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Staff Growth in International Organizations:
A Principal-Agent Problem?
An Empirical Analysis

Roland Vaubel, Axel Dreher, Uğurlu Soylu

ABSTRACT

The analysis covers 27 international organizations in the years 1950-2001. From the first to the last year, staff increased at a compound average rate of 3.2 percent per annum. Since the number of member states rose by only 2.5 percent, the elasticity of staff to member states is larger than one ($\epsilon_1 = 1.28$). As this may be due to an expansion of tasks, we estimate time-series regressions and panel-data regressions which contain output proxies or task dummies wherever possible. The pooled analysis of 817 observations reveals that (i) the elasticity of staff to membership is much larger than unity (1.36) if, and only if, the non-stationary component of staff size is not removed, (ii) United Nations organizations have significantly more staff, (iii) international organizations in the United States and Switzerland have significantly less staff, (iv) heterogeneity in terms of per capita income limits the size of an international organization and that (v) its staff is larger if its membership comprises many industrial or communist countries. In a reduced sample, the financing share of the largest contributor in combination with the party or programmatic orientation of its government has a significantly negative effect on staff because the size of the largest financing share determines the incentive to monitor. U.S. exit from an international organization reduces its staff significantly. Most of these results depend on the condition that the non-stationary component of staff size is not taken account of by time dummies or trends.

1. Hypotheses

One of the most striking post-war phenomena is the spectacular growth of the number and size of international organizations. Almost all of them have managed to increase their competencies, membership, budget and staff on a long term basis. There are many explanations for this historical tendency but all of them belong to one of two classes: those drawing on the normative theory of international organizations, and those based on positive political economy.¹

In the first group, we find the widespread view that technical progress necessitates closer coordination or centralization of policies because the falling cost of transportation, information and communication has strengthened market integration and interdependence and because growing environmental spillovers have increased international non-market interdependence.

Positive political economy, in contrast, explains the behavior of individual actors and institutions without justifying it. Within political economy, this paper adopts a primarily rationalist institutionalist perspective. The growth of international organizations is attributed to the self-interested utility-maximizing behavior of rational politicians and civil servants, including international bureaucrats who have a vested interest in the expansion of their organization.

Just as governments are supposed to be agents of their (median) voters, international organizations are appointed as agents of their member governments. Since both agents are only imperfectly controlled by their principals, there is a two-stage principal-agent problem. Thus, the lack of democratic control is likely to be especially severe in the case of international organizations. There is no delegation without misrepresentation.²

Several empirical observations support this hypothesis:

- (i) Input quantities and costs have been shown to be not significantly related to the size of their task.³

¹ For this distinction, a critique of the normative theory and a principal-agent approach to international organization see Vaubel (1986).

² Recently, the principal-agent approach has received considerable attention in the political science literature: see Lake (1996), Pierson (1996), Pollack (1997, 2003), Barnett, Finnemore (1999), Keohane, Martin (1999), Koremenos (2002), Lyne et al. (2002), Martin (2002), Nielson, Tierney (2002, 2003), Gould (2003), Hawkins et al. (2003).

³ For instance, IMF staff size does not depend on the balance of payments problems of those member states whose international reserves are below average relative to imports (Vaubel 1991, Table 6; 1996, Table 2A). Similarly, staff size and real administrative expenditure at the IBRD are not affected by the number of new credits (Vaubel 1996, Table 2B). On the IMF, see also Martin (2002).

- (ii) Input quantities and costs have been shown to depend significantly on factors which, according to the normative theory, should play no role.⁴
- (iii) After-tax salaries at international organizations tend to be at least 50 percent higher than the salaries of comparable officials in the member states.⁵

The economic theory of bureaucracy distinguishes four types of bureaucratic inefficiency:

- (i) The quantity of output may be too large (Niskanen 1971) or too small (Peacock 1983).
- (ii) The quantity of inputs may be too large (Migué, Bélanger 1974).
- (iii) The input price may be too high (ibid.).
- (iv) The technology of production may be inefficient – e.g., too labor-intensive (Orzechowski 1977).

Since the quantity of inputs, notably of labor, can be measured most easily and accurately, the following quantitative analysis focuses on the explanation of staff size. However, staff growth is merely one aspect of a more general problem, and we expect that our results can be generalized.

Agency slippage has a tendency to increase with the number of principals (Olson 1965, Hardin 1982). Thus, bureaucratic inefficiency in international organizations is likely to rise with the number of member states. There are several reasons for this. First of all, as the number of member states grows, the financing share of each member state and hence its share in the revenue from controlling the international bureaucracy decline. The governments, the media and the citizens of the member states lose interest in monitoring the performance of the international agent.

Moreover, as the number of principals grows, each of them faces rising costs of persuading the others that action has to be taken to control the agent.

⁴ For example, IMF lending depends on the electoral cycle (Vreeland 1999; Przeworski, Vreeland 2000; Dreher 2003; Dreher, Vaubel 2003), the date of the next quota review and the quota share of the ten largest contributors (Vaubel 1991; Tables 6, 7). Its policy conditions become more, rather than less severe when the world economy moves into recession (Cooper 1983). Similarly, the rate of increase of IDA lending rises prior to the date of the next regular replenishment (Vaubel 1996, Table 3B, 4), and IBRD staff depends negatively on the financing share of the ten largest contributors.

⁵ Frey (1985) for the EC and OECD, Vaubel (1991) for the IMF.

Finally, the principals' cost of information rises because the growth of membership increases the size of the organization, the average distance between principals and agents, and the language problem.⁶

Since the increasing number of member states reduces the revenue from control and raises the cost of information and decision making for the principals, it weakens their interest in monitoring the agent and contributes to bureaucratic inefficiency. If the bureaucratic inefficiency takes the form of excess inputs, especially labor, we would expect that the staff of international organizations grows faster than their membership. In other words, *ceteris paribus*, the elasticity of staff with respect to membership should be larger than 1.⁷

However, a larger than unitary elasticity may also be due to technical diseconomies of scale. For example, the cost of coordination within the international organization is likely to rise more than proportionately.⁸ In this case, we would not have a principal-agent problem. But since bureaucracy grows faster than membership, we might still call it a bureaucratic problem.

A larger than proportional staff increase is also likely when the new entrants are larger than the existing members. Historically, however, the opposite tends to be the case, and this is also what public choice theory – more specifically, Olson's theory of collective action (1965) – would predict. A large country can internalize a large share of the benefits of a collective good provided by the international organization. Thus, large countries have the strongest interest to establish the organization and to keep it going. Later entrants are likely to be smaller because they benefit less.⁹ This consideration implies that the staff of international organizations tends to grow more slowly than the number of member states. If, in fact, it grows faster, this would be, *ceteris paribus*, an indication of a principal-agent problem or, at least, of a bureaucratic problem.

⁶ There may also be cases in which the language cost does not increase with membership – for example, when, initially, there have been several working languages in the organization and when the new members shift the balance in favor of one of these working languages which then displaces the other(s).

⁷ For a similar test see Nellor (1984) who analyzes spending on police in 75 U.S. metropolitan areas.

⁸ If n is the number of bureaucrats in the organization, the number of, e.g., bilateral coordinating relationships among them is given by the formula $n!/2(n-2)!$ and, therefore, increases much faster than n does.

⁹ Similarly, when the organization shrinks, small countries are likely to be the first to leave (as free riders), and each withdrawal causes a larger reduction of personnel. However, there are exceptions: the first country to leave EFTA (in 1972) was the U.K., its largest member.

In a second step, we shall allow for the size of the old and new member states. We shall explain staff growth by the financing share of the largest contributor rather than by the number of member states.¹⁰ If enlargement did not affect the contribution of the largest member and if the contributions of the new members reflected their economic size (GNP), the elasticity of staff size to the largest financing share should be, *ceteris paribus*, equal to -1 if there are neither principal-agent problems nor technical (dis-)economies of scale.¹¹ If the elasticity turns out to be smaller than -1, the growth of the organization gives rise to bureaucratic problems.

Even if the size of the new entrants is properly accounted for, there remains a factor favoring a less than proportional growth of staff. That is the increasing heterogeneity of the membership. The founding members are likely to have very similar preferences. If the organization turns out to be successful or powerful, additional countries will join in spite of their somewhat divergent preferences. The European (Economic) Community and Union is a good example. It started with a hard core of six central European countries. At each round of enlargement (U.K., Ireland and Denmark; Southern enlargement; Sweden and Finland; Eastern enlargement), more peripheral countries joined. But there is a trade-off between widening and deepening. As the preferences of the members become more and more heterogeneous, fewer tasks are transferred to the international organization, its growth should slow down, and the elasticity of staff to membership should fall (Vaubel 1995: 72; Streit, Voigt 1996; Hawkins et al. 2003: 9). However, the reverse has also been suggested: disagreement among principals may be exploited by a bureaucratic agenda setter (McCubbins, Noll, Weingast 1989, Martin 2002, Gould 2003), the fear of stalemate may induce them to grant more power of discretion to the international agency (Koremenos 2002), or their disunity may impede institutional reform (Nielson, Tierney 2003).

Still other sources of bureaucratic inefficiency are possible. According to Parkinson (1957), bureaucracies expand even when their tasks are being reduced.

¹⁰ This is a simplification, of course. Vaubel (1991, 1996) uses the share of the ten largest contributors. Nielson and Tierney (2002) compute the Herfindahl-Hirschman index of the largest member states accounting for 60 percent of the votes. In the case of 27 international organizations, computational economy requires a simpler proxy. Nielson and Tierney (2003: 252) hypothesize that "pressure on the agent from any actor other than the proximate principal will not result in significant behavioral change".

¹¹ The unitary elasticity is now negative because the size of the organization is measured in the denominator (of the financing share) rather than in the numerator (membership).

They grow simply because they exist or because they have grown in the past. Each new organization is at the same time an organized interest group which employs its resources to increase its power, prestige and amenities. This is why it is much easier to set up a new international organization than to abolish it. The establishment of the organization alters the political equilibrium. The growth of an international organization reinforces its influence and thereby facilitates further growth. In Beer's words, "centralization ... breeds further centralization" (1973: 75). An increase of the demand for its output raises its employment by more than an equal fall of demand reduces its employment. Thus, its staff expands even if demand fluctuates around a constant mean.¹² Parkinson's Law implies a positive time trend, a positive autoregressive component of staff growth or a positive effect of staff size on staff growth. It is a variant of historical institutionalism.

Finally, the efficiency of an international organization may depend on whether it is part of, or attached to, the United Nations, what type of countries are members and where it is situated. For example, international agencies which have their seat in an industrial country may employ less staff, *ceteris paribus*, because they have to pay higher local salaries or because they operate in a more efficient environment. This has to be tested with appropriate variables (dummies).

Staff size is not only affected by bureaucratic inefficiency (or its determinants) but also by other factors. These ought to be added as control variables. For example, it is absolutely essential to allow for the differences and changes in the tasks. If the principals assign more tasks to the organization, its staff is bound to expand. The principals' willingness to do so may depend on the world business cycle and, as mentioned, on the heterogeneity of their preferences.

2. Empirical Evidence

To test our hypotheses, we have tried to collect staff data from all major international organizations and for as many years as possible. Our data set covers 27 international organizations within the period 1950-2001 – there are 817 observations in all. About 75.000 persons were employed by these organizations around the millenium. The complete names and data sources are listed in the appendices. Unfortunately, quite a few organizations were unable or unwilling to

¹² For a formal exposition see Vaubel (1994: 158 f.).

provide time series data about their staff.¹³ If these are the least efficient organizations, our sample will be subject to selection bias, and our analysis will understate the bureaucratic problems. However, since we are focusing on the most important and largest international organizations and since these may also be the least efficient, the selection bias may also go the other way.

Table 1 shows staff size and membership in the first and last year of each period. Three of the 27 organizations (Commonwealth, EFTA and NATO) will not be included in the regressions because their membership does not increase at all over the whole time span (Commonwealth, EFTA) or almost the whole of it (NATO). As reported in Table 1, the average rate of staff growth in the remaining 24 organizations was 3.2 percent per annum (unweighted). The rate was highest for the UN High Commissioner for Refugees (6.9 percent), the International Bank for Reconstruction and Development, the World Intellectual Property Organization (6.3 percent each) and the International Finance Corporation (6.1 percent).

Since the mid-1980s, however, staff has decreased in seven international organizations. As Table 2 demonstrates, the annual compound average rate of decline since 1985 has been 3.7 percent in the Food and Agricultural Organization (FAO), 2.1 percent in the UN Education and Science Organization (UNESCO), 1.2 percent in the International Labor Organization (ILO), 0.9 percent in the International Civil Aviation Organization (ICAO), 0.8 percent in the World Health Organization (WHO) and the World Meteorological Organization (WMO) and, out of sample, 0.3 percent in the Secretariat of the North Atlantic Treaty Organization (NATO). Moreover, Table 2 reveals that staff growth has decelerated in almost all organizations of the sample (from 4.6 percent prior to 1985 to 1.2 percent thereafter).¹⁴ In most cases, this was due to U.S. influence.¹⁵ Only three organizations (ESA, WIPO, BIS) raised their staff growth. Nevertheless, Table 1 indicates that the staff of all 24 international organizations

¹³ These are the African Development Bank, the Arab Fund for Economic and Social Development, ASEAN, the Asia-Pacific Economic Cooperation Secretariat, the Inter-American Development Bank, the Organization of African Unity, the South Asian Association for Regional Cooperation, the UN Industrial Development Organization and the World Food Program.

¹⁴ Table 2 contains only those 22 organizations for which staff data are available prior to 1980.

¹⁵ In some cases, the United States cut its contributions unilaterally (e.g., to the U.N., FAO and WHO from 1986 onward). In other cases (ILO, UNESCO), the United States temporarily left the organization. The U.K. and Singapore also withdrew from UNESCO in 1984. Britain re-entered in 1997, the U.S. in 2002. Barber Conable, the new President of the World Bank, enforced substantial cuts of personnel in 1987. Probably, most international organizations experienced a structural break in the mid-1980s. We do not test for it because it is not important for our subject.

for which the 1985 data are available, grew from 55,487 (1985) to 67,100 around the millenium, i.e., by more than 21 percent.

Over the whole period, the number of member states increased on average by 2.5 percent, i.e., much less than staff, in the 24 international organizations. Dividing average staff growth by average membership growth, we obtain an elasticity (ϵ_1) of 1.28. The largest elasticities, e.g., elasticities larger than 2.0, are observed in UNHCR, IAEA, BIS, UPU, WMO and OECD (in this order).

Alternatively, adding all staff in the initial and the final years, respectively, and adding all memberships in the same way, we see that membership doubled, whereas staff expanded by a factor of 2.5. Computed in this way, the elasticity of staff with respect to membership is 1.24.

However, staff size may not only be explained by the number of member states. It is also affected by the size of the task and a host of other factors. To allow for changes in tasks we try two different methods.

Where possible, we use output proxies. In the case of the IMF, the IBRD and the IFC, these are simply the number of agreements, projects or programs, respectively. In the case of the European Union, we add the number of directives, regulations, decisions, international agreements, recommendations and opinions, EU court decisions, White and Green Papers.

For the other organizations, we estimate time series regressions, inspect the unexplained residuals and define dummies for new or abandoned tasks.¹⁶ In each case, a rudimentary partial-adjustment model is estimated:

$$(1) \ln S_t = b_0 + b_1 \ln M_t + b_2 \ln S_{t-1} + u$$

S is the number of staff and M the number of member states. The estimates are not adjusted for autocorrelation of the residuals because the autocorrelated residuals are potential indicators of changes in tasks. Task dummies have been defined wherever predicted staff deviated from actual staff in the same direction for a substantial number of years and where these deviations could be explained by important changes in tasks. They are listed in Appendix 2. The estimating equations and the residuals are not reported because they serve a purely heuristic purpose. They are available on request.

¹⁶ This procedure is based on the assumption that changes in tasks and changes in membership are not closely correlated because simultaneous "deepening" and "widening" would overstrain the organization's capacity for change.

Rigorous time series analyses for the particular organizations are reported in Table 3. The logarithm of staff growth is regressed on the logarithm of the number of member states and real growth in the OECD countries. The growth variable serves to test the hypothesis that the main contributors are more willing to finance staff increases when their economies are booming. We have tested for unit roots and, where necessary, the staff and membership variables have been detrended or used in first differences. All regressions contain at least one lag of the dependent variable. Additional lags have been included so as to minimize Akaike's information criterion. In most cases, the F-test confirms that the lagged variables are jointly significant and that further lags do not raise the explanatory power of the equation (adjusted for degrees of freedom). For some organizations, the sample contains less than 30 observations so that the results are not reliable. We report them nevertheless. All standard errors are estimated robustly.

As Table 3 reveals, staff in year t depends significantly and positively on staff in previous years in 14 of the 24 organizations (or staff changes, respectively). This may be interpreted as a Parkinson effect or as a sign of bureaucratic inertia. The number of member states has a significantly positive effect on staff size in 14 organizations (or the changes, respectively). Surprisingly, the effect is significantly negative in six organizations. In four cases, the long-run elasticity b_1^+ is significant and larger than 1 (CARICOM, GATT/WTO, ITU, UNHCR), in two cases significantly so (GATT/WTO, ITU). Staff at the ADB and the UNHCR is significantly affected by real growth in the industrial countries but the correlation is negative. The task proxies are never significant and hardly affect the results.¹⁷

Next, $\ln S_t$ is regressed on $\ln M_t$, the task proxies and organizational dummies in a pooled time-series/cross-section analysis. The sample contains 817 annual observations. As the time periods differ among the organizations, the panel is unbalanced. We use panel-corrected standard errors as has been suggested by Beck and Katz (1995). The first column of Table 4 reports the results (except for the intercept and dummies¹⁸). As can be seen, the regression coefficient of the membership variable ($\ln M_t$) is 1.36. This is larger than one at the one percent level of significance.

¹⁷ In most cases, a Ramsey RESET test did not indicate parameter instability. The error terms of almost all regressions are homoscedastic and uncorrelated. Where this was not the case, adjustment by inclusion of further lags did not produce qualitative changes.

In column 2, we add three lags of the dependent variable.¹⁹ The coefficient of the membership variable remains significantly positive but the long-run elasticity drops to .82. The long-run elasticity is also smaller than one if, instead of, or in addition to, the three lags, time dummies are added (columns 3 and 4).

In columns 5 and 6, the time dummies are replaced by an exponential time trend (t) and its square (t^2). Without the lags (in column 5), the regression coefficient of the membership variable is 1.02. This is significant but not significantly larger than one. The coefficient of t is significantly positive (5.3 percent per annum) which is consistent with Parkinson's Law. However, as the significantly negative coefficient of t^2 demonstrates, the rate of staff growth decelerates over time. This indicates that the growth of staff is not positively correlated with the level of staff. As can be shown, the simple correlation is significantly negative in most cases.

In column 7, the basic equation (column 1) is re-estimated with the lagged dependent variable and in first differences according to the Generalized Method of Moments (GMM) estimator suggested by Arellano and Bond (1991). Once more, the regression coefficient of the membership variable is significantly positive but the long-run elasticity is smaller than one.²⁰

Taken together, the results of Table 4 demonstrate that the elasticity of staff with respect to membership is only significantly larger than one if the non-stationary component in the staff series is not removed or accounted for. The larger than unitary elasticity in column 1 is due to a common trend of $\ln S_t$ and $\ln M_t$. This was to be expected but it implies that the t -statistics may not conform to the t -distribution. Thus, we cannot be sure that the difference between the measured elasticity of 1.36 and unity is statistically significant.

In Table 5, we replace the organizational dummies by seven cross-sectional variables:

- three seat dummies which take the value 1 if the international organization has its seat in the United States, Switzerland or the rest of Europe, respectively,
- a dummy for UN organizations,
- the shares of industrial or communist countries among the member states, respectively, in the median year of the time series at hand and

¹⁸ The coefficients of the organization dummies cannot be interpreted because they may reflect differences in tasks or differences in efficiency.

¹⁹ The optimal lag length has again been chosen with Akaike's information criterion.

²⁰ The Sargan test of over-identifying restrictions and the Arellano-Bond test of second-order autocorrelation of the residuals accept the specification.

- the coefficient of variation of per-capita income of the member states in the median year of the respective time series.

The data of these cross-sectional variables are reported in Table 6. We do not use logarithms because this would reduce the coefficient of determination in column 1. For computational economy, the composition of membership has been analyzed only in the median year because the cross-sectional variability is likely to be much larger than the intertemporal variability.

We also reintroduce real growth in the industrial countries which has only a time dimension and which has already been used in the time-series regressions.

Since our additional variables have either only a cross-sectional or only a time dimension, no organization or time dummies are included. However, we report a version that contains three lags of the dependent variable. Moreover, the output proxies and task dummies are included, and their coefficients are reported.

Table 5, column 1, indicates that the staff of an international organization is significantly smaller if its seat is in the United States or Switzerland. Moreover, location in the rest of Europe has a marginally significant negative effect. This may be due to higher labor costs or the mentality of the host country.

UN organizations employ significantly more staff. Surprisingly, the correlations between staff size and the share of industrial or communist countries are significantly positive. Apparently, the representatives of these countries are more willing to pay.

As expected, the coefficient of variation of per-capita income has a significantly negative effect on staff size, i.e., heterogeneity of membership limits the size of the organization. Real growth in the industrial countries does not affect staff significantly. All task proxies take significant coefficients and, except for the IMCO dummy, all have the expected sign.

The coefficient of the membership variable is smaller than one (.81). But for estimating the membership effect, Column 1 of Table 5 is less reliable than Column 1 of Table 4 because it replaces the organization dummies by specific cross-sectional variables.

Column 2 of Table 5 adds three lags of the endogenous variable. The short and long-run effect of the size of membership is now significantly negative, and ten of the other variables lose their significance. This confirms the impression gained from Table 4 that the theoretical relationship between staff and

membership cannot be identified if the non-stationary component of the staff series is accounted for by lags of the dependent variable, time dummies or trends.

Table 5 does not contain an analysis in first differences because the relevant explanatory variables do not vary over time.

As explained in section 1, the growing number of member states may cause bureaucratic problems in several ways:

1. It reduces each member's benefit of controlling the international organization.
2. It increases each member's cost of negotiation.
3. It raises each member's cost of information.
4. It may generate diseconomies of scale.

To isolate the first of these four channels, we now allow for the financing share of the largest member state, i.e., the largest national contribution as a percentage of all contributions. Since data on contributions are more difficult to come by – the BIS, for example, refuses to disclose them, the sample reduces to 17 organizations. If the growth of membership leaves the absolute contribution of the largest member state unchanged, the change of its percentage contribution should be inversely proportional to the change of membership. The simple correlation between the largest percentage contribution and the number of member states is indeed significantly negative ($r = -.24$) but not very large.

Table 7 displays the percentage contributions in the initial and the final year. The most rapid decline occurred in the IFC and the IBRD.²¹ But while the largest percentage contribution declined in ten organizations, it increased in seven. The unweighted average of the rate of decline in the first group is -1.1 percent per annum. With an average staff growth of 3.7 percent p.a. in this sample, this implies an elasticity (ϵ_2) of 3.36, i.e., larger than 1. For the group of seven organizations in which the largest percentage contribution increased, the elasticity is, of course, positive. For both groups together, the unweighted average elasticity is exactly unitary and negative.

Once more, the descriptive analysis is followed by a pooled time-series/cross-section regression and, once more, EFTA is omitted from the sample. If the largest financing share is simply added to the regressions of Table 4, it takes a positive coefficient which is contrary to the hypothesis. The explanation is

²¹ For the IBRD, Vaubel (1996) confirms in a more fully specified estimate that the percentage contribution of the ten largest member states has a significantly negative effect on real administrative expenditure.

probably that U.S. monitoring of international organizations intensified in the second half of the period when the financing share of the largest contributor – in almost all cases the U.S. – showed a decline. The increase of U.S. monitoring was due to political changes in the U.S., especially the advent of the Reagan administration in 1980. Thus, we interact the U.S. financing share with U.S. partisan or programmatic variables in Table 8.

Since we have to distinguish among international organizations as to whether they include the U.S. as a member and the largest contributor or not, we start by estimating separate regression coefficients for the U.S. financing share and the largest financing share in international organizations of which the U.S. is not a member (column 1). In our sample, there is only one international organization which does not include the U.S., namely the EU, and the largest contributor is Germany. We also add a dummy for periods in which the U.S. temporarily left and stayed outside international organizations (UNESCO) because any U.S. exit exerts downward pressure on staff size even though the largest financing share drops.²²

Column 1 of Table 8 reveals that the U.S. financing share has a negative but marginally insignificant effect on staff size while the German financing share in the EC/EU has a significantly negative effect. The coefficient of the dummy for U.S. exit from UNESCO is significantly negative as expected. The membership coefficient is significantly larger than 1. With the exception of the U.S. exit dummy, however, these significant results disappear when the non-stationary component is accounted for by time trends, time dummies and lags of the dependent variable (columns 2 and 3).

In column 4, the largest financing share is not only separated according to whether the U.S. or Germany is the largest contributor. It is also interacted with the partisan orientation of the government (right wing = 1). Both regression coefficients are negative but only the U.S. coefficient is significant. It remains significant when the time trends are included (column 5) but it turns insignificant when the battery of time dummies is added (column 6). This is not surprising because a partisan change in the U.S. presidency affects almost all international organizations at the same time so that the interaction varies mainly over time.

²² The decrease in the number of member states does not adequately capture this effect. Note that U.S. exit from ILO does not require a dummy because, owing to lack of data about financing shares, ILO could not be included in the sample.

If, in column 4, the dummy for Republican U.S. presidents is not interacted (multiplied) with the U.S. financing share, it does not take a significantly negative coefficient. Thus, the staff of international organizations of which the U.S. is a member does not simply depend on the party of the president but on the joint influence of party politics and the financing share of the U.S.

In column 7, the largest financing share is not interacted with a dummy for the governing parties but with an index coding the emphasis on international peace in the governing parties' programs (Budge et al., 2001). Since the main contributor's commitment to international cooperation should raise rather than reduce the staff of international organizations, the largest financing share is divided by this index. Once more, the effect is significantly negative for the U.S. but not for Germany (in the EC/EU). If the non-stationary component in the staff series is accounted for by time trends or time dummies and lags, the negative effect disappears for the U.S. but – surprisingly – turns significant in the case of Germany (columns 8 and 9).

Explanatory power and the significance of the interaction effect are larger in the case of equation 7 than equation 4. Thus, parties seem to matter more than their election programs – in both the U.S. and Germany. In any case, the incentive to monitor combined with the party orientation of the government seems to contribute to explaining why the staff of international organizations expands faster than the number of member states. There is evidence of a principal-agent problem.

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Appendix 1

List of International Organizations

ADB:	Asian Development Bank
BIS:	Bank for International Settlements
CARICOM:	Caribbean Common Market Secretariat
Commonwealth:	Commonwealth of Nations
CoE:	Council of Europe
EC / EU:	European Community / European Union
EFTA:	European Free Trade Area
ESA:	European Space Agency
FAO:	Food and Agricultural Organization
GATT / WTO:	General Agreement on Tariffs and Trade / World Trade Organization
IAEA:	International Atomic Energy Organization
IBRD:	International Bank for Reconstruction and Development
ICAO:	International Civil Aviation Organization
IFAD:	International Fund for Agricultural Development
IFC:	International Finance Corporation
ILO:	International Labor Organization
IMCO / IMO:	International Maritime (Co-operation) Organization
IMF:	International Monetary Fund
ITU:	International Transport Organization
NATO:	North Atlantic Treaty Organization
OECD:	Organization for Economic Co-operation and Development
UNESCO:	United Nations Education and Science Organization
UNHCR:	United Nations High Commissioner for Refugees
UPU:	Universal Postal Union
WHO:	World Health Organization
WIPO:	World Intellectual Property Organization
WMO:	World Meteorological Organization

Appendix 2

List of Task Dummies

ESA: from 1985: Ariane V
 ILO: from 1965: International Training Center
 IMCO / IMO: from 1967: Legal Committee
 ITU: from 1993: new constitution

Appendix 3

Data Sources

- A) Yearbook of United Nations: Staff, member states and financing shares of the following organizations: FAO, IAEA, ICAO, IFAD, ILO, IMCO / IMO, IMF, ITU, UNESCO, UPU, WHO, WIPO, WMO.
- B) Data obtained directly from the organization: ADB, BIS, CARICOM, Commonwealth, CoE, EC / EU, EFTA, ESA, GATT / WTO, NATO, OECD, UNHCR.
- C) Other source (staff and contributions):
 ADB: Annual Report; Yearbook of International Organization.
 BIS: Annual Report; Yearbook of International Organization.
 EC / EU: Budget vademecum.
 EFTA: Annual Report; Yearbook of International Organization.
 ESA: Annual Report
 GATT / WTO: Annual Report; Budget Estimates
 IBRD: Annual Report; Yearbook of International Organization
 IFC: Annual Report
- D) Task Proxies:
 EU: Alesina, Angeloni, Schuknecht (2001), Table 5 (as the authors have collected and report only five-year averages, the annual data have been derived by linear interpolation)
 IBRD, IFC, IMF: Annual Reports
- E) Seat: The Europa Directory of International Organizations, London 1999.
- F) Per capita income: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002.
- G) Real growth in the industrialized countries: OECD Statistical Compendium (2001) und OECD Economic Outlook (2002). For the OEEC until 1960, we have approximated this variable by computing a weighted average of the growth rates of the six largest economies (U.S., Canada, Japan, Germany, France and the U.K.).
- H) Emphasis on international peace in pre-election program of governing party: Budge et al. (2001). In the case of coalition governments, the junior partner was given a weight of one third.

Table 1: Staff size and the number of member states, 27 international organizations

Organiza- tion	Period	Staff				Number of member states			$\epsilon_1 =$ (4)/(7)
		first year (1)	1985 (2)	last year (3)	Δ % p. a. overall (4)	first year (5)	last year (6)	Δ % p. a. (7)	
ADB	1981-2000	1,257	1,553	2,058	2.6	44	59	1.6	1.6
BIS	1950-2000	142	314	500	2.5	28	49	1.1	2.3
CARICOM	1973-2000	74	182	221	4.1	4	15	.5	.8
CoE	1980-2000	764	830	1,216	2.4	21	44	3.8	.6
EC/EU	1968-2000	9,026	19,781	30,777	3.9	6	15	2.9	1.3
ESA	1974-2000	1,462	1,376	1,718	.6	11	14	.9	.7
FAO	1963-1999	4,096	6,951	4,072	0	106	175	1.4	0
GATT/ WTO	1953-2001	35	300	368	5.0	32	142	3.2	1.6
IAEA	1964-2000	661	1,964	2,136	3.3	82	130	1.3	2.5
IBRD	1953-1998	433	5,700	6,800	6.3	53	182	2.8	2.3
ICAO	1963-2000	503	875	759	1.1	101	187	1.7	.6
IFAD	1978-2000	80	174	265	5.6	55	126	3.8	1.5
IFC	1964-2001	118	433	1,063	6.1	78	175	6.2	1.0
ILO	1963-1999	1,445	2,838	2,393	1.4	108	174	1.3	1.1
IMCO/ IMO	1963-2000	43	251	274	5.1	54	157	2.9	1.8
IMF	1950-2001	444	1,646	2,976	3.8	47	184	2.7	1.5
ITU	1964-1999	372	742	770	2.1	116	188	1.4	1.5
OECD	1961-2001	1,008	(1,827 ^a)	2,291	2.1	20	30	1.0	2.1
UNESCO	1963-1999	2,379	3,171	2,348	0	109	188	1.5	0
UNHCR	1986-2000	2,138	n.v.	5,423	6.9	41	60	2.8	2.5
UPU	1963-2000	57	141	151	2.7	121	189	1.2	2.3
WHO	1963-1999	2,655	4,477	4,000	1.1	117	193	1.4	.8
WIPO	1974-2001	157	288	817	6.3	36	177	6.1	3.3
WMO	1963-1999	114	295	264	2.4	125	185	1.1	2.2
unweighted arithmetic average:					3.2			2.5	1.28
				(3)/(1)				(6)/(5)	
Sum:		29,463	n.a.	73,660	2.5	1,515	3,038	2.01	1.24
out of sample ^b :									
Common- wealth	1992-2000	431	n.a.	305	-4.2	54	54	0	-
EFTA	1964-2000	144	71	71	-1.9	7	4	-1.5	1.3
NATO	1959-2001	603	1,134	1,083	1.4	15	19	2.4	.6

^a – 1988

^b – not used in regression analysis

Table 2: Staff growth before and after 1985

Organization	Prior to 1985	Δ % p.a.	After 1985	Δ % p.a.	$\Delta\Delta$ %
BIS	1950-85	2.3	1985-2000	3.2	.9
CARICOM	1973-85	7.8	1985-2000	1.3	-6.5
EC/EU	1968-85	4.7	1985-2000	3.0	-1.7
ESA	1974-85	- .5	1985-2000	1.5	2.0
FAO	1963-85	2.4	1985-1999	-3.7	-6.1
GATT/WTO	1953-85	6.9	1985-2001	1.3	-5.6
IAEA	1964-85	5.3	1985-2000	0.6	-4.7
IBRD	1953-85	8.4	1985-1998	1.4	-7.0
ICAO	1963-85	2.5	1985-2000	-0.9	-3.4
IFAD	1978-85	11.7	1985-2000	2.8	-8.9
IFC	1964-85	6.4	1985-2001	5.9	- .5
ILO	1963-85	3.1	1985-1999	-1.2	-4.3
IMCO/IMO	1963-85	8.3	1985-2000	0.6	-7.7
IMF	1950-85	3.8	1985-2001	3.8	0
ITU	1964-85	3.3	1985-1999	0.3	-3.0
OECD	1961-88	2.3	1988-2001	1.6	- .7
UNESCO	1963-85	1.3	1985-1999	-2.1	-3.4
UPU	1963-85	4.2	1985-2000	0.5	-3.7
WHO	1963-85	2.4	1985-1999	-0.8	-3.2
WIPO	1974-85	5.7	1985-2001	6.7	1.0
WMO	1963-85	4.4	1985-1999	-0.8	-5.2
unweighted arithmetic average		4,6		1.2	-3.4
out of sample:					
EFTA	1964-85	-3.3	1985-2000	0.0	3.3
NATO	1959-85	2.5	1985-2001	-0.3	-2.8

Table 3: Staff as a function of membership, time series analyses

Organization	Period	Number of member states				Staff lagged				Real growth rate (OECD)	Task Proxy	Durbin h (p-value)	R ² adj.			
		Lags ^a	Trend ^b	I(1) ^c	I(2) ^d	Sum of coefficients	F-Test ^e	Lags ^a	Trend ^b					I(1) ^c	Sum of coefficients	F-Test ^e
ADB	1987-2000	5		x		0.47	135.68*	4			1.10	1383.00*	-0.007*			
BIS	1952-2000	0			x	0.38	2.46*	1		x	0.21	1.98	-0.001		0.86	0.39
CARICOM	1975-2000	1				0.28	4.84*	2			0.76	176.58*	-0.009		0.50	0.98
CoE	1985-1999	0				0.27	3.23*	1			0.48	3.17*	0.012		0.88	0.98
EC/EU	1973-2000	2				-0.03	14.29*	4		x	0.11	0.72	0.001		0.75	0.87
ESA	1978-2000	0			x	0.76	6.11*	3		x	0.19	0.92	0.002	0.01	0.08	0.77
FAO	1965-1999	0			x	0.92	22.14*	1		x	0.01	0.11	0.004		0.01 ^f	0.94
GATT/WTO	1954-2001	0		x		0.29	3.20*	1			0.84	20.64*	-0.002		0.11	0.99
IAEA	1966-2000	1			x	-0.21	5.19*	2		x	0.05	0.03	-0.002		0.21	0.28
IBRD	1955-1998	1				-0.06	26.02*	1			1.00	21.66*	0.004	0.001	0.87	0.99
ICAO	1965-2000	0				-0.11	3.04*	1		x	-0.21	0.78	-0.002		0.58	0.13
IFAD	1983-2000	1	x			-1.07	0.81	5			0.75	30.63*	-0.01		0.05	0.97
IFC	1959-2001	0			x	0.75	20.44*	1	x		0.97	19.12*	0.003	-0.0001	0.07	0.96
ILO	1965-1999	0			x	0.91	20.90*	1			0.97	59.74*	-0.001		0.04 ^f	0.99
IMCO/IMO	1967-2000	4				-0.07	3.20*	4			0.89	86.58*	0.004		0.88	0.99
IMF	1955-2001	5				0.03	5.88*	1		x	0.38	1.98*	-0.001	0.0003	0.95	0.74
ITU	1966-1999	0			x	0.73	11.60*	1			0.96	78.31*	0.0001	0.01	0.29	0.99
OECD	1964-2001 ^g	0				-0.13	1.05	1		x	0.17	0.57	-0.0001		0.29	0.01
UNESCO	1965-1999	0			x	0.92	19.09*	1	x		0.97	24.33*	-0.0002		0.38	0.97
UNHCR	1988-2000	0				0.48	1.22	2			0.78	32.16*	-0.04*		0.09	0.95
UPU	1967-2000	4				0.24	6.23*	3			0.64	31.31*	0.001		0.44	0.98
WHO	1968-2000	5				-0.10	8.59*	1		x	0.09	0.40	-0.003		0.27	0.43
WIPO	1976-2001	0				0.03	0.58	1		x	-0.12	0.80	-0.01		0.46	-0.05
WMO	1968-1999	0		x		0.37	3.07*	5			0.32	18.64*	0.001		0.01 ^f	0.65

* significant at 5 percent level

a The number of lags minimizes the AIC.

b The variable has been detrended.

c first differences

d second differences

e F-test for joint significance of variables

f The residuals are no longer autocorrelated when additional lagged variables are included. Their inclusion does not affect the results.

g incomplete time series (1961-71, 1974, 1979, 1990-2001)

Table 4

Staff as a function of membership, panel data, constant elasticity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
number of member states (ln)	1.36 (.00)	.09 (.00)	.92 (.00)	.043 (.16)	1.02 (.00)	.085 (.00)	.06 (.06)
t					.053 (.00)	.005 (.00)	
t ²					-.001 (.00)	-.0001 (.00)	
task proxies	yes	yes	yes	yes	yes	yes	yes
organization dummies	yes	yes	yes	yes	yes	yes	no
time dummies	no	no	yes	yes	no	no	yes
lagged endogenous variables: t-1		1.07 (.00)		1.08 (.00)		1.06 (.00)	1.03 (.00)
t-2		-.04 (.00)		-.06 (.31)		-.04 (.40)	-.06 (.30)
t-3		-.14 (.00)		-.13 (.00)		-.15 (.00)	-.08 (.02)
long-run elasticity of number of member states	1.36	.82	.92	.39	1.02	.65	.55
procedure	OLS	OLS	OLS	OLS	OLS	OLS	GMM
obs.	817	748	817	748	817	748	708
R ²	.976	.998	.983	.998	.981	.998	

p-values in parentheses

Table 5:

Staff as a function of membership and other variables, panel data

	(1)	(2)
number of member states (ln)	.81 (.00)	-.036 (.00)
seat dummies:		
- United States	-1.39 (.00)	.03 (.03)
- Switzerland	-1.01 (.00)	.009 (.17)
- rest of Europe	-.20 (.06)	.002 (.80)
UN organization	1.00 (.00)	.002 (.81)
share of industrial countries	.02 (.00)	.0006 (.00)
share of communist countries	.01 (.00)	.0001 (.00)
coefficient of variation of per capita income	-1.20 (.00)	.095 (.00)
real growth in industrial countries	-.02 (.00)	.002 (.15)
EU output proxy	.001 (.00)	.00 (.18)
IBRD output proxy	.01 (.00)	.00 (.14)
IFC output proxy	.002 (.00)	.00 (.81)
IMF output proxy	.05 (.00)	.00 (.76)
ESA dummy	.36 (.00)	-.02 (.09)
ILO dummy	1.70 (.00)	.006 (.65)
IMCO dummy	-2.44 (.01)	.14 (.00)
lagged endogenous variables:		
t-1		1.20 (.00)
t-2		-.06 (.29)
t-3		-.15 (.00)
obs.	817	748
R ²	.523	.997

p-values in parentheses

Table 6: Characteristics of international organizations

Organization	Seat	Median year	Industrial countries (percent)	Communist countries (percent)	Dispersion of per-capita income ^a
ADB	Philippines	1991	37	10	1.11
BIS	CH	1976	65	21	.51
CARICOM	Guyana	1986	0	0	.62
CoE	F	1990	100	0	.50
EC/EU	B	1984	100	0	.31
ESA	F	1987	100	0	.34
FAO	I	1981	16	9	1.45
GATT/WTO	CH	1977	29	7	1.16
IAEA	AU	1987	24	10	1.36
IBRD	US	1976	18	3	1.37
ICAO	CAN	1982	16	9	1.46
IFAD	I	1989	16	4	1.61
IFC	US	1983	19	1	1.42
ILO	CH	1981	15	7	1.46
IMCO/IMO	UK	1982	21	6	1.34
IMF	US	1976	18	4	1.37
ITU	CH	1982	15	9	1.45
OECD	F	1981	100	0	.41
UNESCO	F	1981	17	6	1.46
UNHCR	CH	1993	43	2	1.11
UPU	CH	1981	15	10	1.46
WHO	CH	1981	16	10	1.45
WIPO	CH	1988	13	11	1.47
WMO	CH	1981	13	8	1.45

^a – coefficient of variation

Table 7: Largest contribution in percent

Organization	Period	First year	Last year	Rate of change p.a.	Staff growth p.a.	ϵ_2 = (4) / (3)
		(1)	(2)	(3)	(4)	
EC/EU	1971-1999	34	26	-1.0	4.2	-4.2
FAO	1963-1987	32	25	-1.0	3.0	-3.0
GATT/WTO	1953-2000	17	16	- .1	5.1	-51.0
IAEA	1963-1987	32	26	- .9	4.1	-4.6
IBRD	1953-1987	35	20	-1.6	8.0	-5.0
ICAO	1963-2000	32	25	- .7	.2	- .3
IFC	1964-1987	36	24	-1.7	6.6	-3.9
IMF	1950-2001	34	17	-1.3	3.9	-3.0
UNESCO	1963-1999	31	17	-1.7	0	0
WHO	1964-1988	31	25	- .9	1.9	-2.1
						-7.71 ^a
average		24	19	-1.1	3.7	-3.36 ^b
Organizations experiencing positive rate of change:						
EFTA	1964-2000	30	49	.5		
IFAD	1978-1987	19	20	.6		
IMCO/IMO	1968-1987	11	12	.5		
ITU	1964-1999	05	07	1.0		
UPU	1963-2000	03	06	1.9		
WIPO	1974-1987	05	06	1.4		
WMO	1963-1999	24	25	.1		

^a – Average of elasticities

^b – Elasticity of average rates of change

Table 8

Staff as a function of membership, largest financing share and party orientation
panel data, 17 international organizations, constant elasticities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
number of member states (ln)	1.41 (.00)	.87 (.00)	.93 (.00)	1.41 (.00)	.87 (.00)	.17 (.00)	1.43 (.00)	.84 (.00)	.16 (.00)
U.S. exit dummy	-1.85 (.00)	-1.39 (.01)	-.29 (.05)	-.77 (.00)	-.66 (.00)	-.17 (.00)	-.44 (.00)	-.82 (.00)	-.17 (.00)
interaction (ln) of largest financing share with:									
* dummy for U.S. membership	-.05 (.07)	.003 (.90)	-.02 (.08)						
* dummy for U.S. membership * dummy for Republican U.S. presidency				-.04 (.00)	-.02 (.00)	-.004 (.28)			
* dummy for U.S. membership/emphasis on international peace in presidential party							-.05 (.03)	.02 (.04)	-.003 (.75)
* dummy for U.S. non-membership (= Germany as largest contributor)	-.62 (.00)	-.37 (.13)	-.09 (.17)						
* dummy for U.S. non-membership * right wing government in main contributing country				-.08 (.24)	-.03 (.65)	-.03 (.10)			
* dummy for U.S. non-membership/emphasis on international peace in governing parties							-.03 (.54)	-.08 (.04)	-.03 (.00)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
t		.054 (.00)			.051 (.00)			.058 (.00)	
t ²		-.001 (.00)			-.001 (.00)			-.001 (.00)	
task proxies	yes	yes	yes	yes	yes	yes	yes	yes	yes
organization dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
time dummies	no	no	yes	no	no	yes	no	no	yes
lagged dependent variables	no	no	3	no	no	3	no	no	3
obs.	484	484	446	484	484	446	484	484	446
R ²	.9885	.9908	.9982	.9888	.9908	.9982	.9884	.9908	.9982

p-values in parentheses