

The four varieties of comparative analysis: the case of environmental regulation

Paper for Conference on Small and large-N comparative solutions, University of Sussex, 22-23 September 2005

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Abstract

The paper develops an argument that the two conventional forms of comparative analysis which seek to explain similar phenomena by similar features, and different phenomena by different features are too restricted. Instead using the idea of plural causation two other possibilities are identified: explaining similar phenomena by different features (e.g. showing how a phenomenon occurs due to one set of causes in one society and another in another) and explaining different phenomena by similar features (e.g. as in functionalist explanations which explain different phenomena as ways of meeting the same societal functions.) The resulting four varieties of comparative analysis are illustrated. The second part of the paper draws on some recent research on environmental regulation in Hungary to address two questions: 1. the similarity in patterns of environmental regulation across nations and 2. inter-locality variation in patterns of environmental regulation in Hungary. In the former case the similarity in the pattern in Hungary to that in North American and western European capitalist countries can usefully be explained as occurring in part through a distinctive set of causes, i.e. socialist legacies.

The aim of this paper is make some general arguments about comparative analysis (section 1) and then to illustrate them from research on environmental regulation (section 2). In particular I want to argue that the conventional view that to explain similarities in two societies we need to find features shared by those societies leads to too restrictive a form of comparative analysis and that instead it is useful to identify four varieties of comparative analysis¹.

1. Varieties of comparative analysis

We start by examining what is meant by comparative analysis.

Comparative analysis needs to be distinguished from the juxtaposition of descriptions of a series of cases. While sequential presentations of descriptive data are undoubtedly informative about the cases concerned they are only comparative in the weak sense of making the reader aware of differences and similarities. They whet the appetite to know more. Comparative analysis also needs to be separated from the sense in which all analysis is comparative: all attempts to find causes involve comparing what happened

¹ The argument of this paper builds on Pickvance (1986 and 2001); the material in section 2 draws on Pickvance (2003).

with a mental image of what is likely to have happened in the absence of certain features (Smelser, 1976, 160-2).

Two features define comparative analysis as understood here:

1. an interest in the explanatory question of why the observed similarities and differences between cases exist, and
2. reliance on the collection of data on two or more cases, ideally according to a common framework.²

The primary reason for comparative analysis is the explanatory interest of gaining a better understanding of the causal processes involved in the production of an event, feature or relationship. Typically it achieves this by introducing (or increasing) variation in the explanatory variable or variables.

The strength of comparative analysis as a research design is its ability to introduce additional explanatory variables (or to allow variation in variables which take a fixed value in the initial case of interest), and to show that relations are more or less general than had been initially thought. Its weaknesses are that it requires the commensurability of concepts across cases (e.g. terms like 'environmental regulation' must have consistent meanings so we are not comparing apples and oranges), the introduction of new variables brings with it the introduction of unknown variation too, and that like all non-experimental research it has to rely on 'naturally occurring variation' which rules out many combinations of values of interest to the researcher.

The two conventional types of comparative analysis focus on the explanation of differences, and the explanation of similarities. This sounds like a straightforward contrast but is not. The reason is that what counts as a similarity or a difference depends not only on the observed values but also on the analyst and should therefore be regarded as a social construct rather than as an objective reality. For example if a study includes three cases which have values 15, 18, 21 on some variable, then one might be inclined to classify them as low, medium and high. If a subsequent study discovered two further cases with values 50 and 80, then one might be tempted to reclassify the 15, 18 and 21 as all 'low'. The decision about whether one has observed differences or similarities therefore depends on the scale of measurement used, and what assumptions are made about the actual distribution of values on the scale. Conversely research which starts from similarities is always faced with differences of some type and involves a decision that the differences are insignificant and can be ignored. In that sense similarity and difference are constructed.

Two strategies can be identified for creating similarities:

- a. Excluding some of the evidence as being untypical or exceptional in order to focus on the rest of the evidence which shows similarities. This amounts to selecting from

² Some writers have adopted more restrictive definitions. For example Prezworski and Teune (1970) argue that comparative analysis is only present when it is shown that a societal level feature has explanatory power. This makes the outcome of the analysis the criterion of whether an analysis is comparative or not rather than the intention behind it.

the available evidence to arrive at a new starting point for the comparison in which similarities are present. This is an 'empirical' strategy.

- b. Alternatively the object of study can be reconceptualized at a higher level of abstraction. This amounts to saying that the appearance of difference conceals a (higher-level) similarity. This is a 'conceptual' strategy which again achieves a new starting point of similarity but at a higher level of abstraction.

Thus the idea that comparative analysis deals either with similarities or differences is more complex than it seems, and any decision made is always open to future revision.

A more elaborate classification of types of comparative analysis is set out by Tilly (1984) who distinguishes four types: individualizing, universalizing, variation-finding and encompassing.

- a. Individualizing comparison contrasts 'a small number of cases in order to grasp the peculiarities of each case' (1984, p. 82)
- b. Universalizing comparison 'aims to establish that every instance of a phenomenon follows essentially the same rule' (1984, p. 82)
- c. Variation-finding comparison seeks to 'establish a principle of variation in the character or intensity of a phenomenon by examining systematic differences between instances' (1984, p. 82)
- d. Encompassing comparison 'places different instances at various locations within the same system, on the way to explaining their characteristics as a function of their varying relationships to the system as a whole' (1984, p. 83), e.g. as in Wallerstein's world system analysis.

Individualizing comparison involves discovering how different two or more cases are. It is an essential pre-condition of comparative analysis since an accurate descriptive grasp of the specificities of cases is essential before comparison can begin.³ Indeed it is part of the task of deciding that two cases are indeed cases of the same phenomenon. However individualizing comparison is not in itself comparative analysis, because the latter looks beyond specificities to discover generalities.⁴ The fact that the impetus behind individualizing comparison is descriptive rather than explanatory means that it is a useful first step towards comparative analysis as defined here but it cannot be regarded as a type of comparative analysis and is therefore not referred to again. Universalizing and variation-finding comparisons are I believe the two fundamental types of comparative analysis and I shall return to them below. Tilly's final type, 'encompassing comparison', is undoubtedly concerned to explain variation. But the only thing which distinguishes it from variation-finding comparison is that the variation of interest is explained in terms of an underlying general causal mechanism, e.g. the capitalist world system. This is a substantive difference not a methodological difference and hence encompassing comparison is best seen as a subtype of variation-finding comparison.

³ Rosemary Crompton has pointed out that this is not true of writers using the 'most different systems' design who seek to demonstrate the irrelevance of societal characteristics to relations of interest.

⁴ I take the view that social reality can be seen as made up of general and specific elements and that the purpose of comparative analysis is to make sense of the former only. Rich description of course takes some of the latter into account too. Dieter Rucht has pointed out that comparative analysis can also be used to identify something completely new.

This suggests that Tilly has not advanced beyond the two familiar types of comparative analysis: those which seek to explain variation and those which seek to explain commonality. I will slightly modify his terms and refer to ‘differentiating’ and ‘universalizing’.

Since the starting point of comparative analysis as defined here is the explanation of similarities and differences, the obvious conclusions to draw are:

- a. that universalizing comparative analysis is used to make sense of similarities, and
- b. that differentiating comparative analysis is used to explain differences.

This is shown in Table 1. In fact I shall argue that these conclusions are incomplete since two other types of comparative analysis also exist.

		End point: explanation in terms of	
		Principle of variation	Principle of universality
Starting point:	Observed or constructed differences	A <i>Differentiating comparative analysis</i>	B
	Observed or constructed similarities	C	D <i>Universalizing comparative analysis</i>

Table 1. Types of comparative analysis according to whether the starting point is similarities or differences

A second choice in comparative analysis concerns what units should be included. Przeworski and Teune (1970) distinguish two strategies for choosing the cases to be compared: the ‘most different systems’ and ‘most similar systems’ designs. In the first the logic is that a relationship which is invariant across highly diverse (e.g. societal) conditions is thereby shown to be valid irrespective of these conditions. The second design is based on the idea that it is preferable to compare similar cases (e.g. societies which are assumed to be more familiar to the researcher) to reduce the risk of uncontrolled variables ‘intruding’ into the relationship of interest.

To start with we shall give examples of the two most familiar types of comparative analysis shown in Table 1: Type A differentiating comparative analysis and Type D universalizing comparative analysis.

Type A differentiating comparative analysis and Type D universalizing comparative analysis

We consider first *Type D universalizing comparative analysis*. What distinguishes this type is its commitment to look for underlying ‘universal’ relations. Universal does not mean ‘applicable to all cases in the world’ but ‘applicable to all cases within the same class’. Thus a universal proposition about state socialist societies would not be less universal today than before 1990 because there are fewer such societies.

Universalizing comparative analysis starts from 'surface level' similarities and implies that they are explained by a 'deeper level' common process or cause. This is the conventional model used for example in understanding common processes in advanced capitalist democracies.

Let us examine the 1982 analysis of West German and US housing policy in the post-war period by Peter Marcuse. His aim was to show that housing policy in capitalist societies took a particular form, namely to support the 'private housing industry'. (He included both housebuilding firms and housing finance institutions within this concept).

When he examined the legislation which made up housing policy he concluded that in the US his proposition was borne out: housing policy did indeed favour the interests he expected. However in West Germany the situation was more complex. Marcuse pointed out that in two periods housing policy had not favoured the private housing industry. From 1949-53 the priority was reconstruction and the private sector's housing role was subordinated to that of the state. Later, in the 1967-73 period of social unrest, he found that measures had been adopted (such as the continuation of rent control and public involvement in urban renewal decisions) which were against the interests of private landlords. Thus he was faced with contradictory evidence. His strategy was the empirical one identified above, namely to exclude the evidence for the two exceptional periods on the basis that they were untypical and should not be given equal weight with the rest of the post-war period. Having thus constructed similarities, Marcuse was able to state as his conclusion that

'The differences between German and US housing policies in general, then, are more in form and quantity than in substance or direction. In both the underlying commitment is to the private market.' (1982, p. 112)

The model of the state here is what marxists call the 'instrumentalist' model.

Marcuse thus carried out a Type D universalizing comparative analysis by excluding certain periods from his study. The implication is that the exceptional periods do not show long-term patterns of development within advanced capitalism but short term stabilizing measures needed to restore capitalism to its development path after a disruption⁵. The principle of argument is that general conclusions should be built on long period trends rather than short term deviations.

As an example of *Type A differentiating comparative analysis* we can also draw on Marcuse's data. However we will include the 'exceptional' periods in West Germany which he excluded and pose the question whether the differences between policy in these periods and in the 'normal' periods can be explained. Turning to the structuralist marxist theory of the capitalist state it can be argued that the direction of state policy is not fixed but can be partially or temporarily shifted away from supporting capitalist interests when there are potential or actual threats to social order. This theory fits well the immediate postwar period and the need for reconstruction and the 1967-73 period of social unrest.

⁵ The question of the choice of countries is obviously relevant to the conclusions drawn. Would the same conclusions have been reached if the countries had included Denmark, Sweden or the Netherlands?

Hence it is possible to analyse the variations which Marcuse excluded by appealing to a principle of variation (which also has marxist roots).

Whether it is wholly compatible with Marcuse's own conclusion is debatable. Marcuse would be right if he claimed that his Type D analysis was concerned with the general pattern of similarity in housing policy in the period concerned, and that the Type A analysis dealt with less significant short-term patterns. However in other countries, e.g. where social democratic parties have been in power for long periods, the patterns which were short-term in West Germany have been long term. This suggests the variability of state policy within certain limits is the more general principle.

The Marcuse study is thus a good example of a Type D universalizing comparative analysis, but as has been shown by including data which he excluded to achieve simplicity one can also carry out a Type A differentiating analysis. Although only two cases are included it would perhaps be exaggerated to call this a holistic analysis: for example, it makes no attempt to get inside the 'black box' of government policy-making.

Alternative forms of comparative analysis: Types B and C

So far we have introduced the familiar types of comparative analysis which assume that similarities between countries must be explained in terms of common features or processes, and that differences must be explained a principle of variation. This assumption is a comforting one since it simplifies dramatically the range of possible explanations that need to be considered.

However I shall now suggest that there are two further possibilities which deserve attention. These are based on the idea of plural causation, a term introduced by J.S. Mill under the title 'plurality of causes' (1886, pp. 285-299). This idea needs to be distinguished from that of multiple causation i.e. cases where more than one cause act together. What Mill drew attention to was something different from multiple causation, namely that the same phenomenon could be produced by different causes on different occasions (or the same cause but with different weights). Alternatively, moving from the qualitative language of presence and absence of phenomena and causes, to the quantitative language of values of variables, plural causation means that the same value of a variable could be the result of the same variables but with different values on different occasions. For Mill plural causation was something of great relevance in social science.⁶

In brief, plural causation does not refer to the number of causes, their weights, or values but to the fact that, on different occasions, different causes, or the same causes with different weights or different values can bring about the same value of the variable of interest. This contrasts with the conventional model of causation which sees patterns of causation as lacking such over-time and over-place variability. Table 2 shows the difference between conventional and plural causation by distinguishing between monocausal and multicausal models using conventional causation (cells 1 and 3) and monocausal and multicausal models using plural causation (cells 2 and 4).

⁶ For a fuller discussion of plural causation see Pickvance (1986).

		Model of causation	
		Conventional	Plural
Number of causes	Assumed model of causation		
	One (monocausal)	1	2
	More than one (multicausal)	3	4

Table 2. The logical independence of models of causation and the number of causes

The idea of plural causation is essentially that of diverse chains of causation leading to the same result. Social scientists have had great difficulty with this idea (see Pickvance, 1986). Ragin has built on the idea extensively in his work. He notes that ‘typically, there are several combinations of conditions that may produce the same emergent phenomenon or the same change’ (1987, p.25) and introduces the idea of ‘multiple conjunctural causation’ to refer to this. This is a good term and Ragin makes clear that the number of causes is not the issue when he writes that ‘social phenomena are complex and difficult to unravel *not because there are too many variables affecting them, although the number of causal variables is certainly important*, but because different causally relevant conditions can combine in a variety of ways to produce a given outcome.’ (1987, p.26, emphasis added). He also rightly appreciates that ‘the model of causation implicit in additive multivariate statistical techniques contradicts notions of multiple conjunctural causation.’ (1987, p.63). However he does not always maintain the distinction between multiple and plural causation⁷; moreover he restricts plural causation to presence/absence causation. In Ragin (2000, chaps. 4 and 10) he gives some instructive examples of how his approach works and introduces the term ‘causal heterogeneity’ (pp. 41-2, 51-3) which seems to be very close to ‘multiple conjunctural causation’.

The reason for the prevalence of the conventional model of causation lies in its origin in natural science where the results of experiments do not depend on when and where they are carried out. In social science, on the other hand, as Mill pointed out, there seems no reason to accept such a proposition.

Let us take an example where plural causation seems to be present. If we are interested in the association between housing quality and the income level of the occupants, then we can investigate this in different societies. In advanced capitalist societies higher income groups occupy better quality housing than lower income groups and this is because housing is distributed by market processes where ability to pay is the criterion of access. However in studies of the distribution of housing in state socialist societies, the same pattern of stratification is found despite the fact that it contradicts the prevailing political ideology (Szelenyi, 1983). The question is how this should be explained.

⁷ In discussing Mill he refers to ‘multiple causation (which was known to Mill as plural causation)’ (Ragin, 1987, p. 37). In my view this is a misinterpretation of Mill. King et al. (1994, p. 87) also confuse the two concepts.

Using the conventional model of causation we would be obliged to choose a Type D universalizing comparative analysis. Since common effects are assumed to have common causes, we would look for similarities between state socialist and advanced capitalist societies and make these the explanation of the observed similarities (e.g. the fact that both types of societies are industrial, are run by large bureaucratic organizations, or are 'state capitalist'). Hence Type D universalizing comparative analysis can be seen to exclude *by definition* two potentially important explanatory features, political ideology and economic level, which differ between the two types of society. It thus makes very strong assumptions and, as will be shown, ones which can be challenged.

Type C differentiating comparative analysis with plural causation

We can approach the correlation between income and housing situation in state socialist and capitalist societies by paying closer attention to the processes involved, as in a holistic study. In capitalist societies market allocation of housing is the dominant mode, and ability to pay is the prime determinant of who gets what housing. In most state socialist societies there were two processes: state allocation (the dominant process in cities) and market processes (dominant in rural areas). State allocation for a long period allocated the best housing to those in the more prestigious or better-paid occupations. The reasons were diverse. In some state socialist societies state enterprises had considerable influence on the allocation of state housing and favoured their 'key' employees. In others, where councils had a greater role, they used it to reward officials rather than the poorest households. The rationale was that in a situation of shortage, the criterion of 'social merit' was necessary as a way of discriminating among those in 'need', and this happened to coincide with occupational status. The market aspect of housing distribution in state socialist societies was a complementary means of access to housing to state allocation and worked in ways similar to those familiar in capitalist societies. The main differences were that it was the dominant channel for lower income employees (since higher income employees were favoured by state allocation) and workers in rural areas.

What conclusions can we draw from this example? A standard (Type D) universalizing comparative analysis of similar patterns of housing quality and household income in state socialist and advanced capitalist societies would insist that a potentially universal relationship had been uncovered which was unrelated to any of the differences between the two societies. Hence differences in the processes by which housing is allocated in the two types of society would be ignored. In my view this is too high a price to pay for adherence to the conventional model of causation. Rather the diversity of causal processes created by the different patterns of development of different societies should be a prime focus of analysis and we should seek to build these into our explanations rather than rely on models of explanation which force us to exclude them.

By arguing that a similar outcome can be produced in different ways in different types of society, we have in fact been giving an illustration of Type C differentiating comparative analysis. This type starts from a similarity and explains it in terms of a principle of variation but uses plural causation. In other words we have argued that different causal processes in the two types of society accounted for the similarity of interest to us. In brief

there are two types of differentiating comparative analysis, A and C, and they can be used to explain similarities as well as differences as usually thought.

		End point: explanation in terms of	
		Principle of variation	Principle of universality
Starting point	Observed or constructed differences	<i>A Differentiating comparative analysis</i>	<i>B Universalizing comparative analysis with plural causation</i>
	Observed or constructed similarities	<i>C Differentiating comparative analysis with plural causation</i>	<i>D Universalizing comparative analysis</i>

Table 3. Types of comparative analysis according to whether the starting point is similarities or differences

Table 3 shows Type C as well as the Types based on conventional causation (A and D). The Table also fills in the final cell with Type B, a form of comparative analysis using plural causation which explains differences in terms of a principle of universality.

Type B Universalizing comparative analysis with plural causation

We now illustrate Type B. According to the conventional idea of causation the idea of explaining differences in terms of a principle of universality is a non-starter, because it only allows differences to be explained by a principle of variation. However once we allow for the existence of plural causation we are no longer constrained by this rule. To see how this might work let us return to the previous example. Instead of taking as the object of interest the similar outcomes in terms of housing distribution, we could ask why housing is distributed by different channels in advanced capitalist and state socialist societies. In other words we would be starting from differences rather than similarities.

The conventional way to explain these differences is to identify a principle of variation, for example the differing ideologies of the two types of society concerned (Type A). However Table 3 reveals that there is another alternative: Type B comparative analysis which is universalizing with plural causation. An example of this would be the explanation offered by the functionalist theory of stratification, that stratification arises because every industrial society requires a way of motivating its key workers, but that this can take different forms in different societies. If the distribution of housing is seen as an aspect of the pattern of stratification then the difference in the way housing is distributed in capitalist and state socialist societies (viz. the balance between market or state, and the particular institutions and processes involved) can be explained in terms of this universal 'functional need'. In this way a universalizing explanation is combined with plural causation. Generally I do not find functional explanations satisfactory a) because they do not explain the specific forms taken and b) they explain aspects of society in terms of their (alleged) effects, which puts the cart before the horse. However this example certainly illustrates Type B.

In this section I have shown that the two familiar types of comparative analysis, aimed at explaining similarities and differences, make a conventional assumption about patterns of causation and need to be supplemented by two more which rely on plural causation. Only by being aware of the four varieties of comparative analysis can the researcher exploit its possibilities to the full.

2. Environmental regulation

We now illustrate the above arguments from the field of environmental regulation, considering in turn arguments about national and local patterns. The term environmental regulation refers to actions by governments (at central and sub-central levels) to influence the environmental impacts of firms and households. Regulation thus refers to an aim rather than an outcome: the success of regulation is an open question. Governments do not act autonomously and the nature and strength of regulatory actions will reflect the strength of actors such as firms and environmental groups and the prevailing ideological climate. A satisfactory cross-national measure of the strength of environmental regulation would be difficult to achieve. It is a multi-dimensional concept, and the environment itself is an umbrella term covering many subdivisions.

We consider in turn the literature on national and local patterns of environmental regulation before looking at the Hungarian case.

National patterns

a. Western evidence

Four points emerge from research on national patterns of environmental regulation in advanced capitalist societies.

The first concerns the role of negotiation. There are a number of studies of the enforcement of pollution legislation which give some insight into the regulatory process by observing how staff working in regulatory agencies go about their task (Richardson et al. 1982; Hawkins, 1984; Lowe et al. 1997, Fineman, 2000). These studies uniformly emphasise that agency staff regard education, advice and persuasion as the preferred means of securing compliance with environmental standards. In other words the primary task of staff is to create a climate in which firms adopt the practices which the agency desires because they see it as in their interest to do so. These range from minor changes in employee practices to redesigning a production process so that it is cleaner. The studies show that the majority of firms which breach standards are regarded by regulatory agencies as being amenable to persuasion and negotiation. For them prosecution is a last resort. In contrast the threat of prosecution is introduced straight away for the 'rogue minority' of firms which are considered to be deliberately flouting the regulations and to be unresponsive to pressure.

The result of the agencies' preference for negotiation and persuasion is that they undertake prosecutions (as opposed to the threat of prosecution) relatively rarely since they represent the failure of the favoured approach. For example, in Hawkins's (1984) study of water pollution, under 1% of pollution incidents led to prosecution. He also claims that regulatory agencies themselves are not keen on prosecution since it takes their operations into the public arena and opens them up to unwelcome scrutiny which

involves a loss of control for the agency. Likewise Fineman (2000) refers to prosecution as the 'poisoned chalice' and notes that inspectors could be humiliated, 'taken to task by magistrates for insufficient prosecutory evidence, or simply outplayed by the superior legal resources of the company being prosecuted.' (2000, p.67)

A second feature of the regulatory process revealed by these empirical studies is the pressure to be 'realistic'. Regulatory agency staff are loathe to require costly improvements which would oblige a firm to close. If they were to require the achievement of impracticable standards within tight deadlines this would jeopardise the regulatory relationship. The result is that environmental regulation typically involves a negotiation process in which there is room for manoeuvre concerning whether a breach has happened, the nature of the breach, what standards apply, whether there are mitigating circumstances, what improvements must be made (and their cost) and within what period of time. Terms like 'best practicable means', 'as low as reasonably achievable' and 'best available technique not entailing excessive cost' (BATNEEC) (Richardson et al., 1984, Gouldson and Murphy, 1998), which are well-established in the U.K. context, express the tension between regulatory standards and the costs of meeting them and give a sense of the role of negotiation in environmental regulation. The result is that firms which are already in poor shape economically are likely to be able to argue that they cannot bear additional costs, whereas successful firms are likely to be required to achieve higher standards sooner.

The pressure for realism has a direct bearing on the third feature of environmental regulation. This concerns the two poles between which styles of regulation vary. At one pole, legislation may embody precise pollution and planning standards, as in the U.S. At the other pole, legislation may make no mention of specific standards, and leave the standards applied to private negotiation between regulatory agencies and firms about what is practicable - a pattern which places greater trust in officials. This is the U.K. model (Richardson et al. 1982, Vogel, 1986, Yeager, 1991). European countries other than the U.K. are placed by Vogel and Kun (1987) in between the two polar types. However Vogel (1986) goes on to make the provocative claim that these differences in style of regulation are not reflected in differences in outcome. For example he shows that the standards set in US legislation are not in fact observed in practice. The reason for this paradox, he suggests, is that in countries with legally embodied environmental standards the application of these standards is an informal negotiation process in which, as described earlier, considerations of 'realism' and 'practicality' loom large. In other words Vogel argues that informal negotiation between regulators and regulated is universal and leads to a similarity in outcomes. This is because regulatory agencies are reluctant to enforce a measure which has a major negative effect on the well-being of the firms being regulated, and this reluctance is a constant across societies. The only difference between countries is whether informal negotiation is explicitly provided for in the legislation or not.

The final feature of environmental regulation in advanced capitalist societies is the lack of real independence of state regulatory agencies. Large firms can exert leverage over state agencies, both nationally and locally because:

- a) most industries are dominated by a few firms
- b) industries are usually well-organized at national level and have informal direct access to ministers. They are also likely to be well-represented on or even to dominate government advisory bodies.
- c) knowledge about production processes and pollutants (and how to measure them) is likely to be considerably concentrated in the industry itself. It may even be an object of commercial value which is kept secret.
- d) those with the requisite knowledge to regulate firms are likely i) to have had careers which have included working in the firms concerned or on projects financed by them, and ii) to hope for such jobs in the future, thus compromising their independence, and
- e) in local areas leading firms are very significant as investors, employers, and sources of demand in the housing market and can acquire 'natural' authority in the local political scene.

As a result of this balance of power, environmental policy affecting an industry nationally or locally is unlikely to be formulated in isolation from its views. In the extreme case, where the autonomy of the regulator vis a vis the regulated has disappeared completely, i.e. the firms being regulated have gained control over the regulatory agency in practice if not formally, the situation is described as 'regulatory capture'.

b. A Chinese study.

We now turn to an interesting study of environmental regulation in China. This country remains officially state socialist but has seen a sustained high rate of economic growth since the 1980s based on 'market' forms which include both familiar private companies and unique state-private hybrids.

Ma and Ortolano (2000) conducted a survey of 76 enterprises in four cities focussing on discharge permits and fees in respect of industrial waste water pollution. They show that regulation in this field is the responsibility of a central Environmental Protection Administration working with local government-controlled Environmental Protection Bureaus (which receive a share of fees that they levy). The authors focus on the informal rules used by the EPBs and reveal the familiar pragmatic negotiation processes described above for North America and the UK.

Ma and Ortolano show that the EPBs set low standards for water pollution permits (partly due to a possibly deliberate ambiguity in national legislation as to whether standards should concern concentration or mass of pollutants), that they never revoked permits or took court action, and that in setting fines and fees they emphasised the economic status of the firm. This worked to the advantage of state-owned firms which were in a worse economic state than the newer 'township and village enterprises'. They conclude by suggesting that the Chinese system of regulation of waste water is more decentralized and less legalistic than the US one but that it has a similar emphasis on informal rules and 'realism' in regulation.

This study suggests that Vogel's thesis about the universality of negotiation and 'realistic' outcomes extends to China. The impossibility of imposing strict environmental regulations irrespective of the economic situation of the firms involved thus seems to apply across a wide range of socio-political systems.

c. Hungarian evidence

Under state socialism Hungary showed a paradoxical combination of extensive and detailed environmental legislation, which in some cases set standards above those in the west, and high levels of pollution (Persanyi, 1990; Fisher, 1992; Carter and Turnock, 1993). The reason was that the legislation was not enforced. The closure to western markets discouraged cleaner production methods, and the emphasis of industrial managers was on achieving targets. Since the ministries to which the enterprises 'belonged' were either responsible for pollution control, or could influence the bodies responsible for it, the enforcement of standards was never likely to be taken seriously and any fines were very low.

As for local governments they were far from being in a position to regulate state enterprises' environmental impacts. The executive bodies which ran them included managers from the firms concerned; state enterprises were often major local employers; and local governments were highly dependent on local state enterprises for local taxes and other resources.

The effect was that in the 1970s and early 1980s state enterprises, with the support of the party-state apparatus, were able to adopt production methods with virtually no regard to pollution. Local government was in too weak a position to intervene, and public protest where it existed, was limited and at most partly successful.

In the post-socialist period environmental regulation in Hungary has continued to be carried out by regional environmental inspectorates (REIs) and local governments. Our research supported Vogel's argument regarding the negotiated nature and limited extent of environmental regulation. Some of the reasons we identified for this as regards REI policy were:

1. Legislation does not exist concerning the type of pollution concerned.
2. Legislation exists but no standards have yet been set.
3. Standards have been set but they are loose.
4. Standards have been set but allow variation depending on circumstances.
5. Standards are set but exceptions are made.
6. Exemptions are allowed for firms that have plans to reach higher standards in the future.
7. REI-initiated inspections are rare or ineffective, so the chances of any breaches of standards being discovered are low.
8. The resourcing of the REI is inadequate so it cannot carry out its functions and has to divert efforts into earning money, for example, by doing consultancy work. (Pickvance, 2003, pp.165-6)⁸.

To give some concrete examples in support of this interpretation:

1. among the four towns we studied the one with the strongest level of local environmental regulation had the second worst environmental situation as measured by the presence of certain air pollutants. This suggests that at its strongest the impact of local environmental regulation is rather moderate.
2. the level of environmental penalties reported by the firms interviewed was very low and they failed to act as incentives to invest in new and cleaner equipment. One

⁸ The research was financed by the ESRC and involved over 200 interviews with firms, councils, REIs and environmental groups.

interviewee even claimed that environmental investment had to pay for itself within two years which indicates the low priority given to such improvement.

3. the REI rule by which firms which had 'plans' for investment in such improvements were exempt from penalties acted as a significant factor in delaying the reduction of levels of water pollution. Several firms had delayed investing in waste-water treatment plants.

4. firms which set up in the past have been allowed to continue operations although they would not meet the environmental requirements imposed on new investment.

In saying that Hungary shows similarities with other countries in terms of a low strength of environmental regulation and the role of negotiation we are making a bold statement. As we argued earlier any identification of a similarity is a matter of 'construction'. In any comparison one can focus on either similarities or differences. To assert a similarity in our case means abstracting from numerous international differences, for example, in the nature of the regulatory agencies (national, regional, local), in their level of technical expertise, and in whether they have the power to impose fines, and if so whether they retain the income from fines. Such differences are of course perfectly valid foci of interest themselves. However we believe that broad level similarities in national environmental regulation identified here are no less important and are valid objects of explanation. Since our research was a single country study, rather than being part of a systematic cross-national comparison using a common theoretical framework, our interest in raising the broad question of international convergence goes well beyond our own data. Hence our conclusions are put forward with caution.

This raises the intriguing question of whether environmental regulation is weak and subject to negotiation in all societies.

Explaining cross-national similarities in environmental regulation

Since the aim of this paper is to advance arguments about comparative analysis, for the sake of argument let us say that national level similarities in styles of environmental regulation are established: they are characterised by negotiation, and the level of constraint is weak.

Two explanatory strategies are possible: the first is type D universalising. Here we seek a common explanation.

One candidate is the Marxist theoretical argument that in capitalist societies since capital accumulation is the driving economic force there are structural forces which protect it against anything which threatens it. On this view environmentalist opinion is a potential threat which has to be accommodated at the least possible cost. The existence and strength of environmental regulation is thus the result of a 'truce' in the battle between firms and public over the environmental impacts of production processes, with the state acting as a weather-vane reflecting the balance of these two forces. Under most conditions environmentalist forces are relatively weak and this is reflected in environmental regulation. This argument certainly fits the experience of environmental regulation in capitalist countries. However that does not mean it is the only possible explanation.

A second candidate is functionalist. The inclusion of China in the set of countries in question suggests that an explanation that appeals to the logic of capitalism is insufficient, given the unique combination of state socialist and capitalist elements in China. However the materialist argument can be extended beyond capitalist societies to argue that whatever the economic system or prevailing political ideology of a society, any force which interferes with the way the society provides for its own subsistence, in other words, how it provides goods and services to its population, must be constrained in order to give priority to the continuity of the production process.

Both examples illustrate Type D universalizing comparative analysis.

The second explanatory strategy is Type C differentiating comparative analysis. Here we seek to establish that different societies have taken different routes to the same place, in other words that plural causation is involved. In the case of Hungary this would create theoretical space for the continuing possible impact of socialist legacies. These include

a. institutional continuities:

- State enterprises with great leverage over local government and environmental agencies. This was directly relevant to understanding the situation in Dunaujvaros where the steel company Dunaferr was still in state ownership (even if it had engaged in a defensive internal ownership restructuring) and where its relation with the local government still showed overwhelming power. However it was also relevant to localities where many state enterprises had been privatized since privatized firms continued to exert pressure on local government and the REI as before. This was even true in Szekesfehervar, where the local government had the toughest environmental policy of any of the four localities.
- The REI is a continuation of its state socialist predecessor and the staff we interviewed had a long record of public sector employment and were committed to professional ideals. There was no parallel with environmental regulatory agencies in advanced capitalist societies where personnel may have a private sector background as often as a public sector one and may not have fully taken on a public sector ethos⁹.

and

b. continuities in attitudinal patterns or cultural traditions:

- The popular belief that the state has a duty to support the population rather than act as a hands off 'enabler' and regulator. In Hungary the state's slow and cautious approach to privatisation has been interpreted as due to its fear of laying off workers (Elster et al, 1998)¹⁰.

Against these arguments there are a number of claims about the irrelevance of the socialist past:

- That extensive privatization means that firms no longer have such leverage over local governments and environmental regulators

⁹ Other suggested legacy factors are a) networks forged under state socialism between party officials and other influentials, b) a distribution of income and assets among social groups that favoured those with party connections, and c) stratification patterns but we did not find evidence of their relevance.

¹⁰ Other suggested legacy factors in this category are a) a lack of enterprise or initiative due to reliance on the state and the limited scope for private sector economic activity, and b) (in contradiction to the last) the argument that the 'second' (i.e. non-state) economy allowed people to develop new sources of income and encouraged entrepreneurship.

- That the reform of local government has given it real autonomy vis a vis firms
- That the state is no longer as powerful as before in terms of economic and social welfare
- That old networks are irrelevant because party connections no longer provide access to significant resources

An important point about potential legacy effects is that legacies are not necessarily an obstacle to change but may facilitate the development of capitalist relations or be a perfectly viable part of a new system. The example of firms exerting leverage over local governments is both a legacy of state socialism and a very familiar pattern in advanced capitalist societies. Hence legacies from state socialism provide one path to some of the similar outcomes we are interested in explaining.

To the extent that legacy effects form a part of an explanation of how Hungarian environmental regulation arrived where it has (and that that place is similar to that observed elsewhere), the value of the heterodox approach to comparative analysis is demonstrated. To have adopted a comparative approach such as Type D universalising comparative analysis would have been to exclude the role of socialist legacy effects and to search only for common causes across all the societies in question. This would be to limit significantly the patterns of causation being searched for.

To put it another way, while there is a Hungarian way towards the combination of negotiated and weak environmental regulation this does not mean that it is the only way. Each society can have a particular way of reaching a common pattern.

Explaining local differences in environmental regulation

Studies of local-level environmental regulation reveal a variety of stances from the pro-environmentalist to the anti-environmentalist. These can be modelled as responses to different combinations of business pressure, public pressure and autonomous local government action, each of which can either be pro-environmentalist or anti-environmentalist (Richardson et al, 1982; Blowers, 1984 and Yeager, 1991).

We carried out research in four locations in Hungary selected because of their contrasting socio-economic contexts, and because previous research suggested that these contexts would lead to differences in levels of environmental regulation.

The results were as follows:

Szekesfehervar, an expanding town west of Budapest: this was the only town where the REI had a regular programme of unannounced visits, the toughest form of regulation. It also had the strongest local environmental policy since some potential investors had been rejected on environmental grounds, land had been re-classified to provide greater environmental protection, and various pro-environmental decisions had been taken by the local council.

Gyor, a big provincial centre also to the west of Budapest: the REI seemed to undertake virtually no unannounced visits. However it had an active educational role through meetings with local firms, though these were concentrated in Gyor where the REI is located at the expense of the rest of the area covered. It was also active in response to

complaints by members of the public. Local environmental policy here was weaker than in Szekesfehervar.

Nagyteteny, an industrial suburb on the southern edge of Budapest: the REI here also seemed to undertake only rare unannounced visits. It complained strongly of resource constraints. Local government environmental policy here was probably weaker than in Gyor as measured by pro-environmental council decisions. However a ‘medium’ value is justified by the council’s continuing lawsuit against the government to obtain compensation for a polluted site.

Dunaujvaros, a steel town south of Budapest: the REI here, which though the same as the one at Szekesfehervar, was less active. There was only one example of an environmental policy, a lorry ban in the town centre.

We therefore classify the four localities as follows:

	Local government Policy	Regional environmental inspectorate policy
Szekesfehervar:	strong ¹¹	strong
Gyor	medium	medium
Nagyteteny	medium	weak
Dunaujvaros	weak	weak

Table 4 Strength of local government and REI policy in the four localities

The parallelism is clear and it was found that strong policy was associated with: absence of powerful dominant firms, high level of interest from outside investors, strong local environmentalist opinion, good REI resourcing, and closeness of the REI office.¹²

In Szekesfehervar the combination of a lack of dominant firms, strong interest from outside investors, strong local environmentalist opinion, a dynamic local council and an active REI led to the relatively favourable outcome on our measures of local environmental regulation. This was accompanied by a strong environmentalist rhetoric. Gyor and Nagyteteny ranked second and third in strength of local environmental regulation and Dunaujvaros came last. The former two localities showed some evidence of environmentalist activity among the public and in other respects generally showed weaker levels of the variables on which Szekesfehervar was strongest. Dunaujvaros was a very different type of locality with its dominant firm in continued state ownership, lack of environmentalist opinion, and lowest level of investor interest. The council was heavily under the influence of Dunaferr, the steelworks. This led to its inability to develop a local environmental policy, but also to the fact that it had developed a local economic development policy in which Dunaferr played an active role.

These results suggest that previous research in which the balance of power between firms, councils, inspectorates and the public, and the relative environmentalism of their

¹¹ ‘Strong’ means relative to the other three localities.

¹² For the analysis that leads to these conclusions see Pickvance (2003, Ch.7)

views (and the resourcing of inspectorates) are the key to understanding local variation in Hungary. The main additional factors we drew attention were the attractiveness of a locality to foreign investment, and the distance of the office of the inspectorate from the firm being regulated, which is an aspect of resourcing.

How much reliance can we place on our conclusions? The fact that the study is based on only four localities is a reason for caution. The argument for conducting studies on a small number of cases is that one gains more knowledge of them and that ‘thick’ knowledge is more likely to reach valid conclusions. This has been put in a strong form by Mitchell (1983). Brady et al (2004, p. 12) use the term ‘causal process observations’ to indicate the superior ‘depth of insight’ such intensive studies give rise to, but this is misleading. Causal processes are not observable; they are always a matter of inference. Against this is the argument of Lieberman (1992), that we find more persuasive, that inference based on small samples is very risky. A key issue is the range of variation in the independent variables. We have classified the four localities from strong to weak in respect of the different variables. However these measures are relative. Within our sample of four we feel these measures are justified. What remains unknown is whether if we had taken a sample of 20 localities including the four localities we would have placed them in the same categories on this variable, or whether in the extreme case they would all have been classified in the same category. In brief our conclusions about the effects of the independent variables are dependent on the range of variation actually present in the independent variables.

3. Conclusion

In this paper we have advanced an argument to widen comparative analysis beyond its normal confines by introducing the concept of plural causation, or as Ragin calls it ‘multiple conjunctural causation’. The examples we have considered in Section 2 have been used to argue that:

1. at the cross-national level there appear to be strong similarities between countries as diverse as the US, UK, Hungary and China in respect of the negotiability and weak level of environmental regulation. But to explain these there are several possibilities. We have argued that the heterodox comparative strategy which allows for different ways for societies to reach the ‘same’ place deserves attention and is excluded from consideration by the orthodox approach.
2. at the local level there are differences in levels of environmental regulation between towns in Hungary that are explicable in terms of a common set of factors.

It will be noted that we have used comparative analysis with plural causation in the case of the cross-national analysis and without plural causation for the local level comparisons. I am not proposing any general rule for associating plural causation with any particular scale of analysis. It seems to me this decision must reflect the researcher’s knowledge and theoretical imagination. It must always be provisional.

Bibliography

- Blowers, A. (1984) *Something in the Air*, Harper and Row, London.
- Brady, H.E., Collier, D. and Seawright, J. (2004) Refocussing the discussion of methodology in Brady, H.E. and Collier, D (eds) *Rethinking Social Inquiry*, Rowman and Littlefield, Lanham.
- Carter, F.W. and Turnock, D. (eds) (1993): *Environmental Problems in Eastern Europe*, Routledge, London.
- Elster, J., Offe, C. and Preuss, U.K. (1998) *Institutional Design in Post-communist Societies: Rebuilding the Ship at Sea*, Cambridge University Press, Cambridge
- Fineman, S. (2000) 'Enforcing the environment: regulatory realities', *Business Strategy and the Environment*, 9, 62-72
- Fisher, D. (1992) *Paradise Deferred : environmental policymaking in Central and Eastern Europe*, Royal Institute of International Affairs, London.
- Gouldson, A. and Murphy, J (1998) *Regulatory Realities*, Earthscan, London
- Hawkins, K. (1984) *Environment and Enforcement: regulation and the social definition of pollution*, Clarendon Press, Oxford.
- King, G., Keohane, R.O. and Verba, S. (1994) *Designing Social Inquiry*, Princeton University Press, Princeton.
- Lowe, P., Clark, J., Seymour, S. and Ward, N. (1997) *Moralizing the Environment: countryside change, farming and pollution*, UCL Press, London.
- Liebersohn, S. (1992) 'Small N's and big conclusions: an examination of the reasoning in comparative studies based on small numbers of cases', in C.C. Ragin and H.S. Becker (eds.) *What is a Case?*, Cambridge University Press, Cambridge.
- Ma, X. and Ortolano, L. (2000) *Environmental Regulation in China*, Rowman and Littlefield, Oxford.
- Marcuse, P. (1983) 'Determinants of housing policy in West Germany and the U.S.', in N. and S. Fainstein (eds.), *Urban Policy Under Capitalism*, Sage, Newbury Park.
- Mill, J.S. (1886) *A System of Logic*, Longmans Green, London.
- Mitchell, J.C. (1983) Case and situational analysis, *Sociological Review*, 31, 187-211
- Persanyi, M. (1990) 'The rural environment in a post-socialist economy: the case of Hungary', in P. Lowe et al (eds), *Technological Change and the Rural Environment*. D. Fulton, London
- Pickvance, C.G. (1986) Comparative urban analysis and assumptions about causality, *International Journal of Urban and Regional Research*, 10, 162-184.
- Pickvance, C.G. (2001) Four varieties of comparative analysis, *Journal of Housing and the Built Environment*, 16, 7-28
- Pickvance, C.G. (2003) *Local Environmental Regulation in Post-socialism: a Hungarian case study* Ashgate, Aldershot
- Przeworski, A. and Teune, H. (1970) *The Logic of Comparative Social Inquiry*, Wiley, New York.
- Ragin, C.C. (1987) *The Comparative Method*, University of California Press, Berkeley.
- Ragin, C.C. (2000) *Fuzzy-set Social Science*, Chicago UP, Chicago.
- Ragin, C.C. (2004) Turning the tables: how case-oriented research challenges variable-oriented research in Brady, H.E. and Collier, D (eds) *Rethinking Social Inquiry*, Rowman and Littlefield, Lanham.

- Richardson, G., Ogus, A. and Burrows, P. (1982) *Policing Pollution*, Clarendon Press, Oxford.
- Smelser, N.J. (1976) *Comparative Methods on the Social Sciences*, Prentice-Hall, Englewood Cliffs
- Szelenyi, I. (1983) *Urban Inequalities under State Socialism*, Oxford University Press, Oxford.
- Tilly, C. (1984) *Big Structures, Large Processes, Huge Comparisons*, Russell Sage Foundation, New York.
- Vogel, D. (1986) *National Styles of Regulation: Environmental Policy in Great Britain and the United States*, Cornell UP, Ithaca.
- Vogel, D and Kun, V. (1987) 'The comparative study of environmental policy: a review of the literature', in M. Dierkes, H.N. Weiler, and A.B. Antal (eds.) *Comparative Policy Research: Learning from Experience*, Gower, Aldershot.
- Yeager, P.C. (1991) *The Limits of Law: the Public Regulation of Private Pollution*, Cambridge University Press, Cambridge.