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How small is beautiful and how large would be ugly? An inquiry into optimal community size, spatial demarcations and risks for sustainable local governance

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**How small is beautiful and how large would be ugly?
An inquiry into optimal community size, spatial
demarcations and risks for sustainable local governance**

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The determination of optimal size of local communities demarcated as governance units is an unresolved policy research question of considerable immediate relevance for many European countries. This paper discusses criteria to evaluate the sustainability of spatially demarcated local communities as governance units, using a multi-disciplinary institutional perspective. Community population sizes, actuarially sustainable dependency ratios, availability and affordability of goods and services assuring consumption security, labour market clearing and endurable social capital are related with each other.

Different kinds of risks such as demographic risk, market risk, democratic autonomy risk, fiscal risk, infrastructure risk and labour market risk are introduced to analyse effects for human well-being, public policy and social protection. The paper draws on national and regional data of EU NUTS regions to provide empirical underpinnings, contrasting in particular the experience of Nordic and Baltic Countries.

The paper proposes lower and upper population limits for spatial demarcations instituted into communities and develops a conceptual framework that can be used to design national and regional systems of early warning signals at the NUTS two-digit to five-digit level of disaggregation. The paper concludes that the earliest warning signals arise from reduced capacity to preserve social capital required to stimulate economic activity, and wasted public investments, not from consequential outcomes such as changes in per capita income or assets or the rising burdens of actuarial vulnerabilities. Early warning signals are visible long before changes eventually manifest in quality of life indicators due to reduced social spending. While the nature of human well-being, causes of its deficiency, and magnitudes of spatial inequality vary from country to country, the criteria developed in this study could have a wider relevance for European Integration and Internationalisation.

1. Introduction

How would conventional notions of sovereign 'federalism' in EU member countries stand up to the evolving European constitutionality

'sharing some of the powers in common' to uphold the principle of subsidiarity with regard to social policy? This is a burning problem of our times and regions have not been granted direct access to the European Court of Justice even on matters falling within the subsidiarity principle¹. The question is usually examined by juxtaposing pan-European functional aspects of converging social security frames in a multi-speed EU, with a diversity of structures governed by national sovereignties, to the neglect of territorial subsidiarity of regions, areas, communities, and municipalities, which are self-governing in many respects. The first problem is that this leaves unaccounted, a self-governing community's selection of strategies and the risks associated with the path taken. The second problem is that it fails to account for the amplitude or vigour of the action tendency to persist over time. Thus, endogenous factors contributing to social capacities of the organisation of collective action in territorial jurisdictions are residualised. This paper addresses this gap by invoking governance as a frame of analysis for social policy with three specific objectives:

- (a) to explicitly introduce the spatial dimension by relating human well-being in governance units at different levels of aggregation to characteristics of their population sizes and structures,
- (b) to hypothesise lower and upper limits for spatial demarcations of regions and areas as autonomous self-governing communities, based on optimality analysis and risk calculus from observable variables that reveal latent attributes, and,
- (c) to propose the design of the architectural logic for an early warning signalling system that would enable interventions such as reconstitution of spatial demarcations of habitats for community sustainability and social policy.

The embeddedness of communities in nations and the association of nations in the EU presents realities of multi-level governance where social conflicts

¹ See the 23rd report of the European Commission on the actions taken on opinions delivered by the Committee of the Regions as Follow-up to the White Paper on European Governance COM (2002) 705 final-CoR 19/2003-July 2003, p.5. This major stumbling block in progressing the case for more comprehensive Europeanization and a more convergent EU social policy is in consonance with the lucid argument of Begg and Berghman (2002) that only the highest level of scrutiny can offset the impact of divergence of different policies at lower levels. If the preferred convergence route is a European regulatory approach, then leaving its implementation to national interpretations without space for the collective voice of regions at the European level could be regarded as contrary to the Treaty provisions. A persuasive case can be made for measuring all key indicators of regional disparity at regional level (Stewart, 2003).

originate in territorial categories. Heidenreich (2003) cautions about the extra transfer payments that will arise due to social dimensions of the enlargement process if relative measures carry primacy, and I agree with him, but the greater worry is absolute breakdown if levels of solidarity among 450 million people are not possible to maintain (Guillen and Palier, 2004). The choice of the nation-state as a unit of analysis is questionable in contexts when territorial systems of governance are unable to perform functions expected of them (Cerny, 1999; Baganasco, 2001; Daly, 2003). Yet, the demarcation of EU NUTS regions as self-governing areas remains a legacy of historical cartographic convenience and is not based on feasibility or optimality. Community is not merely a space that belongs to a national government. It is also a means of government as the new locus of collective action replacing the notion of 'society' in our times. Some communities may consume more social capital than they produce. Schumacher was among the earliest to observe that small units are better when networks are the basis of action but also that unities as the basis of action may be indivisible in some cases (Schumacher, 1973). The question of scale is extremely crucial because the smaller the number of people, the greater is the number of relationship arrangements per individual as a necessary burden. The higher limits are easier to judge because diseconomies of large scale are obvious. The lower limits are difficult to ascertain because endogenous attributes contributing to the diseconomies are latent. It is worth examining whether reconstitution of governance units for the same area and population can introduce new policy choices, new ways of implementing policy and reduce the cost of governance for the same efficiency and equity.

Previous studies in Sweden (Strömberg and Westerståhl, 1984), and Finland (Mathur, Ryyänen and Nystedt, 2003) suggest that if a determination of optimal population size can be made or limits of lower and upper population bounds of local communities invoked for demarcation of governance units, considerable new value and savings releasing more deliverable value can be produced at no extra cost. Yet, throughout Europe, expenditures of many local government authorities are increasing rapidly at rates much higher than any price index while their balance-sheets get weaker, pointing to the need to understand this destructive creation. The determination of optimal size, spatial demarcations and risks for sustainable local governance are unresolved policy research questions of considerable immediate relevance to mitigate perils of devolution.

2. Area, Authority and Power: Centripetal and Centrifugal Forces

Governance units foster distinctive identities based on economic advantage, social structure, political system, cultural heritage and governance processes. The resultant processes in open economies are essentially centrifugal as locations compete to triangulate factor mobility in ways optimal for a specific location's natural identity, democratic autonomy, fiscal vitality, consumption frontier, livelihoods and inter-generational continuity. In contrast, collaborative arrangements to which national governance units subscribe unleash centripetal forces aimed at breaking down barriers between the boundaries of governance units at every level of aggregation to promote larger areas with common frames on border flows of goods and services, capital, and labour with convergence sought on monetary and fiscal policies, external relations, internal and external security, norms of justice and civil society. When centripetal forces are stronger in terms of how households, firms, governments and others make decisions to avail opportunities and discharge obligations, the boundaries of territorial units lose some value. Indeed, their viability, efficiency and cost come into question even if their relevance and attractiveness as hubs of traditional belonging are not doubted.

This is hardly a normative issue. Governance units exist to discharge collective responsibilities for certain functions in a habitat. Those that cannot do so would collapse unless bailed out by national or European authorities. There cannot be any guarantee that resources for fiscal transfers will perpetually be available even if the will to do so is not lacking and legal provisions exist to require national or European authorities to intervene or safeguard certain minimum entitlements². Pension reforms are underway in many European countries. However, the critical issue for the balance of inter-generational continuity is maintenance of a sustainable dependency ratio between the working age population and the underaged or overaged population not merely at a national level but also spatially so that communities can remain economic hubs rather than deteriorate into relief

² At present, when locally self-governing communities in Europe collapse, they are quickly annexed to a neighbouring community in contrast with the American solution which triggers debilitation and population migration. The proverbial case of 'The spirit is willing but the flesh is weak' cannot be excluded for the future.

zones. This view has been contested in some circles (notably by government economists) who point to the accumulation of higher capital assets per capita as a form of social insurance. However, the productivity of such capital assets remains unproven, and particularly their failure to stimulate growth rates that would clear the labour market remains unexplained.

The division of authority and responsibility in demarcated spatial communities is instrumental of community values. Such a division may conveniently be classified into State responsibility and Spatial Community or Area Responsibility. The political science literature uses the expression 'division of powers' whereas the sociological literature and the behavioural sciences use the expression 'division of authority'. Authority implies institutional legitimacy that arises from human beings as individuals, families, groups, and communities. Power refers to a derived organisational capacity conferring a sanctioned monopoly over control of the means of organised violence to collect taxes, render justice, provide public goods, mediate conflicts etc. The freedom to exercise authority and power is circumscribed by accountability and responsibility.

Community responsibilities may functionally spread across State responsibility, community responsibility and be syndicated in networks of communities collaborating on these responsibilities. In any conception of spatial responsibility, links and flows between State responsibility and spatial communities are of paramount importance. If a State or a community possess economic capacity to afford waste in the form of avoidable transactions costs, and democratically chooses to do so to whatever degree preferred for the sake of other values, it would be important to include such preferences in any framework of well-being. Any analysis and scientific determination can be no more than a first approximation of the bounds of feasibility.

For a variety of methodological reasons, there has been no way of precisely knowing which divisions and unities will work and which will not. In some sense, this touches one of the core values of communities viz. that all communities are acts of faith involving visions, hopes and dreams to nurture their collective identity through the pooling of social capital. However, certain maxims validated in studies in various parts of the world are worth recapitulating:

(a) The assignment of area responsibilities should cover all governance functions excluding currency, defence and foreign policy. Within the European Union, a limited currency union exists. Treaties cater to

European co-operation on defence and foreign policy issues but common policies and integration in these spheres is slow and halting. EU does not discharge federal governance functions which are a national responsibility.

(b) The optimum levels of governance are three (Maas, 1959, p.36). Many European countries have four to five levels of governance which may include local governance in municipalities/communities, associative nationally federated collective inter-community solidarity governance, regional governance as EU NUTS 3 Regions, State agency through districts/provinces as an arm of national fiscal governance, and EU functional governance through the Committee of the Regions.

(c) The constituted areas should transcend narrow communities of interest. This is possible only with a diversity of interests, complementarities of interests and collaboration of interests. Many municipalities are narrow communities of existential interest where population size could constrain this and collaborations would usually need cross-border complementarities to be explored, developed and exploited.

(d) Conflicts between authorities of local governance can be resolved through consultation, cooperation and mediation. This is achievable only if it is neither dictated from above nor within and not stopped by a minority of constituents. Community initiatives are notoriously difficult to organise where a critical minimum threshold of social capital cannot be mobilised due to demographic fragility or if civil society institutions are weak due to traditions of intermediation by the State or other institutions, internal or external to a country.

3. Communities at Risk: Do the Northern Lights Shine Brightly?

Results from country-wide studies of governance units in Sweden (Strömberg and Westerståhl, 1984) and Finland (Mathur, Ryyänen and Nystedt, 2003) are worth recapitulating. Thirtyfive studies on the question of minimal community size and well-being in Sweden tested for the minimum population size required for markets to function for different products and services, and for baskets of such products and services. The market requirements for flows of goods and services in autonomous democratically governed communities pointed to a range between 5000 and 6000 of population. Swedish local communities were reorganised to ensure a critical minimum threshold size of 5000 for a community's population in a major

restructuring in 1974 (Strömberg and Westerståhl, 1984, p.17). At today's fertility rates and the unbalanced age-cohorts in the reproductive age-groups in many communities, Nordic Communities could need a minimum population size of about 8,000 inhabitants to function as communities of inter-generational continuity with a viable market size to enable flows of essential private goods and services.

In communities with abnormal age cohorts, it is difficult to stimulate economic activity or balance labour demand with labour supply now and in the foreseeable future without reconstituting the areas and repopulating them with missing age-cohorts through in-migration. It is not useful to discuss projections of shortfalls, made at a national level, without knowing where the inflows would locate. Until then, the politics of international migration oscillates between scare-mongering media reports projecting huge shortfalls of skilled labour and xenophobic defensive reactions that stand in the way of developing appropriate in-migration policies. In the majority of communities, the availability and affordability of goods and services corresponding to the present quality of human well-being is unsustainable without external subsidies. This severely constrains real democratic self-governance and autonomy.

Three of the five nordic countries solved problems of small community sizes through their consolidation of smaller communities into larger units decades ago. In the 1960s, Denmark reorganised its local communities from over 1300 in number into 275. The Swedish communal re-organisation from over 1300 communities into 278, completed in 1974 was informed by extensive research into well-being in communities supported by 35 doctoral and post-graduate theses and fifteen government reports on the subject (Strömberg and Westerståhl, 1984). In Norway, the reduction from 454 to 290 was implemented by 1978. Finland has not reorganised its local communities on this scale. The largest decennial reduction in the number of local communities in Finland was undertaken during the 1970s. The total number consolidated over that whole decade was only 59 and that was in response to economic crisis.

In the Finnish case, it was concluded that a reduction in the number of communities through consolidation and restructuring from 446 into 236 (or less) viable ones could alleviate some of the problems. There has been considerable discussion in the media over the Finnish Study during 2003 and *laissez faire* consolidation is now official policy, with notable incentives and inducements. However, even such consolidation, while necessary and

beneficial, would not be a sufficient solution to take care of the risks arisen for economic activity, labour markets, and municipal finances due to the adverse dependency structure in a large number of communities. In such cases, the risks for communities are not nationally resolvable without more internationalisation – involving inflows of goods, services, capital and people. In practice, inflows and outflows of goods and services do occur, respectively creating and easing pressures on the balance of trade and payments, while capital outflows and out-migrations of young educated adults worsen the situation if they are not associated with inflows of factor incomes from abroad. International economic relations cannot be strengthened extensively enough or rapidly enough from centralised national initiatives of any national government. Local initiatives by communities and regions are important. Spatial studies are needed to supplement sectoral studies for evaluation of community based initiatives on internationalisation. Public-private partnerships also usually develop in communities.

Inadequate social capital constrains communities from remaining inter-generational continuities, disables markets, and limits autonomy of democratic self-governance. The inadequacy of social capital is reflected in spatial inequalities which are early warning signals for potential loss of well-being. The risk characteristics, endogenous to communities, are observable before changes in indicators of well-being become measurable from outcomes and consequences experienced at their worst only after fiscal transfer mechanisms are put to test and prove inadequate.

An identification of measurable indicators would highlight communities at risk for remedial actions and design of interventions under conditions of national federalism and European security. This requires risk criteria to be developed and applied well in time, to mitigate potential and actual erosion of social capital and social security. It would be severely limiting if such analysis were to be conducted only in binary terms of viable-unviable, or sustainable-unsustainable. Secondly, the elegance of scientific determination in any model that underpins governance policy choices which are political in nature is in formulating limits, and not in precise prescriptions or injunctions over decisions that are essentially required to be democratically exercised. For both these reasons, the specific focus of this paper is to highlight the ranges within which risk indicators as variables can be tolerated.

There has been considerable discussion on what warning signals as symptoms may be visible when communities start to decay. Even in extreme

cases that sparked humanitarian emergencies, causes have not been definitively linked to the economy or demography. For these reasons, it is important to raise the question whether there could be (a) a critical minimum or maximum viable threshold size of a self-reliant (though not necessarily self-sufficient) community within a political unit of governance, and (b) an optimal range for the size of a community, within a political unit of governance, apart from (c) whether there exists a critical minimum or maximum threshold size for a viable independent secure political unit of governance³.

4. Well-being of Inhabitants in Spatially Demarcated Areas

Inhabitations are characterised by natural habitats, settlements and instituted regions. The smallest components of larger aggregative entities have generally arisen spontaneously or coalesced in response to the integration of natural settlements into instituted regions. Within such clusters or agglomerations of settlers in a locality, solidarity develops from the primal social urge of "communications", basic to human living, from which emerged the concept of "community" that includes the communication of inter-generational values passed on through procreation and child-rearing.⁴ This notion of community as spatial solidarity or unity signifying a harmony defines the first order characteristics of a community. This is anchored in reinforcements of behaviour through tactile communication, in experiential interaction and in the sharing of sentience culturally transmitted across generations through languages-verbal and non-verbal. The extent to which such communities may be supplemented or substituted by virtual communities is open to question.

Communities are created by needs, wants and shared interests of people. The State as an overarching political entity superintending over communities enables Lockean rights and freedoms to be enforced as a *quid*

³ In Black's oft-referred classic analysis, the ten symptoms identified as early warning signals for a community in crisis include devaluation of human life, weakening of cultural foundations, loss of respect for tradition, rising bureaucracy, loss of economic discipline, rise in immorality, lawlessness, increasing materialism, decay of religious belief and decline of education (Black, 1996), but demographic transition and economic traverse are conspicuously missing from Black's analysis.

⁴ Exclusion or ex-communication remains one of the recognised markers that distinguishes those who are inside from those who belong outside a community's boundary.

pro quo to a Hobbesian contract of allegiance as a condition precedent. Thus, the tribute extracted by the monopolist promissary to provide stability for production and exchange in the economy binds the State to the economy and markets; and, local communities that aggregatively make up the nation enmesh with the State and economy. Bhaduri (2000) notes that the cohesion produced by such an arrangement is based on empathy as the cement of solidarity, capable of harbouring countervailing power institutions. Forms of local government may also be regarded as countervailing power institutions.

People bodily live in a locality with characteristics of a living system in a Millerian sense (Miller, 1978) distinguished by space, time, tasks, artefacts and relationships as five distinctive elements that mark its boundary conditions. This would be the case wherever the included population identifies itself as a continuing collectivity. So described, the community is always spatially local by its very nature whereas its constituents relate to happenings within its boundaries and outside them. For a community to be a self-reliant (not necessarily self-sufficient) living system, in the sense of being self-organised or self-governing for its well-being in important respects, a community needs to achieve a balance of inter-dependence with other similar units. In other words, it would need to avoid altogether or minimise to the extent possible, and desired, any persistent chronic dependency on other communities or the collectivity of such communities as a whole that together constitute an internationally recognised governing sovereign national unit. This requires life to be so organised that all of a community's included population's lawful motives, needs and activities that involve sharing and exchange including cultural transmission across generations may be consensually regulated within its boundaries and across boundaries with other communities in an orderly manner. It is implicit in such a description of community as a unit of reckoning to be able to envisage the unit as an actor in economic, social and political space co-existing with other similar units and variously co-operating and competing with them for the well-being of its constituents.

There are some cultural universals that determine resources and responses which every individual human life minimally needs for well-being through different stages of life (birth, maternity/paternity care, child-rearing, healthcare, nutrition, education, entitlements to consume goods and services beyond merit goods, rights and freedoms to think, feel, act, express, associate, sexual expression, and ageing with dignity). The concepts and methods by which costs and benefits of organising such well-being are

syndicated by communities with different endowments and capacities reflects the values people in a community place on sources of well-being (Dasgupta, 1993). Explicit and implicit assumptions about sustainability, development, efficiency, equity in the here and now (what economists call static equity), and inter-generational equity (dynamic equity) are invariably involved.

It is theoretically conceivable as well as empirically observable from the predicament of externally aided localities that a community could chronically lack characteristics to be an effective geographic unit for promoting the well-being of its constituents. This would be the case if it becomes structurally impossible to generate a sufficiency of response from among its constituents based on its natural, physical and human resources to produce inter-generationally transferable social capital. If decision-makers know or fear that none of the three components of aggregate demand - private consumption, private investment, government expenditure - can be manipulated to influence the level of aggregate demand, anticipatory supply side adjustments in the form of cuts may occur and induce downward spirals.⁵ However, the supply side adjusts with a time lag, and the warning signals may be too little, too late. Secondly, it is a well-known economic doctrine that the size of an internal market is limited by the purchasing power of its population⁶. The number of communities and their population sizes relative to the total population of a political governing unit may exhibit negative scale effects. Thereby, it may cause transfer payments or transactions costs of governance of such communities to become uneconomic and unsustainable. This may happen regardless of whether a locality community originated from a natural agglomeration or was constituted as an administratively instituted habitat.

5. Risk Criteria

Pre-requisites for sustainability of well-being in spatially demarcated areas characterisable as communities may be operationalised as risk criteria. Then, we can identify (a) which self-governing entities are and would

⁵ *Export surpluses or factor incomes from abroad cannot always be engineered to alleviate the situation if returns on foreign direct investments and export competitiveness are not assured. Such a predicament can be reached in the course of demographic transition or economic traverse or by a combination of both.*

⁶ *The logic of free trade rests mainly on overcoming such economic barriers whereas sovereign political power arose from how many persons could be drafted for war.*

continue to be a net drain on the national exchequer forever; (b) which communities are a net drain on aggregate welfare today but have the possibility, after factoring in market and demographic shocks, to be viable someday; (c) which regions are today's net contributors but may not remain so; and, (d) which areas are able to provide for well-being now and in the foreseeable future⁷. The six categories of risk cover this problematique noting that the criteria of spatial demarcation adopted in some EU countries corresponds closely to these theoretical premises⁸.

I. DEMOGRAPHIC SIZE RISK, MARKET RISK, ORGANISATION RISK

The demise of a human community has never been systematically related to the number of its constituents in any previous study despite good evidence from evolutionary biology that populations of living species that fail to sustain critical minimum threshold sizes for replacement go extinct. Populations of human species are no exception as the geological record of isolated populations over a number of glacial cycles confirms. The question of what constitutes the critical minimum size of a functioning human community had been raised in the pre-Christian era by Plato in 'The Laws'. He had come up with the number 5040. Plato regarded a certain population size to be an essential criteria to the constitution of a community in preference to other candidate criteria (in his time) such as inanimate resources in the form of land, minerals, agricultural produce or man-made commodities, tools and artefacts or services that have intrinsic value or command a price in exchange transactions. He gave no explanation of how he arrived at this figure and if he did give any, it has not survived to reach us. However, two aspects are clear.

⁷ For our purposes, the notion of municipality, community, area, region, and self-governing entity may be inter-changeably equated or functionally and spatially differentiated, as required.

⁸ In Finland, spatial demarcation is required to take into consideration that it advances the cause of services expansion, social capital, economic activity, livelihoods, and local fiscal autonomy. Spatial demarcations and the local governance structure in Finland so guided by the Local Government Acts (Kuntalaki 395/1995; Kuntajakolaki 1196/97; HE 129/2001) can be changed. The main aim of national statutes is to mandate local authorities with responsibilities for promotion of well-being and sustainable development in their areas. I am not aware of any study that has compared such enabling national statutes across the EU-25 to ascertain the scope for reform.

The number is not arbitrary and has certain interesting properties from the perspective of thresholds at which human capacities for communication transcend into large group dynamics in human populations (Miller, 1956). It is the smallest factorial size (7!) of limits of large group collectivities (between 7! and 12!) divisible by all the natural numbers from 1 to 10. By multiplying $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$, we get 5040, which is the smallest number for a functioning large group to organise itself in the greatest variety of associative forms that plurality of roles require for democratic functioning in a community. Until the last century, churches recognised this number by instituting bell combinations between 7 and 12 to ring in Stedman trebles ($7! = 5040$) corresponding to typically served parishes of a minimal size of 5040. More recently, population biology suggests that this could be the minimum number of humans required in a population to safely reproduce the next generation with safe degrees of distance for the population not to be plagued by genetic infirmities of in-breeding populations. No communities below the threshold size of 5040 ever applied to be "free communes" in any Nordic country (which implies freedom from a range of State control measures). If this revealed preference of local communities is any indication, communities with a population size of less than 5040 consider themselves, *de jure*, self-governing but lacking the confidence of *de facto* autonomy. As previously noted, inter-generational continuity is constrained by NRRs under 2.1 and public goods deliveries are constrained under population sizes of 8,000. Taking other factors into consideration, the minimum population size threshold required may be higher, for instance, if the net reproduction rate (NRR) is less than 2.1 children per female required for inter-generational continuity⁹.

From a demographic perspective, vulnerability for a community arises in two respects. Firstly, a community may depopulate due to out-migration, particularly outmigration of fertile couples in the reproducing age-groups or due to such a chronic decline in birth rates or such a sharp rise in death rates that birth rates are exceeded by death rates over a timespan that depopulates the locality. The population size in many communities may

⁹ The following NRR values for some of the European countries are indicative of the situation: Iceland(1.99), Norway(1.84), France (1.77), Finland (1.74), Denmark (1.73), Britain (1.68), Belgium (1.61), Sweden (1.50), Portugal (1.49), Switzerland (1.48), Poland (1.37), Germany (1.36), Austria (1.32), Greece (1.30), Romania (1.30), Estonia (1.24), Spain (1.20), Italy (1.19), Czech (1.13).

already be below the threshold for replacing the population from within. Secondly, a community may depopulate if its age-structure is loaded in favour of cohorts that are too old or too young and there isn't any incentive left for the remaining age-groups for any marginal benefit from economic livelihood that would not, for instance, be obtained at guaranteed entitlement levels at more preferred locations where new opportunities could arise in the future.

Organisation theories about management, systems analysis of governance limits and ICT research on limits to control and communication also point to an upper limit which has never been precisely determined but is known to lie between half a million and one million inhabitants from the observed partitioning of urban agglomerations, particularly satellite rings and zones around national capital regions like Madrid, Helsinki, Paris, Rome, Brussels, Prague, Copenhagen and London and cities like Stuttgart, Manchester, Köln, Hamburg, and Amsterdam. There is a technical limit of about one million persons beyond which personal data security cannot be organised (Anderson, 2001). In urban agglomerations, stresses already appear when the number of inhabitants exceeds half a million in Europe. Elsewhere, the division of megacities like New Delhi, Mexico, Shanghai, Mumbai into smaller governing wards and the sub-division of provinces also supports the notion of an upper limit for inhabitants within one self-governing area. The European experience of large administered regions like Veneto, Bavaria, Kainuu suggests that the density of population is not a significant issue and that the upper limit may have less to do with economic resources and more with management processes, structures and systems culturally reinforced in a habitat.

II MARKET RISK, EFFICIENCY RISK, DEPENDENCY RISK

Communities require to maintain a healthy dependency ratio to enable them to function as economic spaces with economically active age-groups and labour markets such that public expenditures can be financed and social insurance actuarially funded at the level of local communities corresponding to quality of life indicators guaranteed as national entitlements. Dependency ratios can be measured by adding the population below 18 years of age and above the working age (65) and dividing this by the economically active population (18-64). In this manner, by taking into consideration, capabilities and entitlements, demographic fragility can be evaluated for context-sensitive policy choices.

In Sweden and Norway, particular attention was given to worker-pensioner ratios and to the ratios of working adults to children under 18. The current worker-pensioner ratio in Finland is 4.5:1. Maintaining the same ratio beyond 2011 requires filling an annual shortfall of about 190,000 workers per year that translates into a decennial shortfall for the decade 2010-2020 to about 2 million persons (Saksa, 2000, based on SII and Statistics Finland). However, there is no reason to maintain the worker-pensioner ratio at 4.5:1 if improved productivity would allow disposable real income to be increased with a smaller workforce than at present. Economists are not all of the same opinion that productivity increases would compensate for the adverse ratios. The Population Division of the UN Secretariat's Department of Economic and Social Affairs has estimated that Europe would need 135 million immigrants by the year 2030 to maintain a healthy worker-pensioner ratio at 5:1. Without migration, the worker-pensioner ratio in much of Europe would be 2:1 by 2030. Shift in the age cohorts visually suggest that inter-generational burdens cannot be assumed to be bequeathed as before and that such age pyramids could make local communities (where the angularities are more pronounced or where out-migration on the scale of 1968-72 occurs) extinct much earlier. This is why we need to disaggregate the national averages to social units in the community.

More than half of the currently constituted Finnish communities have adverse age-structures with high dependency ratios exceeding 70 percent and the situation gets worse with time as projections upto 2015 indicate. The skewed age cohorts and the abnormalities inherent in the nature of demographic shock ahead would make age-pyramids obsolete in the sense that they no longer look like pyramids at all (Mathur, 2001, p.15). Where they resemble concave hour-glasses, with missing or slimmed age-cohorts in the reproductively active and economically active age-groups, there is little chance that communities could raise a next generation. Such communities would cease to be inter-generational continuities and become old people's habitats until whole areas fall depopulated. The cultural risk inherent in this is as serious as the economic and social tragedy that such a situation would entail.

III. FISCAL RISK, DEMOCRATIC AUTONOMY RISK

The provisioning of public goods, particularly merit goods and the production, distribution and consumption of private goods and services at

competitive prices are central to life in any community. The principle of subsidiarity would suggest that this is expected to be organised in and by local communities, supported by national fiscal transfer systems. In some communities, the availability and affordability of goods and services corresponding to a legitimately aspired threshold of quality of human life (determined locally or nationally) may be constrained by I and II above under assumptions of democratic self governance without external subsidies. Chronic dependence on external subsidies entails risks of exploitation and peripheral subservience. Exploitation can take several forms including but not limited to adverse terms of trade for goods and services of economic value of the region, oppressive tax rates and unjust extraction of higher tax from taxable inhabitants. The civil obligation to pay whatever level of taxes are levied has been kept as a sovereign prerogative beyond the pale of contest by the European Court of Human Rights ¹⁰.

Centre-periphery relations at various levels of government are a crucial determinant of the degree of exploitation and tax oppression because each level of government tries to shift the burden of financing away from itself while preserving as much freedom as possible to make and implement rules. In Nordic countries, the responsibility for promotion of well-being of inhabitants and the sustainable development of the municipal area has been devolved by the State which entrusts this responsibility squarely to the municipalities. This has provoked mixed responses, raising the question of whether economic democracy is a matter for the local community or the national community. With the derogation of earmarked subsidies for different aspects of well-being into a general subsidy to different communities based on a formula similar to the German system, the responsibility for resource allocation of the reduced subsidies is now with the local communities-many of which have a weak economic base and have to pay for services bought from joint municipal boards at full cost.

Local government expenditures more than doubled in the last four decades but the outlay on public investments shows no such increase. A

¹⁰ *The minority report of judges dissenting in the 11- 6 decision in the case of Ferrazzini v. Italy (44759/98) at the European Court of Human Rights, Strasbourg, 12 July 2001, correctly observed that in a democratic society, taxation must be based on the application of legal rules and not on the authorities' discretion. This argument is even stronger when the contest is not about the budgetary laws that fix a level and mode of taxation but about arbitrary imposition of demands that erode property rights without a chance of scrutiny of procedural guarantees, civil obligations of the State, or unjustified pecuniary losses to people.*

budget deficit is bearable in the short or medium term for any particular community which is part of a federal system of fiscal transfers, under two specific conditionalities. First, such a risk cannot be assumed in perpetuity without inviting a political risk or a democratic deficit, even both. Second, the assumption that there are always transferable surpluses from other communities becomes questionable if a large proportion of communities are deficit regions or the size of the deficit, in the aggregate disables the functioning of the transfer mechanism itself.

Equalisation subsidies compensate for dispersions in income per capita and local taxes per capita such that per capita consumption of public expenditure falls within a very narrow range. If income or consumption were used as indicators of spatial inequalities, it would seem that there are hardly any spatial inequalities. However, if income and tax receipts per head are regarded as an economic indicator of the resource generated within the community, there are significant differences related to the size of population.

By separating communities of each region below the population threshold of 5040 in one group and those above 5040 in another group, it is possible to examine whether this population size threshold difference accounts for differences in levels of income, taxes, central subsidies, and consumption. In Finland, the receipts of tax per head in communities with population above 5040 are, on average, clearly higher than others. Communities below the population threshold size criteria struggle to generate Euro 2000 per capita for the pooled resource base. In contrast, communities above the population threshold size are comfortably placed between Euro 2100 and Euro 3800 per capita, with a population-weighted average closer to Euro 3000 per capita. The subsidies are also significantly lower in these communities in every region.

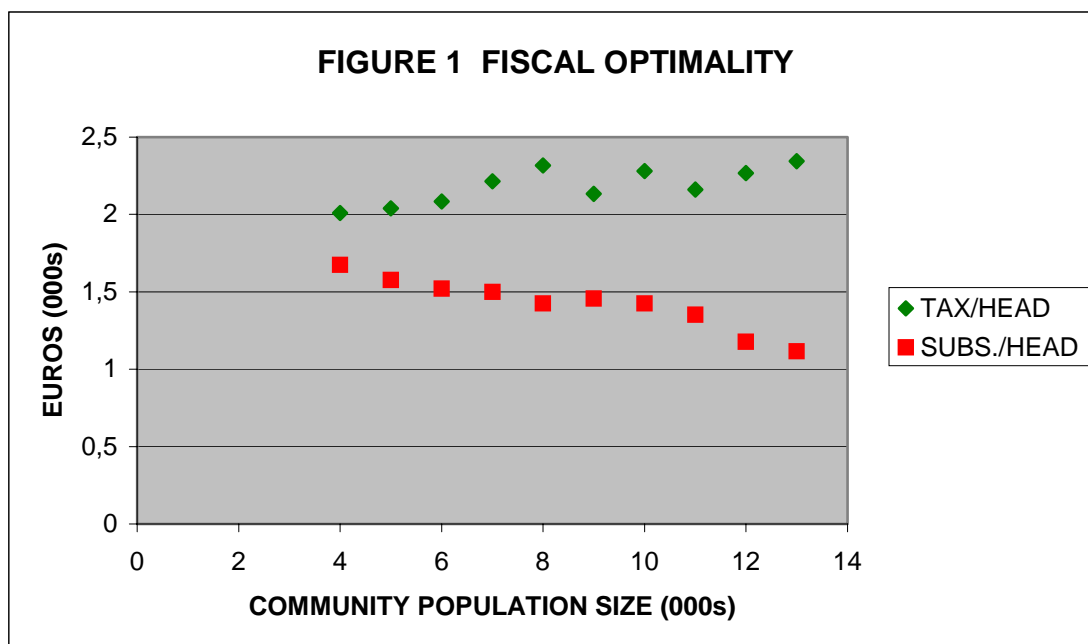
To determine fiscally optimal size of Finnish communities the population of all 446 communities was aggregated into context relevant population size between 4,000 and 13,000 at intervals of 1000. The fiscal situation of a Finnish local community improves with size only upto an upper bound of 8,000. Beyond this population size of 8,000, it fluctuates. This suggests that the increasing returns to scale do operate in the range 4,000 to 8,000 which points to the desirability of consolidating fiscal units to a size upto 8,000 inhabitants without any hesitation.

A greater economic activity and higher tax base can be noticed also in communities over 8,000 (particularly, urban centres) but it does not

appear to be derived from population size and other factors could provide better explanation beyond this threshold. These would include the population structure, economic activity, labour market, quality of local governance, productivity of social capital, and the adequacy of infrastructure. The State subsidy per head required continues to decline beyond 8,000 without any upper bound constraint. Upper bounds of community sizes, *ceteris paribus*, do not impose constraints or barriers to economic prosperity and consolidations in the size classes observable in Nordic Europe (except in national capital regions), leaving open the question of maximal bound to be investigated elsewhere.

V. ECONOMIC INACTIVITY RISK, LABOUR MARKET RISK

The purpose of economic activity is to increase the well-being of individuals through appropriate economic structures that are able to do it



(Stiglitz, 2002). A functional economic region is a location where inhabitants in the economically active age-groups are able to work. The demand for labour is a derived demand from maintaining or expanding the supply of goods and services. This risk is fundamentally unresolvable without increased economic activity through productive investments.

In the efficiency approach vigorously adopted in the European Union's "single labour market" and in national labour markets (associated with weakening trade unions during the 1990s), discipline at the work place occurred via the threat of unemployment in private employment. During a period of budget cuts in public spending, rents consumed by "insiders" became dependent on maintaining "unemployed outsiders" (at the cost of wage-earners' funds or the State) and part-time insider-outsiders at or about statutory minimum wages. Output without employees and income without employment are both accomplished through disguised employment which conceals the magnitude of the labour market risk¹¹. In the Sweden and Finland cases, the discrepancy between unemployment as measured by EUROSTAT and that which is publicly acknowledged by their governments has been between 7 percent and 16 percent during the period 1994-2003.

When the real average wage rate is not adjusted to correspond to productivity, mass unemployment can persist until the real growth rate of the economy (which depends, *inter alia*, on exports, factor incomes from abroad, domestic and international investments and the returns of such investment) is high enough without factoring in reductions in labour intensity. The inflation aversion of the European Central Bank makes it unlikely that macro-economic policies would have much contribution towards creating conditions for increasing the rate of growth in the near future. Regional economic policies have a more important role to play also in this context.

The population threshold insufficiency is found strongly associated with a lower economic activity as measured by the surplus of the labour force over the derived demand for labour. An increase in economic activity through more investments and a higher productivity for such investments requires to be predicated on a minimal threshold of social capital. Thus

¹¹ The notion of 'working non-employees' as disguised employment was introduced into the literature by the author in 1989 and the concept was recognized by ILO's World Labour Report, 1990.

Category I risk and Category II risk need to be resolved first. Resolving these risk categories, while necessary, may not be sufficient to resolve Category III risk. Category II and Category III risks are unsolvable in many EU NUTS 5 regions without new internationalisation initiatives. The European labour market does not adjust much through migration of the labour force between different communities. This strikes at the very core of portability of capacities and entitlements- a feature of decentralised social capital and incentive for local solidaristic initiatives. Restructuring of self-governing communities into units of democratic autonomy as viable social habitats and economic hubs is therefore a complex problem.

V. LOGISTICS RISK

A growing body of literature supports the notion that areas to which economically active age-groups commute to work could be included as the functional area for infrastructure planning and labour market policy (Andersen, 1999; 2002; Norstrand and Groes, 2001; Coombes et al, 1986; Casado-Diaz, 2000). Communities need transport and communication links and other institutions, logistics and infrastructure for consumption security to correspond to income security through capacity to organise marketable services and provide for public goods and social welfare. At the same time, highly developed transport and communication systems make people footloose and increase the density of population around urban agglomerations converting metropolises to megapolises like Malmö-Copenhagen.

Many local communities could not have arisen without the development of the railway network and dispersed communities could not thrive without it¹². The problem of subsidising uneconomic passenger services that link vulnerable marginal communities is severe in Europe. Railway systems are poorly supplemented by inland water navigation even in countries with large water-bodies. The contraction of public transport services and their assumed substitution by private actors as a measure of liberalisation also affects transportation and habitats. For example, on the Seville-Madrid rail link, there is only one train a day at the published fare

¹² For an analysis of the correspondence between dwindling communities and axed railway linkages, see Mathur, 2001 pp 12-13.

and the contracting firm operating the rail link does not accept tickets purchased from the rail network and charges its own higher fare.

Social bonds are diluted when outmoded industrial occupational categories are replaced with new service professions of a knowledge society. Home-working and alienation from real communities towards more isolated and virtually networked linkages push the older age-groups to marginalised existence of subsistence in fragile under-resourced localities where consumption may become uneconomically prohibitive. Not everyone of all ages can be connected to the web by positioning a computer and opening an account with an internet service provider.¹³

VI. SOCIAL CAPITAL RISK

Logistics and infrastructure in the form of physical capital are important but in the nature of what economists call 'sunk costs' and at no limit can physical capital substitute for social capital. Valkeakoski in Finland is a good example of a community with plenty of empty buildings, the highest tax rate in the region, and a near-bankrupt municipality that has cut back its spending on healthcare and education.

The population-centred approach to sustainability emphasises the significance of fertility and kinship systems and structures, age-structures, dependency ratios, value added by an economically active population and value distributed among its constituents to individual persons and members of families and households. It is also consistent with the primacy of society over economy, the embeddedness of economies in societies and institutions, and is based on communication within and across communities about needs and interests. Needs and interests in communities tend to converge through the logic of collective action (Olson, 1971), moral sentiments valued by the community (as in Smith, 1759 which preceded his more famous work on the wealth of nations), and the accumulation of social capital (Kajanoja and Simpura, 2000). This would be the case in every community where

¹³ *Many elderly persons cannot grip a mouse and navigate with it or use a keyboard with the standards of visual acuity and motor coordination required. This could be the case even if they previously used computers. Computer interfaces designed by the young for the young are constantly updated. It is difficult to provide adequate support at home into the use of newer tools, software, protocols. Besides, an elderly pensioner may prefer a wheelchair drive to a neighbourhood bank as part of her well-being to check if her pension has arrived, than a vegetable existence in front of a computer screen in her home.*

constituents act out motives with their political powerbase and thereby structure incentives to make and implement long term and inter-generational investments at the location of the community.

Proposals for consolidation of areas into larger units of local governance draw criticism that this would reduce local democratic representative participation, and create unmanageable large units. In Haveri's opinion survey, 18 in a small community of 50 political representatives consulted were interested in local community governance to make the time to answer two questionnaires (Haveri, 2003). A small size is no guarantee of representative political participation on issues if civil society is weakly developed or poorly informed. Transactions costs would be lower if trustful relations can be built easily in small communities. However, transactions costs can be higher in smaller communities if they are unable to organise the needed flows of privately marketable and publicly delivered goods and services. The deciding factor is the cost required to organise generalisable trust. Studies have found generalised trust in Nordic countries to be lowest in Finland and Iceland (Bjornskov and Svendsen, 2002). Benefits of small communities are more easily outweighed by transactions costs to organise services in such cases. When markets fail, there is a case for intervention. When an intervention requires a structure that costs more than it benefits, it usually points to the need for other structural solutions¹⁴.

Location of a community has ceased to be a question only of geography. There is recognition of "imagined communities" (Anderson, 1991) and "virtual communities" (Raymond, 1999). The extent to which imagined or virtual communities may supplement or substitute real communities is being tested in action- research experiments. The boundaries of the unit of reckoning for the same set of people of a community may be conceived pluralistically at different levels of functioning. In some ways this challenges the notion of a local community when sub-national provincialism competes with pan-European regionalism or inter-municipal coordination. Countries within the European Union are sovereign governance entities within which community life is commonly understood to be sub-nationally organised in its political, social, cultural

¹⁴ For example, the unemployment office (*Työvoimatoimisto*) is the largest employer in Utsjoki. Unless it were itself to be expanded and thereby employ all the unemployed, the only proper solution would be a structural solution that could stimulate the derived demand for labour to clear the labour market.

administrative and economic dimensions. Forms of enduring social capital at the level of local communities are necessary for communities to be self-reliant or become self-reliant in respect of municipal finances within a foreseeable horizon if they are to be self-governing, autonomous and democratic inter-generational continuities as communities, not relief zones.

6. Early Warning Signals

The sustenance of services, and indeed their expansion, to serve an ageing population would require communities to be of an economic size from the perspective of both consumption security as well as public delivery of services at an affordable transactions cost. Even if income security could be arranged (and there are many ways for sovereign governments to do that, including borrowing), consumption security requires networks, markets, and institutions to be functioning in the locality¹⁵. By knowing which communities are at risk for outcomes and consequences from which they are sheltered and to what extent such sheltering is currently effective and sustainable, we can identify communities stressed by risk factors before decline in human well-being may be measurable from indicators of outcomes and consequences, if the impact of these risk factors were to be experienced without cushioning.

By doing so, we expand the scope of public choice in the arenas for policy intervention. If risks for well-being can be measured from spatial inequalities of endogenous capacities independent of outcomes and consequences, it should be possible to use this framework more generally. If the adequacy of tax base is better assured with bigger sizes of local communities, this is a matter of administrative, civil and political reorganisation within the capacity of the government to implement. However, 'how much bigger' is a question that could be inquired by analysing the empirical evidence with reference to risk criteria and gains and losses from scale effects.

¹⁵ In regions like Pirkanmaa of Finland, most of the service providers closed their shops in localities like Kuorevesi, Luopioinen, Kihniö, Jämijärvi, Suodenniemi, Aetsä, Vesilahti, Sahalahti and Kylmäkoski, by the year 2000 (Mathur, 2001). Basic health services and other living amenities like retail banking at such locations have become a luxury. The first mentioned locality, Kuorevesi, already collapsed, and ceased to be a local self-governing unit with effect from 1st January 2001 and was annexed to Jämsä.

7. Comparative European Experience

Regions in Europe are organised at various EU NUTS levels from 1 to 5 and follow a diversity of traditions. For convenience, regional development strategies can be stylised into five kinds:

- (a) Perrouvian growth-poles. Examples: Stuttgart, Toulouse, Milano.
- (b) Transport-Storage-Networks nodes based on 'omphalos syndrome', where regions value location as an industrial or logistics hub at the cross-roads of major connecting networks. Examples: Bavaria¹⁶, Creuse¹⁷, Veneto.
- (c) University towns aiming to be major biotechnology hubs of the future with science parks in nutrition or other life sciences. Examples: Martinsried, Groningen, Leuven, Åbo, Cambridge.
- (d) Peripheral locations that consider tourism as their mainstay. Examples:
Sotkamo, Corsica,
- (e) Satellite townships near metropolitan centres. Examples: Malmo, Vantaa,

8. Conclusions

Since the imminent collapse of communities causes deterioration in quality of life indicators only over a period of time, this cannot be noticed at an early stage from changes in per capita consumption, in countries where incomes policies involve assumptions of full employment and fiscal transfer mechanisms. The availability and affordability of a national minimum basket of goods and services corresponding to a minimum standard of a quality of life, nationally defined, to replace a nominal support income would be a novelty in Europe¹⁸. A high cost of living can easily be confused with a high

¹⁶ Bavaria is served by two international airports, Munich and Nuremberg, autobahns and the Rhine-Main-Danube navigation system that links the Black Sea ports with the North Sea ports. Bavaria has a GNP exceeding 19 of the 25 EU member-states.

¹⁷ The French acronym for the demographic projections model for Creuse is curiously called 'OMPHALE', a reminder of the Greek relic at Delphi from where the name of the syndrome that 'all regions consider themselves to be at the centre' originates.

¹⁸ This way of benchmarking entitlements, including pensions was highlighted in a UNU-WIDER study 'The Future of Work' prepared for the Heads of Governments' Social Summit in Copenhagen (Mathur, 1995).

standard of living if absolute indicators of quality of life are not used (Ahonen,1995; Matthan,1994). However, the specification of what is to be sustained is not always straightforward (Anand and Sen, 2000).

Consumption declines, poverty indices, deterioration of healthcare and education, bankruptcies of local authorities, and unsustainable losses through high transfer payments can be determined with certitude only when it is too late to do anything. By using the tools suggested in this paper, it should be possible to identify debilitating endogenous incapacities at a disaggregated spatial level through the risk criteria proposed. If the appropriate first intervention is new spatial demarcation, it need not get swamped by the rush to divert resources in the nature of artificial respiration to terminally sick communities with no possibility of resuscitation.

In the worst cases, recourse to an external borrowing strategy entailing high costs would be required although hard to justify if that debt is passed on to the next generation. It would resemble a war loan without a war. I suspect it could be a convenient default solution for politicians of the next decade to sell as an inevitability and blame their predecessors for myopia.

The dilution of deferred claims by raising the retirement age could be justified on grounds that people live longer, and are able to lead healthy active lives in which they may continue to work longer than before. This would ease the pressure on disbursement of pensions provided other incomes were earned. But the trend favours early retirements.

Programmes that transfer resources from a later generation to an earlier generation, and from a younger age-group to an older age-group need to envisage the incentive for participation in them (Mckerlie, 2001). This participation cannot be forced because out-migration of talent may occur despite the scope of such programmes being universalised nationally. Some assumptions about inter-generational equity are a necessary part of any dynamic construct of well-being. Life after economically active periods is a stage not limited to the current age-cohorts over which a population is found distributed. People cannot be blamed for growing old, a factor for which they are not responsible. The prospective quality of lives as a whole should be our concern, not merely the distribution of particular rewards to individuals by an age criteria at a point in time. The spatial inequality with regard to dependency structures requires policy choices to be made that keep the

lifetime quality over different stages of life above a guaranteed standard basket of entitlements with trade-offs between what is appropriated by different generations.

A critical resource allocation decision would be the allocation to the needy old at any given point in time versus an equalisation formula that merely equates the average quality of life over a life span. This decision would have to be jointly made by the initiatives of communities and the capacity of the State for perpetual fiscal transfers in respect of communities facing dependency structure risk. If the decision is such that an elderly person should receive no more or no less than what a current young, on average is provisioned for her old age, there may be a need to reorganise some services rightaway. If this is not a preferred solution, then communities in particular, and the State, as a whole would need to raise the pool of deferred resources through increases in taxation and other forms of forced savings commensurate with improved labour market efficiency.

There are two ways labour market efficiency can be improved- by raising labour productivity and by increasing the population in the economically active age-groups with full employment of the labour force. If the derived demand for labour cannot be stimulated by competitive conditions through more domestic and foreign capital investment in productive forms, the physical assets and human assets accumulated cannot be regarded as an adequate form of insurance for continued well-being. Adult dependency that arises in competitive markets where competence is valued can remain a condition to be inter-generationally managed (Sennett, 2002).

The third possibility, international in-migration remains a 'no-no' in much of the EU. Countries like Germany that encourage professional in-migration are not successful in attracting educated talent compared to the 1960s when they mainly sought unskilled and semi-skilled labour. The implicit suggestion in many European texts (for instance, Esping-Andersen, 2002) that EU societies will rely on immigrants to do the unskilled work while natives upgrade skills to do more interesting and rewarding jobs is fraught with unstated assumptions that bear little resemblance to the immigration policies actually practised.

The most promising strategy would be a fourth alternative that identifies self-governing communities rendered fragile by spatial inequalities that present risks for their viability in their present form. If the problems of sustainability are unresolvable except by domestic fiscal transfers in

perpetuity or there be doubts about the sustainability of fiscal transfer mechanisms on this scale indefinitely, a beginning can be made by restructuring spatially demarcated habitats and consolidating or reorganising communities into viable self-governing entities. By introducing the spatial dimension and hypothesising lower and upper bounds for spatial demarcation of self-governing entities, this paper, with its limited objectives, only presented the logic for the design of early warning signalling systems based on endogenous capacities that are characterised by demographic size and structure.

There can be several ways risky communities may be consolidated and the non-risky ones made healthier. Ultimately, it is an open political question in any democracy. The province of scientific determination and the province of political will may overlap but they do not always do so.

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