.010	.005	1.8	.0079	.68	5	.085	.104	•	•
	Ruiz Cortines	19.0	.19	.059	.008	9.7	.0095	.98	3	.102	.125	1.202	•
	López Mateos	19.7	.17	.030	.020	1.5	.1146	.71	5	1.230	1.504	14.506	12.063

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Statistical Appendix (Continued)

SUMMARY OF REGRESSION RESULTS FOR VARIOUS TYPES OF ANNUAL EXPENDITURE DURING 5 PRESIDENTIAL ADMINISTRATIONS

Budget category (i) of annual expenditure	President	Constant (a_0)	Standard deviation of constant	Coefficient of time (a_1)	Standard deviation of coefficient of time	t statistic	SSE	Correlation coefficient	Number of residuals with correct signs	SSE of recent president / SSE of earlier president			
										Cárdenas	Avila Camacho	Alemán	Ruiz Cortines
Public Works													
Per capita	Cárdenas	11.27	2.40	-.106	.347	-.3	33.763	.16	4	•	•	•	•
	Avila Camacho	10.65	3.00	.426	.385	1.1	41.440	.48	2	1.227	•	•	•
	Alemán	19.04	2.28	.391	.270	1.4	20.480	.59	6	.607	.846	•	•
	Ruiz Cortines	21.90	1.63	.313	.180	1.7	9.132	.66	5	.270	.377	1.275	•
	López Mateos	24.86	2.13	.122	.305	.4	26.103	.20	5	.773	1.078	.446	2.858
Log of per capita	Cárdenas	2.400	.208	-.006	.0303	-.207	.2572	.10	1	•	•	•	•
	Avila Camacho	2.332	.257	.043	.0307	1.401	.2655	.58	3	1.032	•	•	•
	Alemán	2.940	.117	.020	.0139	1.438	.0542	.58	5	.210	.204	•	•
	Ruiz Cortines	3.083	.075	.014	.0085	1.616	.0202	.628	3	.078	.076	.371	•
	López Mateos	3.210	.004	.004	.0124	.322	.0431	.159	5	.167	.162	.793	2.139
Total amount (measured in millions)	Cárdenas	21.2	61.4	-.467	6.48	.07	1,176,647[a]	.04	4	•	•	•	•
	Avila Camacho	23.0	6.9	1.15	.82	1.4	1,906,988[a]	.57	2	1.621[a]	•	•	•
	Alemán	48.2	7.8	1.70	.77	2.2	1,644,493[a]	.74	6	1.398[a]	.862[a]	•	•
	Ruiz Cortines	67.0	7.8	1.98	.56	3.5	877,791[a]	.87	5	.746[a]	.460[a]	.534[a]	•
	López Mateos	91.4	10.2	1.94	1.14	1.7	3,694,158[a]	.65	5	3.139[a]	1.937[a]	2.264[a]	4.208[a]
Log of total amount (measured in thousands)	Cárdenas	19.2	.21	.002	.030	.07	.2623	.03	4	•	•	•	•
	Avila Camacho	19.2	.28	.055	.031	1.8	.2638	.67	2	1.006	•	•	•
	Alemán	20.0	.15	.034	.014	2.2	.0624	.75	6	.238	.237	•	•
	Ruiz Cortines	20.3	.12	.029	.008	3.5	.0201	.87	5	.077	.076	.322	•
	López Mateos	20.6	.11	.020	.012	1.7	.0417	.64	5	.159	.158	1.668	2.074
Agriculture													
Per capita	Cárdenas	6.1	1.42	.261	.163	1.6	7.44	.63	3	•	?		
	Avila Camacho	?	?	?	?	?	?	?	?	?	?	?	?
	Alemán	13.8	2.48	.229	.244	.7	33.14	.32	4	4.454	?	•	•
	Ruiz Cortines	16.4	1.68	-.358	.169	-2.1	8.02	.73	5	1.078	?	.242	•
	López Mateos	18.1	4.37	1.16	.270	4.3	19.98	.91	3	2.685	?	.603	2.491
Log of per capita	Cárdenas	1.78	.29	.054	.032	1.7	.2983	.64	3	•	?		
	Avila Camacho	?	?	?	?	?	?	?	?	?	?	?	?
	Alemán	2.61	.17	.012	.023	.52	.1542	.25	4	.517	?	•	•
	Ruiz Cortines	2.79	.10	.021	.009	-2.2	.0253	.75	5	.085	?	.164	•
	López Mateos	2.87	.23	.061	.013	4.5	.0514	.91	3	.172	?	.333	2.032

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Statistical Appendix (Continued)

SUMMARY OF REGRESSION RESULTS FOR VARIOUS TYPES OF ANNUAL EXPENDITURE DURING 5 PRESIDENTIAL ADMINISTRATIONS

Budget category (i) of annual expenditure	President	Constant (a₀)	Standard deviation of constant	Coefficient of time (a₁)	Standard deviation of coefficient of time	t statistic	SSE	Correlation coefficient	Number of residuals with correct signs	SSE of recent president / SSE of earlier president			
										Cárdenas	Avila Camacho	Alemán	Ruiz Cortines
Agriculture (Continued)													
Total amount (measured in millions)	Cárdenas	116	29	5.78	3.01	1.9	255,071ᵃ	.69	3	•	?	•	•
	Avila Camacho	?	?	?	?	?	?	?	?	10.059ᵃ	•	?	•
	Alemán	349	76	11.56	9.8	1.2	2,565,881ᵃ	.51	4	2.680ᵃ	•	•	•
	Ruiz Cortines	498	36	-3.37	5.0	-.7	888,690ᵃ	.32	5	12.917ᵃ	•	.268ᵃ	•
	López Mateos	673	200	54.3	10.8	5.0	3,294,845ᵃ	.93	3		•	1.284ᵃ	4.784ᵃ
Log of total amount (measured in thousands)	Cárdenas	18.5	.31	.063	.033	1.9	.301	.69	3	•	?	•	•
	Avila Camacho	?	?	?	?	?	?	?	?	?	•	?	•
	Alemán	19.7	.19	.027	.024	1.1	.1674	.48	4	.556	•	•	•
	Ruiz Cortines	20.0	.07	-.006	.009	-.7	.0253	.32	5	.084	•	.151	•
	López Mateos	20.3	.28	.077	.014	5.7	.0521	.94	3	.173	•	.311	2.059
Investment and Economic Expenditure													
Per capita	Cárdenas	?	?	?	?	?	?	?	?	?	?	?	?
	Avila Camacho	14.75	3.6	.87	.28	3.1	22.442	.84	2	?	•	?	?
	Alemán	41.16	15.0	3.36	1.40	2.4	555.403	.77	5	?	35.99	•	?
	Ruiz Cortines	60.83	10.0	1.87	1.13	1.7	360.838	.64	4	?	31.83	.88	•
	López Mateos	59.43	13.2	-.35	1.92	-.2	1,035.210	.09	5	?	143.62	4.00	4.51
Log of per capita	Cárdenas	?	?	?	?	?	?	?	?	?	?	?	?
	Avila Camacho	2.65	.27	.064	.025	2.5	.177	.79	2	?	•	?	?
	Alemán	3.64	.40	.094	.035	2.7	.342	.80	4	?	1.93	•	?
	Ruiz Cortines	4.09	.18	.034	.020	1.7	.110	.65	4	?	.62	.32	•
	López Mateos	4.06	.22	-.005	.032	-.15	.293	.08	4	?	1.65	.86	2.66
Total amount (measured in millions)	Cárdenas	?	?	?	?	?	?	?	?	?	?	?	?
	Avila Camacho	319	87	22.5	5.9	3.8	.96524ᵃ	.89	2	?	•	?	?
	Alemán	1051	415	99.3	35.2	2.8	34.736ᵃ	.82	5	?	2.47ᵃ	•	?
	Ruiz Cortines	1866	367	84.6	33.1	2.6	30.780ᵃ	.79	4	?	16.08ᵃ	.65ᵃ	•
	López Mateos	2181	489	26.1	70.3	.4	138.630ᵃ	.18	4	?	46.13ᵃ	1.86ᵃ	2.87ᵃ
Log of total amount (measured in thousands)	Cárdenas	?	?	?	?	?	?	?	?	?	?	?	?
	Avila Camacho	12.63	.3	.076	.025	3.0	.177	.83	2	?	•	?	?
	Alemán	13.78	.4	.109	.035	3.1	.342	.84	4	?	1.93	•	?
	Ruiz Cortines	14.42	.2	.049	.020	2.5	.110	.78	4	?	.62	.32	•
	López Mateos	14.57	.2	.011	.030	.3	.293	.17	4	?	1.65	.86	2.66

a. SSE x 10¹²

SOURCE: Computed from data in Wilkie, 1970, passim; except 1964 from Dirección General de Estadística, 1967 a.

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