Regional Studies, Vol. 39.5, pp. 647–658, July 2005

Routledge
Taylor & Francis Group

Critical Surveys

Edited by STEPHEN ROPER

Understanding Regional Inequalities in Small Countries

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(Received June 2004: in revised form March 2005)

FELSENSTEIN D. and PORTNOV B. A. (2005) Understanding regional inequalities in small countries, *Regional Studies* **39**, 647–658. This paper revisits the commonly held view that small countries do not exhibit significant regional disparities. The issue is framed as one in which the attributes of small size (land area, population and the magnitude of the economy) are mediated by a series of spatial and non-spatial factors such as distance, density, factor mobility, natural resources, land supply, social cohesion and governance structure. Given the existence of these mediators, the magnitude of regional disparities in small countries is not as surprising as it may seem at first glance.

Small countries Inequality Regional disparities

FELSENSTEIN D. et PORTNOV B. A. (2005) Comprendre les inégalités régionales des petits pays, *Regional Studies* **39**, 647–658. Cet article cherche à voir sous un nouveau jour l'idée reçue que les petits pays ne font pas preuve d'importants écarts régionaux. La question se voit relativiser en termes de la médiation des atouts de la petitesse (superficie, population et taille économique) par une série de facteurs à la fois géographiques et non-géographiques, tels la distance, la densité, la mobilité des facteurs, les ressources naturelles, le marché foncier, la cohésion sociale et la structure administrative. Vu la présence de ces facteurs médiateurs-là, l'ampleur des écarts régionaux des petits pays s'avère moins surprenant que l'on n'aurait pu penser à première vue.

Petits pays Inégalité Ecarts régionaux

FELSENSTEIN D. und PORTNOV B. A. (2005) Zum Verständnis regionaler Unterschiede in kleinen Ländern, *Regional Studies* **39**, 647–658. Dieser Aufsatz greift noch einmal die weit verbreitete Ansicht auf, daß kleine Länder keine signifikanten regionalen Unterschiede aufweisen. Hier wird das Problem so formuliert, daß die Merkmale begrenzten Umfangs (Oberflächenausdehnung, Bevölkerung und Bedeutung der Wirtschaft) durch eine Reihe räumlicher und nicht räumlich bestimmter Faktoren wie Enfernung, Dichte, Faktorenbeweglichkeit, Naturschätze Landvorrat, gesellschaftliche Geschlossenheit und Regierungsstruktur aufgezeigt werden. Angesichts dieser vermittelnden Faktoren überrascht der Umfang der regionalen Ungleichheiten in kleinen Ländern nicht so sehr als auf den ersten Blick vermutet werden mag.

Kleine Länder Unterschiede regionale Ungleichheiten

FELSENSTEIN D. y PORTNOV B. A. (2005) Las desigualdades regionales en los países pequeños, *Regional Studies* **39**, 647–658. Este artículo trata nuevamente la visión comúnmente sostenida en torno a que los países pequeños no muestran desigualdades regionales significativas. Esta cuestión se examina dentro de un marco en el que las características que se le atribuyen a los países pequeños (terreno, población y magnitud de la economía) se ven mediadas por una serie de factores espaciales y no espaciales tales como la distancia, la densidad, movilidad factorial, recursos naturales, provisión de terreno, cohesión social y estructura de gobernanza. Dada la existencia de tales factores mediadores, la magnitud de las desigualdades regionales que se observan en los países pequeños no es tan sorprendente como puede parecer a primera vista.

Países pequeños Desigualdad Disparidades regionales

0034-3404 print/1360-0591 online/05/050647-12 DOI: 10.1080/00343400500151921
http://www.regional-studies-assoc.ac.uk

JEL classifications: R11, R12, R15

> Developed small states seem to have succeeded in spreading the fruits of economic growth more widely among their populations than the larger states at comparable levels of income per capita.
>
> (KUZNETS, 1960, p. 30)

INTRODUCTION

The above quotation reflects a commonly held notion that small countries have small regional disparities. In the address from which this quotation is taken, Kuznets noted that he did not really have any empirical evidence to bolster this claim. However, he continued that:

> it is my belief that income is distributed more equally among the populations in the Scandinavian countries and Switzerland than say in France, Germany or even the United States. . . . These smaller countries have no proportionately large regions like our South with a per capita income distinctly lower than the rest of the country.
>
> (p. 30)

Kuznets is not alone in voicing these sentiments. Similar views also appear in discussions of the impacts of country size on economic development. For example, STREETEN (1993, p. 199) claims that 'in small developed countries there seems to be less inequality in income distribution than in large ones'. PERKINS and SYRQUIN (1989, p. 1694) state similarly that:

> if inequality between regions in a country is a major source of inequality between households, then one would expect large countries to have greater regional diversity and hence higher levels of inequality.

This critical survey revisits the 'belief' that small countries (which are often not much larger than regions in a large country) do not exhibit significant regional differences. The motivation for this reassessment follows in the wake of a recent surge of interest in 'micro' and 'peripheral' economies that has tended to look at the way remoteness and smallness impact on their economic performance (ARMSTRONG and READ, 1995, 2003; BERTRAM, 2004; POOT, 2004). Much of this interest is focused on tiny island or city-states, protectorates and autonomous or dependent territories with some measure of political sovereignty. This literature, however, studiously avoids the issue of interregional inequalities. In all likelihood, the tiny physical scale of these micro or city-states implies that interregional differences are virtually meaningless. A tradition of interest in small countries also exists in the development economics literature (STREETEN, 1993; BRIGUGLIO, 1995; EASTERLEY and KRAAY, 2000; BRAUTIGAM and WOOLCOCK, 2001). But again, this has been more concerned with questions of volatility and vulnerability in the national economies of undeveloped countries than with any particular interest in interregional gaps. In a recent volume, FELSENSTEIN and PORTNOV (2005) attempted to fill this void by focusing on the small, developed countries that form the mainstay of much of the modern world economy and many of whom have become models of economic development and global competitiveness in their own right.

Regional growth theory offers contradictory evidence on the permanence of regional disparities. Neoclassical growth theory, as developed in the context of international trade and applied to regions, and SCHUMPETER's (1934/61) theory of economic expansion, both assert that competitive forces and interregional migration of labour and capital equalize differences and factor prices across regions and lead to more even regional development (HIRSCHMAN, 1958; SIEBERT, 1969; RICHARDSON, 1977). In contrast, the so-called 'new economic geography' suggests the opposite: the uneven concentration of production that manifests itself, inter alia, in a 'core–periphery geography', is sustained by circular production linkages and may become increasingly entrenched over time (KRUGMAN, 1991; BRAKMAN *et al.*, 2001; FUJITA *et al.*, 2001). However, much of the evidence in both directions is based on large countries such as US states or areas within a supra-national economy such as the European Union (EU) (ARMSTRONG, 1995; TSIONAS, 2000; LE GALLO and ERTUR, 2003).

But just how relevant are these theories for small countries generally characterized by small land area and small population size? These two determining attributes lead to a slew of implications with respect to regional disparities. If distances are shorter, access costs are lower, the number of regions (and therefore interregional variance) smaller, government structures more centralized and population more homogenous, then ostensibly, this should point to narrower disparities across regions in small countries.

On the other hand, it can be argued that certain unique features of small countries may mitigate any regional convergence. For example, even in small countries, physical distance between central cities, which are main centres of employment, and hinterland regions may surpass those practicable for daily commuting. Therefore, any interregional income equalization in such countries or spillover effects cannot but be limited in scope. Furthermore, small countries are, most often, densely populated. This may lead to the emergence of considerable diseconomies of agglomeration, not only in their central areas, but also in their hinterlands. Although in small, densely populated countries a significant density gradient may exist between the core and periphery, over-concentration of population and economic activities in the central, densely populated

regions may result in especially high land costs, transport congestions and other essential 'prerequisites' of dis-agglomeration economies. Whereas in large countries, such diseconomies may be concentrated at major metropolitan areas, in small countries where distances and travel times are shorter, they may spread over the entire national territory, resulting in considerable gradients of transport outlays and general production costs. In addition, small countries are often characterized by a dependence on external markets, international trade and the global economy (Poot, 2004). These activities are invariably conducted from the major population centres, leaving peripheral areas at a distinct disadvantage and further entrenching any agglomerative tendencies.

In other respects, the characteristics of small countries may give rise to regional outcomes very different to those in large countries. For example, the measurement of spatial disparities in small countries may lead to very different results to those obtained for large countries due to very different spatial scales of analysis. In large countries, such units are often restricted to regions, which are internally heterogeneous. Since either aggregates or averages are compared, the results may often be misleading. In contrast, in small countries, inequalities among municipalities and even individual localities may be analysed, leading (presumably) to more realistic estimates.

Internal migration in small countries and its equalizing effects on interregional disparities may also be distinctively different from those found elsewhere. Smaller land areas mean that long-distance commuting can often substitute for internal migration. In addition, it can be claimed that in small countries the efficacy of public policy in closing regional gaps may be higher compared with that in large countries with diverse economic, environmental and governance structures.

This paper addresses these issues in the following manner. It starts with questions of definition clarifying in the first instance what is meant by 'small' countries and what leading attributes characterize them. It proceeds to highlight the expected impacts of these attributes (conditionally defined as either spatial or non-spatial factors) on interregional convergence or divergence in a small country. The paper then tests research assumptions concerning the effects of different size-related factors on the magnitude of regional disparities, using statistical data available for both large and small European countries The concluding section defines the general pattern of the relationship between country size and regional inequality.

FRAMING THE ISSUE: COUNTRY SIZE AND ITS IMPLICATIONS

Ostensibly, size would seem to be a concrete physical notion that is easily observed and measured. It is hardly an elusive concept that is differently perceived and experienced by different individuals or groups. Objectively, size may be measured by three different, although interdependent, parameters: land area, population and economy. For the purpose of this paper, the latter criterion (economy) is more or less a non-starter. By defining a country as small, based solely on economic performance, land-endowed giants such as Ukraine and Byelorussia, as well most African, Middle East and Central Asian nations, are included.

The physical magnitude of a country (measured by either population size of land area) would seem to dictate a whole string of attributes in which cause and effect are clearly delimited. Thus, small countries are likely to have smaller markets and be more open to external trade. Smaller populations may lead to greater social or economic homogeneity. Similarly, should the magnitude of a country's economy decline with physical size, then the effect of 'economic smallness' would be equally clear: a small market means a more volatile economy, less ability to achieve scale economies, etc.

Size, however, can also be conceived as a relative or contextual notion. No single index or measure of size will satisfy all research needs or policy contexts. For instance, small land area does not necessarily mean small population and vice versa. North Europe, Asia and the Pacific provide numerous examples of land-abundant but sparsely populated countries (e.g. Norway, Finland, Iceland, Australia and New Zealand). Furthermore, the effect of size on economic outcomes is not absolute. The constraints and opportunities offered by small size and limited natural resources can be mediated by technological innovation and human capital embellishments. As a result, the 'small countries' club may include both economically advanced nations (such as those mentioned above) as well as economic backwaters such as Mongolia, Nepal and Bhutan.

Even those size factors considered absolute and 'fixed' such as land supply and human capital endowments can be changed over time. For example, land can be re-claimed and workers can be re-skilled. Economic performance of a country can also change in both directions. While Slovakia, Slovenia and the Baltic states have shown rapid improvements in their economic conditions, the economies of other small countries (e.g. Azerbaijan, Georgia and Armenia) have deteriorated considerably.

Context and spatial scale are also important here. At certain levels of analysis such as the supra-national, a country may be considered 'small' with all the implications that accompany this categorization. At other levels of aggregation, such as the trade-bloc, the same physical unit of territory or magnitude of economy, may assume a different relative size. These issues of absolute or relative scale are further compounded when dealing with regions within countries. If a country is small, then its regions may also be sized in proportion. If regions are simply countries writ small, then all the attributes relating to small countries should equally

apply (and sometimes with greater potency) to their regions. For example, if small countries are open economic systems, then their regions can be considered particularly exposed. If small countries are assumed to be culturally homogenous and socially cohesive, then their regions are assumed to exhibit these attributes even more pronouncedly.

But are regional characteristics just reflections of national characteristics? If this is the case, then small countries with more equitable distributions of income and product at the national level should also have smaller regional disparities. Indeed, some economists tend to consider country size a non-issue in terms of economic theory (Beenstock, 2005). This stems from a viewpoint that relates to countries or regions as individuals rather than groups and ignores their size differences (Armstrong, 1995; Sala-I-Martin, 1996).[1] An alternative view, however, is that the size of a region does matter and that each region is a group of municipalities, etc. (O'Leary, 2001; De la Fuente, 2002). As Hare (1962) points out, *small groups* are inherently distinguished from their larger counterparts by a number of distinctive characteristics: greater ability for self-organization, stronger social cohesion, and smaller differences in goals and values among individual group members.

Many of these 'small group' characteristics are largely applicable to small countries. The small countries literature abounds with descriptions of the defining attributes of small nations. As noted above, much of this is grounded in the development economics tradition and as such focuses on micro, island and city-states (Armstrong *et al.*, 2000; Bertram, 2004; Read, 2004). The size definition used is invariably based on land area, population size or GDP_{pc}, where GDP is Gross Domestic Product. Most studies outline an upper size limit on the basis of statistical techniques (Crowards, 2002) or 'natural' break points in the size distribution. These, however, remain arbitrary choices. Work by Armstrong and colleagues suggest a 3 million population cut-off (Armstrong and Read, 1995; Armstrong *et al.*, 1998); others opt for a 5 million cut-off point (Brautigam and Woolcock, 2001), a 10–15 million population break (Robinson, 1960) or a land area of 65 000 km^2 (Jalan, 1982), etc. What does emerge, however, is that over time, the growing complexity and diversity of 'small' economies makes issues of size as measured by standard population or territorial indicators increasingly difficult to defend.

The archetypal profile of the small country as portrayed in the development economics literature is one primarily characterized by small local markets, dependence on exports and an inability to reach scale economies (Scitovsky, 1960; Streeten, 1993). This is a prime feature that distinguishes large countries from the small, in both quantitative and qualitative terms. It is also an attribute that is not directly dependent on land or population size. Conceivably, a country with a large land mass and small population or with a large but poor population could both be considered 'small' under these terms.

On the supply side, a small country is characterized by resource constraints. A labour supply constraint is likely to exist. However, in developed small countries, such as those featured below, this can work to their advantage. Constraints on the domestic supply of labour invariably result in an emphasis on developing high-skill human capital for high value added production. Labour market equilibrium and low-level labour supply can be attained via in and out-migration, especially when small countries are part of a larger continent, as in Europe (Armstrong and Read, 2002). In other small countries, labour supply constraints coupled with the competitiveness and vagaries of the world market in they are forced to compete, leave the small country in a vulnerable position (Briguglio, 1995).

If physical area defines the small country, the land supply constraint is likely to be a particularly acute issue. On the one hand, a small land area makes for a small agricultural sector. This is a source of advantage for a small, developed economy (Armstrong and Read, 2002). On the other hand, as Beenstock (2005) points out, a limited land supply in small countries makes for limited stocks of building land and these are generally not uniformly distributed. As land and housing services are obviously non-tradable goods, they are likely to reinforce regional differences in small countries to a greater extent than in large countries.

With an open economy dependent on imports to meet local consumption demands, the small country invariably finds itself subject to exogenous forces that determine many of its macro-economic parameters such as exchange rates, domestic price levels, etc. In such circumstances, the small country may align with a supra-national body such as the EU in order to try and mediate some of the liabilities of smallness (Marcy, 1960; Commission of the European Communities, 1998). This, however, results in limiting the countries' ability to effect an independent macro-economic policy via the monetary and fiscal tools at its disposal.

All this would seem to point to size as a key conditioning factor in the economic performance of small states and the sub-optimality associated with being small (limited, high-cost local production, lower incomes, etc.). However, the empirics do not seem to support his view. Alseina and Spolaore (2003) show that small country size improves economic performance in the presence of a free trade regime. Work by Armstrong and colleagues has shown that micro-states perform as well and sometimes better than their adjacent regions (Armstrong and Read, 1995; Armstrong *et al.*, 1998) and their income levels tend to converge to those of their patron economies (Bertram, 2004). In addition, the empirical findings coming out of the development economics literature and attempting

to link size to economic performance are often ambiguous (Perkins and Syrquin, 1989; Milner and Westaway, 1993).

The attributes of small size extend beyond its impact on economic performance. Some consider country and regional size to be the outcome of a trade-off between the economic benefits of (large) size on the one hand and the social and political costs of heterogeneity on the other (Alseina and Spolaore, 2003). Thus, country or regional size is not an exogenous 'given' but is endogenously determined, the result of choices and preferences. Size also impacts on social cohesion and the distribution of economic welfare. Both these issues receive surprisingly short shrift in the literature.

Social cohesion and homogeneity of tastes and cultures may also be assumed to be greater in small countries, although the contemporary world does show various examples of small but deeply fractured countries, e.g. Serbia, Cyprus, Lebanon and Israel. On the whole, however, accessibility to decision-makers in small countries is arguably easier and this makes for greater social consensus and solidarity. This could also be mediated by the more centralized governance systems in small countries. Stronger central government and less regional governance are likely to lead to more focused policy goals and greater attempts at regulating social cohesion. Political centralization in a small country is therefore likely to spawn fiscal centralization and this concentration of political power and budgetary control is likely to be self-reinforcing. Economic activity will choose to be close to the seat of power and resources further aggravating regional disparities. On the other hand, empirical evidence shows that fiscal decentralization, rather than political decentralization, leads to regional convergence and that this is felt more acutely in small countries than in large (Gil *et al.*, 2005).

When compared with the big issues of vulnerability and export orientation, the question about whether small countries have a more equitable income distribution across social groups or regions is perceived as of secondary importance in defining their economic character. In addition, it may seem self-understood that small size implies less variation, which in turn implies a more equitable distribution. But is this linear reasoning so obvious and is it backed by empirical evidence? Streeten (1993, p. 199) claims that 'large countries show, of course, larger inequalities by regions than small countries'. While this claim is not backed by any estimates, other work from development economics has not been able to verify this statement. Perkins and Syrquin (1989) test for a relationship between the size distribution of income and country size. They assume that the regional income distribution is reflected in the size distribution of income as regional inequality is one source of inequality in the distribution by size. Based on data for 48 countries, they find no evidence to back this claim and the coefficient for size is in fact negative but insignificant.

REGIONAL OUTCOMES ARISING FROM SMALL SIZE

A priori deduction of the relationship between country size and regional disparities does not point unambiguously in one direction. Table 1 sketches out some of the main expected outcomes of this relationship. Size-related attributes are presented and their impacts in terms of either regional convergence or divergence are hypothesized. In the following subsections, these impacts are considered separately for spatial and non-spatial factors and discussed in turn.

Spatial influences

According to Tobler's (1970, p. 236) first law of geography, 'everything is related to everything else but nearby things are more related than distant things'. The impact of interregional spillovers on regional disparities clearly follows this logic. On the one hand, shorter distances in small countries imply more spillovers and regional convergence. There is much evidence to suggest that knowledge-based spillovers are regionally bounded (Acs, 2002) and thus where distances are small, spillovers are likely to promote convergence. On the other hand, small countries often have one dominant metropolitan centre that casts a shadow or 'Upas Tree' effect on other regions and limits any significant interregional spillover effect. For example, this effect has been noted for Helsinki, Tel Aviv and Dublin in their respective regional contexts (Roper and Grimes, 2005). In addition, the dominance of the metropolitan centre is further entrenched as even in a small country, the distance between such a centre and the hinterland regions generally surpasses those practicable for daily commuting (Portnov and Erell, 2001).

The small size of individual regions in small countries is another attribute with ambiguous effects. Small regional size means less likelihood of within-region extreme values and consequently less intraregional variance. This may result in more evenly developed regions. Also, the smaller size of regions makes for smaller units of analysis and smaller aggregates are likely to show more equality. Alternatively, the small size of regions means that transport costs are less an advantage to domestic suppliers. With this form of protection removed, the small country is likely to become more dependent on exports. This dependence on external forces implies less freedom in setting a local policy agenda that includes regional preferences. All this can make for greater regional divergence.

The supply of land in a small country or region is both a geographic and an economic attribute that expresses regional size and mediates its effects on income distribution and agglomeration impacts (Fig. 1). Land is a unique feature in the creating of interregional inequalities as its supply and quality vary across regions. In addition, land and the housing services it produces

Table 1. *Size-related attributes and their expected impacts on regional disparities*

Size-related attribute	Convergence	Divergence
Limited natural resources	More even regional development due to the absence of initial advantage in regional resource endowment	Specialization in tertiary industries and services leading to a greater concentration of regional development
Small variation of climatic conditions and agricultural productivity	as above	Agglomeration forces are unobstructed by 'natural attractiveness' of hinterland regions
High population density	Long-distance commuting substitutes for interregional migration; scale diseconomies spread over most national territory	Severe diseconomies of scale, specifically in overpopulated core regions, leading to growth spillover
Openness to the global economy	Direct representation of regions in the international markets; direct international investment in regional economies; advantages of both core and border regions for international trade	Less independence in setting social and regional priorities; pronounced concentration of development in few 'global cities' and around major transport hubs
Centralized governmental structure	Fewer constraints on the implementation of regional development policies and programmes	Stronger unitary governance; less regional budgeting
Short distances	High level of social cohesion and development interdependency; low transportation costs for local suppliers and service providers; possibility of daily interregional commuting; greater factor mobility; more development spillover	Functional domination ('shadow effect') of major population centres (e.g. via jobs and service provision) over most national territory
Small number of regions	Less interregional variance of development rates	
Small size of regions	Less intraregional variance (smaller aggregates)	Limited agglomeration economies; small regional markets; greater dependence on exports; vulnerability to exogenous shocks (e.g. hyperinflation, economic slowdown), specifically in peripheral regions

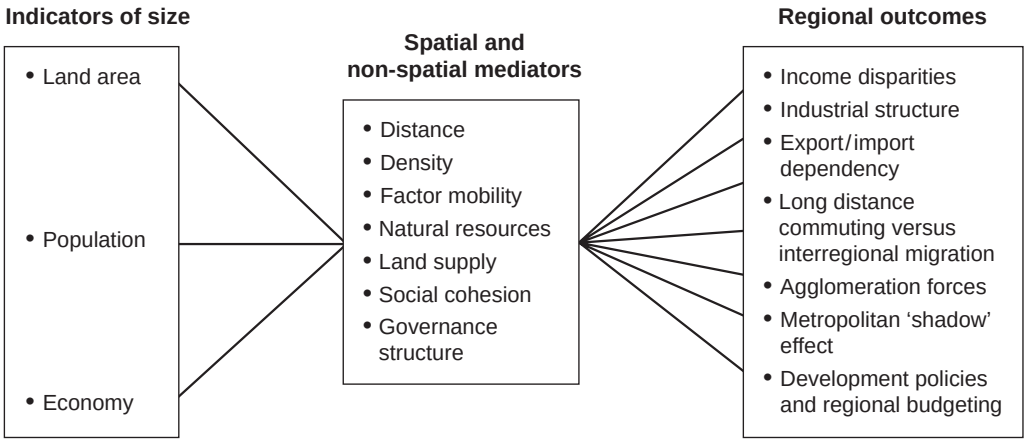

Fig. 1. *Role of mediating factors*

are non-tradable across regions and exogenously determined. Even when all other factors are mobile, the regional differences in land supply serve to ensure that regional inequalities persist (Beenstock, 2005). This is not just a neo-classical insight and New Economic Geography (NEG)-inspired models arrive at similar conclusions. Helpman's (1998) model of the forces promoting agglomeration takes the supply of housing land in a region as the main force promoting dispersal and arresting agglomerative growth. In contrast to the original Krugman (1991) formulation where declining transport costs and the erosion of distance as a spatial mediator make for greater agglomeration, in the Helpman model, lower transport costs make for less agglomeration and make regions more similar. The main geographic mediator is the supply of land that determines the distribution of the housing stock and consequently the size of regions (large or small populations).

Other attributes expected to promote regional convergence include, first, the small number of regions in a small country. Again, the law of small numbers implies less extreme values and therefore more interregional equality. Where distances are shorter, one can expect to find a greater homogenization of tastes and cultures, more openness to change, greater national solidarity, and more focus in setting national priorities and executing policy. All these factors are expected to work in favour

of regional convergence. Finally, in a small country, exogenous shocks such as mass immigration and regional policy are likely to have a greater impact on promoting convergence as regions are smaller and less populous.

In certain instances, the expected outcomes seem clear cut while in others they can go either way. For example, in small countries certain factors of production are expected to be more mobile because of shorter distances (labour, goods). This is expected to lead to interregional convergence. However, small country size also means greater discontinuities generated by national boundaries. This has a differential effect on limiting factor mobility. In developed economies, it hardly affects capital and technology but can still curtail the movement of goods and labour. These boundaries are not just national. In some instances, they also represent cultural, linguistic, educational and social discontinuities as well. By constraining factor mobility, these discontinuities can indirectly hamper regional convergence. Finally, as noted above, greater population densities and the acute shortage of land for new development, which are more likely to be found in small countries than in their larger counterparts, can lead to more severe diseconomies of scale in the central core region of the small country, leading to either a metropolitan shadow effect on the surrounding area or alternatively, to growth spillover.

Non-spatial factors

Foremost amongst the non-spatial factors unambiguously expected to promote regional divergence is the openness of the economy of the small country. This leads to dependence on external economic forces (trade, sources of supply) and in general less independence in setting social and regional priorities. This is expected to promote regional divergence. As noted above, the centralized governance structure characteristic of small countries is also expected to work against regional convergence. A strong unitary system of government is less likely to consider regional budgeting or other forms of decentralization likely to promote regional fiscal autonomy.

As noted above, the supply of land is a unique attribute with considerable economic and spatial effects on income distribution, the development of agglomerations, etc. All these derive from the fixity of land. Factor mobility can be taken as the obverse of immobile land supply. Capital, labour, goods and technology are all mobile in differing degrees. This mobility mediates the effect of land area as a size factor. Land area may be an issue affecting the mobility of labour or goods (inducing higher transport costs) but it is hardly a factor affecting capital or technology mobility. Population size is also mediated by factor mobility (Fig. 1). Different subsectors of the population have different propensities to commute or migrate (labour mobility) and the level of tradability of certain goods especially services can often be related to population size.

Transactions costs also play a large role in determining factor mobility and in determining the geographic peripherality of regions (McCann, 2004). The evidence on the role of transactions costs in creating interregional inequalities is, however, ambiguous. This ambiguity relates to both information/technology transaction costs and to goods/labour transactions costs. As the cost of transacting over space has both increased and decreased it is necessary to be more circumspect when examining this issue and to differentiate across different types of activities. Thus in primary industrial activities and standardized services transaction costs have fallen sharply increasing factor mobility and decreasing regional imbalances. In those activities where access to specialized technology or information is of prime importance, transaction costs may have risen promoting factor immobility and emphasizing the regional divide between regions with access to information/technology and those without.

Factor mobility and transaction costs are thus intimately linked to regional disparities. As Puga (1999) has shown, when trade costs are high, economic activity will spread across regions to meet consumer final demand mediating regional disparities. However, when trade costs fall, agglomeration will occur and regional inequalities will become entrenched. Again, this is contingent on labour mobility. While lower transaction costs may bring more interregional equality in economic activity, if labour is not correspondingly mobile then interregional income gaps will persist.

REGIONAL DISPARITIES AND COUNTRY SIZE: AN EMPIRICAL TEST

To provide some initial indication of whether our assumptions concerning the effect of smallness outlined in the previous section are justified, a simple test is undertaken. The magnitude of regional economic disparities is estimated as a function of smallness controlling for select country attributes (i.e. population, land area, national GDP, etc.).

Some 22 countries are covered in this analysis for whom complete and comparable data are available. Most of the countries are located in Western, Central, Northern and Southern Europe. In particular, the sample covers most EU and EU-candidate countries, plus some others such as Norway, Switzerland and Israel, but it excludes micro-states such Luxembourg, Malta and Cyprus, and those for which EU regional data could not be obtained (Latvia, Lithuania, Estonia and Slovenia). The final list covers the full range of both large and small countries ranging from France, Germany and Spain, on the one hand, to Slovakia, Denmark and Israel, on the other (Table 2). Regional definitions for all countries are EU NUTS II regions

Table 2. Key attributes of countries tested in the analysis

Country	Land area (km^2)[1]	Population (millions)[1]	GDP_{pc}, 2000 (US$, pps)[1]	Ratio of the difference between the richest and the poorest regions: regional GDP_{pc}, 2000 (US$, pps)[2]	Coefficient of variation of the regional population, 2000[3]	Regional disparities in GDP_{pc} (Williamson Index, WI), 2000
Austria★	83 000	8.1	25 000	2.18	0.58	0.227
Belgium★	30 200	10.2	25 300	3.26	0.47	0.372
Bulgaria	110 994	8.9	6200	1.66	0.48	0.243
Czech Republic★	77 200	10.2	15 300	2.80	0.15	0.415
Denmark★	42 300	5.3	28 900	1.40	0.26	0.273
Finland	305 000	5.2	22 900	1.73	0.92	0.172
France	543 964	58.5	24 400	2.09	0.83	0.284
Germany	357 027	82.5	23 400	2.78	0.55	0.250
Greece	130 800	10.6	19 100	1.63	1.20	0.143
Hungary★	92 300	10.0	13 300	2.37	0.49	0.366
Ireland★	69 000	3.9	21 600	1.66	0.80	0.190
Israel★	21 000	6.5	18 900	2.08	0.25	0.264
Italy	301 200	59.7	25 100	2.21	0.86	0.266
Netherlands★	33 800	16.0	24 400	1.77	0.92	0.143
Norway	307 800	4.5	33 000	2.10	0.76	0.247
Poland	120 786	38.6	8500	2.21	0.51	0.224
Portugal★	92 000	10.1	19 400	1.75	0.95	0.285
Romania	238 391	22.4	5900	3.00	0.22	0.377
Slovakia★	48 800	5.4	12 400	3.28	0.40	0.439
Spain	499 500	40.0	22 900	2.16	0.99	0.221
Sweden	410 900	8.9	26 000	1.61	0.50	0.199
Switzerland★	39 700	7.2	28 600	1.67	0.39	0.121
UK	243 602	56.6	22 800	3.73	0.50	0.400

Notes: ★Country defined as 'small'.

[1] CIA World Factbook (http: //www.cia.gov).

[2] All countries NUTS II regions, except for Ireland and Denmark (counties); Israel (six statistical districts); Switzerland (NUTS II equivalents); Belgium excluding Luxembourg; Finland excluding Aalborg region; and France excluding overseas colonies. NUTS II data do not exist for Slovenia, Latvia, Lithuania, Estonia, Luxembourg, Malta and Cyprus. GDP_{pc} data: EUROSTAT (2003a–c); Israeli data: based on multi-regional I–O model; Switzerland data: Federal Statistical Office; Norway data: Statistics Norway.

[3] Nomenclatures of Territorial Districts for Statistics, NUTS 2000/EU-25, Part 1, European Commission, Eurostat, General Statistics, Theme 1 and Administrative Divisions of Countries (http://www.statoids.com/statoids.html).

or their equivalents in those countries for which these data are not available. While this is an administrative rather than an economic unit, it is the only comprehensive level for which cross-national regional income data are readily available.

The countries in the sample are defined as either 'large' or 'small' based on a multiplicative index of population and land size (Table 2). Conveniently, this index shows a distinct natural break with the 'small' group being bounded by Israel and Portugal at the extremes and the 'large' group by Bulgaria and France.

To measure the degree of unevenness of interregional distribution of population, the coefficient of variation (CV) was used. The 'small' versus 'large' dichotomy seems to reflect the regional population dispersal with countries such as the Czech Republic, Switzerland, Israel and Slovakia having the smallest population CVs and countries such as Greece, Spain and France, the largest. However, even amongst the smaller countries, larger CVs are due to the presence of large metropolitan centres that dominate their regions. Thus, in Austria the smallest region is Burgenland (278 000) and the largest Vienna (1.56 million), in Belgium the Brabant Wallon region (358 000) is pitched against the Antwerp metropolitan area (1.66 million), in Ireland the Midland area (213 000) is compared with the Dublin and Mid East counties (1.52 million), and in the Netherlands the Zeeland region is juxtaposed with the Zuid Holland region containing the Randstad metropolitan agglomeration (3.38 million).

In addition, for the difference across countries in the number and size of regions, the data show substantial gaps in regional GDP_{pc} across the poorest and richest regions. Most of the countries with small ratios (<1.8) between the richest and poorest regions are small (e.g. Denmark, Finland, Ireland, the Netherlands, Slovenia, Portugal and Switzerland) and only a few large countries attain this ratio (e.g. Greece, Bulgaria and Sweden). In the intermediate group (1.9–2.9) large countries (France, Germany, Hungary, Ireland, Norway, Poland and Spain) dominate the small (Austria, Israel), while the highest ratio countries are equally divided between the small (Slovakia and Belgium) and the large (UK and Romania).

Using ordinary least-squares regression, the effect of smallness on regional income disparities was tested for the countries featured in Table 2. In our analysis, the size of regional gaps was measured by two variables:

- Inc_WI: population weighted coefficient of variation of regional GDP_{pc}, or the Williamson Index (WI).
- Inc_Dif: ratio of GDP_{pc} between the richest and poorest regions.

Although the latter measure (Inc_Dif) is easy to calculate and interpret, it ignores the parameter's distribution between the extremes. The former measure (Inc_WI) corrects this drawback and permits comparison between countries of different sizes and characterized by different patterns of population distribution. The WI is defined as follows:

$$\mathrm{WI}=\frac{1}{\bar{y}}\left[\sum_{i=1}^{n}(y_i-\bar{y})^2\frac{A_i}{A_{\mathrm{tot}}}\right]^{1/2}$$

where A_i is the number of individuals in region i, A_{tot} is the national population, y_i is the development parameter observed respectively in region i (e.g. per capita income), $\bar{y}$ is the national average (e.g. per capita national income) and n is the overall number of regions.

The variables used in the analysis as predictors are as follows:

- Land: land area in 1000 km^2.
- GDP: GDP_{pc}, US$1000 in PPS terms.
- Pop_Distrib: coefficient of variation of the population sizes of a country's regions.
- Pop: population size of a country (million residents).
- Smallness: a country-size dummy (1 for a small country, 0 otherwise) (Table 2). Country size is defined as the multiplicative effect of land⋆pop.

The estimated results are reported in Table 3. The relatively high tolerance levels (tolerance >0.1) indicate that multicollinearity between predictors is within acceptable limits (GUJARATI, 1995). The model for Inc_WI suggests that countries with a more uneven population distribution tend to exhibit (all else equal), smaller regional gaps ($t=-3.04$, $p<0.01$). Apparently, uneven distribution of population, which is often associated with a few large metropolitan centres dominating a country's regional system, is associated with stronger central governments and less autonomous regions. Unsurprisingly, land area is positively related to regional gaps, and the size of GDP is negatively related to regional disparities, although the effects of these two predictors do not appear to be sufficiently strong ($p>0.10$). Characteristically, smallness (i.e. the combination of small population size and small land area) tends to result, ceteris paribus, in larger regional gaps ($b=0.12$, $t=1.96$, $p<0.10$).

The model coefficients also suggest the relative importance of spatial versus non-spatial determinants of regional disparities. For the countries covered in the sample, regional disparities seem to reflect mainly spatial factors (i.e. physical size and geographic distribution of population), while population size and the overall performance of a country as a whole (captured by its per capita GDP) appear to be less significant.

The second model tested (Inc_Dif) shows fairly similar results and underlies the consistency of the predictors (Table 3). The range of the regional gap (measured as the ratio of GDP_{pc} between the richest and poorest regions) increases with population size of a country ($t=2.22$, $p<0.05$). As with the former model, the values of Inc_Dif are smaller in more unevenly populated countries ($t=-2.90$, $p\leqslant 0.01$).

Table 3. Effects of smallness on regional disparities

	(1) Population-weighted CV of Regional GDP_{pc} (WI)	(2) Ratio of regional GDP_{pc} differences (Inc_Dif)	Tolerance[2]
Constant	0.152	1.852	
	(0.936)	(1.505)[1]	
Population distribution (CV)	−0.180	−1.296	0.725
	(−3.041)⋆⋆	(−2.894)⋆	
Smallness	0.116	0.147	0.229
	(1.958)⋆	(0.329)	
Land area (log)	0.046	−0.020	0.235
	(1.494)	(−0.085)	
GDP (log)	−0.035	0.159	0.703
	(−0.456)	(0.581)	
Population (log)	0.022	0.306	0.684
	(1.225)	(2.215)⋆⋆	
R^2	0.562	0.484	
N	22	22	
SEE	0.066	0.500	

Notes: [1] t values are given in parentheses.
[2] Collinearity diagnostic.
Significant at ⋆$p<0.10$ and ⋆⋆$p<0.05$ levels.

Although the effect of smallness appears to be considerably weaker than in the Inc_WI model, this effect is also positive ($b = 0.147$). In general, both models support our initial assumption that small countries do not necessarily have smaller regional gaps than their larger counterparts.

CONCLUSIONS

The implicit question underlying this critical survey is: can we expect small countries to have smaller interregional disparities? The answer to this question is: not necessarily. There are a number of competing forces at work in small nations such as social cohesion, availability of natural resources, population composition, agglomeration economies, openness to external trade, etc. The combination and intensity of these forces may lead in either direction: both towards regional divergence and convergence. For instance, the shortage of natural resources may lead to more even regional development due to the absence of initial advantage in regional resource endowment. Concurrently, specialization in tertiary industries and services, common to small and resource-poor nations, may lead to a greater concentration of regional growth in selected metropolitan centres and severe underdevelopment of peripheries. As another example, high population density may also have opposite effects on regional development. On the one hand, it may lead to greater regional convergence because long-distance commuting may effectively substitute interregional migration. On the other hand, high densities may cause severe scale diseconomies to spread over most of a given country, impeding any growth spillover (Table 1).

While small country size suggests greater homogeneity with the corollary that regions will also be more similar, one can argue that this might not necessarily be the case. Much depends on how small country size translates into measurable metrics such as distance, density, factor mobility and supply of land (Fig. 1). These are real geographical issues that ultimately determine whether regional income distribution is more equitable in small countries, whether their regions are more socially cohesive, etc.

While smallness is a comparative notion, it does dictate a host of social, political and economic conditions that ultimately determine the vibrancy of small countries. In this respect, territorial extent and population size are marginal issues. In some respects, the development of supra-national entities such as the EU have resurrected the small country as a tenable political and economic unit. Furthermore, small countries have become much more complex economies confronting the stereotypical profile of a small country highly dependent on external markets, specializing in niche markets and engaged in sub-optimal production. Today, small countries such as the Netherlands, Ireland, Israel and Denmark all add value to a wide range of products and engage in international trade based on competitive not comparative, advantage.

The upshot of all this for regional disparities is that as developed small countries increasingly become very much like the large countries, the same applies with respect to their regional disparities. There is no strong a priori case to expect small, developed countries to be any more equitable than larger countries. These reasons are less to do with the raw attributes of size per se and more to do with the way size is translated into metrics that imply small magnitude, such as density, land supply, etc.

NOTE

1. This becomes an acute issue when measuring interregional inequality. The main issue is one of weighting for regional size. Standard Barro-type growth regressions that look at regional disparities over time do not weight for regional or country size (Barro and Sala-I-Martin, 1991). This is because regions and countries are treated as individuals and not as groups. No compensation is given for small size just as both large and small people are not given any compensation when looking at a population income distribution. (The case could be made that large people 'need' more income due to their size and therefore deserve to be compensated.) However, the growth regression approach assumes that compensating for population size is tantamount to obscuring the unique identity of places and their size difference is an inherent part of their identity. In contrast, the 'inequality indices' (Gini) literature seems to accept the fact that regions are groups. The main debate here revolves around a suitable weighting system. The conventional approach (Pyatt, 1976; Silber, 1989) calls for weighting by the rank of the average, while the alternative approach (Yitzhaki and Lerman, 1991; Yitzhaki, 1994) weights by the average rank.

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