

Self-organisation of society by scale: a spatial reworking of regulation theory

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Abstract. The scaling of social systems gives rise to a ‘vertical’ ordering that combines with the more familiar ‘horizontal’ ordering by place. But so far this phenomenon has been examined mainly from a political standpoint, and has not as yet received an adequate regulationist treatment. The regulation approach is at heart a systems theory, whereby innovations in accumulation and regulation—whatever their origins—will tend to be selected and woven into a stable pattern if they contribute to the expanded reproduction of capital. It is argued here that the viability of regimes of accumulation, and of modes of regulation, depends in part upon whether an appropriate scale division of labour is established between their component activities. It is suggested from the analysis that it is possible on this basis to develop a regulationist account of the fundamental tendency towards the integration and division of societies at different scales, and the emergence of dominant societal units in each epoch.

Introduction

One of the more striking features of contemporary social science is its concern with the spatiality of social relations. The development of this problematic can be traced back to the 1970s, through discourse about spaces of regulation and world systems, structured regional coherence, spatial divisions of labour, and uneven development. In the first instance the focus of attention within the spatiality research programme was upon the organisation of society by place, and so upon the relationships and inequalities which arise between regions and localities. More recently, however, the attention has shifted somewhat towards an issue of perhaps greater significance, which concerns the organisation of society by scale and “the nested hierarchy of bounded spaces of differing size, regional, national and global” through which societies are constituted (Delaney and Leitner, 1997, page 93).

A comprehensive approach to spatial organisation will address the axes of place and scale in a unified manner. It will acknowledge that the global social formation has a ‘horizontal’ structure in which the same activities are organised at similar scales in different places. But it will also acknowledge that this formation has a ‘vertical’ structure too, in which different activities are organised at different scales and in which those at certain scales tend to dominate the rest. An appreciation of both axes of social organisation is especially important in understanding the formation of societies. The concept of ‘societalisation’ has been applied to the process of social integration through the constitution of groups that are conducive to order and accumulation. But it may also be applied more broadly to the coincidence of social and system integration, “a pattern of institutional integration and social cohesion” which produces a ‘society effect’ (Jessop, 1994, page 14; see also Jessop, 1982; 1990; 1993; 1997). It is the latter approach that is adopted here.

The investigation of social scale has developed particularly from the early 1990s through literature on the social construction of scale orders, the contested politics of rescaling, ‘scale jumping’, and the ‘scalar fix’. But most of these texts give prominence to the politics of scale and the role of social agency, and treat structural change as a contextual factor (Agnew, 1997; Delaney and Leitner, 1997; Jonas, 1994; Smith, 1992).

Even regulationism, which is structuralist in origins, has so far failed to specify the systemic processes involved in the (re)scaling of society and seems at present to be retreating from this task, and placing greater reliance upon sociopolitical forms of explanation. This tendency can be observed, for example, in the work of Swyngedouw, currently the most prominent exponent of a regulationist interpretation of scale ordering and someone who has helped to focus academic attention upon this issue (see, for example, Swyngedouw, 1992; 1997a; 1997b). But although political analysis is important, to avoid one-sided conclusions this must be related to a structural analysis which examines how political conflicts are bound up with system contradictions.

In the present article I attempt to take forward the theory of scale organisation and societalisation, but from a point of view that reaffirms the importance of system and structure. Furthermore, I suggest that this task may be accomplished from within a regulationist framework, but one that has been modified in certain important respects. In the first part of the paper I identify the main parameters of the regulationist approach, pinpoint certain areas of weakness, and indicate how these must be addressed in order to deal more adequately with space and scale. In the second part I then apply this revised framework to an investigation of scale organisation and propose a number of hypotheses (H1 to H7). Our account is abstract in character but is illustrated by reference to the history of Britain in the nineteenth and twentieth centuries.

The theory of regulation

Regulation theory developed as a critique both of orthodox economics and of Althusserian structuralism (Aglietta, 1979, pages 9–10; Lipietz, 1993). Its central concern is to explain “how capitalism could survive even though the capital relation itself inevitably produced antagonisms, contradiction, and crises” (Jessop, 1990, page 170). Structuralist concepts of ‘relative autonomy’, ‘reproduction’, and ‘rupture’ are retained but displaced towards a systems theory which is centred upon the cybernetic, self-organising principle embodied in the notion of ‘regulation’ (Aglietta, 1979, pages 12–13; Jessop, 1990, pages 169–171; Lipietz, 1985, page xvii). In its more nuanced forms regulationism presents a model of capitalist society not as an ordered totality but as a totalising process that is routinely disrupted by destabilising crises.

Jessop has identified seven schools of regulation theory, but mainstream regulationism is perhaps represented by the Parisian school around Aglietta and Lipietz. They analyse capitalist society along two dimensions. The ‘regime of accumulation’ (RA) refers to the primary arrangements through which the accumulation of capital occurs, which involve articulation of a system of production and consumption, and the integration of the capitalist mode of production with other coexisting modes (Lipietz, 1987, page 32). The ‘mode of regulation’ (MR) comprises a social framework of rules and institutions that orchestrate relations between the systems of production and consumption to ensure that they are conducive to orderly capital accumulation (Lipietz, 1987, pages 14–15; see also Boyer, 1990, pages 117–123). As the RA develops over time, so the existing MR loses its effectiveness, and the institutions and norms governing economic activity breakdown. Only when new institutions and norms are established which are consistent with the newly emerging regime of accumulation can stable development be restored.

The regulationist method

This two-dimensional account of the regulationist paradigm is standard but in important respects it is also incomplete, as a close reading of Aglietta’s original text will show. For Aglietta, the theory of capitalist regulation focuses upon the processes of societal change which provide for the reproduction of capitalist modes of production

(Aglietta, 1979, pages 16–17, see also pages 12–13). The capitalist social system develops by reproducing ‘a basic invariant element’ that exists in each of its parts, an element which is described as ‘a determinate relationship’ that “assures the system of its integrity and cohesion” (1979, page 19). The ‘basic invariant element’ of the capitalist mode of production is the *capital relationship* as exemplified by the wage relation (1979, pages 19; pages 382–384).

However, the social relations of capital, which involve not only the wage relation but also the relationship of one capital to another, are antagonistic and, according to Aglietta, “the inherent contradictions of these relations give rise to a process of institutionalisation ... to the creation of structural forms” that contribute to the reproduction of the capital relationship (1979, page 27). Regulation is a process occurring first and foremost within the economy, managing contradictions between different fractions of capital through (for example) adaptation of the corporate form or the monetary system (1979, page 383, see also pages 21–22). But economic self-regulation is not enough: “the antagonism of the wage relation and the competition between capitals that follows from it cannot be regulated simply by the laws of exchange. The organisation of the capitalist class within the bourgeois state ... [is] also indispensable for the expanded reproduction of capital” (1979, page 22).

Structural forms and social norms may exist separately in every sphere of society, but will operate together under the leadership of the state (which Aglietta conceived in terms of state monopoly capitalism) (1979, page 383). The social system will develop smoothly under the guidance of such ‘corrective mechanisms’, but in the longer run these mechanisms will fail to keep pace with the changing pattern of contradictions and reproduction of the ‘invariant element’ will be threatened, at which point “the system reacts as a totality to plug the gap by modifying the form of regulation” (1979, page 20). It appears on inspection that there are four processes at work here:

1. The capital relationship is embodied in the capitalist production process and in the capitalist consumption process, which are articulated with one another under the developmental order established as a *regime of accumulation* (1979, pages 68, 151–168, 382–384).
2. Economic conditions, structural forms, and social norms institutionalise and reproduce—*regulate*—the capital relationship in every sphere, thus providing ‘corrective mechanisms’ that mitigate the effects of contradiction and establish the regime of accumulation (1979, pages 20 and 382–384).
3. The state is one of these structural forms, but plays what might be described as a specialist *super-regulatory* role by delimiting and coordinating other regulatory forms: “it is in the state, and there alone, that the cohesion of the structural forms can be assured” (1979, page 383).
4. The crises of capitalism (which are “part of the laws of capitalist regulation”) and the forces that respond to these crises between them tend to preserve the capital relationship by serving in what might be called a *meta-regulatory* capacity, which brings periodic reorganisation of the form of regulation (1979, page 384, see also page 20).

The ambiguities which undermine the regulationist approach at present stem in good part from the failure to distinguish clearly between the processes of regulation (including the super-regulatory role of the state) and meta-regulation, and to acknowledge that these are genuinely different. The term ‘regulation’ refers to the *social* process of control over the relations of accumulation, and involves norms and institutions that may contribute to viable accumulation by correcting ‘normal’ crises. But underpinning this is meta-regulation, the *systemic* process of restructuring the corrective regulatory mechanisms when these begin to fail, and when normal crises become ‘structural’. The process of meta-regulation is crucially important for the regulationist method because

it concerns the way that successful regulatory and accumulatory patterns, ones that can regulate and accumulate, are engendered and reproduced.

Meta-regulation is akin to other concepts describing systemic self-organisation, such as ‘morphogenesis’, ‘autopoiesis’, and ‘functional adaptation’ (see respectively Archer, 1996; Luhmann, 1982; Gouldner, 1967). The distinction between regulation and meta-regulation reinforces the potential afforded by regulation theory for combining social and system dimensions of explanation (see also Lockwood, 1964). But if meta-regulation is equated to regulation, self-organisation to social control, then agency will be stressed at the expense of structure and regulationism will (as we have seen in recent years) be reduced to a conflict theory of socioeconomic change.

Strategy and selection

The next step is to consider how meta-regulation operates to bring about structural realignment. Aglietta adopts a functionalist shorthand when he tells us that the breakdown of reproduction poses a threat to the existing system, which “reacts as a totality to plug the gap” by modifying the mode of regulation (Aglietta, 1979, page 20). Lipietz improves on this by arguing that modes of regulation emerge through a kind of “a posteriori functionalism” whereby institutional innovations, whatever their original motivation, will tend to be reproduced where they have a beneficial stabilising effect upon capital reproduction (Lipietz, 1984, page 86; 1993, pages 120–121). Jessop tries to avoid functionalism by arguing that regulatory practices do not come into existence to reproduce a preexisting object: “modes of regulation and their objects [should] be seen as structurally coupled and historically coevolving and no a priori primacy would (or could) be accorded to one or another” (Jessop, 1990, page 186). Jessop also seeks to negotiate a path between voluntarism and structuralism by arguing that neither strategies nor structures are originary, that structures have only a relative unity reflecting the clash of strategies, but structures themselves are more conducive to the pursuit of some strategies rather than others, a feature known as ‘structural selectivity’ (Jessop, 1994, page 15). Institutional changes in, for example, the state are mediated by “discursive-strategic shifts into new accumulation strategies, state projects and hegemonic projects” (Jessop, 1993, page 19). But although institutional transformations may be ‘caused’ by strategies they “correspond to the emerging dynamic of global capitalism” by helping to solve crisis tendencies (Jessop, 1994, page 24).

The regulationist method therefore comprises two moments, the *strategic* and the *selective*: it involves the development of institutional changes through conflicting strategies; and it involves the selection of these changes according to their ability to contribute to the expanded reproduction of capitals. The latter process, which may be referred to as ‘accumulatory selection’, operates indirectly upon strategy formation through the aforementioned process of structural selection. The development of effective strategies depends upon active searching and learning amongst agents (such as companies, trade unions, and governments) about which practices work, and upon the outcome of conflicts between proponents of different strategies, including class-relevant ones. But the selection of these strategies depends upon the *pattern of economic constraints and opportunities* that is associated with the prevailing regime of accumulation. This pattern may be stable for much of the time and govern the routine selection of business strategies, worker programmes, and state policies. However, the pattern will change unpredictably during periods of crisis, thereby determining the selection of entirely novel accumulation strategies and hegemonic projects—when these are forthcoming.

It is through their ability to reproduce themselves at a system level by recreating a pattern of opportunities for individual capitals that we can talk about the ‘viability’ of capital accumulation systems (just as it is in their ability to find an alternative basis for

reproducing themselves via new kinds of economic opportunities that we can talk about the viability of socialist systems). This viability may be operationalised as “sustained economic growth”, or “the reproduction of capital accumulation”, or “the rate of profit” (Jessop, 1993, page 36; Lipietz, 1984, pages 99–104; Peck and Tickell, 1995, page 34). For viability, the pattern of opportunities must be protected against the effects of social conflicts between capital and labour, and against the actions of individual capitals whose methods of production may undermine the collective conditions of expansion (by, for example, eroding pay norms). It must also be protected against structural crises of overaccumulation or underconsumption, and uneven development between different moments in the circuit of capital. It is in the management of these conflicts and contradictions over the short run that the effectiveness of each mode of regulation is gauged; it is in their management over the longer run that the effectiveness of the reorganisation of these modes is gauged.

But how can strategy and selection interact to reorganise regulation? How, for example, can the form of the state be selected according to variations in the rate of profit between different accumulation systems? Surely this possibility is negated by the separation of the capitalist state from direct involvement in the accumulation process? But relative autonomy must not be confused with total autonomy, and insofar as states and other institutions are dependent for their own reproduction upon the reproduction of the accumulation process, so they will be indirectly exposed to accumulatory selection. State apparatuses that contribute to the reproduction of an accumulation process that itself contributes to reproduction of the state will tend to survive and be preserved into the future, whereas those that do not contribute in this way will tend to be replaced. It is through the further specification of this process that the functionalism with which regulation theory has been associated can be avoided. Relative autonomy is, however, a matter of degree, and the more indirect the dependence of specific institutions upon capital accumulation the less these are subject to accumulatory selection and so the less they are obliged to perform a regulatory role (compare with Gouldner, 1967). The dependence—both fiscal and political—of regulatory structures upon the accumulation process means that these structures improve their chances of survival if they contribute (through the emergent consequences of their activities in aggregate) to the successfulness of accumulation. Indeed it is through their ability to reproduce themselves at a structural level by recreating (via these activities) a regime of accumulation and tapping the flow of resources through this regime that we can talk about the ‘viability’ of regulatory structures. But institutions that contribute to the system of accumulation whilst detracting from the contribution of other institutions to this system may in the long run suffer if their counterregulatory effects are significant. It is in the management of this contradiction between regulatory practices that the effectiveness of superregulation may be gauged, and it is through their ability to reproduce themselves by establishing a viable mode of regulation that we can talk about the ‘viability’ of superregulatory practices. These are the processes through which meta-regulation is accomplished, through which ‘corrective mechanisms’ are themselves corrected (compare with Archer, 1996).

Spaces of regulation

The regulation approach has been criticised for operating mainly at the national level, but the British school of regulation theory in particular has developed an approach which acknowledges the significance of space and scale. Jessop, for instance, argues that the power of the nation-state is being eroded and its role recast by the reorganisation associated with the process of ‘hollowing out’ (Jessop, 1993; 1994; 1997). Goodwin et al have attempted to apply regulation theory at the local level, and have argued

that following the postwar settlement the local state helped to establish “the local objectification of an abstract mode of regulation” (Goodwin et al, 1993, page 73). Sub-national spaces have also been viewed as participating in distinctive local couplings of a regime of accumulation with a mode of social regulation (Peck and Tickell, 1995, page 26). Jones refers to the ‘spatial selectivity of the state’ in combating theories that attempt to ‘read off’ local changes from macroscopic trends (Jones, 1997). Swyngedouw has examined the ‘glocalisation’ process, and describes scale ordering as “the outcome of social struggle for power and control” (Swyngedouw, 1997b, page 140; see also 1992; 1997a).

The attraction of this kind of approach is that it challenges the assumption that the nation-state is the natural unit of society. The problem, however, is that it does not deal adequately in regulationism’s own terms with the formation of spatial units as such. In particular, it does not clarify the spatial status of regulatory or accumulatory apparatuses, nor explain how the emergence of bounded societies at a variety of scales relates to the reorganisation of regulation and accumulation. There are two sets of issues here. To begin with, similar regimes of accumulation or modes of regulation may be shared by economies and societies which are themselves spatially segregated from one another. In order to address the spatiality of social relations, it is important to remember that ‘modes’ differ from ‘structures’ of regulation, and likewise ‘regimes’ from ‘systems’ of accumulation (see Jones, 1997, pages 835–837 for a useful discussion). Modes and regimes are abstract concepts concerning the attributes of structures and systems (such as Fordism) which, if successful, contribute to ongoing accumulation. The plurality of (say) national economies and societies is, on the other hand, a feature of societalisation, the spatial integration and division of systems of accumulation and structures of regulation. The development of regimes of accumulation and modes of regulation is involved dialectically with the development of their subtending systems and structures, but the relationship between these is complex and requires careful examination.

The second set of issues concerns the need to recognise the distinction between regulation and meta-regulation, and to use this to develop an account of scale reordering which gives due weight to systemic factors. Despite the importance of his contribution in other respects, Swyngedouw’s recent writings are open to the criticism that they disarticulate struggle and structure—politics and systemics—from the side of struggle by focusing upon this, and by making only allusive references to an ‘accumulatory imperative’ at work behind the scenes (Swyngedouw, 1997b, page 156). But although political strategies and class struggles are integral to scale reorganisation they are by no means the whole story, and to avoid a one-sided account (or one in which the accumulatory imperative is invoked as a functionalist shorthand) it is essential to develop an analysis which examines directly the processes involved in system self-organisation. In particular, it is argued here that the articulation of politics and systemics, agency and structure, can in the case of capitalism be addressed through the concept of ‘accumulatory selection’. I intend the present paper to reassert the need for a theory of scale reordering that integrates political conflicts with system dynamics (for an alternative account of the construction of scales that combines capital and class dimensions, see Brenner, 1998; Cox, 1998; on the scale implications of other strands of neo-Marxist thought see Collinge, 1999).

Regulation and superregulation

Typically the nation-state has been viewed as the central core of the structure of regulation that orchestrates the articulation of regulatory forms (Aglietta, 1979, pages 31–32; Jessop, 1990, page 197). Lipietz, for example, views the state as “the archetypal form of regulation—it is the level at which the class struggle is regulated, it is the institutional

form in which the compromise is condensed” (Lipietz, 1984, page 88). But it will help us to move beyond Aglietta’s rather narrow view of regulation in terms of state-monopoly capitalism if we accept that a range of other apparatuses may also be identified—from employers’ associations or mass media to (say) religious organisations—which may contribute alongside the state to the process of regulation. The Parisian school has however largely failed to develop a theory of the articulation of regulatory practices, a task which has instead been undertaken by Hirsch, Esser, and others in Germany. For Hirsch, a social formation combines a ‘model of accumulation’, a corresponding ‘hegemonic structure’ (including the state and other regulative forms), and a ‘form of societalisation’ whereby individuals are integrated and a mode of social development established (Hirsch, 1983; 1991). The coordination of regulative forms, an activity that we have called super-regulation, is undertaken by an hegemonic power bloc which crystallises through the state, and the correspondence (or structural coupling) of the resulting hegemonic structure with the model of accumulation is achieved within an ‘historical bloc’.

Following this line of argument, it can be suggested that the articulation of state and nonstate forms may under certain conditions contribute to the establishment of spatial hegemonic structures. Regulatory forms will play different roles (repressive, ideological, mass integrative, productive, reproductive) within these structures, and be articulated with one another and with the process of accumulation in different ways. The state for its part is the dominant political form, and typically plays a key role in focusing super-regulation by conditioning the hegemonic bloc and the form of other regulatory apparatuses. During the industrial revolution, for example, economic regulation in British towns was mediated to a considerable extent by the bourgeois family, which performed a social role underpinning production and consumption, the supply of capital and labour, and political organisation. But the family was supported in this function by local state forms—boards and guilds—which focused the emergence of local hegemonic blocs from amongst the different fractions of capital.

The role of boards and guilds at this time was both regulatory and super-regulatory, and was underwritten by the nation-state, which throughout the nineteenth century became increasingly dominant in the super-regulatory process of reforming the foundations of local regulation. During the twentieth century the nation state itself combined super-regulation (such as constitutional reform or defence) with many regulatory functions (including the provision of utilities). More recently, however, there is evidence to suggest that neoliberal nation states in Europe are reducing their direct regulatory role by transferring this to the market and to corporate capital including quasi-private arms of the state. At the same time, nation-states also appear to be transferring some of their indirect, superregulatory powers to the European Union. It is perhaps through this type of analysis that the contemporary process of ‘hollowing out’ can be investigated empirically (for a different but related perspective see the discussion of ‘meta-governance’ in Jessop, 1997).

It would add little to our understanding of these processes to follow Gramsci and Althusser (and Aglietta) by treating the whole system of regulation as part of an extended ‘state apparatus’, and one of the attractions of regulation theory is that it permits us to distinguish the role of the state from the wider process of regulation. But this leaves open the question of how the state itself can be defined. It is suggested here that *the state is the politically dominant institution in regulation, which plays the super-regulatory role of facilitating the hegemonic co-ordination and delimitation of spatial structures of regulation*. An important superregulatory function which has to be performed is that of ‘bounding’, of establishing the complex system of spatial boundaries that delimit the scope of regulatory practices, integrate and divide the global social formation, and are permeable to varying degrees.

The scale articulation of regulation

The preceding analysis tells us that at each stage in the development of capitalism there are economic constraints and opportunities which must be negotiated by capitals if these are to secure their expanded reproduction. It is important for our purposes, however, to recognise that this pattern of constraints and opportunities will have a spatial dimension, and will constrain the spatial organisation of accumulatory and regulatory activities. Capitals that resolve the commercial difficulties of a particular period are those that uncover new opportunities by changing their methods of production *and* by making complementary spatial changes. These spatial changes include not only the locations of different activities but also their organisation at different spatial scales. One of the problems with existing treatments of this subject, however, is a lack of precision in the use of the term 'scale'. For the purposes of this paper 'scale organisation' is not to be understood as the existence of linkages or networks between (say) local enterprises in adjacent areas, linkages which themselves extend beyond the spatial scope of each business by itself (contrast with Cox, 1998). If this were my definition then it would be impossible to distinguish integration in present-day Europe from that of medieval times. Rather, scale organisation is an attribute of agents (individuals or institutions, capitals or noncapitals) and concerns the behaviour of each in planning and acting throughout an area. A wider scale organisation for businesses will generally require an increase in their 'capital concentration' or 'capital centralisation' (internal growth from retained earnings permitting the opening of plants in several regions, or external assimilation involving the acquisition of subsidiaries in regional markets).

In the interwar period national integration emerged as a novel opportunity available to larger capitals in Britain, an opportunity which enabled these to exploit other new opportunities such as Fordist economies of scale, a wider spatial division of labour, and access to growing consumer markets, to equity markets, and to centres of government in London. But although the resulting centre-periphery pattern contributed to the survival of larger capitals in the circumstances of the time, it did not prevent other fractions from exploiting different opportunities by continuing to organise at subnational levels, raising finance, organising production, and selling goods within a single region. Indeed, during the twentieth century it is possible to describe the crystallisation of a dual economy within Britain, with larger companies operating in one set of markets organised nationally and smaller companies operating in other markets organised regionally and locally (Taylor and Thrift, 1982, page 10). From a regulationist perspective this dualistic scale organisation of capital reflects the selective action of complex constraints and opportunities upon the accumulation strategies of different fractions of capital during that phase of capitalism.

Likewise, regulatory institutions that secure their own reproduction through periods of difficulty are those that help to uncover new opportunities by changing their method of regulation and adopting complementary changes in their spatial and scale organisation. The national integration of larger capitals in the interwar period was no doubt encouraged by the expanding role of national government in economic regulation, and by state-sponsored rationalisation of strategically important industries (Ward, 1988). But the expanding role of national government and the integration of local public services (such as the coordination of municipal electricity supplies from 1926) was itself prompted by the emergence of national firms that could exploit the opportunities created by uniform supply conditions across the country (Collinge, 1992). There was therefore a reciprocal relationship of dependence and causation—of structural coupling—between these in the rescaling of their structures. From a regulationist perspective the scale organisation of the state reflects the selective action of constraints and opportunities upon the regulatory projects of different hegemonic blocs during this phase of capitalism.

Scale division of labour

The viability of each capital, and of capitalism as a whole, depends upon its ability to combine activities that are organised across a range of different spatial scales. There are a number of advantages to be gained by capitals from larger scales of organisation ('scale economies'). In particular, they give access to a larger pool of capital, suppliers, and workers; a more differentiated spatial division of labour; larger markets and associated 'volume economies'; and links to more powerful governmental institutions. There are also, however, certain disadvantages attached to larger scales of organisation. These require, for example, the establishment of complex coordinational linkages to forge organisational cohesion within capitals at the scales concerned. Smaller scales of organisation may make businesses more responsive to the needs of a plurality of niche markets. Successful capitals will, through trial and error, tend to adopt a scale division of labour that is 'optimal' in the sense that it balances the merits of different scales for different activities (on the scale division of labour see Cox and Mair, 1991).

The performance of any capital considered in isolation depends amongst other things upon the suitability of the scale division of labour which is established amongst its various activities (purchasing, investing, producing, selling) to the methods of production it is adopting and to the opportunities it is attempting to exploit. The *optimum scale division of labour* for each sector is the one which is most suited to that sector's requirements given the prevailing technological, market, and institutional conditions. Capitals that are able to change their scale division of labour, and thus maximise the advantages of a larger scale of operation for some functions and a smaller scale of operation for others, may gain access to a new realm of opportunities that permits them to displace or assimilate other capitals. As regards the performance of systems of accumulation, however, this depends upon the suitability of the scale division of labour which is established not only between capitals but more generally between the different moments in the circulation of capital (such as labour supply, finance capital, commodity supply, production, exchange, consumption). The optimum scale division of labour for the accumulation system—which represents the best combination of large, medium, and small scales for different accumulatory activities—is also determined by the technological, market, and institutional conditions associated with each regime of accumulation. Indeed, given the different scale requirements of different economic functions we can say that *the performance of all capitals considered in aggregate depends upon whether the functions of the accumulation system (production, circulation, consumption, reproduction) are (re)distributed between the scales to a scale division of labour that is optimal for the establishment of a viable regime of accumulation (H1).*

Regulation theory suggests, however, that an appropriate scale division of labour amongst accumulatory functions will not emerge from the behaviour of individual capitals alone, given the tendency for contradictions of various sorts to develop, and for some activities to be beyond the control of capitals, but will rely also upon the support of certain regulatory forms (such as the state) that have a fiscal or political interest in the performance of the entire circuit of capital. Indeed it is suggested that regulatory institutions must contribute to the (re)scaling of the accumulation system if they are to reproduce the accumulatory activities upon which they depend. Sometimes the state must intervene, for instance, to encourage the merging of capitals at certain geographical scales, as we saw in Britain during the 1920s and 1930s. But the ability of regulatory institutions to support the scale division of labour of accumulation and to derive sustenance from this is enhanced if they too meet certain scale conditions. There are for regulatory institutions also a number of advantages and disadvantages attached to larger scales of organisation. A large scale of state, for example, is able to draw upon a larger economic base, but suffers from having to organise across a wider space

and to defend longer borders. The performance of any state in 'spatial regulation', in reproducing the political and economic conditions of its own existence, will depend upon the suitability of the scale division of labour which is established amongst its activities to the methods of regulation it is adopting. Given the interdependence of regulatory activities we can say that *the performance of regulatory institutions taken together depends upon whether regulatory functions (repressive, integrative, productive, reproductive) are (re)distributed between the scales to a scale division of labour that is optimal for the establishment of a viable mode of regulation (H2).*

It is in this light that we can begin to understand the scale articulation of Victorian political economy. For much of the nineteenth century the prevailing spatial pattern of opportunities meant that capital formation, production, and labour reproduction in most sectors had to be organised subregionally. In 1860, for instance, 75% of the capital of incorporated joint stock companies in the United Kingdom was subscribed from within a ten-mile radius of companies' registered offices (Cottrell, 1983, pages 93–95). Likewise, production within the Victorian space economy was highly regionalised, with textile, mining, engineering, agricultural, and service areas. Most firms were confined to a single plant and drew their labour from a single community within which this labour was reproduced. The local state not only contributed directly to production and consumption through the provision of utilities but also handled disruptive class conflicts, for example by undertaking the repression of riots associated with Chartism in the 1840s. At the same time, however, the circulation of raw materials and finished goods was divided between different scales. In some sectors there were local monopolies in the supply of many common goods, but in other sectors there were opportunities in the context of imperialism for trade to be organised at the supranational level.

Indeed the colonies were of major economic significance in the 1880s, as they supplied a third of Britain's imports (primarily raw materials) and bought half of its exports (mainly manufactured goods) (Pawson, 1990, page 524). Despite liberal ideology the Victorian economy was neomercantilist in nature, and derived exceptional profits by importing raw materials from protected colonial markets to localities in Britain and exporting finished goods back to these markets. The neomercantilist regime of accumulation was dependent, however, upon colonial and municipal structures of regulation in which the metropolitan nation-state performed a super-regulatory role by coordinating external relations (through customs and excise, trade, and defence activities), controlling colonial territories indirectly through chartered companies and appointed governors, and handing administration within Britain to a reformed system of local government. Although the neomercantilist regime of accumulation and its associated scale division of labour may have given capitals in Britain an advantage during the nineteenth century, this system became increasingly problematic after 1900 and collapsed during the 1960s.

The opening and bounding of scales

Scale organisation by definition requires agents with the ability to undertake opportunities throughout an area, but this in turn requires an environment which is open and permeable to such actions. A wider space for economic action requires the *opening* of this scale, the forging of its permeability to economic actions by extending the spatial frameworks (repressive, monetary, infrastructural) upon which economic scale organisation depends, and the securing of these frameworks against interference through the forceful super-regulatory process of 'bounding'. Open spaces provide the terrain in which capitals and states organise the scale of their activities, but the opening of spaces is itself achieved through the scale organisation of capitals and states.

The state has a particular responsibility in this respect, but specialist capitals are also centrally involved. For these specialists the opening of scales is achieved by an extension of their own scale organisation. The benefits that some 'pioneers' (such as railway companies) accrue from opening new scales are akin to the supernormal profits which innovators derive from a monopoly position. The costs attached to opening new scales arise because of the difficulty of establishing spatial frameworks where at present there are none. The viability of specialist capitals at certain stages in their development depends upon their ability to open new scales which help them to establish a new optimal scale division of labour. As regards systems of accumulation, there will be circumstances when the transition from one regime to another depends upon opening a new scale that permits a more suitable scale division of labour to be achieved between different moments in the circulation of capital. Indeed we can say that *the performance of all capitals taken together may, during periods of transition, depend upon whether a new scale is opened that permits the functions of the accumulation system to be (re)distributed to a scale division of labour that is optimal for the establishment of a new regime of accumulation* (H3). Whether or not a new scale must be opened depends upon the scale requirements of the new regime that is being established [compare this with Harvey's concept of the 'spatial fix' (Harvey, 1985)].

Regulation theory suggests, however, that the opening of a new scale will not emerge from the behaviour of individual capitals alone, given the contradictions identified earlier, but relies upon the support of regulatory activities that are interested in the performance of the system of accumulation as a whole. Indeed it is suggested that regulatory institutions must contribute to this scale opening if they are to reproduce the accumulatory activities upon which they depend. States have a particular (super-regulatory) role in enforcing the territorial boundaries that define the spaces to be opened, and they contribute to spatial frameworks by establishing legal, monetary, and fiscal uniformity and by promoting other institutions such as post offices or railway companies (or for that matter the internet) that also contribute to these frameworks. Just as there are costs and benefits for capitals in opening new spatial scales, so there are also costs and benefits for regulatory apparatuses in this process. There are benefits for the state in opening new spaces that secure a more viable fiscal and political base, but there are also additional costs in meeting supplementary fiscal and political requirements. The viability of certain regulatory institutions may require that their activities be extended by opening a new scale which helps them to establish a new optimal scale division of labour. Given the interdependence of regulatory activities we can say more generally that *the performance of regulatory institutions as a whole (including states and other apparatuses) may during periods of transition depend upon whether a new scale is opened that permits regulatory functions to be (re)distributed to a scale division of labour that is optimal for the establishment of a new mode of regulation* (H4).

'Scale bounding' involves the forceful imposition of territorial limits that are essential to the viability of regulatory apparatuses because they secure the openness of the spaces upon which these depend. Although scale opening is an economic as well as political process, scale bounding is an intrinsically political activity—relying as it does upon legal power backed by physical force—and is the paradigmatic spatial expression of super-regulation. The bounding of scales is a function of the search for the optimum scale division of labour for super-regulation, and the viability of boundaries itself requires that states are scale organised in such a way as to render their borders defensible, with an appropriate mixture of cross-border associations and internal subdivisions. But although bounding is necessary to the opening of spaces it is by no means sufficient for this opening, which as we have already seen also involves the establishment of a system of spatial frameworks.

In Britain a unified nation-state with a common border was formed by 1801, and during the nineteenth century the national government established monetary, legal, and fiscal order, and a reformed system of local government. This process facilitated the surge in railway construction and the introduction of the Penny Post in the 1840s, and led eventually to the nationalisation of private telegraph companies in 1868–70 (Perry, 1992, page 119). The improvement of communications allowed local monopolies in transportable goods to be undermined from the 1850s, and the business cycle became increasingly synchronised from one region to another (Ashworth, 1960, page 246). National networks of high-street banks began to appear around 1900 and were reinforced by further mergers in the 1920s, a process which helped to create a new scale of opportunities: “the centralisation of banking and retail activity on London was itself a spur to the parallel centralisation of business headquarters” (Ward, 1988, page 16). There was a wave of industrial mergers at the turn of the century, and (with the state’s encouragement) another in the late 1920s, as companies took advantage of the opportunity to form multiplant firms with headquarters in London, and monopolies began to appear at the national level in some markets (Ward, 1988, page 101). By these means a self-reinforcing cycle of economic development was initiated which led eventually to the emergence during the 1950s and 1960s of an open British economy operating in good part along Fordist lines. The current institutionalisation of trading blocs worldwide may also be investigated in similar terms.

Dominant and nodal scales

An optimum scale division of labour within each capital is required to complement other features of its method of production. But separate ‘departments’ are generally associated with activities at different scales, and it is likely that there will be relations of dominance and subordination between these departments. Indeed, capitals in which there is no dominant scale of organisation at whatever level—local, national, continental—will generally lack the coherence amongst their activities that is required for commercial survival. ‘Scale dominance’ is an important attribute of the scale division of labour *within* capitals, and concerns the power which organisations at certain spatial scales are able to exercise over organisations at other, higher or lower, scales. It is likely that the levels which succeed in exerting control across an organisation will be the ones which in doing so help to establish a more viable method of production. Rover vehicles are assembled primarily within Britain, for example, but the management of Rover is now subordinate to that of BMW, a more successful company which through Rover and other subsidiaries assembles vehicles across Europe.

Scale dominance is also an attribute of the scale division of labour *between* capitals, in the power of capitals organised across one set of scales over those organised across other scales within the same or related sectors.⁽¹⁾ Capitals that are able to change their level of scale dominance, by raising or lowering this level through ‘scale jumping’, may gain access to a new realm of opportunities that gives them an advantage over rival capitals. Paradoxically, however, associated with scale jumping is a tendency towards the alignment of scale divisions of labour. *Competing* capitals in the same sector will each be under pressure to remain competitive by taking advantage of the optimum scale division of labour of the time, either by adopting a common scaling of activities (including similar levels of scale dominance) or by being vulnerable to displacement or assimilation by capitals that have done so. This is the process that was observed above in the simultaneous formation through merger of a number of national banks in Britain during the 1920s. At the same time, *cooperating* capitals will also be under pressure to secure their linkages by shifting their scale divisions of labour, including dominant

⁽¹⁾ I am grateful to Peter Lee for this observation.

scales, to the same levels as one another. The role of leading economic sectors may also be important here in establishing a standard scale division of labour that others will tend to follow. This process was observed above in the tendency for the national concentration of banking capitals to stimulate a national concentration of manufacturing capitals in Britain during the 1920s.

One or more levels of the system of open scales will through these processes acquire special economic significance by becoming 'dominant': playing the dominant role in a scale division of labour which is shared by a cross-section of capitals; offering maximum competitiveness between rival capitals and what might be called 'agglomeration economies of scale' between linked capitals (the benefits that companies organising dominance at certain scales receive from other companies locating their dominance at the same scale). These levels constitute the *dominant scales of accumulation* worldwide, the primary loci of capital concentration and of economic scale dominance in each period (as was the case with the local level in the 1850s, the national level in the 1950s, and may be the case with the 'triadic' level in the first part of the twenty-first century). Other nondominant levels in the common scale division of labour will also acquire economic significance, however, by becoming *nodal scales of accumulation*, the primary loci of the scale organisation of nondominant activities or capitals during each period (as was the case with the national level in the 1850s, and may be the case at present with the reemergence of regional or local economies).

Patterns of accumulatory scale dominance will therefore 'emerge' from the convergent scaling of individual capitals and other economic agents in relation to one another. But the theory of regulation suggests that the performance of the accumulation process as a whole will depend upon whether the pattern of dominant and nodal scales between the different accumulatory functions is suited to the emerging methods of production and consumption. Indeed, *the performance of all capitals taken together depends upon whether the functions of accumulation systems are organised at dominant and nodal scales that contribute to a scale division of labour amongst these functions that is optimal for the establishment of a viable regime of accumulation* (H5).

Regulation theory also suggests, however, that the dominance and nodality of certain scales amongst accumulatory activities will not emerge from the behaviour of individual capitals alone, given the tendency for contradictions to emerge and the fact that capitals do not control every moment in the accumulation process, but rely also upon the support of a series of regulatory activities that have an interest in the system of accumulation as a whole. Indeed it suggests that these regulatory institutions must contribute to the emergence of scale dominance and nodality if they are to reproduce the accumulatory systems upon which they depend. Hence the British state contributed during the 1940s and 1950s to the establishment of national education and housing policies as part of the national economy that was still emerging at that time. But an optimum scale division of labour, including a pattern of scale dominance, is also required *within* each regulatory institution if these are to be effective in this role. Separate apparatuses or 'departments' of (for example) trade unions are generally associated with regulatory activities at different scales—for example the International Confederation of Free Trade Unions, the European Trade Union Confederation, the UK Trade Union Congress, local Trades Councils—and once again it is likely that one of these will exert dominance over the rest. Indeed, a system of union organisations in which there is no dominant scale will find it difficult to enforce the organisational coherence that is required for survival. Likewise, a system of state apparatuses in which there is no dominant scale will find it difficult to enforce the territorial openness and boundedness that are together required for the survival of regulation and accumulation around the world. It is likely that the institutional level which succeeds in exerting

dominance in each case will be the one which in so doing helps to establish a more viable method of regulation.

Scale dominance is also reflected in relations *between* regulatory apparatuses, in the power of certain agencies with their scale divisions of labour over other agencies with other scalings. Regulatory apparatuses that are able to change their level of scale dominance may gain access to certain advantages that enable them to displace, assimilate, or elude those organised across other scales. Associated with this process is a tendency for the alignment of the scale divisions of labour of regulatory apparatuses of different sorts. In circumstances where relations between regulatory apparatuses are conflictual (as between employers' associations, trade unions, and the state at certain points) each will be under pressure to maximise the power at their disposal by adopting the optimum scale division of labour of the time, which results in a similar scaling of their activities and a similar level of scale dominance. In Britain this process may be observed during the formation in 1869–71 of a national trade union organisation (the Trade Union Congress) with its own Parliamentary Committee, an initiative which was a response to the nation state's Royal Commission on trade unions launched in 1866. In circumstances where relations between regulatory apparatuses are cooperative (as between employers' associations, trade unions, and the state at other points) they each will be under pressure to secure this cooperation by shifting their scale division of labour, including their dominant scales, to similar levels. Hence we see the establishment of national collective bargaining machinery between trade unions and employers' associations during the First World War (Ashworth, 1960, page 374). A similar process of scale convergence can now be witnessed between social institutions in Europe.

One or more levels of the system of scales will through these processes acquire special sociopolitical significance by becoming dominant: playing the dominant role in the scale division of labour shared by a number of social institutions; offering maximum power to rival apparatuses and what might be called 'agglomeration politics of scale' to cooperative ones (the benefits that regulatory institutions organising dominance at certain scales receive from the functioning of other such institutions, which undertake linked activities, locating their dominance at the same scale). These levels constitute the *dominant scales of regulation* worldwide, the primary loci of political power and social-scale dominance in each period. Other nondominant levels in the common scale division of labour of regulatory institutions will also acquire sociopolitical significance, however, becoming *nodal scales of regulation*, the primary loci of the scale organisation of nondominant regulatory activities during each period.

Patterns of regulatory scale dominance will therefore 'emerge' from the convergent scaling of individual regulatory institutions in relation to one another. But the theory of regulation suggests that the performance of the regulation process as a whole will depend upon whether the pattern of dominant and nodal scales between different regulatory functions (repressive, mass integrative, productive, and reproductive) is suited to the emerging method of regulation. Indeed *the performance of regulatory institutions taken together depends upon whether regulatory functions are organised at dominant and nodal scales that contribute to a scale division of labour amongst these activities that is optimal for the establishment of a viable mode of regulation* (H6).

The revised theory of regulation set out above suggests, however, that the dominance and nodality of certain scales in the structure of regulation will not emerge from the behaviour of individual institutions alone, given the scope for contradictions between these, but relies also upon the support of certain super-regulatory apparatuses. Indeed it implies that state apparatuses must contribute to a pattern of scale dominance and nodality in regulation if they are to reproduce the regulatory structures upon which they indirectly depend. By opening and bounding spaces the state performs a

role not unlike that of leading sectors in accumulation: that is to say it establishes a standard scale division of labour that other regulatory bodies will tend to follow. But an optimum scale division of labour, including a pattern of scale dominance, is also required amongst state apparatuses if these are to be effective. Which scale of the state system acquires dominance will depend upon which thereby contributes most to the establishment of a more viable method of regulation. *The performance of superregulatory institutions depends upon whether their superregulatory functions are organised at dominant and nodal scales that contribute to a scale division of labour that is optimal for the establishment of a viable mode of regulation* (H7).

Although commerce occurred at various levels, the dominant scale of accumulation in early Victorian Britain was the local level, where infrastructures and utilities were organised, factors of production were supplied, and single plant factories were operated. Likewise, the dominant scale of regulation at this time was also the local level, with municipal government, local boards, guilds, and employers' associations, as well as trade unions, as the dominant scales in the control of regulatory functions. But the scale which was dominant in super-regulation (in that it enforced common borders, guaranteed the freedom of travel, provided a constitutional and supervisory framework for local or colonial regulation), and ultimately in societalisation, was the nation-state. So although there was an alignment between the dominant scales of accumulation and of regulation, no such alignment existed at this time between these two and the dominant scale of super-regulation, a disjunction which is important but may be overlooked in the search for 'spatial structural coupling'. Indeed it was not until the twentieth century and the emergence of the Keynesian welfare state that we see a three-way alignment at the national level of the dominant scales of accumulation and regulation with that of superregulation, a state of affairs that seems now to have been temporary.

It appears, then, that a two-dimensional spatial-structural coupling, involving an alignment of the levels of scale dominance in accumulation and regulation, may be at least as common in history as a three-dimensional one involving an alignment of the level of scale dominance in all three spheres, including super-regulation (as occurred in the 1950s and 1960s, but not in the 1850s and 1860s). It further appears that although the dominance of super-regulation at the national scale in nineteenth century Britain was necessary for the openness of spaces within Britain it was by no means sufficient for this openness, which was in practice restricted to a lower level and required the framework of local regulatory institutions that provided utilities, public services, and economic and social networks. In these circumstances it is perhaps best to think of structural coupling as itself scale-articulated, and thus involving mutually reinforcing relations between accumulatory and regulatory activities which themselves manifest scale divisions of labour, and in which the dominant scales do not necessarily coincide.

Societalisation and crisis

Following normal usage, 'societies' are treated here as bounded systems or structured wholes with associated cultural identities (see for instance Althusser, 1977, pages 5–96, 203–204; Giddens, 1984, page xxvi). The term 'societalisation' is used to refer to the process of integration and division whereby the nested system of societal units which comprises the global social formation is (re)constituted (Jessop, 1994, page 14). The analysis set out above suggests that societalisation is driven by the search for optimum scale divisions of labour in accumulation, regulation, and super-regulation. It further suggests that societalisation involves the structural coupling of a series of scale differentiated hegemonic structures with scale differentiated systems of accumulation. It is the *dominant* scale of super-regulation that establishes the main axis of unity and division in hegemonic structures, thereby giving rise to a plurality of societies at similar

scales in different places, each scaled in order to secure its existence in the context of all others doing the same. It is the *nodal* scales of superregulation that establish the subordinate axes of unity and division, thus conditioning a series of subsocieties in different places below the dominant scale and a series of supra-societies in different places above the dominant scale. The formation of spatial hegemonic structures is a process which entails the interpellation of societal units as determinate 'peoples' with cultural identities that are segmented: subdivided at lower scales and supraintegrated at higher ones.

The history of capitalism does not appear to support the view that open scales are always occupied scales, or that the largest scale of accumulation is always dominant. Rather, it is argued here that the dominant scale is a function of the scale division of labour of accumulation during each phase of capitalism. It is acknowledged that systems may fail to achieve the optimum scale division of labour for their regime of accumulation perhaps because of inadequate crisis management, which reflects a *regulatory deficit* that leaves the resulting societal order open to destruction or assimilation by other more successful ones. But if the optimum scale division of labour changes during the development of capitalism, as a result of the emergence of a new regime of accumulation [involving say capital (de)concentration], then the viability of even the most successful arrangements will be undermined and we will have a *crisis of scale misalignment*. In these circumstances the existing segmented system of societies will tend to break down and to be replaced by structural couplings involving dominance at higher or lower levels. The breakdown and rescaling of societal units (as in Europe at points throughout the twentieth century) may be negotiated peacefully or through conflict, and warfare must be treated alongside diplomacy as equivalent means of resolving scale crises.

Conclusions

The global social formation is organised along the two axes of place and scale, but it is only in recent years that the attention of social scientists has shifted somewhat from the former towards the latter. An examination of the literature reveals, however, that most emphasis has to date been placed upon the politics of scale, and that even amongst those who adopt the regulationist frame of reference there has been a failure to develop its system-theoretical implications to their logical conclusion in the context of social (re)scaling. In the present paper I argue that the reasons for this failure lie in the conceptual architecture of regulation theory itself, which must be adjusted in certain respects to restore its capacity to contribute to Marxian theory and to the spatial problematic. These adjustments involve in particular replacing the limited, two-dimensional model of society that is normal within regulationism by a four-dimensional analysis that relates the processes of accumulation and regulation to those of super-regulation and meta-regulation. Only by having proper regard for the systemic aspects of spatial reorganisation, and by exploring how class and system dynamics combine through the articulation of strategy and selection, can regulation theory act in accordance with its own precepts. The functionalism with which regulation theory has been associated will not be dispelled by attenuated references to the 'accumulatory imperative', but by specifying more closely the causal processes involved in this 'imperative'.

In the second half of the paper I applied this revised framework to an analysis of the scale ordering of social relations, and put forward a series of hypotheses that may be developed in reference to specific historical conjunctures, including the contemporary reorganisation of societies in and beyond Europe. I argued that not only individual capitals but also emergent systems of accumulation and regulation perform better if they adopt an optimum scale division of labour amongst their different functions. Indeed, during transitional periods existing scalings will lose their effectiveness, and

new spaces must be opened that permit more appropriate scale divisions of labour to be established if performance is to be restored. There is furthermore a tendency for the scale divisions of labour of capitals and other institutions to align with one another, and the emergence of dominant and nodal scales is an important aspect of the spatial articulation of accumulation and regulation. It is through the emergence of these dominant and nodal scales that segmented hegemonic structures and ultimately societies are established.

We have sought to avoid the assumption that agents (including macroagents) will succeed in finding and implementing—through struggle—the optimum scale divisions of labour for the systems in which they are participating. Indeed it is assumed on the contrary that systems will only succeed to varying degrees in this endeavour, and that this variation contributes to the differential viability of capitalist societies that we observe from history. If the optimum scale division of labour changes during the development of capitalism, as it is likely to do in the transition from one regime of accumulation to another, then existing systems of societies will be undermined and must be replaced before the resulting scale crisis can be resolved. The approach set out here should help to move the focus of attention away from the search for local modes of regulation towards an investigation of the scale conditions of successful accumulation and regulation. It is perhaps on this kind of basis that regulation theory may be able to restore its relevance to neo-Marxist theory and to the investigation of space and scale.

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