EUROPEAN INTEGRATION: A MULTILEVEL PROCESS THAT REQUIRES A MULTILEVEL STATISTICAL ANALYSIS

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Abstract: *A process of market regulation and a system of multi-level governance and several supranational, national and subnational levels of decision making, European integration subscribes to being a multilevel phenomenon. The individual characteristics of citizens, as well as the environment where the integration process takes place, are important. To understand the European integration and its consequences it is important to develop and test multi-level theories that consider individual-level characteristics, as well as the overall context where individuals act and express their characteristics. A central argument of this paper is that support for European integration is influenced by factors operating at different levels. We review and present theories and related research on the use of multilevel analysis in the European area. This paper draws insights on various aspects and consequences of the European integration to take stock of what we know about how and why to use multilevel modeling.*

Introduction

The natural clustering of individuals in a society generates a mutual correlation between individuals of the same group, but also a correlation between individuals and groups or between individuals and society. Individuals can be clustered in terms of housing, neighborhoods, villages, cities, counties, regions, countries, in terms of political parties and political doctrines or associations according to the work environment, religious orientation or leisure interests. The social context influences individuals' opinions, actions and behavior leading to a connection between individual characteristics and features of the society or between individual characteristics and the characteristics of the group to which the individual belongs. Individuals interact with the social groups they belong to and are influenced by these social groups. Social groups are in turn influenced by individuals in group (Hox, 2010, p.1). Multilevel data analysis performs a simultaneous analysis of individual-level data and group data.

Multilevel analysis is common in sociological studies, education, psychological research and health; multilevel analysis can be found in demography, epidemiology, biology, environmental studies, entrepreneurship and other areas that work with grouped data. Many political science topics

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can be discussed with multilevel models. Multilevel theories assume that the variables measured at one level can influence another level's variables. The study unit in political science research can be defined in geographical terms (country, region, state), in terms of time (election periods) or from a social point of view (political or social groups). Multilevel data structures can be found especially in comparative analysis in political science (Jones *et al*., 1997).

Another area that uses multilevel models is European integration. European integration meant, over the past decades, a process of market regulation and a single policy—a system of multi-level governance that encompasses a variety of authoritative institutions at supranational, national and subnational levels of decision making (Trnski, 2004). Studies on European integration involve aggregated data and focus on transnational variations and trends of time regarding support for integration (Eichenberg *et al*., 1993). These studies imply individual data analysis, with a focus on factors that could influence individuals to support or not the European Union (Deflem *et al*., 1996; Janssen, 1991).

The multilevel method of analysis has gained popularity in biostatistics, ecology, political science and other disciplines over the past decades. A central argument of this paper is that support for European integration is determined by factors operating at different levels. We review the main theories and related research on the use of multilevel analysis in the area of European integration. Based on a systematic selection and analysis of articles, this paper outlines the emergence of the multilevel statistical analysis in the study of the European integration process. We put forward a general review and we draws insights on various aspects of European integration to take stock of what we know about how, where, and why multilevel statistical modeling is useful in this area.

3. Multilevel models used in analyzing the European integration process

Over the past couple of decades, multilevel modeling has become a very popular statistical analysis method which allows a coherent treatment of hierarchical data structures. According to Hox (2002), a multilevel problem is a hypothesis that concerns relationships between variables that are measured at different hierarchical levels. Contrary to the single-level models it has been shown that multilevel modeling provides statistically more accurate estimates. Hitt *et al*. (2007) emphasized the power of multilevel theories to address the complexities on context-dependent individual and organizational behaviors and called for multi-level research to address major real-world phenomena.

Multilevel modeling has been used in sociology, in educational research, in psychology and in health science. Other multilevel analyses can be cited from demography, epidemiology,

environmental studies and biology. European integration subscribes to being a multilevel phenomenon: the individual characteristics of citizens, as well as the environment where the integration process takes place, are important.

To understand the European integration and its consequences it is important to develop and test multi-level theories that consider individual-level characteristics, as well as the overall context where individuals act and express their characteristics. The potential of multi-level theoretical and empirical designs is that they provide for a more robust and generalized understanding of why and under which conditions some individuals and not others show support for and embrace European integration. Also, a better understanding of determinants of European integration is of great importance towards designing and implementing integration policies.

3.1. Main theories that underlie the process of European integration

Many articles have been written on European integration in the past several decades and a large amount of conferences, meetings, workshops and debates have been devoted to this topic. It seems that the potential of multilevel modeling has been realized in research on the European integration process.

What drives citizens to support or oppose European integration? The literature presents three main categories of explanation (Hooghe *et al*., 2005, p. 420): trade theory, social identity theory and cue theory.

According to the trade theory, discussed in much research on the European integration subject, citizens take the economic consequences of market integration into account, both for themselves and for their countries and act accordingly. The European Union is seen as a regime that facilitates economic exchange (Hooghe *et al*., 2005: 420). European integration led to trade liberalization and increased factor mobility for skilled workers (Anderson *et al*., 1996; Gabel 1998a, 1998b; Inglehart, 1970). The level of education influences mobility (Gabel, 1998b) and hence in the most capital-rich member states unskilled workers are expected to be Euro-skeptic and managers or professionals Euro-supportive (Hooghe *et al*., 2005, p. 421). The economic theory can be validated if the outcome is affected, otherwise attitudes may be sensitive to group identities (Chong, 2000; Elster, 1990; Sears *et al*., 1991; Young *et al*., 1991).

Group membership, especially country identity can influence the support for European integration. European integration reinforces multiculturalism. Individuals who strongly identify with their national community and who support exclusionary norms tend to perceive European integration

as a threat (Kriesi, Lachat, 2004); the anti-immigration sentiment is associated with Euro-skepticism (De Vreese *et al.*, 2005) and there also exist a 'fear, or hostility toward, other cultures' (McLaren, 2002, p. 553). Previous research shows that national identity and European identity can be both positively (Citrin and Sides, 2004; Klandermans *et al.*, 2003) or negatively related (Hooghe *et al.*, 2002; Taggart, 1998; Christin *et al.*, 2002). In recent years, citizenship has emerged as an important analytical tool for understanding interethnic group relations (Weldon, 2006, p. 333). Citizenship is said to bring "within its orbit three fundamental issues: how the boundaries of membership within a polity and between polities should be defined; how the benefits and burdens of membership should be allocated and how the identities of members should be comprehended and accommodated" (Aleinikoff *et al.*, 2001, p. 3).

European integration is associated with migration. The overall demographic trends and changes in the labor market in Western societies lead to the idea that European societies will become even more ethnically and culturally diverse in the near future (Castles *et al.*, 2003; Cornelius *et al.*, 2005; Hooghe *et al.*, 2008). Migration can be identified as labor migration, migration from former colonies, asylum seekers. Different forms of migration and different cultural and economic backgrounds of immigrants might trigger specific aspects of cultural or economic threat among the original inhabitants of a country (Citrin *et al.*, 1997). The different foms of migration and increasing ethnic diversity might hence threaten social cohesion and might differentially influence generalized trust (Campbell, 2007; Cheong *et al.*, 2007; Glazer, 1997; Putnam, 2007; Schildkraut, 2007). The hypothesis in Hooghe et all's research (2005) is that the population of the host society will be less trusting when it faces a rapid rise in the immigrant population over time and when the perceived cultural and religious distance or economic differences between immigrants and the majority group are larger.

Cue theory draws on cognitive and social psychology by inferring that public attitudes are guided by domestic ideology and domestic political organizations. Further, their attitudes are cued by their ideological placement and by elites and political parties (Hooghe, Marks, 2005, p. 436). As national political parties are wrapped up in the multi-level governance of the EU, Hooghe et al. (2005, p. 425) hypothesize that domestic politics may shape public views on European integration. To measure support for European integration Hooghe et al. (2005) use multi-level analysis to investigate variation at the individual, party, and country level. They assume that political parties and countries interact with individual attributes to produce political effects towards support for European integration. Individuals are clustered in parties and countries and hence they should not be regarded as independent units of analysis.

Previous analyses show that the effect of political ideology (placement left or right) on EU support is weak (Wessels, 1995; Deflem et al., 1996). One explanation could be that the European Union integration is not an ideological process, but another explanation could be the contextual variation of the influence of the political ideology (Jones *et al.*, 1997). More specifically, it is possible that the political ideology only has an important role in some countries, as it is possible that the effect may be positive or negative, depending on the country. Multilevel models can test whether the variance of the ideology is statistically significant; if so, it can be concluded that there is contextual variation and we can analyze the country level factors that can cause this variation.

4. Individual factors and contextual factors influencing European integration

European integration is related to citizens, their reaction and the economic, social and political environment they find themselves at that point. An analysis on European integration should consider hence individual level variables - demographic characteristics, psychological dispositions, and political orientations, but also country-level factors - the state of the economy, the role of the political actors play towards support for integration.

European integration is strongly related to the migration phenomenon and hence to diversity. Diversity is a contextual phenomenon that individuals experience in their environment and hence it should be measured at the aggregate level. Survey analyses on the impact of diversity should be based on multilevel modeling techniques, including both individual and community characteristics (Hooghe *et al.*, 2008, p. 199), to account for lower variance at the individual level and changed standard errors in multilevel data (Hox, 2002; Snijders and Bosker, 1999). Hooghe *et al.* (2005) complement the research related to the study of ethnic diversity and generalized trust with a comparative cross-national test. They highlight the importance of multilevel methods of analysis in this kind of research.

The factors affecting citizens' decision to support European integration can be roughly classified into individual factors, social factors and norms, macroeconomic factors and political factors. Individual characteristics are demographic characteristics (gender, age, marital status, family background), wealth, income, current working status, individual human capital (education, working experience) and personal psychological traits. Contextual factors relate to the national identity, domestic ideology towards diversity and migration and domestic political organizations. All these factors affect support towards European integration at different levels and hence make it a complex phenomenon that cannot be understood at a single level of analysis.

4.1. The general multilevel model

The data for a European integration analysis occurs at two levels—the individual level and the country level. Ignoring the multilevel structure of the data is problematic, as it may substantially underestimate the standard errors and overestimate the coefficients of the country-level variables; country-level variables may result as significant when in fact they are not. The solution turns to applying hierarchical linear modeling. This technique allows for a single, comprehensive model that models the independent effects of both individual and country level variables, while also testing for interaction effects between the two levels. Multilevel models capture the true structure of the data and gives country-level coefficients that are more precise than conventional approaches (such as the OLS approach) (Steenbergen *et al.*, 2002).

As individuals are clustered in parties and countries, they should not be regarded as independent units of analysis. To introduce the multilevel model that can be applied in European integration studies, we assume the study applied to N persons $(i = 1, \ldots, N_j)$ in J countries $(j = 1, \ldots, J)$. At the individual level, the dependent variable measures individual support for European integration (Y_{ij}) and a number of explanatory variables (X_{ij}). At the country level we have a series of variables (W_j) such as the national economic context, multiculturalism, political parties.

A separate regression equation can be set up for each country to predict the dependent variable Y_{ij} by using the explanatory variable X_{ij} - an individual-level explanatory variable:

Level 1: $Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + e_{ij}$ (1)

where β_{0j} is the usual intercept,

β_{1j} the regression coefficient associated with the predictor X_{ij},

e_{ij} is the usual residual error term.

According to the subscript j (for the countries) the intercept β_{0j} and eventually the slope coefficients β_{1j}'s are permitted to vary across the macro units (the EU countries). The aim of multilevel modeling is to predict the variation of the coefficients by introducing explanatory variables at the country level W_j).

The intercepts β_{0j}'s vary across countries as a function of a grand mean (β_{00}) and a random term u_{0j}. If β_{1j}'s do not to vary across countries they are a function of fixed parameters (β_{10}), as shown in equation (2) and (3):

Level 2: $\beta_{0j} = \beta_{00} + \beta_{01}W_j + u_{0j}$ (2)

$\beta_{1j} = \beta_{10}$ (3)

where $\beta_{00}, \beta_{01}, \beta_{10}$ are the fixed parameters,

W_j is the explanatory variable ar the country level,

u_{0j} is the level 2 error term.

If we substitute the Level 2 equations in (1) we get the consolidated general form of a random-intercept model (Bryk and Raudenbush, 1992).

$$Y_{ij} = \beta_{00} + \beta_{01}W_j + \beta_{10}X_{ij} + u_{oj} + e_{ij} \quad (4)$$

If both the intercepts β_{0j}'s and the coefficients β_{1j}'s vary across countries as a function of a fixed parameters and random terms, we have the following Level 2 equations (2), (5). This variation across groups means that the intercept and slopes are different in different contexts.

Level 2: $\beta_{0j} = \beta_{00} + \beta_{01}W_j + u_{oj}$ (2)

$\beta_{1j} = \beta_{10} + \beta_{11}W_j + u_{1j}$ (5)

If we substitute the Level 2 equations (2) and (5) in (1) we get the consolidated general form of a random intercept and random slope model, as shown in (6)

$$Y_{ij} = \beta_{00} + \beta_{01}W_j + \beta_{10}X_{ij} + \beta_{11}W_jX_{ij} + u_{oj} + u_{1j}X_{ij} + e_{ij} \quad (6)$$

Individual characteristics can be variables such as gender, age, education, occupation, income, political ideology (self-placement on Left-Right scale), while the level 2 variables can be indices that evaluate the national economy, or the EU support among political parties, national identity, perceived cultural threat (related to diversity).

The findings at the individual level show if and how individual level variables might influence support for European integration. Hooghe *et al.* (2005, p. 421) show that 'in the most capital-rich member states we expect unskilled workers to be Euro-skeptic and managers or professionals to be Euro-supportive, whereas in labor-rich member states we expect the reverse'. They also assert that European integration creates 'economic losers and winners' and also leads to a 'sharp sense of identity loss among defenders of the nation (national attachment) and among anti-cosmopolitans (multiculturalism)' (Hooghe *et al.*, 2005, p. 423). Research shows that national attachment combined with national pride significantly negatively affects support for European integration (Carey, 2002). There also exists a strong negative association between national identity and support for EU immigration policy (Luedtke, 2005). Research also talks about how individuals who say they support a particular political party will tend to follow that party's position on European integration (Steenbergen *et al.*, 2002).

Conclusions

The existence of data hierarchies is neither accidental nor can it be ignored (Goldstein, 2003). The difference between individuals is reflected in all social activities, activities that are often a direct result of these differences. Grouping individuals, therefore, will have some effect and ignoring group effects can invalidate many traditional methods of study of relations between data. Data hierarchies can be recognized everywhere as many types of data have a hierarchical or clustered structure. Unlike traditional statistical models, multilevel models are used to capture the dependence of observations within groups or to analyze the impact of higher levels characteristics on the response variable. These models can also estimate the interaction between levels, which leads to a joint effect of an individual variable level and a higher level variables on the response variable.

Many social and economic phenomena concern a hierarchical structure, where individual entities tend to be related at different levels of the analysis. Social scientists have long recognized a need to integrate analysis of individual behavior and the social, technological and other environments within which that behavior occurs (Srholec, 2007). An analysis of the literature on European integration reveals it to be a research area in constant evolution. A complex process that involves different types of actors (individuals, groups of individuals, political parties), European integration needs to be analyzed through the use of multilevel models. European integration data clearly involves regional, within country or international interaction of individuals and hence the spectrum of factors that affect or determine support for European integration is quite vast. It is clear that our understanding of European integration has increased considerably since the use of hierarchical modeling. The empirical work on this theme takes into account social, institutional and political contexts as both enablers of and constraints on citizens' support for European integration. A multilevel analysis on European integration aims at examining how certain factors in national social/institutional contexts combine with a series of individual characteristics to influence support for European integration in the EU countries. Policy makers should understand and utilize the multilevel perspective if they are to understand the process of European integration.

Researchers have started to capture the process of European integration as a multi-layered phenomenon. The interdependence among different levels of analysis needs to be explored further so as to design more complex and comprehensive European integration models and policies. Still many directions for future work remain open.

References

Aleinikoff, T. A. and Klusmeyer, D. (2001), *Citizenship Today: Global Perspectives and Practices,* Carnegie Endowment for International Peace.

Anderson, C. J. and Reichert, M. S. (1996), "Economic Benefits and Support for Membership in the E.U.: A Cross-National Analysis", *Journal of Public Policy*, Vol. 15, Issue 3, pp. 231–49.

Bryk, A. S. and Raudenbush, S. W. (1992), *Hierarchical Linear Models*, Sage, Beverly Hills, CA.

Campbell, D. (2007), "Sticking together. Classroom diversity and civic education", *American Politics Research*, Vol. 35, Issue 1, pp. 57-78.

Castles, S. and Miller, M. (2003), *The age of migration*, Palgrave, Basingstoke, UK.

Carey, S. (2002), "Undivided Loyalties: Is National Identity an Obstacle to European Integration?', *European Union Politics,* Vol. 3, Issue 4, pp. 387–413.

Cheong, P., Edwards, R., Gouldbourne, H. and Solomos, J. (2007), "Immigration, social cohesion and social capital: A critical review", *Critical Social Policy*, Vol. 27, Issue 1, pp. 24-49.

Chong, D. (2000), *Rational Lives: Norms and Values in Politics and Society*, University of Chicago Press, Chicago.

Christin, T. and Trechsel, A. (2002), "Joining the EU? Explaining Public Opinion in Switzerland", *European Union Politics*, Vol. 3, Issue 4, pp. 415–43.

Citrin, J., Green, D., Muste, C. and Wong, C. (1997), "Public opinion toward immigration reform. The role of economic motivations", *Journal of Politics*, Vol. 59, pp. 858-881.

Citrin, J. and Sides J. (2004), "Can There Be Europe without Europeans? Problems of Identity in a Multinational Community", in: Herrmann, R., Brewer, M. and Risse, T. (eds) *Transnational Identities: Becoming European in the EU*, Rowman and Littlefield, Lanham, MD, pp. 161–85.

Cornelius,W. and Rosenblum, M. (2005), "Immigration and politics", *Annual Review of Political Science*, Vol. 8, pp. 99-119.

De Vreese, C. and Boomgaarden, H. (2005), "Projecting EU Referendums: Fear of Immigration and Support for European Integration", *European Union Politics*, Vol. 6, Issue 1, pp. 59–82.

Deflem, M. and Pampel, F.C. (1996), "The Myth of Postnational Identity: Popular Support for European Unification", *Social Forces*, Vol. 75, pp. 119-143.

Eichnberg, R. and Dalton, R. (1993), "Europeans and the European Community: The Dynamics of Public Support for European Integration", *International Organization*, Vol. 47, pp. 507–34.

Elste, J. (1990), "When Rationality Fails'', in: Schweers Cook, K. and Levi, M. (eds) *The Limits of Rationality,* University of Chicago Press Chicago, pp. 19–51.

Gabe, M. (1998a), "Public Support for European Integration: An Empirical Test of Five Theories", *Journal of Politics*, Vol. 60, pp. 333–54.

Gabe, M. (1998b), *Interests and Integration: Market Liberalization, Public Opinion, and European Union,* Ann Arbor: University of Michigan Press.

Glazer, N. (1997), *We are all multiculturalists now*, Cambridge,,Harvard University Press, MA.

Hanseter, K. and Lachat, R. (2004), "Globalization and the Transformation of the National Political Space: Switzerland and France Compared", paper prepared for a *Workshop on the Analysis of Political Cleavages and Party Competition*, Duke University, 16–17 April.

Hitt, M. A., Beamish, P. W., Jackson, S. E. and Mathieu, J. E. (2007), "Building theoretical and empirical bridges across levels: Multilevel research in management", *Academy of Management Journal,* Vol. 50, pp. 1385-1399.

Hoohe, L., Marks, G. and Wilson, C. (2002), "Does Left/Right Structure Party Positions on European Integration?", Comparative Political Studies, Vol. 35, pp. 965–89.

Hooge, L. and Marks, G. (2005), "Calculation, Community and Cues Public Opinion on European Integration", *European Union Politics*, Vol. 6, Issue 4, Copyright© 2005 SAGE Publications London, Thousand Oaks CA, New Delhi, pp. 419–443.

Hooghe, M., Trappers, A., Meuleman, B. and Reeskens, T. (2008), "Migration to European countries. A structural explanation of patterns, 1980-2004", *International Migration Review,* Vol. 42, pp. 476-504.

Hox,J. J. (2002), *Multilevel analysis: techniques and applications*, Lawrence Erlbaum Associates, Mahwah, NJ.

Hox, J. (2010), *Multilevel Analysis Techniques and Applications*, 2nd edition, Routledge, New York

Inglehart, R. (1970), "Cognitive Mobilization and European Identity", *Comparative Politics*, Vol. 3, pp. 45–70.

Janssen, J.I.H. (1991), "Postmaterialism, Cognitive Mobilization and Public Support for European Integration." *British Journal of Political Science*, Vol. 21, pp. 443-468.

Jones, B. S. and Steenbergen, M. R., (1997), "Modeling multilevel data structures", *14th annual meeting of the Political Methodology Society*, Columbus, OH.

Klandermans, B., Sabucedo, J.M. and Rodriguez, M. (2003), "Inclusiveness of Identification among Farmers in the Netherlands and Galicia", *European Journal of Social Psychology*, Vol. 34, pp. 279–95.

Luedtke, A. (2005), "European Integration, Public Opinion, and Immigration Policy: Testing the Impact of National Identity", *European Union Politics*, Vol. 6, Issue 1, pp. 83–112.

McLaren, L.(2002), "Public Support for the European Union: Cost/Benefit Analysis or Perceived Cultural Threat?", *Journal of Politics*, Vol. 64, Issue 12, pp. 551–66.

Putnam, R. (2007), "E pluribus unum. Diversity and community in the twenty-first century", *Scandinavian Political Studies*, Vol. 30, pp. 137-174.

Schildkraut, D. (2007), "Defining American identity in the twenty-first century. How much "there" is there?", *Journal of Politics*, Vol. 69, pp. 597-615.

Sears, D. O. and Funk, C. (1991), "The Role of Self-Interest in Social and Political Attitudes", *Advances in Experimental Social Psychology*, Vol. 24, pp. 1–91.

Snijders, T. and Bosker, R. (1999), *Multilevel analysis: An introduction to basic and advanced multilevel modelling*, Sage, London.

Srholec, M. (2007), "A multilevel analysis of innovation in developing countries", *Centre for Advanced Studies (CAS) workshop on "Innovation in firms"*.

Steenbergen, M. and Jones, B.S. (2002), "Modeling Multilevel Data Structures", *American Journal of Political Science*, Vol. 46, pp. 218–37.

Taggart, P. (1998), "A Touchstone of Dissent: Euroscepticism in Contemporary Western European Party Systems", *European Journal of Political Research*, Vol. 33, pp. 363–88.

Trnski, M. (2004), "Multi-level governance in the EU", available at http://www.sustainableislands.eu/BlockImages/InLibraryData/GalleryData/MULTI-LEVEL%20GOVERNANCE%20IN%20THE%20EU%20by%20Marko%20Trnski.pdf (accessed 17 August 2015)

Weldon, S. A. (2006), "The Institutional Context of Tolerance for Ethnic Minorities: A Comparative, Multilevel Analysis of Western Europe", *American Journal of Political Science*, Vol. 50, Issue 2, April 2006, pp. 331–349.

Wessels, B. (1995), "Support for Integration: Élite or Mass-Driven?" In *Public Opinion and Internationalized Governance*, ed. Oskar Niedermayer and Richard Sinnott, Oxford, UK: Oxford University Press.

Young, J., Thomsen, C. J., Borgida, E., Sullivan, J.L. and Aldrich, J.H. (1991), "When Self-Interest Makes a Difference: The Role of Construct Accessibility in Political Reasoning", *Journal of Experimental Social Psychology*, Vol. 27, pp. 271–96.