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THE IMPACT OF DECENTRALIZATION
ON GROWTH AND DEMOCRACY: A NOTE

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RÉSUMÉ

Ce texte examine si les pays plus décentralisés croissent plus rapidement ou sont plus démocratiques que les pays plus centralisés. Il se divise en trois parties. Dans la première, nous présentons les liens entre ce texte et les écrits portant sur le fédéralisme, la croissance et la démocratie. Dans la seconde, nous présentons l'index de décentralisation et, dans la troisième, nos résultats empiriques. Ils indiquent que la décentralisation n'a pas d'effet sur la croissance mais a un effet positif sur la démocratie.

Mots-clés: décentralisation, croissance, démocratie.

ABSTRACT

This paper examines if more decentralized countries experience higher economic growth or are more democratic than more centralized countries. It is divided in three parts. The first part explains the link between this paper and the relevant literature on the economics of federalism, on the determinants of growth, and on democracy. The second presents the decentralization index used therein and the third our empirical results. They show that decentralization has no impact on growth but has a positive impact on democracy.

Keywords: decentralized countries, economic growth, democracy.

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INTRODUCTION

The main purpose of this paper is to examine if more decentralized countries experience higher economic growth or are more democratic than more centralized countries. This is of interest given that such a relationship is postulated, as documented, by Bird (1993) and Oates (1993), and by economists and policy bodies such as the World Bank, yet, does not appear to have been empirically verified. One reason for such a lack of empirical work is that there is no official or at least commonly accepted index of decentralization. Thus, the secondary purpose of this paper is to present a five level index of decentralization that could be useful for others interested in this issue.

The paper is divided in three parts. The first one explains the link between this paper and the relevant literature on the economics of federalism and on the determinant of growth and of democracy. The second presents the decentralization index calculated by Charles (1994). The third presents our empirical results.

1) THE ANALYTICAL FRAMEWORK AND THE LITERATURE

The classic work on decentralization was written two decades ago (Oates, 1972). Of greater interest to us, are studies of the impact of decentralization on economic well being. In a recent symposium (1993), R. Bird, E. Gramlich and W. Oates examine the issue of decentralization. Bird notes that "in recent years there has been a worldwide revival of interest in fiscal decentralization ... Many developing countries are turning to various forms of fiscal decentralization as one way of escaping from the ... inadequate economic growth" (p. 207). Gramlich states that "many developing countries are also groping with decentralization issues as they try to find a way to manage the public sector side of their growth process" (p. 229). Finally Oates notes that "there is much current interest in the potential contribution of fiscal decentralization to economic development...decentralization (can be seen) as a mechanism to make policy more responsive to local needs and to involve the local populace in process of democratic governance" (p. 237-238). Notwithstanding this interest in decentralization whose benefits may be overstated (Prud'homme, 1994),¹ there is according to Oates (1993) only limited empirical work in this area. In particular there does not seem to have been empirical tests of the impact of federalism within a formal growth or democracy model. In this paper, we will use an existing growth model and data set put forward by Barro (1991) to which we will add a federalism variable. We will, also, put forward a democracy model inspired by the classic work of Lipset (1959) but drawing also on more recent work [Arai (1988); Pourgerami (1988); Lewis-Beck (1992); Helliwell (1992)].

¹ Indeed, it is a standard theoretical result that jurisdictional competition in taxes will select sub-optimal taxes and/or expenditures on public goods in a Nash equilibrium. See the paper by Mintz and Tuikonen (1986), Oates and Schwab (1988) or Wildassin (1988).

2) THE DECENTRALIZATION INDEX

The decentralization index used here was constructed by Charles (1994) using information from three main sources. These sources are:

- four "Government Finance Statistics Yearbook" of the International Monetary Fund for the years 1977, 1980, 1983, 1987. In that source, some of the countries appearing in the statistical tables where government revenues are reported, were coded according to a letter scale (A-C) as to the importance of central government fiscal revenues in total government fiscal revenues for a few years preceding the year of publication;

- the set of "Country Economic Report" prepared by the Economist Intelligence Unit. In each report there is some information (it varies between countries) useful in establishing the degree of decentralization;

- a handbook entitled "Federal Systems of the World, a Handbook of Federal Confederal and Autonomy Arrangements" prepared by the Jerusalem Federalism Institute. In that last source, information on land policies, education and taxation was particularly useful.

Countries were classified using mainly information from the first source. Information from the two other sources was then used to either supplement missing information or to add additional information.

The index thus obtained is presented in Table 1. Examining it one notes both the large number of centralized countries and the apparent existence of a link between decentralization and development as already noted by Oates (1993). As indicated at the bottom of Table 1, we will use three ways of representing this index in our empirical work.

Table 1: Index of centralization of 98 countries (mid 1970 - early 1980's)

Centralized	Semi-centralized	Intermediate	Semi-federal	Federal
Algeria, Bangladesh, Barbados, Botswana, Burma, Burundi, Cameroon, CAR, Chile, Egypt, El Salvador, Ethiopia, Gabon, Ghana, Greece, Guatemala, Haiti, Honduras, Hong Kong, Indonesia, Iran, Ireland, Israel, Ivory Coast, Jamaica, Jordan, Kenya, Liberia, Luxembourg, Madagascar, Malawi, Malia, Mauritius, Nepal, Nicaragua, Panama, Paraguay, Philippines, Rep. Domin., Rwanda, Senegal, Sierra Leone, Singapore, Swaziland, Thailand, Tunisia, Togo, Turkey, Uganda, Uruguay, Zaire, Zambia, Zimbabwe.	Colombia, Costa-Rica, Cyprus, France, Italy, Morocco, Netherlands, Norway, Pakistan, Peru, Portugal, South Africa, Sri Lanka, Taiwan, Tanzania	Argentina, Belgium, Denmark, Ecuador, Finland, Iceland, Japan, Malaysia, Mexico, Nigeria, South Korea, Spain, Sweden, Trinidad & Tobago, United Kingdom, Venezuela	Austria, Bolivia, Brazil, Fiji, Guyana, Papua New Guinea	Australia, Canada, Germany, India, Switzerland, United-States

Source: Charles (1994, p. 55)
 These countries correspond to those used in Barro (1991)

Note: In empirical work, we will represent this index using three variables:

- Continuous Centralization Index: it varies from 1 (centralized) to 5 (federal)
- Dichotomous Centralization Index: it takes the value 0 for centralized countries, 1 otherwise
- Polytomous Centralization Index: it is a set of four dichotomous variables with federal, as the reference group

3) GROWTH, DEMOCRACY AND DECENTRALIZATION

The growth equation used is one of many used by Barro (1991). It was selected because of the presence of regional dummies so as to not ascribe regional effects to centralization. It explains the average annual growth rate in per capita gross domestic product (1960-1985) as a function (expected sign) of the GDP in 1960 (-), the % of the relevant aged group attending respectively primary (+) and secondary (+) school, the ratio of non defense non education government spending on GDP (-), number of revolution or coups per year (-), number of assassinations per million (-), magnitude of the deviation of the investment deflator (1960) (-) and dummies for Africa (Sub-Sahara) and Latin America countries (-). We estimated the equations using OLS for all 98 countries used by Barro and for a sample of 74 developing countries without (columns 1 and 5) and with one of the three variables that can be used to represent our index of decentralization. As reported in Table 2, our results show that decentralization has no impact on economic growth.²

The democracy equation used is inspired by the existing literature. It relates the two Freedom House (Gasitil) democracy indices, as aggregated by Charles in one measure which range from highly democratic (2) to highly undemocratic (14), to the following variables: the % of the relevant age group attending primary school, 1960-1985 (-), average GDP over the period 1960-1985 (-), African (Sub-Sahara) and Latin American dummies and a market orientation dummy represented by capitalist mixed and socialist economic systems with capitalist economies presumed more democratic. The results of Table 3 show that more decentralized countries, in general, are somewhat more democratic than centralized one.

Could it be then the degree of decentralization has an indirect impact on growth through its impact on democracy? The results of Table 4 do not in general support this hypothesis even when two-stages least-squares are used to instrument democracy.

² Barro reports results for 29 equations. Results not reported here show that decentralization is not significant in any of these equations.

Table 3: The Impact of Federalism on Democracy, 98 and 74 Countries

EQUATIONS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
constant	8.856 (12.897)	9.3998 (13.089)	8.9904 (13.518)	8.1055 (6.354)	8.9257 (10.639)	10.0127 (11.611)	9.0961 (11.280)	3.9375 (1.703)
average level of GDP 1960-1985	-0.8099 (-8.183)	-0.6832 (-6.032)	-0.6804 (-6.378)	-0.6983 (-6.063)	-0.7274 (-3.131)	-0.6350 (-2.880)	-0.6205 (-2.743)	-0.7092 (-2.979)
average level of primary inscriptions	-0.9233 (-0.617)	-0.1993 (-0.133)	-0.1931 (-0.131)	-0.1123 (-0.075)	-1.1502 (-0.652)	0.0640 (0.038)	-0.2735 (-0.159)	-0.1502 (-0.086)
African countries (Sub-Sahara)	1.8712 (2.943)	1.7060 (2.718)	1.6603 (2.683)	1.6033 (2.555)	1.6277 (2.306)	1.2713 (1.888)	1.3997 (2.053)	1.1445 (1.643)
Latin American countries	-0.0680 (-0.117)	-0.0599 (-0.106)	-0.0169 (0.0168)	-0.0231 (-0.040)	-0.506 (-0.735)	-0.3474 (-0.535)	-0.3753 (-0.567)	-0.5275 (-0.773)
socialist economic systems	2.1660 (2.636)	2.1366 (2.653)	2.2409 (2.823)	22.210 (2.750)	2.289 (2.543)	2.2927 (2.709)	2.3558 (2.731)	2.2471 (2.601)
mixed economic systems	1.0052 (2.169)	0.9174 (2.012)	1.1223 (2.496)	1.1598 (2.463)	11.3345 (2.228)	1.4508 (2.569)	1.4629 (2.540)	1.54140 (2.666)
Continuous Centralized Index		-0.4788 (-2.168)				-0.8791 (-3.123)		
Dichotomous Centralized Index			-1.3988 (-2.735)				-1.5635 (-2.642)	
Centralized				0.9219 (0.842)				5.4151 (2.360)
Semi-centralized				-0.3773 (-0.336)				4.2316 (1.800)
Intermediate				-0.3060 (-0.287)				4.2114 (1.691)
Semi-federal				-1.2623 (-1.031)				3.1123 (1.237)
\bar{R}^2	0.6699	0.6829	0.6920	0.6863	0.3753	0.4474	0.4265	0.4329
F	33.464	30.534	31.818	22.004	8.3008	9.444	8.754	6.571
n	98	98	98	98	74	74	74	74

Source: Charles (1994, p. 67)
T-Statistics in parenthesis

Table 2: The Impact of Federalism on Growth Rates, 1960-1985, 98 and 74 Countries

EQUATIONS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
constant	0.0333 (5.020)	0.0333 (4.879)	0.0333 (4.982)	0.0310 (3.278)	0.0330 (4.018)	0.0336 (3.974)	0.0329 (3.978)	0.0163 (0.989)
GDP per capita in real terms 1960	-0.0069 (-5.802)	-0.0069 (-5.099)	-0.0069 (-5.541)	-0.0068 (-4.921)	-0.0084 (-3.600)	-0.0081 (-3.313)	-0.0085 (-3.479)	-0.0086 (-3.295)
enrollment ratio for primary education (age bracket 6-11 years)	0.0159 (1.406)	0.0138 (1.396)	0.0137 (1.376)	0.0164 (1.364)	0.0002 (0.009)	-0.0007 (-0.033)	0.0003 (0.014)	0.0014 (0.063)
enrollment ratio for secondary education (age bracket 12-17 years)	0.0251 (3.955)	0.0251 (3.916)	0.0251 (3.936)	0.0248 (3.786)	0.0312 (3.578)	0.0313 (3.558)	0.0313 (3.556)	0.0310 (3.457)
ratio of real government expenditure net of spending on defense and on education	-0.1038 (-3.723)	-0.1039 (3.658)	-0.1043 (-3.693)	-0.1118 (-3.679)	-0.1116 (-3.114)	-0.1091 (-2.973)	-0.1124 (-3.089)	-0.1113 (-2.933)
number of revolutions or coups per year (1960-1985)	-0.0198 (-2.937)	-0.0198 (-2.884)	-0.0199 (-2.913)	-0.0204 (-2.919)	-0.0195 (-2.512)	-0.0189 (-2.361)	-0.0198 (-2.485)	-0.0206 (-2.472)
number of assassinations per million population per year (1960-1985)	-0.0019 (-0.653)	-0.0020 (-0.647)	-0.0020 (-0.642)	-0.0015 (-0.497)	-0.0018 (-0.482)	-0.0020 (-0.514)	-0.0017 (-0.448)	-0.0006 (-0.157)
Magnitude of the deviation of PPP60 from the sample mean	-0.0060 (-1.520)	-0.0060 (-1.488)	-0.0059 (-1.457)	-0.0058 (-1.422)	-0.0073 (-1.641)	-0.0077 (-1.670)	-0.0071 (-1.551)	-0.0073 (-1.574)
African countries (Sub-Sahara)	-0.0110 (-2.696)	-0.0110 (-2.644)	-0.0109 (-2.641)	-0.0102 (-2.278)	-0.0109 (-2.338)	-0.0114 (-2.345)	-0.0108 (-2.256)	-0.0111 (-2.192)
Latin American countries	-0.0138 (-3.913)	-0.0138 (-3.875)	-0.0138 (-3.883)	-0.0137 (-3.652)	-0.0123 (-2.624)	-0.0124 (-2.626)	-0.0123 (-2.595)	-0.0127 (-2.611)
Continuous Centralized Index		0.0004 (0.027)				0.0007 (0.368)		
Dichotomous Centralized Index			0.0005 (0.159)				0.0007 (0.190)	
Centralized				0.0028 (0.418)				0.0188 (1.147)
Semi-centralized				0.0034 (0.497)				0.0196 (1.304)
Intermediate				0.0022 (0.336)				0.0164 (1.018)
Semi-federal				0.0066 (0.868)				0.0186 (1.130)
\bar{R}^2	0.5568	0.5517	0.5518	0.5403	0.5083	0.5016	0.5008	0.4914
F	14.541	12.938	12.944	9.771	9.386	8.347	8.324	6.426
n	98	98	98	98	74	74	74	74

Source: Charles (1994, p. 59)
T-Statistics in parenthesis

CONCLUSION

There is a growing interest in the impact of decentralization on growth and democracy. In this paper, we use an existing growth equation, a democracy equation based on the literature and an index of decentralization calculated by Charles (1994) to examine empirically what the impacts of decentralization are. We conclude that they are not significant in the case of growth but sometimes significant in the case of democracy. Additional work in the area particularly in improving the index of decentralization would surely shed additional light on this issue.

Table 4: The Impact of Democracy on Growth, 1960-1985, 98 and 74 Countries

EQUATIONS	(1)	(2)	(3)	(4)
method	OLS	OLS	TOLS	TOLS
constant	0.0326 (3.582)	0.0350 (3.215)	0.0596 (3.647)	0.0399 (2.541)
African countries (Sub-Sahara)	-0.0103 (-2.474)	-0.0107 (-2.207)	-0.0061 (-1.214)	-0.0100 (-1.946)
Latin American Countries	-0.0135 (-3.861)	-0.0124 (-2.621)	-0.0132 (-3.406)	-0.0128 (-2.646)
ratio of real government expenditure net of spending on defense and on education	-0.0947 (-3.350)	-0.1121 (-3.102)	-0.1005 (3.202)	-0.1133 (-3.115)
GDP in 1960	-0.0068 (-5.380)	-0.0085 (-3.563)	-0.0089 (-5.196)	-0.0088 (-3.521)
enrollment ratio for primary education (age bracket 6-11 years)	0.0251 (3.941)	0.0311 (3.522)	0.0210 (2.874)	0.0306 (3.435)
enrollment ratio for secondary education (age bracket 12-17 years)	0.0155 (1.360)	-0.0004 (-0.018)	0.0060 (0.451)	-0.0017 (-0.079)
number of assassinations per million population per year (1960-1985)	-0.0017 (-0.577)	-0.0018 (-0.473)	-0.0016 (-0.484)	-0.0018 (-0.457)
number of revolutions or coups per year (1960-1985)	-0.0184 (-2.712)	-0.0191 (-2.412)	-0.0137 (-1.749)	-0.0182 (-2.215)
Magnitude of the deviation of PPI60 from the sample mean	-0.0060 (-1.539)	-0.0072 (-1.613)	-0.0051 (-1.166)	-0.0070 (-1.567)
democracy index	-0.0001 (-0.255)	-0.0002 (-0.290)	-0.0077 (-1.961)	-0.0007 (-0.523)
\bar{R}^2	0.5393	0.5012	0.4943	0.4997
F	12.240	8.335	10.384	8.291
N	98	74	98	74

Source: Charles (1994)
T-Statistics in parentheses

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