33. Jahrestagung der Gesellschaft für Informatik an der Johann Wolfgang Goethe-Universität in Frankfurt am Main **29.9. –2.10. 2003**

Co-Evolution of Information Revolution and Spread of Democracy

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Abstract: This is a short summary of a recent survey [FR03] focusing on the observed evidence, that Internet connectivity is positively correlated with spread of democracy at high levels of significance. The results of multivariate correlation analysis and probabilities regression estimate models are based on the combined analysis of mid - 1991's, to 2001 data series of the Eurostat's and US Census Bureau, the World Bank, and OECD's statistical data service which track the growth of information technology and rating of freedom and democracy worldwide.

1 Conceptual and Methodological Problems of Measurement

The rapid social and economic diffusion of ICT since 1990 has been stimulated by rapid changes in computing power, applications, telecommunications, and networks, as well as concurrent reductions in the cost of technology and, in some cases, improvements in ease of use. This has led to profound changes in behaviour of citizens and transformation of traditional modes of power.

One major difficulty in analyzing the effect of ICT on society is the difficulty in obtaining reliable national and internationally comparable data. There is little reliable, accepted, long-term data on either the diffusion of ICT or its effects on society. The rate of technological change since the early 1980s has often outpaced our ability to define what we want to know and what data ought to be collected. Metrics are confounded by the changing nature of ICT as a concept and the interactive effects of so many social variables - including age, ethnicity, income, learning processes, individual attitudes, organizational structures, culture, and management styles [MA03]. In many cases, the effects of ICT depend largely on how it is used. Positive effects often depend on appropriate organizational structures and managerial style, as well as the adequacy of training and the attitudes of individuals using ICT.

Quantitative indicators of ICT diffusion are relatively abundant but not standardized. Much of the available data is in the form of quickly developed, easily obtained information rather than long-term studies. This lack of comparable data partly reflects the complexity and dynamism of ICT: The most interesting things to measure change rapidly. Indicators of the effects of ICT - as opposed to the use of ICT - on individuals,

institutions, and markets are especially difficult to establish. This difficulty inhibits our ability to draw any definitive conclusions about the impacts of ICT on society.

Internet access and usage can be analyzed at the interrelated levels of individual access or at a more aggregated national level. As background, one of the selected indicators documenting the status of the information infrastructure in our sample is the number of Hosts advertised in the DNS, Host Count per Jan 2003 - 171,638,297

2 Scope and Methodology

The survey looks specifically at interrelated statistical evidence of ICT in use, by examining the following questions from different perspectives: (1) Is democracy in the nations or nations emerging into democracy, positively correlated with internet connectivity? (2) Is there evidence that access to computers and communications technology influences opportunities to participate effectively in a range of economic, social, and civic activities? (3) To what extent can the emerging communication technological revolution, particularly the Internet, override the antidemocratic implications of the media marketplace and foster more democratic media and a more democratic political culture? (4) Will Internet revitalise the public sphere?

We expand our research in several ways. Specifically, we aimed to learn how evenly computer-based communications capabilities are distributed over the country's varied demographic constituencies and whether those groups exhibit similar trends in access to network services. First, we derived our main hypotheses from neo-institutional economics, which provides an integrated decision-based framework. Second, we were particularly interested in the role of key internet access policy variables. Third, we use a set of panel data, spanning ten observation periods and sixteen cross-sections with six predictor variable [1], to derive our parameter estimates focusing on meta datas of mid – 1991's, to 2001 data series [2] of the Eurostat's and US Census Bureau, the World Bank, OECD´s and the Freedom House statistical data service which track the growth of Information Technology and rating[3] of freedom and democracy in all of the world´s 192 governments - 63 percent are electoral democracies.

While some electoral democracies have poor human rights records, fragile, and incomplete democratic institutions, such democracies afford considerable space for political opposition movements, provide opposition parties and viewpoints access to the media, and meet the minimum standard of a relatively fair vote count in conditions of ballot secrecy.

In all, according to the annual survey, *Freedom in the World*, there are 86 Free countries in which basic political rights and civil liberties are recognized (representing 2.54 billion people and 41.40 percent of the global population). There are 58 Partly Free countries in which there is limited respect for political rights and civil liberties.

The survey hypothesises the argument that the overall influence of the Internet will be one that strengthens the core political institutions and middle-level actors within representative democracies in considering the widely assumed opinion that citizens in many countries have become disengaged from the conventional channels of political participation. This process, it is argued, is particularly important for newer democracies around the globe struggling with multiple problems of institutionalisation and consolidation in the transition process, and that concepts of electronic democracy must be understood as theories about political participation.

[1] Six predictor variables constitute the core of our study: income, education, race/ethnicity, age, sex, and location of residence.

[2] The CPS and Eurostat statistics are large-scale random sample surveys of households, conducted monthly and annually by the relevant Bureau's of the Census.

[3] Freedom House rates countries on a decreasing basis from 7 to 1 in both categories, civil liberties and political rights. A ranking of "1" indicates the highest relative accordance with the principles of democracy, and a ranking of "7," the lowest for normalized average use.

3 Empirical Findings

Two principal specifications have been used to estimate coefficients for the relationship between independent and dependent variables in pooled data sets for six regression models. The fixed effects model assumes that country-specific effects are present and that these can be captured in an intercept. The random effects model assumes that the parameter estimates are subject to random disturbances that are related to countries, time periods and the total sample. Theoretical considerations suggest that the latter model is more appropriate for our context. This approach not only increases the number of observations over traditional cross-sectional approaches but also allows us to capture the influence of changes in explanatory variables over time.

Using multivariate correlation analysis and probabilities regression estimate models, statistical findings show that in each of the six regression models, without exception, internet connectivity positively correlates with democracy at high levels of significance. There is a strong relationship between internet connectivity and democracy, supporting the notion of paradigm shifts in the contemporary framework of public governance [WI02] and constituency participation.

We note that population size is inversely correlated with democracy so that a smaller population is more likely to be democratic. We suggest that this may be because of greater cross-citizen communication and greater equality of information access is more likely in a smaller population. It is also more likely in highly interconnected population. This may explain the link between interconnectivity and democracy.

4 Summary

The multivariate probit estimates are of interest in their own right. They allow us to test whether net differences across socioeconomic groups are statistically significant.

We found interconnectivity a strong predictor of democracy, but that democracy is a weaker predictor of interconnectivity. As a result, a nation with high interconnectivity is very likely to be democratic, a democratic nation may or may not be highly interconnected. While this is still correlational and not causal, it does suggest that if one causes the other, it is interconnectivity that supports democracy.

The worldwide expansion of democracy may have less to do with how these technologies favour domestic democratic processes than with how they spread democratic ideals internationally. Information revolution technologies enable citizens of prospective democracies to learn more about how other societies operate. If they discover that others living elsewhere live better thanks to democratic governance, they are likely to seek democratisation. At the same time, information revolution technologies empower citizens anywhere to broadcast charges that their own governments have violated inalienable human rights. Thus, world pressure can be brought to bear against repressive regimes unable to hide their misdeeds as successfully as before. Governments that try to squelch the new information technologies to protect their monopoly on power do so essentially at the peril of economic growth.

The "take off" point for any new Internet application depends strongly on a critical mass of users having an Internet access with sufficient bandwidth. Internet and e-Governance are now two notions that are inevitably linked. The modern convergence of values, concepts and usage, supported by digital contents, has found its territory on Internet. It is fair to say that over the past few years, the Internet has developed a paradigm of economics and politics in itself. It tends to shape modern democracy.

Theoretical and empirical work in the area could be expanded in several directions. It would be desirable to further disaggregate demand and supply-side influences on Internet access. The models could be expanded to include variables reflecting embedded factors of social and cultural variables in a multivariate context.

The Author wishes to express his gratitude to Al Gore, John Dryzek, Peter Gerlich and Eva Kreisky, for very helpful comments and discussion.

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