

‘Hollowing out of the State?’ The Implementation of Public and Private Agri-environmental Regulation in the Serbian Fresh Fruit and Vegetable Sector

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Summary

Survey data on the enforcement of public and private environmental regulation of the Serbian Fresh Fruit and Vegetable (FFV) sector are presented, and used as a basis for engaging in wider debates on the institutional restructuring of agri-environmental governance. Depictions of the restructuring of agri-food supply chains as a shift from public to private regulation or a form of planned hybridisation are rejected. Rather a form of *selectively applied, non-cooperative co-regulation* is recorded, whereby those farmers operating under extensive private regulation are also more likely to obey appropriate public regulation, without extensive state-private interaction. Future work, rather than being based on theories of a movement from public to private regulation and the hollowing out of the state within a particular policy arena, should focus on the differentiated nature of institutional regimes that can co-exist within a national production sector and the ability of producers to shift between production regimes which differ in the nature of their real implementation of standards.

Introduction

Agri-food supply chains are being fundamentally transformed through greater internationalisation of markets (via a growth in trade, foreign direct investment and openness of domestic markets) and regulation (spread of supra-national food laws, control agencies, certification bodies and private standards). The internationalisation of regulation is seen as both a response to, and catalyst for, greater international integration of markets. The restructuring of institutional regimes for agri-food production and marketing is altering profoundly the nature of market opportunities faced by, and the obligations placed on, producers globally (Hatanaka *et al.* 2006; Swinnen and Maertens, 2007). For instance, while the reform of formal regulation may promote opportunities for some, there is a danger that it will act as a barrier to trade in cases where governments and producers lack the institutional capacity and financial resources to meet the obligations of access (Reardon *et al.* 2003; Henson and Loader, 2001; Busch *et al.* 2005). In analysing these regime shifts in the agri-food sector, institutional approaches have been commonly invoked as a theoretical framework for understanding, what is often conceptualised as, a 'shift from public to private regulation' (Busch and Bain, 2004, p.324).

After the downfall of the Milošević regime, Serbia is, rather haphazardly, attempting to reform its economy and reintegrate into international markets and regulatory structures, and it has started out on the path toward European Union (EU) accession. Like many other post-socialist states, Serbia's economic fortunes during this process will be strongly tied to those of the agricultural sector. The agri-food sector accounts for approximately 16 percent of Serbian GDP and 20 percent of total exports in 2004 (Statistical Office of the Republic of Serbia, 2005). In rural areas, agriculture remains the largest employer and backbone of the economy (World Bank, 2006). Within agriculture, Fresh Fruit and Vegetables (FFV) are of strategic importance, contributing 27.7 per cent of total agri-food exports in 2006 (Statistical Office of the Republic of Serbia, 2007). Moreover, FFV is widely perceived to be one of the few areas where Serbia could significantly increase its agri-food exports and the country has a longstanding international reputation for certain products such as raspberries.

This paper analyses the enforcement of public and private agri-environmental regulation in the Serbian FFV sector. In doing so the paper seeks to contribute to the literature on two grounds. First, while the growth of private, and the reform of public, standards have been clearly acknowledged and their implications for producers thought to be considerable, empirical evidence on their spread and importance is scant (Bingen, 2002), especially for Central and Eastern Europe (Dunn, 2003). Second, utilising data from Serbia we seek to contribute to the wider debate on the implications of the spread of private standards and the degree to which they contribute to a hollowing out of the state. In meeting this second objective we draw on institutional approaches. In

doing so, we assess the applicability of theory which emerged out of Western Europe and North America for a specific Central and Eastern European context (Serbia).

Institutional Theory and Agricultural Governance

Since the early 1990s, economic geography has increasingly recognised that institutions matter (Jessop, 2004). Initially this institutional turn emerged out of the application of regulation theory, as a framework for understanding the dynamics and spatial implications of contemporary capitalisms (Tickell and Peck, 1992). More recently, a wider range of institutional theories drawing on new and old institutional economics and economic sociology have been utilised by to understand how the processes of uneven economic development shape and are mediated by 'the institutional structures in and through which those processes take place' (Martin, 2003, p.79).

Those economic geographers who have adopted regulation theory discern two key tendencies in developed market economies: a shift from a Fordist to a post-Fordist paradigm for both industry and services, and growing transnationalisation and globalisation of production regimes. In this new environment, the function of the nation state has shifted, to supporting primarily the integration of domestic economies into international production systems, a form of competitive capitalism. As a result, the functions of the nation state are 'redistributed upwards, to international and transnational organisations and institutions, downwards, to cities and regions, and outwards to non-state actors' (Jessop, 2002, p.159). In the terminology of Jessop (2002) the nation state is being 'hollowed out', integral to which has been a perceived shift from government to governance where the latter refers to a broad range of non-state led mechanisms of regulation (Guthman, 2007).

While these tendencies are most closely associated with states previously anchored in what Jessop (1997) terms 'Atlantic Fordism', their impact has nonetheless been globally significant and several researchers have analysed the effect of radical shifts in accumulation regimes in developing and formally non-capitalist states, particularly those in transition from state socialism in Central and Eastern Europe (CEE) (Smith, 1995). The 'hollowing out' of the state thesis has been prominent in the literature on CEE as the transfer of functions, previously in the nation state's remit, to domestic and foreign capital and supranational bodies such as the European Union (EU) has been perceived as fundamental to the whole project of transition (Hudson, 2002).

Following from a conceptualisation of the state as being hollowed out or rolled back, researchers have studied the spread of new forms of governance such as networks and private regulation in the agri-food sector. These have typically been viewed as alternatives or competitors to state regulation and therefore consistent with hollowing out (Manning and Baines, 2004). For example, from a regulation theory perspective, Lewis *et al.* (2002, p.105) argue that the state's responsibility

for agriculture and environmental management has been 'relocated...[which has] involved the hollowing out of the nation state'. Similarly, based on a detailed assessment of the agribusiness sector in Australia and New Zealand, Campbell *et al.* (2006, p.87) argue 'In neoliberalism's reworking of the relationship between the state, market and civil society, governments are expected to facilitate interactions (partnerships and networks) between various actors, rather than impose rigid rules of engagement....In other words, there is less *government* and more *governance*' [italics in the original]. However such assertions are often based on a vague understanding of the real regulatory power of the state, particularly practical enforcement of rules, and the interplay of state-private regulation. Moreover regulation theory has been criticised for overstating the degree of uniformity within Fordist and post-Fordist eras (and the contrasts between the two) and for providing an "oversocialised", structurally determinist, concept of action (Pinch, 1997).

Partially in response to these criticisms, others have embraced alternative institutional approaches, particularly 'new institutionalism'. Building on new institutional economics and sociology, Scott (1995, p.33) defines institutions as structures and activities that provide stability and meaning to social behaviour. He distinguishes between the regulative and normative pillars of institutions (Table 1).

Table 1: A comparison of regulative and normative pillars of institutions

	Regulative	Normative
Basis of compliance	Expedience	Social obligation
Mechanisms	Coercive	Normative
Logic	Instrumentality	Appropriateness
Indicators	Rules, laws, sanctions	Certification, accreditation
Basis of legitimacy	Legally sanctioned	Morally governed

Source: Scott (1995), p.35

The regulative aspects of institutions concern their ability to set rules, monitor behaviour and enforce sanctions (rewards or punishments). The primary mechanism of regulatory control is, following DiMaggio and Powell (1983), coercion. The state is vital to effective enforcement because 'ultimately a third party must always involve the state as a source of coercion' (North, 1990, p.64). Legitimate organisations, according to this approach are those 'established by, and operating in accordance with relevant legal or quasi-legal requirements' (Scott, 1995, p.47). Some have argued that Western public agri-food and environmental policy has traditionally rested on regulative mechanisms that are legally sanctioned (Ringquist, 1993). This includes 'classic command and control' environmental policy. However, Lowe *et al.* (1997) question this, based on an evaluation of the evolution of UK agri-environmental policy, characterising the latter as traditionally being little subject to legal norms.

The normative pillar refers to institutions that introduce a prescriptive, evaluative and obligatory dimension into social life. This includes both values and norms, which define how things should be done. This recognises that actors may conform not because of narrow self-interest but because of what is expected from them and obliged to do. Legitimacy, from this approach is more likely to be internalised and come from a deeper, moral base (Scott, 1995). For instance a professional may depart from rule based requirements (regulative pillar) to uphold particular normative standards (e.g. flexible enforcement and whistleblowing). Private regulation and certification systems by being voluntary-decentralized institutions are typically classified as primarily normative in nature (Terlaak, 2007).

While distinguishing between the regulative and normative pillars of institutions, it should be noted that Scott (1995) sees both as entities that provide stability and meaning to social behaviour. In doing so, however, there is danger of failing to capture internal tensions, overplaying the degree to which outcomes are stable and the extent to which actors comply with prevailing norms.

Regardless of disciplinary background, institutional scholars treat the state as a unique entity. The distinctiveness of the state derives from its remit as a *collective actor* (allocating resources, imposing taxes and exercising regulatory controls), as an *institutional structure* which provides arenas within which conflicts within and between organisations can be adjudicated and its ability to *define and enforce property rights*. Some, drawing on the 'new institutionalist' framework, have characterised the agri-food sector as undergoing a hollowing out of the state: for instance, Halpin (2005) portrays the restructuring of the agri-food sector as a shift from a 'state assisted' to a 'market liberal' paradigm. Others, however, take a more nuanced approach, defined by a cross-fertilisation of private and public regulation with the state co-opting aspects of, and instruments initially designed for, private governance with much private regulation becoming legally sanctioned and coercive in nature. This overturns Scott's (1995) sharp distinction between public regulative and private normative governance. This realignment has been referred to as hybridisation (Barling, 2004) or a form of co-regulation (Garcia Martinez *et al.* 2007). The latter is defined by Garcia Martinez (2007, p.302) as 'an approach in which a mixture of instruments is brought to bear on a specific problem...[which] involves self-regulation and legislative action working together in a manner that mutually reinforces one another'. An essential element of co-regulation is therefore co-operation between public and private sectors in the process of creating new rules (Garcia Martinez *et al.*, 2007). While co-regulation has been presented by some as novel (Feame and Garcia Martinez, 2005), others suggest that it has long been a feature of policy in some Western states (Lowe *et al.* 1997).

The Growth of Private Agri-environmental Standards and their Importance for Serbia

In many West European countries and North America the growth of private standards has eclipsed the development of public regulation, and in some cases private regulation is of greater practical importance for producers in determining access to markets than state laws (Busch and Bain, 2004; Garcia Martinez *et al.* 2007). For instance, Busch (2000) notes that in Michigan, state standards, which were previously mandatory, have become only advisory. Instead, exporters contract directly with British multiple retailers based on the latter's quality standards. As such, Manning and Baines (2004) classify private agricultural standards as a competing governance mechanism to state regulation.

Agricultural standards can be defined as rules governing the outcome or processes of the primary production of food and fibre. Agricultural standards may pertain to: (a) quality (e.g. organoleptic or cosmetic), (b) safety (e.g. freedom from contaminants or use of approved pesticides), (c) authenticity (e.g. guarantee of particular origin or production method) and (d) production process (e.g. organic) (Reardon, 2006). Such standards may be initiated and enforced by public sector agencies (hereafter referred to as public standards) or non-state actors (private standards). Both international public and private standards governing FFV have developed remarkably since the early 1990s (Busch, 2000; Dries *et al.* 2004; Hatanaka *et al.* 2005; Jaffee and Henson, 2005; Reardon, 2006).

In Western Europe private standards have developed as vehicles for product differentiation, supply chain management and brand protection. Private standards are typically third party arrangements, such as the Good Agricultural Practices of the Euro-Retailer Produce Working Group (EurepGAP) or the British Retail Consortium (BRC), or buyer specific (controlled independently by, for example, a single retailer). In these markets private standards are often 'bolted on' to public standards. For example in 2007, the German retailer Metro announced that it would only stock FFV produce with less than 70% of EU maximum pesticide residues and would delist suppliers that failed to meet the tighter standard (Planet Retail, 2007). The spread of EurepGAP has been dramatic: by 2007, 69,000 farms had been certified in more than 80 countries and its international diffusion led to it being renamed GlobalGAP in September 2007.

For FFV, private agri-environmental standards typically cover pesticide use and application rates, adoption of Integrated Crop Management systems, record keeping, hygiene, packing and transportation practices. These private standards were initially developed in response to food safety concerns surrounding the potential contamination of FFV with food poisoning bacteria (such as *E coli* 0157 or salmonella) and attempts to reduce pesticide residues. However they have evolved from a narrow focus on specific food safety concerns to embrace wider ethical and environmental

regulations. As the costs of compliance grow, there is some limited evidence that small-scale FFV producers are being excluded (Dries *et al.* 2004; Reardon *et al.*, 2003).

This growth of international public and private agricultural standards is important for the Serbian FFV sector because it affects Serbia's ability to access new markets (especially the value-added ones of Western Europe) and come to terms with less favourable access to existing/nearby markets as neighbouring countries join the EU. Accessing these enlarged European markets requires both compliance with international public standards and, increasingly, stiffer private regulation from the main buyers. Moreover, foreign direct investment at the retail and processing level has the potential to change the standards governing solely *domestic* food supply chains. Throughout CEE, the growth of multiple food retailers has been dramatic, squeezing the market share of independent stores and markets (Dries *et al.*, 2004). Accompanying their expansion in CEE, retail chains have implemented the private standards which they apply in their existing (principally Western European) markets. This spread of private standards by multiple retailers may have a profound effect on farmers' market access. For instance, Metro Cash & Carry entered the Moldovan market in 2004, announcing that it was willing to procure agricultural products from local producers, yet by 2006 all local suppliers were still deemed unable to meet its quality and quantity requirements so that the company imported all of its FFV (Gorton and White, 2007). There is a danger that producers in CEE that are unable to meet the private standards of multiple retailers will be sidelined into low value-added outlets (Vogel, 1995), further depressing rural incomes and stimulating out-migration.

Methodology

To assess the spread and enforcement of public and private regulation, a survey of commercial Serbian FFV producers was conducted. The survey collected data on the compliance with, and knowledge of, public environmental regulations, attitudes to state regulation, current problems faced by farmers, buyer requirements and use of private standards and farm / farmer characteristics. Farmers were also given the opportunity to provide additional, qualitative responses, presenting their views and situation. Collectively the survey sought to obtain a picture of commercial FFV producers' engagement with public and private environmental regulation. In addition, in-depth interviews were conducted with 17 key policy actors (current and ex-officials of relevant Ministries, public agencies and commercial producers).

Survey data were collected from commercial FFV farmers in two locations: (a) municipality of Grocka and (b) from the rest of Serbia. Grocka was chosen as the principal fruit growing area in the country, renowned for its sour cherries, apricots, plums, peaches and grapes. Production is

organised mainly on small, privately-owned family farms.¹ All the surveyed farms are commercial producers.² Survey data indicate that their main income comes from selling FFV, principally via local wholesale markets. As commercial farms highly depend on the market, current and further regulation is of greater significance for them. Those that produce solely for own consumption were not considered for the study because regulation has little impact on them, and, in any case, the majority of their income comes from outside of agriculture.

The structure of the sample is detailed in Table 2 and compared against data on farm structure taken from the 2002 Agricultural Census. Overall 165 responses are included in the analysis. As the sample excludes subsistence holdings, farms of less than 3 ha are underrepresented and farms of greater than 10 hectares are overrepresented compared with the Agricultural Census. As a result, the mean farm size in the sample is higher (5.5 ha) than that reported in the 2002 Census (3 ha).

Table 2: Distribution of survey respondents by farm size

Farm size band	Number of farms in sample	% of sample	% of farms in each size band according to the Agricultural Census
Up to 1 ha	17	10.3	24.9
1.01 – 3 ha	29	17.6	32.0
3.01 – 5 ha	46	27.9	18.0
5.01 – 8 ha	36	21.8	13.6
8.01 – 10 ha	11	6.7	5.0
10.01 – 15 ha	15	9.1	4.1
greater than 15 ha	11	6.7	2.3
Total	165	100.0	100.0

Source: survey data and Statistical Office of the Republic of Serbia (2004)

Before the survey was conducted several visits were organised to key persons (village mayors, district councillors, prominent farmers) in Grocka and contacts were made with other FFV farmers in Serbia. Individual farmers were identified from contacts with local and regional authorities, village mayors, other farmers and personal contacts, from which a cross-section of respondents was drawn. Information on the project was first discussed at the local level before interviews commenced. This approach was important for successful data collection. Data were collected in 2005/6 via face to face interviews, conducted usually on-farm.

¹ As there are no significant differences between the samples from Grocka and the rest of Serbia in terms of rating of problems faced and attitudes to public regulation, this distinction is not pursued in the analysis.

² A commercial farm is defined as one which sells a proportion of its production (market exchange) and is contrasted with subsistence producers, where agri-food output is consumed within the household. The World Bank (2006) estimates that only 100,000 of Serbia's 600,000 'family farms' are commercially oriented.

Results

Public Regulation

Serbia is characterised by hot summers during which substantial water deficits are common (FAO, 2000). The production of FFV is thus highly dependent on irrigation, so that the source and quality of water are key considerations that impact on product quality and the incomes of farmers. However, survey evidence indicates that implementation of public environment standards is very poor. For example, according to the 1991 Water Law, farmers should possess a permit or licence for water extraction from rivers, streams, bore holes and, in certain circumstances, from natural springs and wells. Survey data (Table 3) indicate that this is occurring only in a minority of cases. River or stream extraction was used as a source of water by 30 farmers, of whom only 6 had a permit or licence. Similarly, bore holes were used by 25 farmers but only 6 were licensed. Natural springs or wells were utilised by 16 farmers in the sample, but only one had the requisite permit to use it. These breaches of the Water Law are unlikely to be investigated because individually they are not viewed as a priority by the chronically under-funded Water Inspectorate. As one farmer noted 'No one pays for water or has permits. Who will know?' Yet the collective impact of unregulated extraction on water resources is highly significant (UNECE, 2002).

The difficulty of implementing state environmental regulation in Serbia, as evidenced in Table 3, is not specific to the Water Law or even environmental policy. For instance, Stojanović and Jovašević-Stojanović (2004) detail Serbia's weak enforcement of accident control procedures due to low institutional capacity, a lack of awareness of environmental risks and their implications, and insufficient monitoring and inspection resources. Outside of environmental policy, Petrović (2001) estimates that over 80 per cent of new flats and houses built in Belgrade during the 1990s were done so illegally, amounting to some 200,000 homes.

Table 3: Water use by farmers and permit / license for extraction

	Number of farmers reporting use without appropriate permit / licence	Number with permit / license for extraction
River or stream extraction	24	6
Bore hole	19	6
Natural spring /wells	15	1
Mean farm size (ha)	6.21	6.77

Source: survey data

On average the 13 farmers with appropriate permits/ licences, sold 46 per cent of their output on contract (with a private buyer) compared with only 20 per cent for those with unauthorised water use. This suggests a potential linkage between private sector contracting and adherence to state legislation, which is explored in greater depth below. The differences between those adhering to and those ignoring state regulation however cannot be reduced to a debate about scale: there

are no significant differences between those without and those with permits / licences in terms of farm size (the means for the two groups are 6.2 and 6.8 ha respectively).

Farmers' beliefs regarding the Serbian state's ability to effectively regulate agri-environmental issues were also elicited. Respondents were asked to rate the degree to which they agreed with statements on a five-point Likert scale, ranging from 1 'strongly disagree' to 5 'strongly agree'. Farmers have strikingly little faith in public regulation: only 5.4 per cent of respondents agreed or strongly agreed with the statement that 'water use is effectively controlled by the state' (Table 4). A similar lack of confidence is evident regarding the control of farm pollution and the use of agri-chemicals. As one respondent noted: 'there are no limits or regulations on the use of pesticides or fertilisers and no one takes samples or checks the level of contamination on the market. Yet farmers apply large doses of chemicals'.

Table 4: Farmers' opinions of the effectiveness of the Serbian regulatory system in relation to agricultural standards

Statement	Rating of agreement / disagreement with statement (% of all responses)				
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Water pollution is effectively controlled by the state	50.3	32.7	10.9	4.8	1.2
The use of agri-chemicals is effectively controlled	46.1	35.2	13.9	3.6	1.2
Farm pollution is effectively monitored	40.0	33.3	23.0	3.0	0.6

Source: survey data

Overall there are 8 farmers in the sample who on average 'agree' or 'strongly agree' with the statements in Table 4. These eight farmers are not significantly larger in size than the rest of the sample but do sell a significantly higher proportion of their output on contract (40 per cent) compared to the rest of the sample (13 per cent).

The lack of faith in public regulation is not unique to agri-environmental policy. A survey of over 1,000 Serbian citizens by Pesic (2007) on attitudes to state officials and offices revealed that 71% thought that they worked in their own interests, 70% believed they worked for their parties, 69% for their relatives and friends, and the same amount thought that they worked for "powerful people and businessmen". Only 13% believed that state offices work in the interests of citizens. While such scepticism is not unusual for parts of the former Soviet Union it is high by Western and Central European standards (Pesic, 2007).

Private Regulation

Regarding the implementation of private environment standards, farmers were asked about the behaviour of buyers and any regulations enforced concerning the use of pesticides and water testing (Table 5). Results are disaggregated to compare those selling to domestic and foreign buyers with the former group split between those with and without a contract (all those supplying a foreign owned buyer had a contract). In less than 5 per cent of cases is the main buyer foreign owned. Firstly considering the whole sample, the most salient private regulation is at the point of supply: 16.4 per cent of buyers reject produce in poor condition; but only one in ten buyers test for contaminants. Fewer than 11 per cent of farmers are required to keep a pesticide log. However only 5.5 per cent are directed as to what agri-chemicals to use and only 4.8 per cent have their water quality tested.

Significant differences are apparent depending on the type of main buyer (Table 5).³ Private regulation is almost entirely absent for farmers supplying domestic buyers without a contract. These farmers are selling via spot (wholesale) markets without guaranteed prices, and buyers do not interfere with agricultural practices. This type of buyer also does not provide any credit, physical inputs, training, transportation, loan guarantees, machinery, specialist on-farm storage, or investment to farmers. In contrast all foreign buyers reject produce that is in poor condition. In seven out of the eight cases of farmers having a foreign purchaser, the buyer tests for contaminants, insists that a pesticide log is kept, specifies what agri-chemicals can be used, tests water quality and rejects output with contaminants/residues above agreed threshold levels. For those who supply foreign owned buyers, private regulation is therefore of greater practical relevance. However, this has not emerged out of a conscious political strategy of deregulation, hollowing out of the state or public-private co-operation, as has been depicted for many Western markets but rather state failure. Moreover, by controlling access to foreign markets, private standards do go beyond normative mechanisms, overturning Scott's (1995) dichotomy. The standards of foreign buyers are based on rules and sanctions that determine market access, which are coercive in nature rather than decentralised voluntary institutions that depend on social obligation for their legitimacy.

Those who supply domestically owned buyers with a contract lie between these two extremes: the majority of domestically owned buyers who use contracts do reject produce that is in poor condition but only a minority stipulate specific agri-environmental practices. A gradient of rising private regulation is therefore apparent from domestic wholesale markets to domestically managed contracts and then contracts with foreign owned buyers. In terms of the involvement of

³ The analysis focuses on relationships by type of main buyer. Data were collected on all supplier relationships. This revealed that the vast majority deal exclusively with only one type of buyer. For instance, 74.3 per cent of farms sampled supplied only local markets and auctions. From the eight firms that sold to foreign owned buyers on contract only two also supplied local markets and auctions.

buyers in production practices the greatest jump is between domestically oriented contracts and those with foreign owned buyers.

Table 5: Comparison of private environmental standards by buyer type

Private environmental standard employed by main buyer	% of those who sell to domestically owned main buyer without contract (n=130)	% of those who sell to domestically owned main buyer with a contract (n=27)	% of those who sell to a foreign owned buyer with contract (n=8)	% of total sample (n=165)
Rejects produce in poor condition	0.0	70.4	100.0	16.4
Insists that pesticide log is kept	0.0	40.7	87.5	10.9
Tests for contaminants	1.5	29.6	87.5	10.3
Rejects output with contaminants / residues above threshold level	0.8	29.6	87.5	9.7
Specifies what agri-chemicals can be used	0.0	7.4	87.5	5.5
Tests quality of water used	0.6	3.7	87.5	4.3

Source: survey data

Farmers were asked to rate potential problems on a five point scale, ranging from 1 equals of 'no importance to them' and 5 'most important problem they face'. Again the sample is divided into three groups (those selling to a domestically owned main buyer without a contract, domestic buyer with contract, and foreign-owned buyer with contract). The mean scores for each group and ANOVA F-test statistics are reported in Table 6.

Table 6: Comparison of the rating of potential problems depending by buyer type

	Domestic buyer without contract	Domestic buyer with contract	Foreign buyer contract	F-test
Low prices received	4.54	4.40	4.14	1.24
Meeting the quality standards of buyers	4.45	4.07	4.13	2.92*
Price fluctuations	4.22	3.93	4.00	2.64*
Access to inputs	4.06	3.89	3.25	3.11**
Shortage of water (quantity issue)	3.89	3.69	3.75	0.33
Delayed payments from buyers	2.23	3.63	3.71	14.88***
Interest rates	2.94	3.54	3.38	1.93
Quality of water used for FFV	3.03	3.00	3.25	0.12
Mean farm size (ha)	5.76	6.07	16.46	17.33***

* Significant at the 10% level, ** significant at the 5% level, *** Significant at the 1% level.

Source: survey data

For all three groups of farmers, the most pressing problems are low prices, meeting the quality standards of buyers and price fluctuations. However significant variations in the ratings of potential problems are apparent between the three groups. Those supplying domestic buyers without a contract record a higher mean score for low prices received, meeting the quality standards of buyers and price fluctuations. These farmers are most likely to be trapped in a vicious circle of low value-added production. However, at present there are minimal immediate incentives for such producers to improve their environmental practices as domestic purchasers do not insist on this, and they do not pay a premium for FFV produced under such conditions. As this group sells via wholesale markets price fluctuations are relatively more pronounced. Access to inputs is a more serious problem for this group but, as transactions are immediate, then delayed payments from buyers are a fairly insignificant problem.

Farmers who supply foreign owned buyers suffer more from delayed payments than problems of access to inputs. Those possessing contracts with domestically owned buyers report meeting the quality standards of buyers being slightly less of a problem (and low prices received as a higher problem) than farmers with contracts with foreign owned companies. This may reflect that private regulation is less developed on the domestic market so that it is easier to meet the demands of their buyers.

Farms supplying foreign owned buyers are noticeably larger (mean of 16.45 ha) than those supplying domestic buyers either with or without a contract (means of 6.07 and 5.76 ha respectively). This gives some support to arguments that small-scale producers may be more likely to be excluded from internationalised food supply chains.

Linkages between public and private regulation

Significant differences are apparent between farmers' attitudes to the Serbian regulatory system and their type of main buyer (Table 7), although the ordering of trust varies across the scale items. Those without a contract supplying domestic buyers overall have the lowest level of faith in the Serbian regulatory system. This group is least likely to have the appropriate permit or licence for water use/extraction and is currently pretty immune to any private or public regulation. Overall, those supplying a domestic buyer on a contractual basis have the most confidence in Serbian public regulation although this is still modest. It may be that those supplying foreign owned buyers are more aware of international public and private standards of environmental regulation and are therefore more critical than those who contract with domestic firms.

Table 7: Farmers' opinions of the effectiveness of the Serbian regulatory system by buyer type

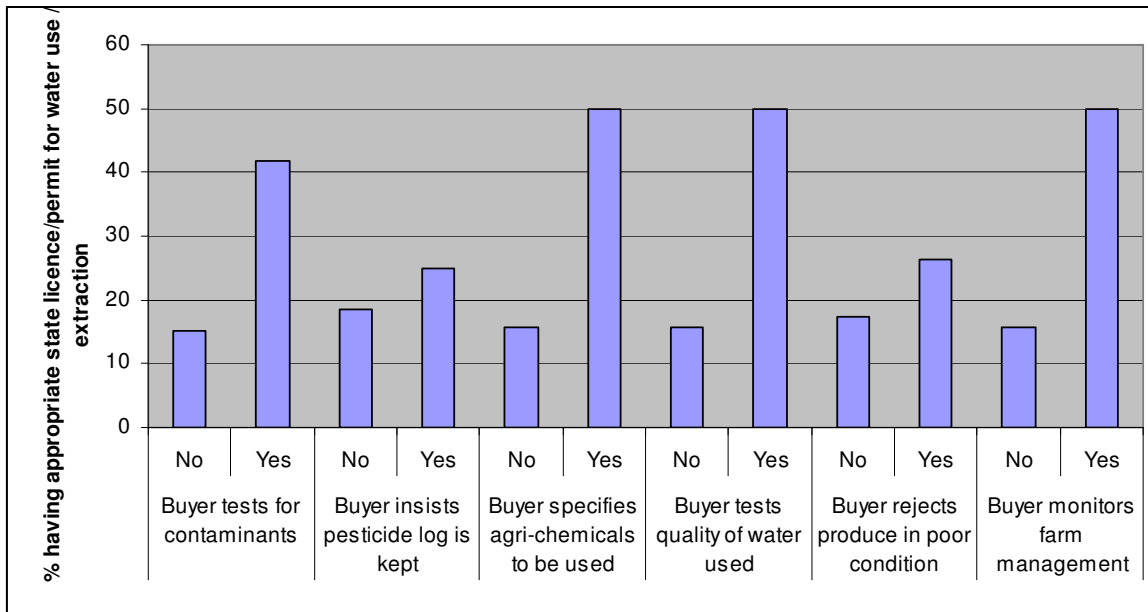
	Mean score (1= strongly disagree, 5= strongly agree)			F-test
	Domestic buyer without contract	Domestic buyer with contract	Foreign buyer contract	
Water pollution is effectively controlled by the state	1.62	2.15	2.25	5.12***
The use of agri-chemicals is effectively controlled	1.66	2.37	1.75	7.27***
Farm pollution is effectively monitored	1.81	2.44	1.75	6.14***

*** Significant at the 1% level

Source: survey data

The relationships between possessing an appropriate state permit/licence for water use/extraction and the imposition of private environmental standards are detailed in Figure 1. Important correlations between public and private regulation are evident. For instance, of those whose buyer specifies what agri-chemicals can be used, 50 per cent have an appropriate state licence. In contrast, of those whose buyer does not specify what agri-chemicals can be used, only 15.8 per cent have an appropriate state licence or permit. Similarly, for those whose buyer tests the quality of water used, 50 per cent have an appropriate licence/permit for water extraction against only 15.8 per cent of those whose farm water is not tested. While there is thus widespread flouting of state regulation, those who are subject to private environmental standards are more likely to obtain appropriate public permissions. Those serving foreign owned buyers who meet state regulations are therefore subject to co-regulation in the sense that 'a mixture of public and private regulatory instruments is brought to bear on a specific problem' (Garcia Martinez, 2007, p.302). However, this has not emerged out of co-operation between the public and private sectors and is only selectively applied. The notion of private standards being 'bolted on' to state regulation, as witnessed in some Western European and North American cases is also invalid for the Serbian situation as external private controls are not based on, or developed from, national public controls. In the Serbian case co-regulation is unplanned and does not rest on state-private sector co-operation.

Figure 1: Relationships between use of private environmental standards and possession of appropriate state licence / permit for water use / extraction



Source: survey data

The main reason cited for greater adherence to public regulation by those supplying foreign entities was to 'legitimise' their activities and avoid being excluded by buyers as part of their monitoring process. For example one market gardener, who supplied salads to an international hospitality company remarked: 'my salad washing plant is illegally built and I do not pay for my washing water. I paid a Milošević official to sort it out and have never received a bill. I want to obtain retrospective legalisation of my premises and will have to construct a holding reservoir for waste processing water. To do this I need to build an accumulator to prevent waste water going into the local channel. This is a condition of Belgrade City Council. This is an extra cost and time consuming ... [but] ... I do not want to jeopardise my exclusive producer status [with buyer].

Conclusions

This paper assesses the enforcement of public and private environmental regulation in the Serbian fresh fruit and vegetable sector as a basis for engaging in wider debates concerning agri-food regulation. Attempts to conceptualise the restructuring of agri-food chains have commonly drawn on institutional frameworks and a broad shift from public to private regulation has been discerned by many in the literature, but this is questioned by the Serbian case study. In contrast, the Serbian case is characterised by selectively applied, non-cooperative co-regulation.

The notion of a shift from state to private regulation is problematic in a number of regards. First, there is a tendency to overstate the initial power of the state, particularly if only formal legislation

rather than practical implementation is studied. The Serbian state does not effectively regulate agri-environmental activities. This is not due to a triumph of neo-liberalism, or the product of a reconstituted, hollowed out state underlying competitive capitalism, but rather reflects a longstanding inability of the state to produce environmental public goods (Gorton *et al.* 2007). In fact by not supporting producers' engagement in private environmental standards, the Serbian state is failing to fulfil a competitive capitalist role of supporting domestic capitals' integration with global production regimes.

Private regulation is often depicted as an alternative or competitive governance mechanism to the state. However, the Serbian case indicates that private regulation, as with state control, is only selectively applied, with the majority of producers subject to minimal external intervention. This suggests a more nuanced view is required. Specifically, regarding the relationship between public and private regulation in Serbia, there appears to be a linkage between engagement in contracting and being subject to private environmental standards and the likelihood of having an appropriate state permit or licence for water use or extraction. This suggests that as part of fulfilling the private requirements of buyers, producers often seek to legitimise their practices according to domestic law. In this way private standards rather than being a replacement for public regulation or a form of environmental deregulation may actually promote or reinforce a degree of compliance. However, the relationship between private standards and compliance with the state has not emerged out of co-operation between the two or the 'bolting on' of private controls to domestic legislation.

Rather than portray a stark shift from public to private regulation in agri-food systems, a more fruitful approach may be to concentrate on the greater differentiation of regulation that producers are subject to, focusing on the implications of this segregation for producer interests. Developments such as EurepGAP are widening the divide between production systems with markedly different regimes coexisting within the same country. Producer welfare increasingly depends not on what is grown but the regulatory regime under which it is produced. This is evident in Serbia: the majority of FFV farmers supply domestic markets and are subject to minimal public and private regulation. Such farmers sell to wholesale markets where price is the main consideration. The focus of domestic markets on price reflects current consumer buying habits and their limited purchasing power. In some regards, the lack of effective public and private environmental standards helps this cost driven approach. However, this strategy denies producers access to other markets, whether those of the EU or domestic retailers who adopt international standards. Unless these FFV producers can transfer between production regimes they are liable to be condemned to increasingly low value added and declining wholesale markets. The key consideration is not a supposed shift from public to private regulation but rather the ability of producers to transfer between production regimes which differ in the nature of their real implementation of, often entwined (but in an unplanned manner) state-private, environmental standards.

References

- Barling, D. (2004) Food Agencies as an institutional response to policy failure by the UK and the European Union in Harvey, M., McMeekin, A., & Ward, A. (eds). *The Qualities of Food*, Manchester: Manchester University Press, p.108-128.
- Bingen, J. (2002) Shaping our agro-food system: Whose standards count? Guest editor observations, *Agriculture and Human Values*, 19 (4), p. 279-281.
- Busch, L. (2000) The moral economy of grades and standards, *Journal of Rural Studies*, 16 (3), p. 273-283.
- Busch, L. and Bain, C. (2004) New! Improved? The Transformation of the Global Agrifood System, *Rural Sociology*, 69 (3), p. 321-346.
- Busch, L., Thiagarajan, D., Hatanaka, M., Bain, C., Flores, L.G. and Frahm, M. (2005) The relationship of third-party certification (TPC) to sanitary/phytosanitary measures and the international agri-food trade: final report for USAID.
- Campbell, H., Lawrence, G. and Smith, K. (2006) 'Audit cultures and the antipodes: the implications of EurepGAP for New Zealand and Australian agri-food industries', in Marsden, T. and Murdoch, J. (eds.), *Between the Local and the Global: Confronting Complexity in the Contemporary Agri-Food Sector*, Oxford: Elsevier, p. 69-93
- DiMaggio, P.J. and Powell, W. (1983) The iron cage revisited: institutional isomorphism and collective rationality in organizational fields, *American Sociological Review*, 48, p. 147-60.
- Dries, L., Reardon, T. and Swinnen, J. (2004) The Rapid Rise of Supermarkets in Central and Eastern Europe: Implications for the Agrifood Sector and Rural Development, *Development Policy Review*, 22 (5) p. 525-556.
- Dunn E.C. (2003) Trojan pig: paradoxes of food safety regulation, *Environment and Planning A*, 35 (8), p. 1493-1511.
- FAO (2000) Crop and Food Supply Assessment Mission to the Federal Republic of Yugoslavia: Special Report, FAO: Rome, mimeo.
- Fearne, A. and Garcia Martinez, M. (2005) Opportunities for the coregulation of food safety: insights from the United Kingdom, *Choices*, 20 (2), p. 109-116.

- Garcia Martinez, M., Fearne, A., Caswell, J.A. and Henson, S. (2007). Co-regulation as a possible model for food safety governance: Opportunities for public-private partnerships, *Food Policy*, 32(3), p. 299-314.
- Gorton, M., Quarrie, S., Lowe, P. and Zarić, V. (2007). The "Mediterranean Syndrome" and the Europeanisation of Environmental Policy Systems in Central and Eastern Europe: A Case Study of Agricultural Water Management in Serbia, University of Newcastle, mimeo.
- Gorton, M. and White, J. (2007), The Restructuring of Agri-Food Supply Chains in CEE and the CIS: An Overview and Policy Implications, *Outlook on Agriculture*, 36 (4), p.237-246.
- Guthman, J. (2007). The Polanyian Way? Voluntary Food Labels as Neoliberal Governance, *Antipode*, 39 (3), p. 456-478
- Halpin, D. (2005) *Surviving Global Change? Agricultural Interest Groups in Comparative Perspective*. Aldershot: Ashgate
- Hatanaka, M., Bain, C. and Busch, L. (2005) Third-party certification in the global agrifood system, *Food Policy* 30, p. 354–369.
- Hatanaka, M., Bain, C. and Busch, L. (2006) Differentiated standardization, standardized differentiation: the complexity of the global agrifood system in Marsden, T. and Murdoch, J. (eds), *Between the Local and the Global: Confronting Complexity in the Contemporary Agri-Food Sector*, Oxford: Elsevier, p. 39-68
- Henson, S.J., Loader, R.J. (2001) Barriers to agricultural exports from developing countries: the role of sanitary and phytosanitary requirements, *World Development*, 29, p. 85-102.
- Hudson, R. (2002) Changing industrial production systems and regional development in the New Europe, *Transactions of the Institute of British Geographers*, .27 (3), p. 262-281.
- Jaffee, S. and Henson, S. (2005) Agro-Food Exports from Developing Countries: The challenges posed by standards in Aksoy, M.A. and Beghin, J. (eds) *Global Agricultural Trade and Developing Countries*, Washington DC: The World Bank, p. 91-114.
- Jessop, B. (1997) Capitalism and its future: remarks on regulation, government and governance, *Review of International Political Economy*, 4 (3), p. 561-581
- Jessop, B (2002) *The Future of the Capitalist State*, London: Polity

- Jessop, B (2004) 'Institutional re(turns) and the strategic-relational approach' in Wood, A. and Valler, D. (eds) *Governing Local and Regional Economies*, Aldershot: Ashgate, p. 23-56.
- Lewis, N., Moran, W. and Cocklin, C. (2002) Restructuring, regulation and sustainability in Bowler, IR., Bryant, C.R. and Cocklin, C. (eds), *The Sustainability of Rural Systems: Geographical Interpretations*, Amsterdam: Kluwer, p. 97-110
- Lowe, P., Clark, J., Seymour, S. and Ward, N. (1997) *Moralising the Environment: Countryside Change, Farming and Pollution*, London: Routledge.
- Manning L., and Baines R.N. (2004) Globalisation: a study of the poultry meat supply chain, *British Food Journal*, 106 (10/11), p. 819-836.
- Martin, R. (2003) Institutional approaches in economic geography in Sheppard, E. and Barnes, T. (eds) *A Companion to Economic Geography*. Blackwell, Oxford, p. 77-94.
- North, D. (1990) *Institutions, Institutional Change and Economic Performance*, Cambridge: Cambridge University Press.
- Pesic, V. (2007) State Capture and Widespread Corruption in Serbia, Centre for European Policy Studies, Brussels, Working Document No. 262
- Petrović, M., (2001) Post-Socialist Housing Policy Transformation in Yugoslavia and Belgrade, *European Journal of Housing Policy* 1 (2), p. 211-232.
- Pinch, S. (1997). *Worlds of Welfare: Understanding the Changing Geographies of Social Welfare Provision*. London: Routledge.
- Planet Retail (2007) METRO tightens requirements on fruit/veg residues, <http://www.planetretail.net/NewsFeed/NewsFeed.asp>
- Reardon, T. (2006) The rapid rise of supermarkets and the use of private standards in their food product procurement systems in developing countries in Ruben, R., Slingerland, M. and Nijhoff, H. (eds) *Agro-food Chains and Networks for Development*, Dordrecht: Springer; p. 79-106.
- Reardon, T., Vrabec, G., Karakas, D. & Fritsch, C. (2003) *The Rapid Rise of Supermarkets in Croatia: implications for farm sector development and agribusiness competitiveness program*, Report for USAID, DAI and Michigan State University.

- Ringquist, E.J. (1993) *Environmental protection at the state level: Politics and progress in controlling pollution*. Armonk, NY: M.E. Sharpe.
- Scott, R.W. (1995) *Institutions and Organizations*. London: Sage
- Smith, A. (1995), Regulation theory, strategies of enterprise integration and the political economy of regional economic restructuring in Central and Eastern Europe: the case of Slovakia, *Regional Studies*, 29 (8), p. 761-772.
- Statistical Office of the Republic of Serbia (2004) *Agricultural Census: summary of main findings*, Belgrade.
- Statistical Office of the Republic of Serbia (2005) *Statistical Yearbook 2005*, Belgrade.
- Statistical Office of the Republic of Serbia (2007) *External Trade Statistics*, Belgrade. <http://webzrzs.statserb.sr.gov.yu/axd/en/index.php>
- Stojanović, B. and Jovašević-Stojanović, M. (2004). Regulations of major accident hazards control in Serbia and their implementation, *Journal of Loss Prevention in the Process Industries*, 16 (6), p. 499-503
- Swinnen, J.F.M. and Maertens, M. (2007) Global supply chains, standards and the poor: some conclusions and implications for government policy and international organisations in Swinnen, J.F.M. (ed.), *Global supply chains, standards and the poor*, Wallingford: CABI, p. 259-266
- Tertak, A. (2007) Order without law? The role of certified management standards in shaping socially desired firm behaviours. *Academy of Management Review*, 32 (3), p. 968-985.
- Tickell, A. and Peck, J. (1992) 'Accumulation, regulation and the geographies of post-Fordism: missing links in regulationist research', *Progress in Human Geography*, 16, p. 190-218.
- UNECE (2002) *Yugoslavia: Environmental Performance Review*, United Nations Economic Commission for Europe.
- Vogel, D. (1995) *Consumer and Environmental Regulation in a Global Economy*, Cambridge: Harvard University Press.
- World Bank (2006) *Supporting Serbia's Agricultural Strategy*, Washington D.C. Report No.37825-YF

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