

**Regional identity and resource policy effectiveness:  
Sustainable mountain development in the Swiss  
Alps and California's Sierra Nevada**

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The aim of this paper is to examine the influence of policy on identity as a key dimension of policy effectiveness. It pursues this aim through the development of a technique for comparing the impact of mountain policies in Switzerland and California on changes in regional identity. In recent years, natural resource management policies have increasingly become embedded in more comprehensive sustainable development strategies (OECD 2006; EU 2001). As the scope of policies has expanded, social and economic considerations have assumed a more explicit importance. Notwithstanding lingering criticism, the notion that environmental sustainability has to go hand in hand with social and economic sustainability has become a widely held norm, while implementation has proceeded at different geographic scales and involved a growing diversity of institutions, processes, and practices (Meadowcroft 1999; Mebratu 1998). With the accumulation of experience, sustainability has come to be considered “neither a vision nor an unalterable state but a local and creative process of searching for balance” (Uzzell *et al* 2002).

The incorporation of sectoral goals into the larger project of sustainable development has expanded the set of criteria to be used for assessing policy effectiveness. Not long ago, for instance, forest policies were mainly formulated and evaluated on the basis of growth rates, harvest volume, and replanting targets. Today, forest policy making is typically, though

far from universally, integrated into a complex web of ecosystem dynamics, land use mosaics, and society-environment relations. A similar trend has affected virtually all natural resource management sectors. Cross-sectoral integration and growing attention to socioeconomic sustainability has in turn created renewed interest in place-based approaches, including watershed and river basin management, Local Agenda 21 initiatives, and decentralized regional development more generally (Lafferty & Eckerberg 1998; O’Riordan & Voisy 1998; Selman 1996; Zuideau 2006). A common element in place-based approaches is the goal of increasing participation in order to mobilize local knowledge, enhance legitimacy and accountability, transfer ownership, and build social capital (CITES). Correspondingly, international efforts to develop criteria and indicators for, and evaluate progress towards sustainable development have included various ways of measuring participation, political processes, and institutional sustainability (GRI 2000; SCOPE 1997; UN-CSD 2001; WEC 2001).

One aspect emerging from a place-based logic that has received relatively little attention in these endeavors, however, is the meaning of place itself and the extent to which social actors identify with their environment and thereby develop a stake in its future. Stedman (2002:561) has argued that the same neglect applies to the scholarly literature, where “sense of place, or the meanings and attachment to a setting held by an individual or group, is increasingly garnering attention in popular and academic writings, yet there have been few attempts to build systemic theory, and there remains a lack of agreement on the meanings of core concepts.” The international and comparative environmental politics literature, within which this paper generally seeks to locate itself, has increasingly emphasized policy effectiveness alongside policy negotiation and design, yet analyses have largely considered single issue areas and ignored the concept of place-based identity. For this reason, additional inspi-

ration is drawn from geographers, anthropologists, environmental psychologists, and regional development scholars.

The lacuna is addressed here by examining the relationship between sustainable mountain development policies and regional identity and proposing a social network analysis based technique for assessing the connections. How does regional identity matter for natural resource policy effectiveness? First, natural resources are fundamentally bounded by space. Resources such as air, water, and wildlife may be highly mobile, yet they manifest in specific places that appear in a negative light if resource sustainability is undermined. Resource sustainability is thus linked to the image of a region, however defined, and the way regional constituents identify themselves (Uzzell *et al* 2002). Second, regional identity is an expression of social-institutional capital, which is recognized as an important ingredient in policy effectiveness (Sabatier *et al* 2005). Where individual and collective actors develop a spatially delineated stake, efforts to maintain the integrity of ‘their’ place are more likely to be successful. To be sure, strong regional identities may also be a source of political opposition, especially against the establishment of protected areas (Bonaiuto *et al* 2002; Carrus & Bonnes 1999; Stoll-Kleeman 2001). Such observations, however, usually imply the failure of specific strategies to address the nexus to local livelihoods rather than demonstrate *a priori* local opposition to environmental conservation.

Third, in the context of growing competition for resources among regions, regional identity offers a venue for expressing distinctiveness that may attract visitors, skilled workers, and investment. This is particularly evident in the recent wave of “branding” regional products through labeling and certification schemes. Finally, as I will elaborate below, a view of regional identity as a social process rather than a static attribute provides important entry points for creative policy intervention. Regions come to life, gain distinctiveness, and are appreciated through social processes of engagement with place-specific issues or dimensions of

issues. Where social processes are undermined, “placemaking” diminishes and the natural and cultural environment deteriorates (Buttimer 1980; Klapp 1969; Relph 1976; Tuan 1977). In this sense, as many observers have noted, regional identity bears a ‘family resemblance’ to such popular keywords as ‘social capital’ or ‘learning region,’ which refer to the patterns of social relations, trust and solidarity that are understood as providing regions with certain institutional capacities or ‘institutional thickness’ (MacLeod 1998; Keating 2001). Paasi (2001) even suggests that “it is helpful to think analytically that ‘identity’ is part of the institutionalization of regions, the process through which regions come into being.” For these reasons, regional identity is intimately linked with sustainability and needs to be taken into account in assessments of policy effectiveness.

Yet the importance of regional identity is matched by the difficulties in assessing it. Scholarly approaches in a variety of disciplines have considered the concept under different names and largely in isolation of each other. Indeed, one of the only implicit agreements appears to center on the multidimensionality of the concept. Correspondingly, empirical work has typically involved ethnographic observations or large-scale surveys (Hidalgo & Hernández 2001; Paasi 2001; Shamai & Ilatov 2004; Stedman 2002).

In this paper, I develop an alternative method to assess one important dimension of regional identity and demonstrate its application in the case of two mountain regions that have been the object of policies at different times during the last 50 years. The dimension I consider is regional solidarity expressed through political practices. The method to assess it builds on a view of regions as socially constructed places that depend for their existence on ‘placemaking’ practices. It follows Paasi and other geographers, who define regions as “historically contingent structures whose institutionalization is based on their territorial, symbolic and institutional shaping” (Paasi 2001:137; Murphy 1991). Using the Swiss Alps and the Sierra Nevada as case studies, I demonstrate how changing policy approaches to these mountain

ranges became manifested in joint support of, or opposition to, policy issues among constituent political units – cantons in Switzerland, counties in California. In order to show this, I use social network analysis techniques to analyze ballot outcomes. The analysis not only reveals that regional political solidarity rises and falls in parallel to the development and dissipation of mountain policies, but also that changes in solidarity are most pronounced on those sustainable development dimensions which constitute the main orientation of the respective mountain policies.

The paper proceeds as follows. The next section provides a brief review the literature on regional identity and develops a relational approach to the concept. The following section introduces the two cases and traces the key trends in mountain policy development. An overview of the data and methodology is followed by the presentation and discussion of the results of the analysis. In the conclusion I return to the importance of regional identity for natural resource policy effectiveness.

### **Perspectives on regional identity**

The concept of place-based identity has been subject to investigation by scholars from a variety of disciplines. Traditionally analyzed within the confines of geography, regional identity has recently attracted attention among political scientists, sociologists, historians, anthropologists, and environmental psychologists (Paasi 2003). Due to the fact that a sense of belonging to physical location can manifest at different geographic scales from the very local to the global, as well as entail diverse cognitive and behavioral implications for individual and collective actors, various theoretical emphases and methodological approaches have developed in largely separate literatures. The aim in this section is to selectively review a number of key themes and propose a perspective that helps achieve the empirical goal.

Whereas the state has historically been the main locus for region and identity building, the rapidly growing mobility of capital, labor, and technology has given rise to a new wave of regionalism and hence growing interest in regional identity (Keating 1998; Paasi 2003). Moreover, geographic attachment is only one element in social identity formation, which has historically drawn on other factors such as gender, class, religion, or ethnicity. These sources of identity co-exist and their activation is contextually dependent. Regional identity implies the delineation of spaces and draws attention to boundaries. According to Hall (1996), identity and boundaries are different sides of the same coin. Yuval-Davis (1997) has suggested that “borders and boundaries, identities and difference construct and determine to a large extent the space of agency and the mode of participation in which we act as citizens in the multilayered polities to which we belong.”

Regions are not fixed entities but historically contingent constructions that come to life in the context of social interaction. This may at first glance be a problematic proposition, especially in the context of natural resource management. However, although forests, coastal estuaries, or mountain ranges appear as undeniable physical realities, their delineation *for the purpose of policy making* evolves around numerous decisions and categorizations that are socially contested rather than biophysically given. For instance, non-forested lands are frequently included in legally defined forest domains, or densely populated mountain valleys may well be counted as part of a mountain range. The point to note is that while regions may be defined according to various criteria, even the most taken-for-granted are the result of social interaction. The interaction between place and social process, implies that regional identity “can be conceived as being both a place-related identity and a social identity” (Bonaiuto et al. 2002; Ros, Huici & Gomez 2000; Simon, Kulla & Zobel 1995). As the empirical part of this paper will show, the Swiss Alps and California’s Sierra Nevada are no exception to the juxtaposition of the natural, cognitive, and social.

An emphasis on the constructed nature of regions and the processes through which they obtain meaning responds to two frequent criticisms of the concept of regional identity. The first is the essentialist trap of personifying regions to the extent that important internal conflicts and processes of marginalization become hidden (Paasi 2001). Foregrounding the social processes involved in defining the region and regional identity therefore helps identify such conflicts. The second criticism concerns the link between individual and social identity, which often remains unspecified (Paasi 2001; Auburn & Barnes 2006). Here, too, attention to the processes in which social actors collectively engage provides insights into the emergent intersubjectivity of regional identity.

Regional identity can thus be seen as an important factor in the creation of regions as ecologically and socio-politically meaningful entities. The very processes of talking about regions and identities, “in which actors invest their interests and presuppositions in things, may actually create the ‘reality’ that they are describing or suggesting” Paasi (2001:139). Paasi suggests, with special reference to the European Union, that “governmental practices and discourses on regions have increased enormously along with the number of region and identity ‘builders’: actors who operate with regions, write and talk about them and draw representations of them, such as maps. A region and regional identity are social facts that can generate action as long as people believe in them. They are social facts even if people do not actively think about them, as they have a role in media and publicity ‘spaces’ or in governance.”

Students of regionalism and regional development have long noted the importance of regional identity. Markusen, for instance, has argued that “[f]or the antagonisms embedded in economic disparities to flower into distinctive regional politics, they must take on an organizational form and adopt a political target, [and they] must be able to mobilize, even create if necessary, an ideology of place” (Markusen 1987:32). Keating (1998:86) lists three key elements that are necessary to link regional identity to political action: a cognitive element that

entails basic awareness of the region and its boundaries; an affective element grounded in how people feel about the region and the degree to which it gives rise to regional identity; and an instrumental element that considers the region as a basis for political and social mobilization.

Paasi (1986) further develops the idea of political mobilization through a distinction between the *identity of a region* and *regional identity* (or regional consciousness). The former refers to “those features of nature, culture and inhabitants that distinguish or, in fact, can be *used* in the discourses of science, politics, cultural activism or economics to distinguish a region from others,” i.e. discourses that occur in the “construction of regional divisions, regional marketing, governance and political regionalization.” The regional identity of the inhabitants is their identification with their region, a hierarchical phenomenon in that regional identities are nested and can be based on “natural or cultural elements that have been classified, often stereotypically, by regional activists, institutions or organisations as constituents of the identity of the region.”

More specific to the context of environmental issues, Press has argued in his examination of California trends in environmental regionalism that “what is attractive to local groups about the ways state and federal land managers have used the terms “bioregion” and “bioregional” is the legitimation and identification of their area as a region, in cultural and political terms. It may be that the first step toward autonomy, local control, or authority consists in securing recognition as a bioregional entity” (Press 1995:302). The link between recognition and autonomy is also noted in Callahan’s description of regional planning in Connecticut: “The second step [toward bioregional planning] is to promote psychological identification with bioregions. Planners and the public must consciously think in bioregional terms. Once individuals start identifying and appreciating the economic, cultural, and environmental resources in their area, bioregional planning will be more widely accepted and implemented.

Planners must take the lead in framing the dialogue in a regional perspective” (Callahan 1993:7, cited in Press 1995:303.). Future researchers and planners seeking to translate regionalist goals into practice, Press argues, “ought to focus on how political support for environmental goals can extend to regional structures” (Press 1995:303).

Whereas the examples just noted imply that regional identity is associated with positive attitudes towards nature conservation and sustainable development, not all evidence supports this directionality. Stoll-Kleeman (2001), for instance, has demonstrated that social identity producing group processes are among the main factors that lead to opposition to protected areas in Germany. Bonaiuto et al (2002) and Carrus and Bonnes (1999) found a similar pattern in Italy. Such opposition, these authors argue, stems from the emergence of ingroup-outgroup processes that create divisions between local communities and protected area promoters, including conservation organizations and governmental authorities. On the other hand, Carrus et al (2005), Stedman (2002) and others have found that place-based identity has a positive influence on nature conservation. Uzzell et al (2002:28) have noted that “socially cohesive communities that have a strong sense of social and place identity will be more supportive of environmentally sustainable attitudes and behaviors compared with those communities in which cohesiveness and social and place identities are weaker.”

### **Regional identity and regional political solidarity**

Based on the preceding review, the dimensions of regional identity most salient to analyzing its link to natural resource policy effectiveness are those that relate to political mobilization. Since regions are historically contingent constructs that arise from social interaction they can ‘appear’ or ‘vanish’ depending on prevailing political, social, and cultural developments. In this paper, I use a definition of regional identity that draws attention to one particular type of mobilization. I define regional identity as *the propensity of actors to use the*

*region as a refractive lens through which to judge the merit of policy issues* and propose to investigate mobilization through *political expression at the ballot box*. On the one hand, the process-based definition of regional identity emphasizes the continuous reproduction of regional political salience, as regions are enacted through iterative reflection on the spatial implications of policy debates. On the other hand, confining the analysis to voting as a mobilization of political expression draws attention to one of the more visible, celebrated, and influential types of political participation in democratic systems. Combined with the social network approach outlined below, the dynamics of regional identity formation and dissipation become embedded in the collective expression of regional political solidarity.

Since natural resource management issues are rarely decided directly at the ballot box, the question what voting on other issues can tell us about the link between regional identity and resource policy effectiveness needs elaboration. To begin with, in spite of technological innovation and the high mobility of factors of production, virtually all policies have a spatial dimension that influences the cost of goods and services in relation to where they are produced, distributed, and consumed. Transportation policies and their cost repercussions, for instance, have a greater impact on sparsely populated regions where people and goods have further to move. Similarly, education and health policies define ease of access to critical services in different parts of the country. Even the most innocuous policies can be found to have a spatial dimension, and that dimension is typically exploited by organizational representatives of geographically concentrated stakeholders.

A second reason why ballot measures on issues other than natural resource management are relevant stems from the larger political context within which they are analyzed here. Tracing the voting patterns of an individual subnational unit, such as a canton in Switzerland or a county in California, would by itself reveal very little about that unit's regional identity or political solidarity. Examined in conjunction with the decisions taken by other cantons and

counties, however, shows the extent to which these voters tend to express the same political position *over time*. If regional identity were strong, we should expect voters from different administrative units of a given region to take the same position as they assess the policy issue at hand in part as a function of the consequences for their region. Furthermore, regional political solidarity should be especially pronounced when compared to other regions. If regional policies change over time, regional political solidarity should wax and wane as a result. While it is important to recall that the region is not the only source of identity that informs choice at the ballot box, I argue that it is an important one that can be assessed empirically.

Finally, looking at a large number of policy issues, rather than focusing on particular types of issues provides two additional advantages. In light of the shift from sectoral approaches to comprehensive sustainable development strategies, analyzing the entire range of policy issues decided at the ballot box sheds light on the relative salience of environmental, economic, social and institutional issues. The other advantage is that examining a large number of policy issues over a long period of time attenuates the tendency of short term fluctuations to influence the observed patterns of regional political solidarity. In their exhaustive study of two U.S. policy domains, Knoke and Lauman have pointed out that patterns of collaboration are much more fluid than popular accounts such as jobs-versus-the-environment suggest. In his study of mountain policy in Switzerland, Lendi (1999:103) has found that “even though numerous politicians and specialized organizations act as representatives of mountainous regions, they don’t do this on behalf of these regions as constituents of the state, but in support of or opposition to specific issues. They also don’t represent a specific party, but a certain section of the population.” What matters therefore is the *pattern of agreement over a period of time*, accepting the fact that unexpected coalitions may occur.

The technique I propose to assess regional identity as expressed through political solidarity at the ballot box builds on conceptual and methodological insights from social network

analysis, which characterizes social action as a function of the structural environment in which it is embedded. In other words, I analyze regional identity on the basis of how political expression of subregional constituents is embedded in the larger decision context of the region, the country (in the case of Switzerland), and the state (in the case of California). Social network analysis thus offers both a theoretical lens for analyzing regional identity as an emergent property and a set of tools to describe changes in patterns of interaction.

Two general types of social network analysis can be distinguished. The first type examines direct relations between individual or groups, such as kinship, friendship, or business affiliation. The second type, which I draw on in this paper, focuses on ties between actors on the basis of their common relationship to “events.” Events can include actual joint participation in events such as social gatherings or professional conferences, or co-membership in organizations or coalitions. This type of social network analysis focuses on positions, social roles, or social categories and is referred to as ‘affiliation networks’ (Wasserman & Faust 1994). Because actors and events are interpreted as two distinct “modes” of the network relation, affiliation networks are also referred to as two-mode networks. Inspired by the work of German sociologist Georg Simmel and formalized in social network analysis by Ronald Breiger and others, the core idea of affiliation networks is that actors who participate in the same events, knowingly or not, share commonalities (positions, roles, categories) that can serve as a basis for collaboration or as a conduit for information (Levine 1971, Breiger 1974). From opposite perspective, events are similar if they tend to attract the same participants.

The approach I propose here uses affiliation networks in a new way. The affiliation network consists of subnational units (cantons in Switzerland, counties in California) on the one hand and what I call “decision events” on the other. In analogy to the traditional affiliation network analysis, my argument is that groups of cantons and counties with similar patterns of positions on ballot measures tend to have more in common than groups with dis-

similar patterns. At the same time, groups of cantons or counties whose patterns of agreement grow stronger or weaker over time can be considered to gain or lose in similarity. When cantons of counties are grouped along regional lines, similarity in patterns of agreement/opposition emerges as an indicator for regional identity.

The link between regional identity and natural resource policy effectiveness is thus established through the mechanism of interest aggregation in the form of voting. Since voting is a personal, even anonymous practice, it remains to be shown that there also exists a link between voting behavior and the environment of political debate and placemaking in which voting takes place. First, citizens generally form their opinions on the basis of statements made by organizational actors in electronic and print media. Even if citizens form their opinion through conversations with other citizens, rather than from the media, such other citizens are likely to have informed themselves on the basis of interpretations by government, political parties, private sector associations, non-governmental organizations, scientists, or academics, interpretations that often address the spatial repercussions of a given set of policy options. A second reason is that organizational actors interested in promoting regional claims depend on some sort of recognizable regional identity as a source of support and a means of political leverage. Political support groups for mountain farmers, for instance, have a much stronger case in supporting or opposing policy issues with regional dimensions if they can demonstrate that the region they represent has commonality.

Third, regional identity provides a building ground for organizational collaboration. Political actors who recognize a commonality between voting positions of their own and neighboring constituents are more likely to engage in direct contacts. A similarity in patterns of positions in support of, or opposition to policy issues does not automatically constitute collaboration. However, it provides important opportunities for such collaboration to foster. Regionwide institutions in turn facilitate the reproduction of an identity of place, manifested

in common interpretations of socioeconomic and environmental problems. Finally, regional identity furnishes legitimacy to the policies themselves and may significantly contribute to their success. Moreover, regional identity of place, some might even consider this an aspect of social capital, is an important ingredient of sustainability.

### **Mountain policies for the Swiss Alps and the Sierra Nevada**

The Swiss Alps and the Sierra Nevada are two mountain ranges with a long history of human use. From the 18<sup>th</sup> and 19<sup>th</sup> centuries, subsistence-based agrarian systems that developed over the course of thousands of years began to give way to complex patterns of habitation, conservation, and utilization. Although this change was more dramatic in California, where the indigenous was decimated at the hands of white intruders, the trajectories of California's and Switzerland's mountains began to converge in the mid-1800s, gradually marginalizing the two regions politically, economically, and culturally. Yet the two regions returned to policy salience, albeit at different times and in different ways. Whereas agriculture and economic development-focused mountain policies for the Swiss Alps emerged in the 1960s and began to unravel in the 1990s, the Sierra Nevada became a policy-relevant mountain range through the 1980s and 1990s struggles over forest management and endangered species conservation. In both places, policy developments were accompanied by extensive public discussion, regional institution building, and organizational dynamics which served as conduits for regional identity formation and the expression of regional solidarity. This section briefly compares these changing fates and concludes with a list of trends in regional identity these policy transformations should be expected to produce.

The two mountain ranges that have played a significant role in the history of the polities in which they are embedded. Of similar geological age, both ranges are characterized by the cragginess of their spectacular peaks, the glacial traces left on valley floors and walls, and

the dramatic drops into deep canyons. The two ranges are of similar size: the entire Alpine range (only a small part of which is in Switzerland) stretches 1,000 kilometers from their southwestern end in Nice, France, to their eastern end in Vienna, Austria, measuring 250 kilometers across at their widest point; the Sierra Nevada is the largest contiguous mountain range in the United States, measuring 80 to 130 kilometers across and 640 kilometers from its southern boundary at the Tehachapi range to the northern boundary with the Cascade Range. They are also of a similar height, with Mount Whitney, the Sierra's highest peak, rising 4,418 meters above sea level, whereas the Mont Blanc in the Alps is 4,807 meters above sea level. Finally, both ranges have a steep side (the eastern Sierras and the southern Alps) and a more gradual approach that proceeds through a hilly zone, where an increasing number of commuters to adjacent cities are changing established demographic, economic, and political dynamics that combine to increase the importance of rural-urban links.

Although the two ranges differ dramatically in their history of human settlement, natural resources of water, forests, pastures, wildlife, minerals and ores, and scenery have played and continue to play a crucial role, both for the mountain populations the ranges sustain and the lowland populations that depend on the mountain's resources, especially water and tourist and recreation destinations. Over the course of several thousand years, indigenous populations developed intricate ways of shaping the natural environment to suit their needs, giving rise to diverse agrarian and subsistence and trading systems. In both places the natural and human environments evolved in close interaction, driven by a range of proximate and remote forces, producing what are fundamentally cultural landscapes. These landscapes started to come under stress in the 19<sup>th</sup> century as the combined result of genocide on the indigenous population in California and the large-scale transformations caused by the industrial revolution.

Although both mountain ranges attained importance as places of work and habitation and as sources of natural and scenic resources during the early part of the political histories of California as a state and Switzerland as a modern nation state, policy relevance has varied considerably over time. Starting in the second half of the 19<sup>th</sup> century, expanding federal governments in both Switzerland and California extended their legal reach over natural resources and their management. The first Swiss law on forests was specifically designed to put an end to deforestation and forest degradation in mountain areas, in the same way that the development of the U.S. National Forest system ended decades of the worst excesses, including in the Sierra Nevada. This period of time also witnessed the first conservation forays, which culminated in the establishment of Switzerland's first (and only) national park, as well as a series of protected areas in California, where early efforts to designate the entire Sierra Nevada a national park failed due to insufficient public support.

In the process of state/nation building and industrial-economic development during the first half of the 20<sup>th</sup> century, the political and economic marginalization of the two mountain became more and more pronounced. Whereas specific policy measures to support mountain Swiss mountain areas and their populations were discussed in the legislature as early as the 1930s, however, policy approaches to the Sierra Nevada progressed primarily through regionally undifferentiated forestry and conservation policies.

The origin of Switzerland's concerted efforts to improve living and working conditions in the Alps through regional policies can be found in the economic growth period following World War II, which accelerated economic disparities between mountain and low-land cantons and precipitated a growing wave of outmigration from mountain cantons. This led to the creation of a series of policy instruments in the late 1960s and 1970s designed to reduce these disparities by creating or upgrading basic infrastructure and offering incentives for private sector development in mountain regions (Table 1). The most important of these, the

1974 Federal Law on Investment Assistance for Mountain Areas, involved the designation of 54 mountain regions in which towns and villages had to establish an organizational framework for inter-communal collaboration and long-term planning documents in order to be eligible for financial assistance from the federal government. Although natural resource management issues were not an explicit component, sector-based policy instruments, especially in agriculture, addressed the difficult working conditions of mountain farmers and established a variety of subsidies to ensure their livelihoods.

**Table 1: Regional policy instruments in Switzerland**

| <b>Policy instrument</b>  | <b>Duration</b>      | <b>Spatial scope</b>                                 |
|---|----------------------|--|
| Loan Assistance for Hotels and Sanitariums (HKG)  | 1967                 | Primarily mountain areas                             |
| Residential Improvements in Mountain Areas  | 1971                 | Mountain areas                                       |
| Investment Assistance for Mountain Areas (IHG)  | 1974-1996            | Mountain areas (IHG regions)                         |
| Loan Guarantee and Interest Payment Assistance in Mountain Areas (BGB)  | 1976                 | Mountain areas (IHG regions)                         |
| Economic Renewal Areas (EWB, “Bonny” Decision)  | 1978                 | Declining industrial regions                         |
| Revised Federal decree on regions undergoing economic renewal (formerly “economically threatened regions”) (Bonny decree) | 1996-                | Specific regions throughout Switzerland              |
| Promotion of Transnational and Interregional Collaboration (Interreg II+III, EU-wide program)                             | 1995-                | Transnational  |
| Federal decree on Structural Transformation in Rural Areas (Regio Plus)   | 1997-2007            | Mountain regions (IHG) + rural areas (OECD criteria) |
| (Revised Investment Assistance for Mountain Regions IHG)  | 1998-                | Mountain (IHG) regions                               |
| Promotion of Innovation and Coordination in the Tourism Sector (InnoTour)   | 1998-2002, 2003-2007 | Country-wide   |

Starting in the late 1980s, the supply-driven, equity-oriented approach characterizing regional policies was successfully challenged by free market promoters. Economic liberalization and a greater emphasis on regional competitiveness meant that the policy focus would shift to exclusive support for places with endogenous growth potential, thereby de-emphasizing the original rationale for mountain policies, namely that conditions in mountain areas

negatively affect competitiveness. As a consequence, the country's mountain policy domain began to unravel and its regional policy portfolio has since lifted urban and transnational areas to equal status, causing a decrease in the regional status of mountain areas. The main mountain policy instruments of the 1960s and 1970s were complemented with a second generation of regional policy instruments in the 1990s but their spatial focus expanded to non-mountain areas and transnational spaces. In parallel a policy portfolio for urban regions gradually began to compete for financial resources.

At the same time, however, natural resource management concerns gained importance. On the one hand, the agricultural subsidy system was modified to compensate farmers for cultural landscape services and promote environmentally sensitive farming. On the other hand, existing and new regional policy instruments increasingly paid attention to environmental issues, particularly since it became clear that the economic value of mountain amenities (for tourism and recreation) surpassed the value of natural resources (primarily agriculture and forestry). After four decades of mountain-specific regional economic development policies that comprehensively addressed local livelihood issues yet paid little attention to environmental concerns, regional policies are now diffused and sectorally narrower environmental instruments are becoming more important. Evidence of this trend is the recent passage of a reformed nature and heritage conservation law that creates the possibility of establishing new types of protected areas, which several mountain regions have come to see as their remaining hope to attract investment and visitors.

In California, on the other hand, the Sierra Nevada did not obtain status as a unified policy object until the late 1980s, although desires to turn the entire mountain range into a national park were voiced as early as the late 19<sup>th</sup> century. When the Sierra Nevada (re)entered the public consciousness as a singular mountain range with common challenges and opportunities, it was in the context of forest management and endangered species conservation.

Perhaps the single most influential event in this process, not only for fostering public awareness but also to trigger a series of policy actions, was the Pulitzer-price winning 1991 “Sierra in Peril” series by *Sacramento Bee* journalist Tom Knudson.

**Table 2: Regional and subregional policy initiatives in the Sierra Nevada**

| <b>Initiative</b>               | <b>Year</b> | <b>Summary</b>  |
|---------------------------------|-------------|---|
| Lake Tahoe Basin                | 1960s-      | Various subregional efforts to address the impact of residential and commercial property development on lake quality  |
| California Biodiversity Council | 1991-       | Largely unsuccessful attempt to create a regionally based structure for planning and implementing biodiversity conservation   |
| California Spotted Owl          | 1984-       | United States Forest Service (USFS) efforts to protect owl habitat, especially after logging in the Pacific Northwest was found to negatively impact the northern spotted owl |
| SNEP                            | 1991-1995   | Large-scale congressionally mandated research initiative to assess the status of the Sierra Nevada’s ecosystems and socio-economic prospects                                  |
| Sierra Nevada Framework         | 1998-       | USFS collaborative planning effort to consolidate all national forests in the Sierra Nevada under one common framework  |
| Quincy Library Group            | 1992-       | Subregional effort in the northern Sierras to establish a locally-driven natural resource utilization and conservation regime   |
| Sierra Nevada Conservancy       | 2004-       | State body created to channel public investment to the Sierra Nevada for nature conservation and local economic development   |

The regional (and subregional) policy approaches to the Sierra Nevada have evolved around a number of initiatives (Table 2). Switzerland’s regional policies emerged at the time when regional development thinking and practice was dominated by the concept of central location which viewed the concentration of factors of production in urban growth centers as the main driving force of economic development. Regional initiatives in the United States partly influenced by this orientation included the New Deal Tennessee Valley Authority and the Great Society Appalachian Regional Commission. In California, however, similar programs failed over opposition to federal programs, even though federal involvement in water development was of course extensive (Hundley 1992). What regional initiatives existed focused on urban regions through areawide organizations of locally elected officials, known as Councils of Government (Pincetl 1999).

California regional initiatives turned to environmental concerns as early as the 1960s and 1970s, but the Sierra Nevada persisted in its role as the “forgotten California” (Fulton 1999:42). The *California Tomorrow Plan* process, for instance, proposed a state planning council and called for the creation of ten or so regional governments with regional legislatures that would absorb many of the single-purpose regional agencies already in place. The ambitious document had little effect on the legislature beyond providing background material to the environmental bills that passed in the early 1970s; it was too threatening to the established power structure and too elitist for the public, which instead turned on local government as both the problem and the solution.

Lake Tahoe, known to many as the crown jewel of the Sierra Nevada, was the target for the first regional initiative for the mountain range, although it focused only the basin. Water quality degradation triggered a series of regional planning processes starting in the 1970s, which culminated in the establishment of a powerful bistate planning agency as well as the Tahoe Conservancy, a government agency designated to channel investment for land acquisition to the region (Strong 1999). Bioregionalism moved to center stage in the development of the 1991 Memorandum of Understanding (MoU) on Biodiversity, which committed seven federal agencies, eight state agencies and the University of California to “make the maintenance and enhancement of biological diversity a preeminent goal in their protection and management policies.” The MoU was to be implemented through bioregional councils, but these never got off the ground due to local opposition (Thomas 2003).

It was not until the timber wars in the Pacific Northwest halted logging in northern spotted owl habitat on federal land that a Sierra-wide view began to be translated into action. Concerned that the range might face the same court action on the basis of threats to an equally endangered (though not legally designated as such) owl relative, the Forest Service began developing common management guidelines for all national forests in the Sierra Nevada.

These initially focused on owl habitat but gradually gave way to a more comprehensive planning effort known as the Sierra Nevada Framework, which was initiated in the mid-1990s, around the same time U.S. Congress mandated research under the Sierra Nevada Ecosystem Project (SNEP) confirmed the environmental problems of the range (Beesley 2004). Through the Framework process, a large range of stakeholders became involved in crafting a compromise package for overcoming forest management conflicts, address endangered species conservation, begin to cope with alarming fire risk levels, while taking local livelihood issues into account.

Following several unsuccessful attempts to establish an equivalent to the Tahoe Conservancy but for the entire region, the Sierra Nevada Conservancy was signed into law in 2004 as an institutional conduit for regional investment, not only in conservation-oriented land acquisition but to “initiate, encourage, and support efforts that improve the environmental, economic and social well-being of the Sierra Nevada Region, its communities and the citizens of California” (Sierra Nevada Conservancy 2006). Emerging policies for the Sierra Nevada, unlike in Switzerland, thus focused almost exclusively on environmental issues. Livelihood issues have been promoted by land trusts, a type of organization that gained immense popularity in the 1990s. Land trusts use the acquisition of land or land development rights as a conservation tool. In the Sierra Nevada foothills, many of them focus on open space preservation through support to ranching communities. Local sustainable development has also become enshrined in the Sierra Nevada Conservancy, ultimately guaranteeing not only support but also a sense of ownership by Sierra constituents.

This brief assessment reveals that in light of their policy significance, mountain ranges are not nearly as permanent as their geologic and cultural histories suggest. In exaggerated terms, the Swiss Alps emerged as an economically defined region in the 1970s and started a transformation into an environmental region in the 1990s. By contrast, California

became an environmentally defined region in the late 1980s and initiated a transition to a socio-economic region in the late 1990s and early 2000s.

The institutional processes and communicative spaces that were created in the context of these policy developments have played a significant role as conduits for regional identity formation. Through several large-scale research programs and numerous planning and legislative venues, information on a host of policy issues began to be viewed in regional terms. Both in Switzerland and California, regional organizations focused on the respective mountain ranges emerged to take up political action on behalf of human and ecological mountain communities and participate in “branding” the Alps and the Sierras for political, economic, social, and cultural purposes. To recall the earlier reference to Paasi (2001), the very reality of the two regions was created through talk about regions and identities.

Patterns of change in regional identity therefore provide important insights into the nature and dynamics of mountain policies and the role of natural resource management within them. The use of a relational approach to regional identity to investigate the impact of mountain policies should yield the following specific trends:

1. Regional political solidarity among mountain cantons/counties should be higher than among non-mountain cantons/counties during times when mountain policies are in existence.
2. Regional political solidarity among mountain cantons and counties should increase when mountain policies come into existence.
3. Regional political solidarity among mountain cantons and counties should decrease when mountain policies unravel.
4. Regional political solidarity should be strongest on issues that are the focus of mountain policies.

### **Data and methodology**

Regions, this paper argues, gain and lose political salience through social interaction. During times when established regional policies for mountain areas constitute an institutional venue through which the spatiality of important policy debates is highlighted, the political

salience of mountain regions for their population should be higher, both in comparison to time periods when mountain policies are absent, newly forming, or dissipating, and in comparison to non-mountain regions. In this section, I present a technique for creating a *regional political solidarity index (RPSI)* and assessing whether the expected trends outlined above have materialized. The regional political solidarity index is a specific operationalization of regional identity. While it cannot claim to capture the multidimensionality of the concept, it provides an empirically-based relational approach to the way regions matter in people’s beliefs and political practices.

The regional political solidarity index is a measure that reflects *the propensity of political actors to agree on a given set of policy issues*. The use of this index is suitable in situations that are characterized by large numbers of actors and policy issues. The social network analysis underpinning the construction of the index permits an assessment of *patterns* of agreement among all actors across space (synchronic) and over time (diachronic).

**Table 3: Ballot measures in Switzerland and California, 1956-2006**

|                    | <b>Economic</b> | <b>Environment &amp; Natural Resources</b> | <b>Political-Institutional</b> | <b>Social</b> | <b>Total</b> |
|--------------------|-----------------|--|--------------------------------|---------------|--------------|
| <i>Switzerland</i> |                 |  |                                |               |              |
| 1956-1973          | 18              | 16   | 14                             | 21            | 69           |
| 1974-1989          | 38              | 21   | 32                             | 32            | 123          |
| 1990-2006          | 32              | 36   | 57                             | 43            | 168          |
| Subtotal           | 88 (24.4%)      | 73 (20.2%)                                 | 103 (28.5%)                    | 96 (26.6%)    | 361          |
| <i>California</i>  |                 |  |                                |               |              |
| 1970-1989          | 76              | 44   | 72                             | 85            | 277          |
| 1990-2006          | 45              | 24   | 72                             | 68            | 209          |
| Subtotal           | 121 (24.9%)     | 68 (14.0%)                                 | 144 (29.6%)                    | 153 (31.5%)   | 486          |

Note: Percentages do not add to 100 due to rounding.

Following the logic of affiliation networks, the index is created as follows. All computations are carried out with the social network analysis software package Ucinet 6 (Borgatti et al 2002). The point of departure involves two affiliation matrices, which I refer to as “actor

decision event matrices,” one for Switzerland and one for California, each consisting of rows representing actors and columns representing decision events (ballot measures).<sup>1</sup> For Switzerland, this results in a matrix of 26 cantons<sup>2</sup> and their ballot results for all 361 national referendums between 1956 and 2006; for California, there are 58 counties and their ballot results for 486 state referendums between 1970 and 2006 (Table 3). The cells of the matrices are filled with dummy variables which indicate if the measure was approved or rejected.

**Table 4: Periodization for Switzerland and California**

| Case        | Period    | Landmark trends  |
|-------------|-----------|--|
| Switzerland | 1956-1973 | Growing regional disparity between mountain and lowland areas; first law of fiscal equalization; parliamentary attempts to create mountain policies; various reports on the situation of mountain regions                                    |
|             | 1974-1989 | First generation of regional policy instruments focuses on mountains; federal legislation on environmental protection and spatial planning   |
|             | 1990-2006 | Second generation of regional policy instruments expands geographic scope to other rural areas and transnational regions; constitutional and policy reform to elevate cities and urban agglomerations to the same status as mountain regions |
| California  | 1970-1989 | Enactment of extensive federal and state environmental legislation; growing conflict over forest management; emergence of bioregionalism   |
|             | 1990-2006 | Emergence of Sierra-wide institutions and policy processes; continued conflict over forest management  |

These matrices include all time periods, actors, and decisions. In order to compare between these dimensions, the data have to be stratified into more discreet sets on the basis of time periods, groups of cantons/counties, and types of referendums. Tables 4, 5 and 6 outline the way this is achieved. First, ballot measures are grouped by historical period on the basis of mountain policy developments as described in the previous section. This yields three time periods for Switzerland between 1956 and 2006 and two for California between 1970 and

<sup>1</sup> All notation is from Wasserman & Faust 1994.

<sup>2</sup> The canton Jura was created in 1979, hence there are only 25 cantons for the first two time periods.

2006. The reason for this difference is that whereas there are two recognizable critical junctures in Switzerland – the emergence of mountain policies in the early 1970s and their unraveling in the 1990s and 2000s – there is only one in California, namely the emergence of a set of Sierra policies from the late 1980s. The length of the selected time periods follows Sabatier and Jenkins-Smith (1993), who argue that policy change needs to be analyzed in periods of ten years or more.

**Table 5: Subnational political units in Switzerland and California**

| <b>Political unit (canton in Switzerland, county in California)</b> |  |
|---|--|
| <i>Switzerland</i>  |  |
| Alps (10)   | Appenzell-Ausserrhoden, Appenzell-Innerrhoden, Glarus, Graubünden, Nidwalden, Obwalden, Schwyz, Ticino, Uri, Valais  |
| Prealps (5)   | Bern, Freiburg, Luzern, St. Gallen, Zug  |
| Non-Alps (11)   | Aargau, Basel-Land, Basel-Stadt, Genève, Jura, Neuchâtel, Schaffhausen, Solothurn, Thurgau, Vaud, Zürich   |
| <i>California</i>   |  |
| Sierra Nevada (12)  | Alpine, Amador, Calaveras, El Dorado, Inyo, Mariposa, Mono, Nevada, Placer, Plumas, Sierra, Tuolumne   |
| Sierra Foothills (8)  | Butte, Fresno, Kern, Lassen, Madera, Tehama, Tulare, Yuba  |
| Non-Sierra (38)   | Alameda, Colusa, Contra Costa, Del Norte, Glenn, Humboldt, Imperial, Kings, Lake, Los Angeles, Marin, Mendocino, Merced, Modoc, Monterey, Napa, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Trinity, Ventura, Yolo |

Note: The Swiss canton of Jura was created in 1979.

Second, within each time period the data is grouped by region in order to compare differences in political solidarity between regions and over time. Grouping Swiss cantons and California counties into regions is a contested undertaking and in some ways runs counter to the argument that regions are socially constructed. In order to avoid this cyclical trap, I apply regional categorizations outlined in legislative instruments. In the Swiss case, the regional classification is based on a combination of categorizations used in the 1974 Federal Law on Investment Assistance in Mountain Regions and a topographical index in use for fifty years

under the Federal Law on Fiscal Equalization. In the case of California the regional designations are based on the Sierra Nevada Ecosystems Project mandated by U.S. Congress (Table 5), as well as the Sierra Nevada Conservancy. In both cases, cantons and counties are classified into mountainous, semi-mountainous, and non-mountainous with respect to the main range under consideration.<sup>3</sup>

Finally data categorization takes account of different policy issues decided at the ballot box. Although mountain policies themselves are rarely voted on directly, ballot measures can be differentiated according to their general substantive orientation. For this analysis, they are divided into the three traditional categories of sustainable development – economic, environmental, social – and an additional category that includes political-institutional issues. Table 6 lists the types of issues included in each category.

**Table 6: Sustainable development categories**

| <b>Category</b>                   | <b>Issues included</b>   |
|-----------------------------------|--|
| Economic                          | Fiscal and monetary policy, public investment and infrastructure, labor policies                       |
| Environment and natural resources | Natural resource utilization and conservation, pollution, energy                                       |
| Social                            | Social security, health, consumer rights, education and research, culture                              |
| Political-institutional           | Democratic governance, government administration, civil and criminal law, security, external relations |

Note: Since California is a state in a federal system, it does not vote on matters of foreign policy. These issues are included in the list of Swiss ballots, but their number is very small.

This data structuring results in 60 actor decision matrices for Switzerland: 3 time periods x 4 regional groupings (mountainous, mountainous + semi-mountainous, non-mountainous, all regions) x 5 policy issue types (economic, environment and natural resources, social, politi-

<sup>3</sup> Since the study focuses on the Swiss Alps and the Sierra Nevada but both Switzerland and California both contain more than one mountain range, the Swiss Jura and the California Coastal Ranges are excluded from the analysis.

cal-institutional, all issues); and 40 for California: 2 time periods x 4 regional groupings x 5 policy issue types).

In the next step, the actor decision matrices are processed to derive “joint position matrices.”<sup>4</sup> This is achieved by identifying the number of ballot measures on which each pair of cantons or counties took the same position, i.e. either jointly approved or rejected it. This is the case if two actors will both have 1’s (approved) or 0’s (rejected) in the same column of their respective rows. The aggregate outcome of this process for each pair is represented in the joint position matrix, in which row and column headings represent actors and cells indicate the number of ballot measures for which a given pair of actors voted the same way; the diagonal indicates the total number of measures voted on. The top left corner of a sample joint position matrix is given in Figure 1. In this matrix, Amador and Alpine counties voted the same way in 32 of 44 ballot measures, Calaveras and Alpine counties in 28 of 44 measures, El Dorado and Alpine in 33 of 44 measures, and so on.

**Figure 1: Sample raw and standardized joint position matrices, California counties, environment and natural resource issues, 1970-89**

|           | Alpine | Amador | Calaveras | El Dorado | ... |
|-----------|--------|--------|-----------|-----------|-----|
| Alpine    | 44     | 32     | 28        | 33        | ... |
| Amador    | 32     | 44     | 38        | 39        | ... |
| Calaveras | 28     | 38     | 44        | 35        | ... |
| El Dorado | 33     | 39     | 35        | 44        | ... |
| ...       | ...    | ...    | ...       | ...       | ... |

To produce a sense of the overall pattern of joint agreement, the so-called “density”  $\Delta_{(N)}$  of the matrix is calculated by averaging all non-diagonal cells in the matrix (Wasserman

4 Wasserman & Faust (1994:308) refer to these as “co-membership relations.” The matrix decomposition in Ucinet 6 is carried out using Hamming similarity, which avoids underrepresentation of common position that would result from the cross-products or minimums method (Borgatti et al 2002).

& Faust 1992:314-17).<sup>5</sup> Because the number of ballot measures varies in each joint position matrix, the density values are expressed as a percentage of the total number of ballots assessed in that matrix. This standardization is necessary if values are to be compared across regional groups or policy issues. The density of the joint position matrix can be interpreted as the *percentage of ballot measures in which pairs of actors voted the same way*. This measure captures what I call the *Unadjusted Regional Political Solidarity Index (RPSI<sub>u</sub>)*; it is unadjusted because, as I explain below, it does not take into account larger societal transformations which impact regions more equally than the regional policies I analyze in this paper. The values of the unadjusted index can range from 0 to 100, indicating complete disagreement or complete agreement, respectively. The higher the index, the greater the regional political solidarity.

The RPSI<sub>u</sub> values offer a good indication of regional political solidarity for a given time period and permit comparisons between different regions and types of issues. Using RPSI<sub>u</sub>, we can assess, for instance, if regional political solidarity among Swiss mountain cantons during a given time period was higher than among non-mountain cantons. We can also assess how that solidarity varies across different issues, for example if the level of agreement among mountain cantons was higher or lower for economic than for environmental issues.

When comparing over time and between different polities, however, an additional complication arises. This difficulty stems from macro-political, social or cultural trends which comprehensively affect political solidarity in the larger polity. During the economic growth period following World War II, for instance, political solidarity was arguably higher than during the tumultuous 1960s and 1970s. As a consequence, if a mountain region's RPSI<sub>u</sub> remained unchanged from 1956-73 to 1974-89 but overall solidarity in the larger polity dur-

5 The formal expression of density is: 
$$\Delta_{(N)} = \frac{\sum_{i=1}^g \sum_{j=1}^g x_{ij}^N}{g(g-1)}$$
 where  $g$  denotes the number of actors and  $N$  the number of ballots.

ing those two time periods differed, the regional  $RPSI_u$  would have to be interpreted differently. For this reason, regional political solidarity has to be expressed not in absolute terms but relative to the larger polity’s level of solidarity during the given historical period. Similarly, since overall political solidarity may be higher in one polity than another, regional  $RPSI_u$  values cannot be compared directly but have to be expressed relative to political solidarity of the respective larger polity. Furthermore, the overall polity’s cohesion varied for the sustainable development categories used in this analysis. Since the environmental movement emerged on the heels of the civil rights movement, for instance, the shift in the overall polity’s pattern of political solidarity on environmental issues would have occurred later than it did on political and social issues. In practical terms, this means that the regional  $RPSI_u$  for a given type of ballot measures has to be divided by the overall polity’s  $RPSI_u$  for those policy issues. This produces what I call the *Adjusted Relative Regional Political Solidarity Index* ( $RPSI_a$ ).<sup>6</sup> Table 7 summarizes the two indices.

**Table 7: Regional Political Solidarity Index**

| <b>Index</b>  | <b>Explanation</b>   |
|---|--|
| Unadjusted regional political solidarity index ( $RPSI_u$ ) | A maximum value of 100 implies that for a given number of “decision events,” pairs of political actors vote the same way in 100 percent of the events; a minimum value of 0 implies that they do not agree in any of the events.   |
| Adjusted regional political solidarity index ( $RPSI_a$ )   | $RPSI_a$ values reflect the ratio of the regional $RPSI_u$ to the polity’s $RPSI_u$ for a given set of policy issues. $RPSI_a$ is above 100 when political actors in a given region agree on a larger percentage of issues than do actors in all regions together; it is below 100 if political actors in that region agree on a smaller share of issues than do actors in all regions together. |

The above example of California county positions on environment and natural resource-related ballots may be continued for the purpose of illustration. The selection from

6 Formally, 
$$RPCI_a = 100 \frac{RPCI_{u_{region}}}{RPCI_{u_{polity}}} = 100 \frac{\sum_{i=1}^{g_{region}} \sum_{j=1}^{g_{region}} x_{ij}^{N_{region}}}{\sum_{i=1}^{g_{polity}} \sum_{j=1}^{g_{polity}} x_{ij}^{N_{polity}}}$$

Figure 1 captures the positions of Sierra Nevada counties on 44 ballot measures. In this case, pairs of counties on average took the same position in 85.5 percent of ballot measures (37.6 of 44), hence  $RPSI_u$  is 85.5. For the same period of time and types of ballot measures, non-Sierra counties voted the same way in only 73.1 percent (32.2 of 44) of relevant ballot measures. The implication of this comparison is that the level of political solidarity at the ballot box among Sierra counties was close to 20 percent higher than among non-Sierra counties. Similarly, we can see that during this time,  $RPSI_u$  among Sierra counties was higher for economic issues (90.9), social issues (90.0), and political-institutional issues (89.8) than for environmental and natural resource-related issues.

If we wanted to assess how this changed from 1970-89 to 1990-2006, we would use  $RPSI_a$  since overall political solidarity on environmental issues in California changed dramatically with the consolidation of the environmental movement.  $RPSI_u$  for natural resource management and environmental ballots among all counties during 1970-89 was 75.5, so  $RPSI_a$  for Sierra counties was  $100 \times 85.5 / 75.5 = 113$ , indicating that mountain county solidarity was higher than overall state solidarity. During 1990-2006, on the other hand,  $RPSI_a$  for environmental and natural resource-related ballots was 122, which represents an increase of close to 10 percent. Similarly,  $RPSI_a$  increased on economic (2.1 percent) and social issues (4.7 percent) but decreased on political-institutional issues (1.7 percent). These shifts, I argue, are the result of the set of policies that brought regional salience to the fore and served as a refractive lens for political decision-making. The fact that regional policies for the Sierra Nevada focused on environmental and natural resource related issues is reflected in the much greater shift in regional political solidarity on environmental than on other issues. In the next section, I present and discuss the results of the social network analysis in light of the expected trends outlined earlier.

## **Regional political solidarity in the Swiss Alps and the Sierra Nevada**

The regional political solidarity indices contain a wealth of information. In the largest case for a subset of issues, cantons/counties, and time period (social issues among non-Sierra counties during 1970-89) the index captures the joint positions of 38 counties on 85 ballots, i.e. more than 3,200 data points. Voters are a fickle kind, and the outcome of ballots is determined by a host of issues, among which the regional origin of voters is but one factor.

Beyond this caveat, how well does the evidence represent expected trends? Tables 8 and 9 summarize the analysis for California and Switzerland, respectively. A number of points are necessary to keep in mind when reading the tables. First, they report political solidarity indices for the four sustainable development categories separately as well as for all issues together. Second, within each issue subgroup, as well as for the comprehensive indices, the figure for “all counties” and “all cantons” are  $RPSI_u$  values that reflect the average percentage of ballot measures for which all possible canton/county pairs voted on the same side (expressing these values in adjusted terms would simply give a figure of 100). The figures for the canton/county subgroups, by contrast, represent the adjusted regional political solidarity indices. Third, the column trend indicates the change from one time period to the next, both with an up-arrow or down-arrow as a shorthand symbol and a number indicating the percentage change. In the case of Switzerland, where two over-time changes are observed, the two symbols and figures stand for the change from 1956-73 to 1974-89 and 1974-89 to 1990-2006.

To illustrate, the first section in Table 8 reports changes in political solidarity on economic ballot measures among California counties. Overall, the average percentage of ballots on which all county pairs voted on the same side decreased slightly from 83.6 percent to 82.4 percent. This trend is repeated for non-Sierra counties, but the decline is even smaller. By

contrast, political solidarity increased both for Sierra and foothill counties together and for Sierra counties on their own.

**Table 8: Change in Political Solidarity in California, 1970-2006**

| County groups by SD Categories           | Time period |           | Trend<br>(% change) |
|--|-------------|-----------|---------------------|
|  | 1970-1989   | 1990-2006 |                     |
| <i>Economic</i>                          |             |           |                     |
| All counties                             | 83.6        | 82.4      | ▼                   |
| Non-Sierra counties                      | 98.6        | 98.4      | ▼ -0.2              |
| Sierra and foothills counties            | 105.3       | 108.7     | ▲ +3.2              |
| Sierra counties                          | 107.8       | 110.1     | ▲ +2.1              |
| <i>Environment and Natural Resources</i> |             |           |                     |
| All counties                             | 75.1        | 71.4      | ▼                   |
| Non-Sierra counties                      | 96.4        | 96.9      | ▲ +0.5              |
| Sierra and foothill counties             | 110.0       | 123.5     | ▲ +12.3             |
| Sierra counties                          | 112.1       | 122.0     | ▲ +8.8              |
| <i>Political-institutional</i>           |             |           |                     |
| All counties                             | 82.0        | 87.5      | ▲                   |
| Non-Sierra counties                      | 103.2       | 98.4      | ▼ -4.6              |
| Sierra and foothill counties 9           | 105.5       | 105.9     | ▲ +0.4              |
| Sierra counties                          | 108.4       | 106.3     | ▼ -1.9              |
| <i>Social</i>                            |             |           |                     |
| All counties                             | 82.9        | 75.8      | ▼                   |
| Non-Sierra counties                      | 99.4        | 99.6      | ▲ +0.2              |
| Sierra and foothill counties             | 104.9       | 110.7     | ▲ +5.5              |
| Sierra counties                          | 106.2       | 111.2     | ▲ +4.7              |
| <i>All issues</i>                        |             |           |                     |
| All counties                             | 82.3        | 81.0      | ▼                   |
| Non-Sierra counties                      | 98.9        | 98.8      | ▼ -0.1              |
| Sierra and foothill counties             | 105.0       | 109.5     | ▲ +4.3              |
| Sierra counties                          | 107.2       | 110.0     | ▲ +2.6              |

Note: Figures for “All counties” are expressed as a percentage of county pairs that voted on the same side of ballot issues; figures for county groups are expressed as a percentage of the “All county” figure.

The first trend we should expect suggests that regional identity should be higher among mountain cantons/counties than among non-mountain cantons/counties during times when mountain policies are on the rise or in operation. This is the case in both California, where solidarity among mountain counties are almost eleven percentage points higher than among non-mountain counties during 1990-2006, and Switzerland, where political solidarity among mountain cantons is higher than among non-Alps cantons during 1974-89, albeit not

by as much as in California. Political solidarity among Swiss mountain cantons is also higher than among non-Alps cantons during 1990-2006, indicating that mountain policies still offered an regional interpretive lens. The decrease in solidarity during this period in the combined Alps and Prealps group, however, suggests that those cantons who do not form part of the core of mountain cantons begin to get pulled away from the mountain region, which may be explained by the greater relative political weight of urban voters in those cantons.

The second expected trend is an increase in political solidarity among mountain cantons/counties from one time period to the next as mountain policies consolidate. This can be observed in the case of California, where political solidarity for all ballot issues among Sierra counties increased by almost 3 percent between 1970-1989 and 1990-2006. This result is all the more significant because overall solidarity both in the entire state and among non-Sierra counties was on the decline. Interestingly, however, solidarity among the combined group of Sierra and foothill counties increased by more than among Sierra counties alone. Possible reason for this include that the regional importance of being a foothill county trumped the importance of being part of the Sierra, or, conversely, that the regional identity among Sierra counties is still developing. Both explanations would make sense. The demographic trends observed in California during the last 10-15 years suggest that Sierra Nevada foothill counties deal with a very similar range of problems related to public finance, infrastructure, housing, natural resource management, and environmental degradation. Sierra counties, by contrast, are only beginning to feel the impact of some of the more recent Sierra-wide policies. Consequently, previous divisions that prevented the establishment of range-wide policies in the first place continue to exert a strong influence.

In Switzerland, the second expected trend is confirmed as well, although the change of just over one percent for both the combined Alps and Prealps and the Alps canton only groups between 1956-73 and 1974-1989 is again much less pronounced than in California. As

in California, political solidarity among mountain cantons increased at the same time as solidarity in the country as a whole decreased. Also in tandem with California, the difference in solidarity between mountain and lowland cantons increased from 1956-73 to 1974-1989. Unlike in California, however, political solidarity among mountain cantons during the pre-mountain policy was *lower* than among non-Alpine cantons, even though this latter group also includes cantons from the country's other, albeit smaller mountain range, the Jura. In this light, the small increase in solidarity among mountain cantons appears more important, since it also meant surpassing non-Alpine cantons.

**Table 9: Change in Political Solidarity in Switzerland, 1956-2006**

| Cantons by SD category                   | Time period |           |           | Trend ( $\Delta\%$ )           |                                |
|--|-------------|-----------|-----------|--------------------------------|--------------------------------|
|  | 1956-1973   | 1974-1989 | 1990-2006 | T <sub>1</sub> -T <sub>2</sub> | T <sub>2</sub> -T <sub>3</sub> |
| <i>Economic</i>                          |             |           |           |                                |                                |
| All cantons                              | 82.3        | 81.9      | 83.5      | ▼                              | ▲                              |
| Non-Alpine cantons                       | 109.6       | 98.3      | 99.4      | ▼-10.3                         | ▲+1.1                          |
| Alpine and Pre-Alps                      | 96.2        | 103.6     | 100.6     | ▲+7.7                          | ▼-2.9                          |
| Alpine Cantons                           | 91.9        | 102.7     | 99.4      | ▲+11.8                         | ▼-3.2                          |
| <i>Environment and Natural Resources</i> |             |           |           |                                |                                |
| All cantons                              | 82.8        | 79.5      | 82.0      | ▼                              | ▲                              |
| Non-Alpine cantons                       | 103.0       | 94.7      | 96.8      | ▼-4.0                          | ▲+2.2                          |
| Alpine and Pre-Alps                      | 103.5       | 107.4     | 103.9     | ▲+3.4                          | ▼-3.3                          |
| Alpine Cantons                           | 101.3       | 105.2     | 102.0     | ▲+3.9                          | ▼-3.0                          |
| <i>Political-institutional</i>           |             |           |           |                                |                                |
| All cantons                              | 74.2        | 82.9      | 80.2      | ▲                              | ▼                              |
| Non-Alpine cantons                       | 98.7        | 96.7      | 98.5      | ▼-2.0                          | ▲+1.9                          |
| Alpine and Pre-Alps                      | 107.4       | 105.4     | 104.9     | ▼-1.9                          | ▼-0.5                          |
| Alpine Cantons                           | 107.0       | 104.2     | 109.4     | ▼-2.6                          | ▲+5.0                          |
| <i>Social</i>                            |             |           |           |                                |                                |
| All cantons                              | 86.0        | 84.1      | 86.4      | ▼                              | ▲                              |
| Non-Alpine cantons                       | 98.6        | 105.9     | 97.8      | ▲+7.4                          | ▼-7.7                          |
| Alpine and Pre-Alps                      | 101.9       | 97.9      | 102.2     | ▼-3.9                          | ▲+4.4                          |
| Alpine Cantons                           | 101.5       | 94.5      | 101.4     | ▼-6.9                          | ▲+7.3                          |
| <i>All issues</i>                        |             |           |           |                                |                                |
| All cantons                              | 81.4        | 82.3      | 83.0      | ▲                              | ▲                              |
| Non-Alpine cantons                       | 102.3       | 99.4      | 98.4      | ▼-2.8                          | ▼-1.1                          |
| Alpine and Pre-Alps                      | 102.1       | 103.2     | 102.9     | ▲+1.1                          | ▼-0.3                          |
| Alpine Cantons                           | 100.1       | 101.3     | 103.4     | ▲+1.2                          | ▲+2.1                          |

Note: Figures for "All cantons" are expressed as a percentage of canton pairs that voted on the same side of ballot issues; figures for canton groups are expressed as a percentage of the "All cantons" figure.

Third, regional political solidarity among mountain voters should decrease as mountain policies begin to unravel. This can only be ascertained for Switzerland, since Sierra policies are still being developed. In Switzerland, this appears to only hold partially. Political solidarity declined among the combined Alpine and Prealpine canton group, though only slightly. Contrary to expectations, however, regional political solidarity among mountain cantons has continued to grow. Three reasons may account for this. The first one is that political solidarity among mountain cantons increased because seeing their hitherto privileged position challenged has served as a rallying cry. The increasingly difficult situation of many core mountain cantons means that their only hope is to work together (meaning vote together) with others sharing their fate. A second explanation is that the net increase in solidarity is uneven in the sense that it increased in some issues areas and not in others. This is confirmed by a closer look at the figures in Table 9. As expected, political solidarity declined on economic and environment and natural resources issues both among the combined Alpine and Prealpine and the Alpine canton only groups. It also declined for political-institutional ballot measures among the combined Alpine and Prealpine canton group, but greatly increased on social issues, both among the combined Alpine and Prealpine and the Alpine only canton groups. The magnitude of these increases is such that they tip the overall balance for the change between 1974-89 and 1990-2006. A third possible reason is that the development of regional policies involves significant sunk costs in terms of institution building, hence the unraveling of the primary policy instruments may not begin to impact the way voters interpret contemporary policy issues until some time later.

The fourth expected trend is that changes in political solidarity should be strongest on issues emphasize in the respective mountain policies. In California, this would mean that the regional political solidarity indices among Sierra counties should increase most for environment and natural resources issues, which brought the Sierra Nevada as a unified mountain

range to public awareness through the “Sierra in Peril” series, and are at the heart of both the Sierra Nevada Framework and the Sierra Nevada Conservancy. A look at Table 8 shows that this is the case, as the increase in regional political solidarity among the combined Sierra and foothill (12.3 percent) and Sierra only (8.8 percent) county groups on environment and natural resources issues are the two greatest changes recorded in the table.

In Switzerland, regional political solidarity should increase most on economic issues between 1956-73 and 1974-1989, as the first generation of mountain policies were characterized by a strong economic emphasis. Here, too, the 11.8 percent increase among core Alpine cantons is the largest change in the table, confirming the expected trend. Furthermore, the 7.7 percent increase for the combined Alpine and Prealpine canton group is not only the third-largest change in the table, but both of these changes occurred while overall agreement on economic issues decreased for the country as a whole, as well as for non-Alpine cantons.

The expected movements in regional political solidarity analyzed in the case of the Swiss Alps and the Sierra Nevada are confirmed on all four dimensions, albeit more significantly in some instances than in others. Most clearly, a sense of regional togetherness as expressed in patterns of agreement at the ballot box is stronger during times when mountain policies and institutions are available to serve as conduits for regional identity formation. Equally clearly, shifts in political solidarity have been strongest in those issues that are at the center of the respective mountain policies. The evidence is less conclusive in showing the decline in political solidarity among Swiss mountain cantons since the country’s mountain policies have begun to dissipate. This is understandable, however, for two reasons. First, all mountain policies are still in existence, although a recently concluded round of reforms will bring wide ranging changes starting in 2008. Second, the dissipation of mountain policies has been relative to the rise of cities and urban policies.

## **Conclusion**

In this paper I have sought to demonstrate a relationship between mountain development policies and regional identity. Mountain regions and their importance as a source of identity formation, I have argued, are not static entities or attributes, but social constructions that emerge from interaction among social actors. Since this relational approach to regional identity emphasizes the production of meaning through practice, a variety of such practices enter the domain of empirical possibilities. I have suggested that in direct democratic systems such as Switzerland and California, voting continues to represent one of the primary venues of political expression, despite chronically low participation rates and persistent cynicism about the ways issues make it to the ballot in the first place. Voting is admittedly a narrow conception of a practiced regional identity. Yet readily available voting data makes it possible to assess the spatial dimensions of political decisions made by millions of individuals in hundreds of ballot measures over the course of several decades. While the most common alternatives, large-scale surveys or ethnographic research, are able to capture a fuller picture of regional identity, they fail to be as comprehensive as the technique I develop here.

Although the study of affiliation networks has long been practiced by political scientists and sociologists, its application to election data is an innovation that opens up exciting lines of inquiry. In this paper, I have used affiliation network analysis to develop a technique for assessing changes in patterns of political solidarity within and between regions, across issues, and over time. Using this approach to study the impact of policies on identity has confirmed expected trends. Whether an increase in regional identity in conjunction with the implementation of regional policies counts as proof of policy effectiveness to some extent depends on the normative orientation of those who pose the question. In my opinion, policies, especially those that claim to be sustainable development policies, cannot but fail if they ignore the meanings people give to places which the policies are designed to affect.

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