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Innovation, social capital and regional policy: the case of the Communities First programme in Wales

Lyndon John Murphy^a, David Pickernell^b , Brychan Thomas^c and Daniel Fuller^d

ABSTRACT

This paper analyses how and why different forms of social capital are associated with different forms of innovation within the Communities First programme in Wales. Quantitative analysis shows that the Communities First programme partnerships analysed in this research are supportive of building both bonding and bridging social capital. Different types of bonding social capital appear to be positively related with two of the three types of innovative activity; it is bridging social capital which is statistically more strongly related to innovation outcomes, with some types of bonding social capital actually negatively related to hidden innovation. Whilst social capital building should not be considered a panacea for increasing levels of innovative activity within policies such as the Communities First programme. The qualitative analysis reveals multiple ways in which the Communities First programme partnerships evaluated are actively encouraging the simultaneous formation of bonding and bridging social capital, with evidence of hidden innovation and in particular social innovation being simultaneously formed. It can be stated, therefore, that regional policy aiming to develop non-traditional forms of innovation should more closely and explicitly reflect the relevance of building and maintaining particular types of bonding and especially bridging social capital.

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O17; Formal and Informal Sectors; Institutional Arrangements

INTRODUCTION

The innovation literature tends to focus upon traditionally measured forms of innovation (Afuah, 2003; Bessant & Tidd, 2007). Non-traditionally measured types of innovation, such as hidden innovation, receive comparatively little coverage in the literature (Halkett, 2008; Miles & Green,

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2008). Similarly, social innovation can be described as a minority study in comparison with traditionally measured innovation (Mulgan, Rushanara, Halkett, & Sanders, 2007; NESTA, 2007). Simultaneously, social capital has a considerable body of literature available to aid its understanding and identification of its presence (Coleman, 1988; Fountain, 1998; Ostrom & Ahn, 2003; Putnam, Leonardi, & Nanetti, 1993; Woolcock & Narayan, 2000). Nevertheless, different forms of social capital such as bonding and bridging social capital are arguably less frequently explored in the literature (Putnam, 2000; Dasgupta, 2000a, 2000b; Woodhouse, 2006).

Research into social capital, its existence and extent of its presence also usually has a macro-scale focus (Beugelsdijk & Van Schaik, 2005; Bjørnskov, 2006; Kaasa, 2009). Similarly, studies linking social capital and innovation also typically have a macro-scale cynosure. For example, research undertaken by Rutten and Boekema (2007) has a regional and pan-Europe focus. Other studies such as those by Woodhouse (2006) and Cooke, Clifton, and Oleaga (2005) are based upon an inter-town study of social capital and economic development; and social capital and regional development respectively. A study of social capital and its associations with forms of innovation at an operational level, namely, the Communities First programme examined in this study, therefore represents an addition to the literature.

This paper uses a typology of three forms of innovation, namely: traditionally measured, hidden and social; and two forms of social capital: bonding (of which several types are identified) and bridging. The context for the research, the Communities First programme, is designed to improve the social and economic well-being of those living and working in the most deprived areas of Wales (Welsh Government, 2012). This research project focuses on capturing evidence of the presence of forms of social capital and of innovation at the Communities First programme; the data collected are used to analyse the relationships between forms of social capital and of innovation at a programme level.

The key interrelated research questions this paper seeks to consider are:

- What different forms of social capital are associated with what different types of innovation at Communities First?
- What are the potential reasons behind these associations?

The paper is structured as follows. Next there is a review of the literature, identification of a relevant framework and discussion of the context for the study. Then the methods used are outlined, followed by an outlining of the results obtained. A discussion of these results then follows, with conclusions identifying policy consequences as well as the need for further research in some areas.

INNOVATION AND SOCIAL CAPITAL

This section explores the main conceptual themes of the paper, discussing the different forms of innovation and social capital included in this research project.

Forms of innovation

There are a variety of forms and means of identifying innovative activity. As stated above, the paper uses a typological framework of traditionally measured, hidden and social innovation. Traditionally measured innovation indicators are typically: patent application and approval data; business enterprise research and development expenditure; and national per capita expenditure on research and development (Halkett, 2008). Forms of traditionally measured innovation also include product and process innovation (Bessant & Tidd, 2007). Such innovation may also be defined in a narrow and/or broad sense (Morgan & Nauwelaers, 1999). In a narrow sense, innovation may have a focus upon new technology. However, authors such as Rutten and Boekema

(2007) and Malecki (2012) allude to innovation as being reliant upon several different types of knowledge, of which technological knowledge is just one.

Hidden innovation is defined by Halkett (2008) as ‘innovation that goes uncounted by traditional indicators’ (p. 3). Fundamentally, hidden innovation is a concept that enables the exposure of innovative activity which may be overlooked by conventional innovation metrics (NESTA, 2006). Although hidden innovation has traditionally not been measured, it can be indicative of ‘innovation that matters’ (NESTA, 2007, p. 6). Arguably, organizational innovation is the main constituent element of hidden innovation (Valkama & Anttiroiko, 2009). The European Commission (2006) refers to organizational innovation as being the introduction of organizational methods such as business practice or workplace organization. Further examples of organizational innovation occur when new methods of training are introduced (OECD/EUROSTAT, 2005). Both Afuah (2003) and Stoneman (2010) consider organizational innovation as an enabler for technological innovation. Developments to organizational structure may also be considered to be another form of hidden innovation (NESTA, 2008). Further, an organization’s desire and capability to engage actively with the production of, and access to, knowledge may be another form of hidden innovation. Indeed, it may be stated that an organization’s ability to innovate is partly dependent upon whether it is able to ‘absorb knowledge’ that is externally sourced (European Commission, 2006; NESTA, 2008).

Finally, when defining social innovation it is important to note that the social innovation literature contains at least two paradigms: one views social innovation as being an organizationally based entity (Pot & Vaas, 2008), the other of social innovation as being focused on society and its needs (Young Foundation & NESTA, 2007). The school of thought adopted in this paper is that of the latter. The work of the Young Foundation and NESTA (2007) defines social innovation as ‘new ideas, institutions or ways of working that aim to fulfil unmet social needs or tackle social problems’ (p. 6). Phillips, Deiglmeier, & Miller (2008) also write of social innovation activity supporting the solution of social problems.

Forms of social capital

There are many definitions for the phenomena that constitute social capital. Indeed, a question may be asked as to whether engagement with the Communities First programme increases the likelihood of individuals and/or groups accessing and establishing more calculative network capital, as described by Huggins and Johnston (2010). For the purpose of this study, social capital is defined in terms of bonding and bridging social capital, but with specific aspects of what can be seen as ‘generic’ social capital discussed within the broader bonding form of social capital, in order to highlight the complexity of the issues. Authors such as Ostrom and Ahn (2003), Coleman (1988) and Conway and Steward (2009) consider social capital as existing in relationships between people. Huggins and Johnston (2010) argue, however, that social capital is held by an individual. This interpretation of social capital may create a dilemma in terms of its questioning of whether social capital is an individual and/or a group construct, Huggins and Johnston question whether individuals seek social capital for personal gain or for an organizationally based motive.

Woodhouse (2006) refers to two different forms of social capital, namely: bonding and bridging. Bonding social capital may be described as a situation where the relationships existing between a group of individuals (or within a community) enable them to ‘get by’ maintaining their existence and status quo (Putnam, 2000; Sørensen, 2016; Woodhouse, 2006). Within this broader definition of bonding social capital, generic forms of social capital can be seen to be composed of fundamental characteristics of social capital. The characteristics include the notion that social capital may increase via a ‘virtuous circle’ of activity and diminish as a consequence of a ‘vicious circle’ of activity (Putnam et al., 1993). Applying Putnam et al.’s work to Communities First, for example, it may be worth exploring whether or not the programme may be described as fertile ground for

the presence of such a virtuous circle. If there is one present, the likelihood of increasing social capital is improved. Fountain (1998, p. 105) supports the concept of social capital increasing in a virtuous circle; she refers to the 'self-reinforcing cyclic nature of social relationships'. Other characteristics of generic social capital comprise the work of Fountain who refers to social capital as being constituted of networks, norms and trust stating that such norms, networks and trust enable cooperation between individuals and/or organizations. Norms, as referred to by Kaasa (2009), are trustworthiness and general reciprocity. Landry, Amara, and Lamari (2002) also interpret norms as being trustworthiness.

Too much bonding social capital, however, may inhibit innovative activity taking place (Malecki, 2012). Patulny and Lind Haase Svendsen (2007) also consider excessive bonding social capital to have negative economic and social consequences. It can be stated that bonding social capital may result in the exclusion of outsiders (Portes, 1998). Similarly, Beugelsdijk and Smulders (2003) highlight the danger of bonding social capital which may lead to reduced freedom to work with those outside a particular network. It may also be stated that bonding social capital may create 'inward-looking networks' which may limit exposure to new ideas (Agger & Jensen, 2015, p. 4). Bonding social capital may also negatively affect bridging social capital (Beugelsdijk & Smulders, 2003).

Building bridging social capital is, therefore, often seen as more beneficial to a community providing it already has sufficient levels of bonding social capital (Sørensen, 2016). Authors such as Patulny and Lind Haase Svendsen (2007) and Svendsen and Svendsen (2004) highlight the positive contribution a 'harmonious' combination of bonding and bridging social capital may make. Positive aspects of bonding social capital include the role it may play in supporting good governance (Widmalm, 2005). Bonding social capital at a micro-level may have a positive influence on information sharing and galvanizing effort (Beugelsdijk & Smulders, 2003). Further, Agger and Jensen (2015) consider bonding social capital to act as a form of foundation for types of bridging social capital. This may result in a positive outcome of reduced transaction cost (Dasgupta, 2000a). However, Svendsen (2006) offers a counterargument stating that bonding social capital may increase levels of distrust between groups and consequently increase transaction costs.

Although bonding and bridging social capital are often discussed as separate entities, it is also frequently the case that individuals will engage in both bonding and bridging social capital (Beugelsdijk & Smulders, 2003). In reality, many individuals are exposed to, and participate in, both bonding and bridging social capital (Putnam, 2004). Such a state, according to Beugelsdijk and Smulders (2003), is, however, time consuming and may have a detrimental effect on an individual's productivity. In the context of a community, bridging social capital may be described as the social capital maintained jointly by those within a community and others outside the community (Sørensen, 2016). This may be applied to the Communities First programme. Arguably programme workers may collectively form bonding social capital and also may facilitate and/or be exposed to bridging social capital. In this context, there is a danger that such bonding social capital, if characterized by strong ties, as described by Granovetter (1992), may inhibit an organization or an individual's ability to create relationships with individuals and/or organizations external to the auspices of bonding social capital.

Relationships between social capital and innovation

A possible fundamental linkage between social capital and innovation is the statement 'trust lubricates cooperation' (Putnam *et al.*, 1993, p. 169). Similarly, Beugelsdijk and Van Schaik (2005) believe that higher levels of trust usually lead to higher levels of cooperation. A connection between innovation and social capital is also made by Rutten and Boekema (2007) and Shan, Walker, and Kogut (1994) who support the view that cooperation and collaboration are essential to the process of innovation. Further, they consider social capital to play a vital role in the efficiency and

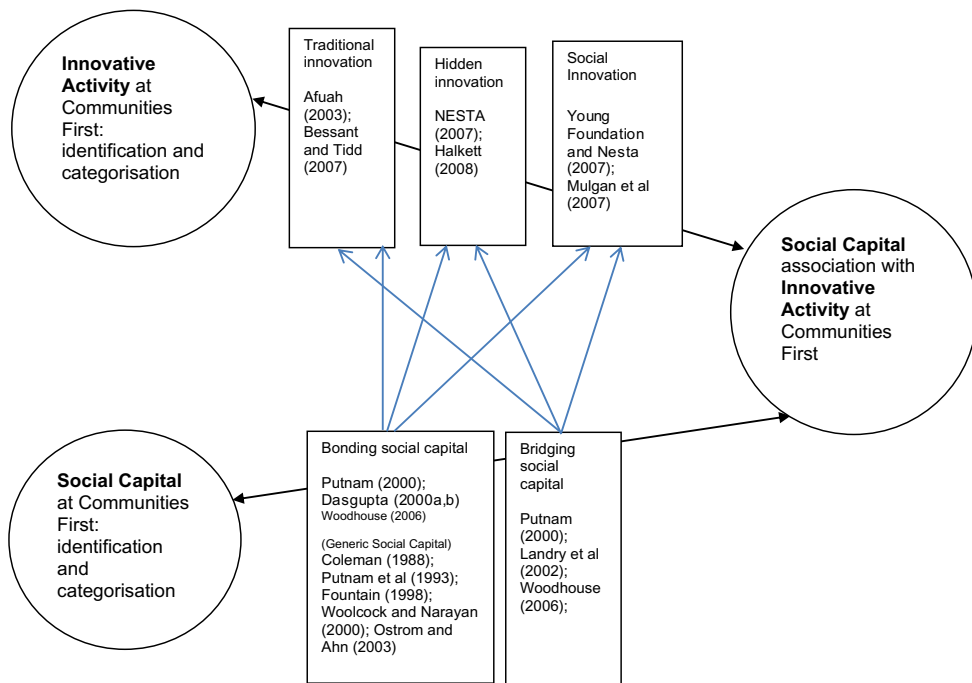


Figure 1. Conceptual framework.

effectiveness of cooperation and collaboration. Likewise, trust is considered by Fountain (1998) to be a prerequisite for effective collaboration.

Because trust is more related to concepts of bonding social capital, this highlights the potential importance of this type of capital in promoting innovation. It should also be noted, however, that the impact of socio-cultural issues upon innovative activity is notoriously difficult to measure, given that similar socio-cultural traits may affect several regions in differing intensities (Pilon & DeBresson, 2003). Also, whilst Cooke, Roper, and Wylie (2002) place an emphasis upon trust as a form of communication between the ‘economic actors’ of firms and public sector institutions, Bachmann (2003) argues that UK innovation may be less reliant upon trust as an abutment to innovation. The extant literature also, and typically, adopts a stance in favour of bridging social capital being more likely than bonding social capital to influence positively innovative activity (Kallio, Harmaakorpi, & Pihkala, 2010; Maennig & Ölschläger, 2011; Tura & Harmaakorpi, 2005). As a result, there continues to be uncertainty as to how different forms of social capital are related to different types of innovation, identifying a need for more research in this area. Figure 1 highlights the broad conceptual framework identified by the literature, and also the need to evaluate the context for the research, the Communities First programme, next discussed.

Context

The Communities First programme was launched in 2001 following a pilot scheme entitled ‘People in Communities’ (introduced in 1999). It had the primary aim of ‘reducing poverty and helping to improve the lives of people who live in the poorest areas’ (Welsh Assembly Government, 2001). Initially, the programme included: the 100 most deprived electoral wards; 32 sub-wards (smaller areas of deprivation); and 10 sector-based/special-interest projects. By 2009, another 46 areas were added, producing a total of 188 areas being covered by the programme (Wales Audit Office, 2009). The fundamental tenet of the programme was that disadvantaged, poverty-stricken communities are associated with a number of multifaceted issues, e.g., low levels of educational

achievement, substance misuse, poor local housing stock, comparative lack of job opportunities and local inertia (Welsh Assembly Government, 2004).

The Communities First programme therefore has its origin in the need to build skills capacity as a prerequisite to improving economic activity rates, employment levels and Gross Value Added (GVA) performance in Wales. The programme, however, is Wales-wide and also has roots in economic policy documents such as *A Winning Wales* and *Wales for Innovation* (Welsh Assembly Government, 2002a, 2002b). Whilst the Communities First objectives do not explicitly mention innovation, innovative capability-building is implied in the objectives. For instance, ‘building confidence ... and developing a “can do” culture’, ‘encouraging education and skills training’, ‘creating job opportunities’ and ‘driving forward changes to the way in which public sector services are delivered’ may all be considered to either require or contribute towards innovative capability.

The Communities First programme has, however, also been criticized for not having a clear set of objectives (Clapham, 2014). It appears the programme has been plagued since its inception by an apparent lack of measurable objectives. Consequently, tension has existed between a quantitative (top-down) measurement versus a qualitative (bottom-up) performance measurement of the programme. Typically, the quantitative measures have revealed there has been comparatively little impact made by the programme on indicators such as worklessness, skills, education, crime and health (Clapham, 2014). Similarly, Hincks and Robson (2010) consider the programme’s economic impact to be minimal. The series of evaluation projects undertaken to date appear to suggest only marginal improvements in economic and social indicators, with the extent to which the improvements may be attributable to the Communities First programme unclear (Clapham, 2014; Pill, 2012). It may be the case that lack of spatial awareness in the creation of programmes such as Communities First may make optimum outcomes less likely to be achieved (Rae, 2008).

An evaluation of the Communities First programme undertaken during 2010 also revealed, however, that while many of the Communities First areas typically had deprivation statistics worse than the Welsh average, the gap has narrowed for a number of key indicators (Welsh Government, 2011). Following the evaluation, the Communities First programme was reconfigured. It has also refocused in terms of its objectives, which now become prosperous communities, learning communities and healthier communities (Welsh Government, 2012), which again raise the relevance of applying innovation-based measures.

METHODOLOGY

This study analyses innovative activity in differing forms, namely: traditionally measured innovation, hidden innovation and social innovation; and social capital in the forms of bonding and bridging. The research is undertaken via a mixed-methods approach, beginning with a quantitatively analysed survey. The roles social capital has to play in producing innovative activity are then analysed in more depth via interviews with policy stakeholders at all levels, namely: programme managers, operational-level employees and programme recipients. The mixed methods (quantitative questionnaires, qualitative interviews and participant observation at board meetings) employed were designed to acquire evidence of different forms of bonding and bridging social capital, and their relationships with forms of innovation, specifically traditionally measured, hidden and social. A mixed-methods approach is deemed appropriate because of the need to identify broad linkages between social capital and innovation (the first research question) and to explore reasons and contexts behind these linkages (the second research question). It also allowed triangulation (Creswell, Plano Clark, Gutmann, & Hanson, 2003): exploring the research questions using a number of methods, which was deemed necessary, particularly given the relatively small number of Communities First locations surveyed (discussed below).

Fundamentally, the questionnaire has been designed to identify evidence of and allow appraisal of (the first research question) linkages between social capital and innovation, using a linear regression approach (the results are shown in Table 1) to explore the conceptual framework in Figure 1. To obtain a sample of those involved in Communities First, partnerships from across Wales are used. In all instances, data were collected via interviews held at Communities First locations, with questionnaires completed remotely. Data were collected from employees and programme recipients and volunteers associated with five partnerships, identified in consultation with Communities First partnership coordinators and development workers. The varied geographies and contexts chosen were believed to give a broadly representative overview of the Communities First programme in Wales. The results, however, are clearly limited in terms of their wider representativeness and must therefore be seen in this context. The survey was completed by employees and programme volunteers via a paper-based questionnaire. The employees included were partnership coordinators and development workers. A total of 63 usable questionnaires were returned and analysed – a response rate of 57% of those surveyed, with the responses providing a broad coverage of the five partnerships covered. This response rate also imposed a limitation on the study in terms of the number of variables that could usefully be analysed, and clearly there will therefore be other variables of relevance in explaining the variance that have not been included. Nevertheless, this approach was believed to be valid in identifying relationships between different types of social capital and different types of innovation.

To examine perceptions concerning innovation and their links to social capital-building taking place within the Communities First partnerships, factor analysis was used to identify constructs to be used when analysing the different types of innovation and social capital, the questions used to generate the data, and the subsequent factor analysis having been derived from the literature review and resultant conceptual framework discussed above. These are described in Appendix 1 (along with the appropriate statistical tests), the data collected for the individual variables all having five-point Likert scales, where 1 corresponded to 'strongly disagree' with the statement presented for the variable and 5 corresponded to 'strongly agree' with the statement presented. There were three factors for innovation identified, which could be summarized as being linked to traditional measures of innovation, social innovation and hidden innovation. Using the conceptual framework shown in Figure 1, these were designated as three separate dependent variables. For the independent variables, separate factor analyses were conducted to generate a four-variable factor for bridging social capital, a three-variable factor for bonding social capital (Culture) and a three-variable factor for bonding social capital linked to reciprocity. For bonding social capital linked to trust, factor analysis did not generate a factor, and so a single variable ('I consider other volunteers and/or employees at Communities First to be trustworthy') was used in the analysis (having a mean of 4.49). A linear regression (the results are shown in Table 1) approach was then deemed the most appropriate to allow identification of which type(s) of social capital were most applicable to which type of innovation.

In order to explore further the (first research question) links between social capital and innovation and the (second research question) reasons behind these linkages, 16 semi-structured interviews were held with a representative group of Communities First employees and volunteers. The interviewees included partnership coordinators, development workers and volunteers from each of the five Communities First partnerships. Participant observations were also made at 11 Communities First partnership board meetings in order to monitor contributors' relationships and activity accruing as a consequence of Communities First activities. Finally, the minutes from partnership board meetings were analysed in terms of attendees/contributors and Communities First activity.

RESULTS AND DISCUSSION

This section first summarizes the key findings from the quantitative analysis, highlighting the linkages between the differing forms of innovation and social capital associated within Communities First.

Table 1. Linear regression analysis: relationships between different types of innovation and different types of social capital.

	Traditionally measured innovation	Social innovation	Hidden innovation
Constant	1.351	-2.421*	1.616*
Bonding social capital:	0.324*	-0.005	0.304*
Communities First culture			
Bonding social capital:	0.102	0.085	0.093
reciprocity			
Bonding social capital:	-0.173	0.319**	-0.213*
trust			
Bridging social capital:	0.078	0.287*	0.520**
external			
Adjusted R^2	0.095	0.182	0.506
Durbin-Watson	1.597	1.951	1.702
F-statistic	2.636 (0.043)	4.447 (0.003)	16.883 (0.000)

Notes: All coefficients (with the exception of the constant) are standardized.

*Significant at the 5% two-tailed level; **significant at the 1% one-tailed level.

As seen in Table 1, there are a greater number of statistically significant associations for hidden innovation, and the equation explains a greater percentage of the variance (as measured by the adjusted R^2). Whilst some types of bonding social capital (specifically linked to culture) are positively related, the trust variable indicator is negative and significantly related. Given that the trust measure was focused on internal Communities First activities, whilst hidden innovation uses measures which are more external in focus, it may be that this highlights that this type of innovation is more likely to occur as a reaction to lack of this element of bonding social capital.

This is also supported by the result that the bonding social capital construct of (internal to communities first) reciprocity is not significant. The form of knowledge exchange related to hidden innovation existing at Communities First is more likely to be of the form of accessing external knowledge as opposed to acquiring it internally. Kaasa (2009) identifies the level of reciprocity as a factor affecting the diffusion of knowledge, reciprocity as expressed by the return of a favour (Coleman, 1988; Fountain, 1998; Putnam *et al.*, 1993). It is bridging social capital, however, that is strongest and most significantly, positively related to the hidden innovation construct. This observation supports Huggins' (2010) notion of network capital. Among the aspects of hidden innovation included is the successful delivery of worthwhile training (Halkett, 2008; Morgan & Nauwelaers, 1999; OECD/EUROSTAT, 2005; Smith, 2006). For example, as stated by Morgan and Nauwelaers (1999), training affects an organization's capability to innovate. The survey responses therefore suggest that for these Communities First partnerships, if they wish to promote beneficial training for new products, services or processes, it is the cultural aspects of bonding social capital and bridging social capital in particular that are significantly associated with the broader construct of hidden innovation of which such training is a part, supported by Woodhouse (2006) and Ahuja (2000).

Whilst social innovation is also present at Communities First (Halkett, 2008; Mulgan *et al.*, 2007), the explicit social innovation construct has a smaller number of statistically significant associations than hidden innovation. The bonding social capital construct (culture) is not in this case found to be related. Instead, of the explanatory variables, the bonding social capital notion

of trust is most strongly and significantly positively related to the social innovation construct, bridging social capital also positive and significantly related to social innovation. This is likely related to the different nature of social as opposed to hidden innovation as defined in this study, with social innovation requiring greater levels of internal trust to successfully identify and meet the social innovation needs of the Communities First partnerships.

Conversely, for the construct of traditional measures of innovation, it is only the bonding social capital measure linked to culture that is significant, also being positively related. A potential contributor for this outcome is the immediacy of location and requirements/needs of the community, and the comparative intimacy experienced between Communities First staff and the community/market for their services. The immediacy of need and intimacy of relationships with the community arguably increases the likelihood of converting ideas so that someone within the community wants them.

What this implies is that bonding and bridging social capital can coexist and contribute to positive outcomes (Beugelsdijk & Smulders, 2003) in terms of different types of innovation, but in different ways to different innovation measures. Specifically, more traditional measures of innovation in the Communities First Partnership are linked to bonding (cultural capital) alone, whilst social and hidden innovation also requires bridging social capital, and indeed in the case of hidden innovation, trust based bonding social capital is actually negatively related. These results also suggest, however, a need to examine the reason behind these linkages in more detail, the qualitative interviews, participant observation and analysis of relevant documentation being used for this purpose.

Bonding social capital indicators such as positive relationships with others, and mutually enforceable agreements are considered by Putnam (2000) and Dasgupta (2000a) respectively. Though the quantitative research suggests that it is the cultural elements that are more effective in promoting positive innovation outcomes. The presence of both indicators is corroborated by interview evidence.

In terms of bonding social capital related to culture, interview evidence identified the willingness of those at Communities First to cooperate, listen and share ideas. As stated below, interviewees spoke of having a 'listening ear' and 'being open to new ideas'. The interview data reveal that individuals at Communities First feel supported in their work (Woodhouse, 2006). As stated by several interviewees, people at Communities First are treated as peers. This can be summarized by a statement made by a programme volunteer when he said 'there is no us and them'. Hall (2002) believes that social capital is more likely to be built if people are treated as equals. Participant observation at Communities First corroborates this assertion.

In terms of bridging social capital, a partnership coordinator referred, for example, to the programme team at Trevethin Communities First as 'sponges' soaking up external information and knowledge. Such practices are likely to influence positively hidden innovation via external knowledge flows as described by Chesbrough (2008). Further, the interviews reveal it is the 'appropriate up-skilling of people, primarily empowering them with literacy and numeracy skills' that is identified by a partnership coordinator to be essential to fostering innovative activity at Communities First.

The linking of external bridging social capital with an internal social capital-based culture supporting new ideas (according to McFadzean, O'Loughlin, & Shaw, 2005, important to influencing innovation levels) is also present in the evidence from a development worker of the 'bottom-up' approach fundamental to the work of Communities First. For some interviewees, this means that the wider community is the prime source of new ideas. A partnership coordinator supports this by saying that Communities First staff 'need to listen to the community'. This view is shared by Communities First volunteers who often talk of the partnership coordinator's 'door always being open', thus intimating that the partnership coordinator and development workers are willing to listen to new ideas and reflections on current practice. The volunteers interviewed also, however, frequently spoke of approaching a partnership coordinator and/or development worker with an

idea for an activity or project and being directed to an external individual or organization who could help. Programme volunteers spoke of a typical response from Communities First staff being 'I know who can do that'. A development worker continued by saying, 'it's not what you know, it's who you know that matters'. Similarly, a partnership coordinator spoke of Communities First staff acting as a 'go between' helping realize the potential of programme ideas.

Concerning the importance of trust, which was positively linked to social innovation (and negatively to hidden innovation), this can be expressed in terms of the expectation of the fulfilment of promises and relationships developed (Bjørnskov, 2006; Dasgupta, 2000b; Ahuja, 2000). It is the expectation of the fulfilment of promises that seems particularly important in the context of Communities First illustrated by the statement of an interviewed development worker: 'it is a massive no no; you don't build the expectation of the community and then don't deliver'.

Social innovation-promoting activities that link bridging and trust-based bonding social capital promotion with explicitly delivered new activities can also be seen to be clearly present and practised at the Communities First programme (Cahill, 2010; Mulgan, 2006; Mulgan *et al.*, 2007; Phills *et al.*, 2008; Young Foundation & NESTA, 2007). The 'community skip', 'Big Blue Tent' and 'Action Planning Carousel' are all examples of social innovation-related activities found to have been initiated and operationalized by Communities First. For instance, the 'skips' are located where local residents can deposit unwanted items. In parallel to this activity, Communities First staff set up a gazebo nearby offering refreshments. The use of the skip encourages people to come out onto the street and then subsequently to the Communities First gazebo. A similar scheme is the Big Blue Tent initiative at Trevethin. Communities First staff offer refreshments and 'a listening ear' to local residents (as stated by a partnership coordinator). These initiatives result in Communities First staff being able to network with local residents and for local residents to network with each other. Local residents then have informal opportunities to share their ideas with other residents and Communities First staff. The community skip and Big Blue Tent activities also encourage the further sharing of information and knowledge, both from Communities First to local residents, from local residents to Communities First, and from local residents to other local residents. A more explicitly structured approach to building bridging social capital and trust-based bonding social capital simultaneously can be seen to be practised at the Trevethin Communities First partnership via their 'Action Planning Carousel'. This connects the local community with external agencies such as the police service, youth workers, community safety and the local health board to help build partnerships. The Action Planning Carousel, therefore, provides a physical space where partner agencies are all present at the same time with Communities First staff to engage actively with the local community.

The Llanhilleth Communities First Miners' Institute project with its tiered innovation outcomes, which illustrate the work of those such as Brown (1997), may also help to explain how bridging social capital may also become a self-reinforcing/self-perpetuating entity that is then linked to both social innovation and hidden innovation. The project is located in a three-storey building. The ground floor is host to Communities First staff; the first floor hosts social innovation activities; whilst on the second floor a mix of social and commercial enterprises successfully operate. The viability of the project is partially reliant upon the cross-subsidization of financial support cascaded from the commercial and social enterprises to the social innovation programme. This model undoubtedly relies upon the use of external knowledge and linkages to support its explicit social innovation activity, but also represents an implicit hidden innovation.

The network capital concept defined by Huggins (2010) may also be applied to help understand the precise mechanics of bridging social capital at Communities First. The data produced from the interviews held suggests that a form of juxtaposition exists, namely that a 'bottom-up' approach is considered and largely practised as the most desirable working practice. However, Communities First staff seem to recognize that there are times when guidance is provided to facilitate the building of bridging social capital, e.g., the Action Planning Carousel at Trevethin.

In essence, the juxtaposition is that, at times, bridging social capital emerges organically and, at other times, it is more likely to be 'structural and calculative' (Huggins, 2010). The results indicate that although broadly measured (cultural) bonding social capital seems to have a positive relationship with hidden innovation Communities First coordinators who have to be mindful of the need also to manage actively bonding social capital, consequently avoiding potential negative outcomes (e.g., the potentially negative relationship between hidden innovation and trust).

Interviews also disclosed that the traditionally measured innovation present at Communities First is largely considered to be incremental (Afuah, 2003; Smith, 2006). This is likely to be the case because of the constant evaluation and learning that pervades working practices at Communities First. As stated by a development worker, innovation is typically incremental, encapsulated when he said when working with the community that there is a need to 'keep tweaking' projects. This is also a similar notion to the work of Heiskala (2007) and his 'reflexive social structures' having the 'capacity for collective learning'. The interview evidence strongly suggests that Communities First is a reflexive social structure engaged in collective learning, which may explain why the cultural aspect of bonding aspects of social capital were found to be of importance. The constant feedback and exchange of reflection between Communities First, its community and partner agencies described by several interviewees concurs with the work of Heiskala (2007) and theoretical insights of Moulart, Martinelli, González, and Swyngedouw (2007). The building of these cultural elements of bonding social capital is also aided by the widely held belief (supported by participant observation and interview) that Communities First has a culture of 'treating people as equals'. This may be summed up by a development worker in her statement: 'we all work together, no job titles, all sharing responsibility'. She continues describing an expectation of 'supporting one another'; other interviewees concur with this view. A partnership coordinator also agrees by stating that: 'respect and equality are fundamental to bringing about change'.

Evidence of a broad culture that helps bonding social capital-building at Communities First partnerships can be summarized in a statement made by a programme volunteer. She considers the work of Communities First to result in 'pulling together for the common good'. This statement could be said to epitomize what Communities First is and what it does. A development worker agrees, stating that in her opinion Communities First is the 'glue to hold projects together'. Several other interviewees agree with this sentiment. For instance, a programme volunteer referred to Communities First as a means of 'working together to make things happen'. Applying Putnam et al.'s (1993) work to Communities First, suggests, therefore, that the programme provides (at least in the partnerships studied) a fertile ground for the presence of a virtuous circle, increasing the likelihood of further social capital building.

Whilst barriers to innovation at Communities First may include the 'minefield of statutory obligations such as planning' (a partnership coordinator) such tangible barriers such as rules and regulations can also be viewed not as barriers but as an innovation challenge 'to find a different way' (a development worker). Indeed, this issue may be overcome given the physical proximity of social capital between actors may have a positive impact on knowledge and learning (Lorenzen, 2007; Malecki, 2012). In particular, Lorenzen (2007) refers to 'shared social codebooks' that contribute to learning taking place. Arguably, the Communities First programme in the form of its procedures, practices, shared expectations and culture creates such 'shared social codebooks'.

POLICY IMPLICATIONS AND CONCLUSIONS

Innovation-related policies to date have traditionally concentrated upon financial assistance and quantitative-based evaluation mechanisms (Akcomak & Ter Weel, 2008; Diez & Esteban, 2000; Halkett, 2008). The implications of these findings for policy-makers are that programmes such as Communities First should be mindful of the need to build and maintain different forms of social capital (Syssner, 2009; Tabellini, 2010; Woolcock, 1998) as a way by which to promote greater

innovation-based outcomes. This research indicates that social capital is produced as a result of policy implementation (Aragón, Aranguren, Iturrioz, & Wilson, 2014). However, the results highlight that different forms of bonding social capital and bridging social capital are relevant for different forms of innovation.

For example, whilst Fountain (1998) recommends that policy-makers engage actively in the promotion of trust between various stakeholders in innovation, this research suggests that trust as an outcome of bonding social capital may be particularly effective for social innovation activities, whilst being ineffective for more traditional measures of innovation, and actively disadvantageous to aspects of hidden innovation where greater use of bridging social capital building may be more effective. Clearly, policy-makers should not consider social capital to be a panacea for increasing levels of innovative activity (Farole, Rodriguez-Pose, & Storper, 2010; Foley & Edwards, 1999), this study emphasizing that tailoring policies to the needs of the intended innovation type is required. For example, the notion of trust is a recurring theme throughout the interviews and participant observations undertaken at Communities First. The trust built up by Communities First staff must be fostered and not taken for granted. Indeed, as stated by a development worker, 'we cannot be complacent about trust we need to be conscious of developing and maintaining trust'. However, whilst social capital may be considered to be 'underwritten' by trust (Christopoulos, 2014), the trust present at the Communities First partnerships studied is likely to have a positive impact upon levels of innovation (Knack & Keefer, 1997; Molina-Morales & Martinez-Fernandez, 2007) defined in terms of social innovation specifically, rather than innovation more broadly.

The relationship between Communities First, the local community and partner agencies also needs to be regularly reinforced by face-to-face contact and positive publicity, as stated by a partnership coordinator. However, because there are resource implications for face-to-face contact and publicity, there is a danger that resource limitations may inhibit the building and maintenance of the varieties of social capital seen to be necessary (a danger identified by Purdue, 2001), making it even more important for a targeted approach to be adopted. This may be particularly important in the case of the need to exchange tacit local knowledge (Barrutia & Echebarria, 2010). The interviews held and observed behaviour of Communities First managers and officers strongly suggest they also exhibit the traits of dealmakers. A dealmaker as described by Kemeny, Feldman, Ethridge, and Zoller (2015) is someone who typically lives and works in a community where the network is anchored and has many connections within the network. The dealmaker usually also has the capability to use the network to achieve productive outcomes. In a closed network such as may be found in elements of Communities First, an enabler for accessing/creating bridging social capital also facilitates 'brokerage across structural holes' (Burt, 2001, p. 31).

Arguably, Communities First performs a brokering role between those who require resources (community-based individuals and groups) and resource holders (government and quasi-government expert advisors and funding). The brokers in this case are likely to be Communities First coordinators, managers and officers who may also facilitate meaningful connections across structural holes. Ahuja (2000) explores the dilemma of tight networks creating trust which may inhibit the network's desire to engage with new ideas. Ahuja continues, stating that structural holes may benefit the engagement with new ideas but may adversely affect the building of trust. In conclusion, Ahuja states that different forms of social capital may productively exist alongside one another, whether or not the different forms positively contribute to innovation at least partially dependent on what the participants want to achieve.

The recommendation to encourage bridging social capital is supported by the need for Communities First to build links with other regeneration-related programmes and funding opportunities (Hincks & Robson, 2010). It is also important to be mindful of the negative consequences of mismanaged bonding social capital (Wales Audit Office, 2010). There may, of course, be tensions between efforts to generate both bonding and bridging social capital as

a means of stimulating innovation (Durlauf & Fafchamps, 2003), particularly where different forms of social capital are associated with different innovation outcomes, as was found with this study. This tension may occur, for example, if those who benefit and achieve a desired status via bonding social capital see the benefit and status diminish with the advent and greater incidence of bridging social capital (McFadyen & Cannella, 2004).

Therefore, any recommendation suggesting that bonding and/or bridging social capital should be actively encouraged needs to be mindful of the benefit or damage, status or loss of status resultant of different forms of social capital. Indeed, it should also be noted that the importance of social capital to innovation capabilities and economic outcomes as whole may be overemphasized in certain policy scenarios (Rodriguez-Pose & Storper, 2006). A resultant policy recommendation may therefore be for Communities First managers and officers to be made aware of the benefits and dangers of both bonding and bridging social capital for specific innovation outcomes. For if, as Ahuja (2000) postulates, individuals are aware of what they want to achieve via different forms of social capital, this may increase the likelihood they will contribute positively. In addition, Heiskala (2007) also supports the view that social innovation in particular has the capacity to change the 'hegemonic pattern'. Thus, social innovation may be a catalyst for harnessing societal power to benefit all. Arguably, the best way then to achieve an effective sustainable social innovation is via the fostering of emulators (Mulgan et al., 2007). This study identifies a number of examples where emulation may be possible.

A number of limitations to this study should be acknowledged. First, clearly there are factors other than those captured by the survey that also explain the variance in the model, as highlighted by the adjusted R^2 values. Second, as a basis for data collection and analysis, the paper uses a comparatively small number of Communities First programmes on which to contextualize its conclusions. However, although the programmes are small in number, an in-depth analysis has been undertaken for each case. Third, the Communities First programme is located in Wales. As a consequence the findings may not be replicated elsewhere. Nevertheless, locating the research in Wales has enabled common environmental features of the political, social and economic to form the context for the project.

In conclusion, therefore, if regional innovation policy is to encourage innovative activity more holistically, then measures of traditionally measured, hidden and social forms of innovation need to be explicitly and coherently developed via the design, implementation and evaluation of policies. This suggests a move away from solely attempting to improve traditionally measured innovation performance metrics which focus upon science and technology to establishing policies that recognize the need to encompass a more broadly defined view of innovation.

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APPENDIX 1**Table A1 .** Factor analysis: innovation types.

Variables	Mean	Factor 1: Hidden innovation	Factor 2: Social innovation	Factor 3: Traditionally measured innovation
Communities First is good at understanding knowledge from outside the programme	4.25	.858		
The organizational culture at Communities First is supportive of producing new ideas	4.43	.801		
Communities First has successfully delivered worthwhile training for the introduction of new products, services or processes	4.24	.733		
The work of Communities First is of benefit to the community (or helps solve social problems or helps fulfil a social need)	4.73		.796	
Communities First can identify community needs	4.65		.752	
Communities First generates ideas to satisfy community needs	4.49		.721	
Within the last 12 months, Communities First has successfully introduced a new way of managing resources	3.83			.732
In the last 12 months, Communities First has launched a wanted product or service which is being used by the local community	4.54			.728
During the last 12 months, Communities First has significantly changed at least one of its products and/or services	3.95			.672
Percentage of variance explained		24.5%	20.8%	19.1%
Cronbach's alpha		0.771	0.63	0.58
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		0.646		
Bartlett's test of sphericity		143.58		
Degrees of freedom		36		
Significance		0.000		

Note: Extraction method = principal component analysis. Rotation method = varimax with Kaiser normalization. Rotation converged in six iterations.

Table A2. Bridging social capital.^a

Variables	Bridging social capital: external	
	Mean	1
I have gained access to new skills via linkages established by Communities First with external agencies	4.37	.874
Communities First often actively collaborates with other organizations	4.56	.702
Communities First has enabled me to gain access to external networks or groups	4.49	.639
Communities First helps me solve problems collectively by putting me in touch with individuals or organizations outside Communities First	4.40	.817
Percentage of variance explained		58.3%
Cronbach's alpha		0.754
KMO measure of sampling adequacy		0.653
Bartlett's test of sphericity		71.821
Degrees of freedom		6
Significance		0.000

Note: ^aOne component extracted.

Table A3. Bonding social capital: Communities First culture.

Variables	Bridging social capital: external	
	Mean	1
Communities First promotes cooperation amongst its members	4.41	.732
I feel I am supported in my work by the Communities First-based community	4.52	.843
I have positive relationships with many people at Communities First	4.63	.866
Percentage of variance explained		66.6%
Cronbach's alpha		0.743
KMO measure of sampling adequacy		0.651
Bartlett's test of sphericity		46.062
Degrees of freedom		3
Significance		0.000

Note: ^aOne component extracted.

Table A4. Bonding social capital: reciprocity.

Variables	Bridging social capital: external	
	Mean	1
When I help others at Communities First I expect others to help me in future	3.62	.891
When I support others at Communities First they expect to support me in future	3.57	.882
When I do someone a favour at Communities First it is usually returned in future	3.89	.655
Percentage of variance explained		66.7%
Cronbach's alpha		0.749
KMO measure of sampling adequacy		0.607
Bartlett's test of sphericity		55.777
Degrees of freedom		3
Significance		0.000

Note: ^aOne component extracted.