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Community Cohesion and Village Pubs in Northern England: An Econometric Study

MATTHEW MOUNT* and IGNAZIO CABRAS†

*Leeds University Business School, University of Leeds, Leeds LS6 1AN, UK. Email: m.p.mount@leeds.ac.uk

†Newcastle Business School, Northumbria University, Newcastle NE1 8ST, UK. Email: ignazio.cabras@northumbria.ac.uk

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MOUNT M. and CABRAS I. Community cohesion and village pubs in Northern England: an econometric study, *Regional Studies*. Pubs in England represent an important locus for regional development and rejuvenation, particularly in rural areas where they act as hubs for social aggregation and economic activity. Generally, village pubs are regarded as complementarities to other local services and amenities that exist within the area, such as sporting events, volunteering and charity initiatives, as well as business activities. This paper provides empirical support for this proposition by estimating the impact of pubs on an index measure of community cohesion. Using data from 715 rural parishes located across Northern England, the paper demonstrates the importance of pubs for maintaining rural areas in these regions.

Community cohesion Rural community Village pub Structural equation modelling

MOUNT M. and CABRAS I. 北英格兰的社区凝聚与村落酒吧：计量经济研究，区域研究。英格兰的酒吧，是区域发展和复兴的重要场域，特别是在乡村地区中，酒吧扮演了社会聚集和经济活动的中心。一般而言，村落酒吧被视为一地所具有的其他地方服务与设施的补充，例如运动赛事、义工活动与慈善行动，以及商业活动。本文以社区凝聚力指标评量酒吧的影响，藉此提供支持此一论点的经验证据。本文使用来自于北英格兰七百一十五座乡村行政区的数据，证实在这些区域中，酒吧之于维繫乡村地区的重要性。

社区凝聚力 乡村社区 村落酒吧 结构方程模式

MOUNT M. et CABRAS I. La cohésion communautaire et les pubs du village situés dans le Nord de l'Angleterre: une étude économétrique, *Regional Studies*. En Angleterre, les pubs constituent un véhicule important pour l'aménagement et le rajeunissement du territoire, notamment dans les zones rurales où ils servent de plaques tournantes de l'intégration sociale et de l'activité économique. En règle générale, on considère que les pubs du village sont le complément des autres services et équipements locaux au sein de la zone, tels les épreuves sportives, les initiatives de volontariat et de charité, ainsi que les activités commerciales. Par cet article, cette proposition bénéficie d'un soutien empirique en estimant l'impact des pubs sur une indice qui mesure la cohésion communautaire. Employant des données auprès de 715 communes rurales réparties sur l'ensemble du Nord de l'Angleterre, cet article montre l'importance des pubs pour la survie des zones rurales dans ces régions.

Cohésion communautaire Commune rurale Pub du village Modélisation par équation structurelle

MOUNT M. und CABRAS I. Zusammenhalt der Gemeinschaft und dörfliche Pubs in Nordengland: eine ökonomische Studie, *Regional Studies*. Pubs sind in England ein wichtiger Ort der regionalen Entwicklung und Verjüngung – insbesondere in ländlichen Gebieten, wo sie als Zentren der Gesellschaftsversammlung und ökonomischen Aktivität dienen. Im Allgemeinen gelten Dorfpubs als Ergänzung der übrigen lokalen Dienste und Einrichtungen in der Gegend, wie zum Beispiel Sportveranstaltungen, Freiwilligenarbeit, gemeinnützige Initiativen oder geschäftliche Tätigkeiten. Dieser Artikel liefert empirische Belege für diese Annahme durch eine Schätzung der Auswirkung von Pubs auf einen Indexmaßstab des Zusammenhalts der Gemeinschaft. Mithilfe von Daten aus 715 ländlichen Gemeinden in Nordengland wird die Bedeutung von Pubs für den Erhalt von ländlichen Gebieten in diesen Regionen nachgewiesen.

Zusammenhalt der Gemeinschaft Ländliche Gemeinschaft Dorfpub Strukturelle Gleichungsmodellierung

MOUNT M. y CABRAS I. Cohesión comunitaria y los pubs de los pueblos en el norte de Inglaterra: un estudio econométrico, *Regional Studies*. Los pubs en Inglaterra son un lugar importante para el desarrollo y rejuvenecimiento regionales, especialmente en zonas rurales donde sirven de centro para las reuniones sociales y la actividad económica. En general, se considera que los pubs de los pueblos se complementan con otros servicios y equipamientos locales que existen en la zona, tales como acontecimientos deportivos, iniciativas de voluntariado y caridad, así como actividades empresariales. En este artículo ofrecemos apoyo empírico para esta proposición al calcular el efecto de los pubs en una medida índice de la cohesión comunitaria.

A partir de los datos de 715 municipios rurales del norte de Inglaterra, demostramos la importancia de los pubs a la hora de conservar las zonas rurales en estas regiones.

Cohesión comunitaria Comunidad rural Pub de pueblo Modelo de ecuación estructural

JEL classifications: R1, R19, R58

INTRODUCTION

In England and across the UK, the term ‘public house’, or pub, is used to define a wide range of drinking establishments, including inns, taverns, alehouses, gin shops and similar places (JENNINGS, 2007). Historically, pubs developed in a variety of forms, from businesses serving drinks only to businesses serving food or providing accommodation and other services. The importance of pubs in British culture, economy and society is widely acknowledged and has been analysed in a number of studies (JONES *et al.*, 2000; PRATTEN and LOVATT, 2002; PRATTEN, 2003, 2004; MAYE *et al.*, 2005; JENNINGS, 2007). As BOWLER and EVERITT (1999) explain, the pub has been regarded for many years as a bastion of traditional English culture, and supports the formation of wider social networks in the identities they personify. Over the last decade, this has been most prominent in urban areas with the emergence of themed sports bars and other themed establishments (PRATTEN, 2007b; INSTITUTE FOR PUBLIC POLICY RESEARCH (IPPR), 2012).

In this regard, the pub creates a sense of social belonging for the stakeholder groups they serve. This is particularly true in the case of rural and remote areas of England, especially those marginalized in terms of critical infrastructure, as the pub is a vital asset and networking place for local communities. As PRATTEN (2007a) points out, the traditional village pub is an essential feature of the rural scene, as much like the local market or parish church they act as a meeting place where inhabitants can socialize. Despite the documented importance of these places for providing vital services in rural communities, the rural pub is highly endangered and under threat of extinction. Once these places are gone, the impact of their disappearance has a huge effect on the levels of community cohesion and social well-being among individuals in the area (CABRAS and REGGIANI, 2010; CABRAS, 2011).

Previous studies have attempted to measure the impact of rural pubs on community and social cohesion. However, these studies remain limited in scale, and focus on individual or a small number of rural cases. CABRAS and REGGIANI (2010), for example, examine the impact of pubs on a subset of community cohesion dimensions using a single quantitative case study of Cumbria, a rural English county. In contrast, CALLOIS and AUBERT (2007) use the presence of pubs and bars

as an indicator of social ties in a wider conceptualization of community cohesion to examine four rural areas of France. Due to their limited scale, these studies only offer partial insight into the dynamics of the cause-effect relationship between pubs and levels of cohesion and social engagement in rural communities.

To address this gap in the literature, this study aims to explore the impact of village pubs in 715 rural parishes of Northern England, spanning the North East, North West, and Yorkshire and the Humber regions. The three regions include vast areas considered rural or mostly rural according to the definition of BIBBY and SHEPHERD (2004), which classifies local authorities in relation to their levels of urbanization/rurality. This categorization system provides a six-fold grouping of districts and local authorities: ‘Major Urban’, ‘Large Urban’, ‘Other Urban’ ‘Significant Rural’, ‘Rural-50’ and ‘Rural-80’ (the latter two categories comprising districts with between 50% and 80% of their population in rural settlements, and at least 80%). This six-fold grouping can be further aggregated into three subgroups: ‘Predominantly Urban’ (Major, Large and Other Urban), ‘Significant Rural’ and ‘Predominantly Rural’ (Rural-50 and Rural-80). Data from the OFFICE FOR NATIONAL STATISTICS (ONS) (2011) indicate that the North East, North West, and Yorkshire and the Humber account for about 71.9% of the total population in England living in significantly rural towns and fringes, and for about 50.2% of the total population living in predominantly rural villages and hamlets. Therefore, the spatial boundaries under investigation provide the most suitable macro-region within England to conduct the research.

The following research questions are proposed:

- *What is the relationship between pubs and community cohesion in rural areas?*
- *How is this relationship mediated by population size, education and employment?*
- *To what extent does the disappearance of these places represent a threat to rural communities?*

Accordingly, the study provides a critical contribution to the literature on community cohesion and regional and rural development policy (ARMSTRONG *et al.*, 2001; HIPP and PERRIN, 2006; MORRISON, 2011) by examining and quantifying the role village pubs play in maintaining community cohesion and social well-being in rural areas. By building a new index

measure of community cohesion specific to the English rural scene, the study provides an econometric analysis using a number of structural equation models (SEM) that gradually increase in complexity to assess the impact of pubs in rural communities.

The paper is structured as follows. The second section documents the decline of British pubs and the detrimental impact this has had in rural areas in relation to community cohesion. The third section presents the research methodology, the new index measure of community cohesion developed in the study, and results of the SEM modelling procedure. The fourth section discusses the implications of the research findings and provides some policy recommendations to contrast to the decline of pubs in rural areas in England. Finally, the fifth section concludes the study and suggests avenues for future research.

VILLAGE PUBS AND COMMUNITY COHESION

The decline of pubs and the situation in rural areas

Pubs across England and more generally in the UK have experienced a significant decline in the past decades, culminating in a situation where over 3500 closures were reported between 2009 and 2010 (IPPR, 2012). Recent figures provided by the BRITISH BEER AND PUBS ASSOCIATION (BBPA) (2013) indicate that the number of pubs in the UK is approximately 49 500, which equates to an average of one pub closure out of four over the past 30 years. This decrease has emerged due to a variety of reasons and factors that have afflicted the pub sector since the late 1980s, including:

- The Parliamentary 'Beer Orders' of 1989 that forced the separation of pubs from the breweries that traditionally owned them (PREECE *et al.*, 1999; PRATTEN, 2003). The orders forced breweries owning more than 2000 pubs either to sell their brewery business or to free ties from half of the pubs over 2000 that they owned (PRATTEN, 2007a).
- The decrease in the number of independently owned and managed pubs due to the emergence of corporate pub chains commonly referred to as 'pubcos'. The Parliamentary Beer Orders merely shifted the concentration of pub ownership from a small number of large breweries to a small number of highly profitable and acquisitive pubcos (PREECE *et al.*, 1999; CHATTERTON and HOLLANDS, 2002).
- The increasing proportion of tenanted premises where the pub manager is often accountable to a large national brewer or pubco (PRATTEN and LOVATT, 2002).

The rise of the pubcos was catalysed by the acquisition of many rurally located pubs and licences owned by breweries that were bought and shifted to premises in cities and town centres in search of higher

profits. According to CHATTERTON and HOLLANDS (2002), the previous monopoly of national brewers was broken up by these pubcos, which now account for approximately two-thirds of the whole pub market. Changes in ownership structure also brought about changes in the customer marketing and management strategies pursued by pubs (CABRAS, 2011). Many pubs ceased their traditional beer and community-oriented vocation and started to develop into different types of businesses that were often out of touch with the rural scene (LINCOLN, 2006; PRATTEN, 2007b; CABRAS and BOSWORTH, 2014). As PRATTEN (2005, 2007b) indicates, the profit-oriented nature of these tenanted and managed businesses neglected the needs of villagers and local communities, with their focus being on a much broader scale than the local one.

Huge increases in beer and alcohol prices over the past 20 years have also been a key determinant of rural pubs' decline. According to the ALL PARTY PARLIAMENTARY BEER GROUP (APBBG) (2008), 'on-trade' beer prices registered a growth of 161% in the period from 1987 to 2008, while alcohol sold in off-licences and supermarkets have become increasingly competitive. Naturally, this situation has had a direct impact on consumers' buying behaviours and consumption patterns, with many now preferring to drink at home, making use of home-based entertainment such as interactive sports channels and games consoles (PRATTEN, 2004, 2007b).

Rural areas have been hit particularly hard, with 14 pubs shutting each week in 2012 and reported beer sales lower than at any point since the depression of the 1930s (IPPR, 2012). Such rates of decline have been associated with wider economic and social concerns regarding the services and communal spaces in villages (LEACH, 2009; PICKOVER, 2010). As previous studies suggest, the presence of services, communal spaces and wider social activities is often tied to the presence of a pub in the area, particularly in rural localities. However, as KINGSNORTH (2008, p. 87) points out, once a village pub is lost, while the location might remain, it is no longer a 'place'.

Community and social cohesion in the rural context

Prior research has focused on the importance of community cohesion at the higher city or urban level (PUTNAM, 2000; TOLBERT *et al.*, 1998) as well as the more rural neighbourhood level (HIPPI and PERRIN, 2006; LEE, 2000). These studies emphasize the importance of community cohesion in creating an attachment to the wider community, which ultimately leads to reductions in crime (LEE, 2000), mortality rates (KAWACHI *et al.*, 1997), health problems (PUTNAM, 2000), and overall social well-being of the area. Community cohesion in this context refers to the extent citizens feel a sense of social belonging to the wider entity of the rural area in which they reside. A sense of

belonging leads to increased participation in community engagement, leisure and voluntary activities (CABRAS and REGGIANI, 2010). A number of studies document the importance of community cohesion, social engagement and involvement for promoting economic activity, including marketing and lending relationships (MOORMAN *et al.*, 1992; PODOLNY, 1994), which can be further extended to the potential role of pubs.

Few studies exist, however, that address issues of community cohesion at the lowest administrative levels (HIPPI and PERRIN, 2006), particularly extremely rural and remote areas (CABRAS, 2011). Evidence suggests that the presence of pubs in rural and remote regions plays an important role in stimulating and maintaining the social fabric of the area (CABRAS and REGGIANI, 2010). Thus, the disappearance of a pub within these communities generates more than the loss of a mere business. For villages, pubs represent important assets, as they work as an incubator for social engagement and involvement. Pubs in these areas help generate social capital, defined as the whole of human relationships, skills and social values embedded within individuals operating in informal networks (PUTNAM, 1995; CABRAS, 2011). Aside from property market economics that place a significant premium on residential development sites above rural service properties (VALUATION OFFICE, 2011), the lost continuity, break with history and loss of a cherished place often make it difficult to re-institute a pub once it has closed its doors (CABRAS and BOSWORTH, 2014).

Pubs in this context represent important hubs at the local level and contribute to strengthen human relationships. As reported by MAYE *et al.* (2005), each village pub has its own unique cultural terrain that consists of a networking system linking villagers, traditions and modern facilities. For the villagers, 'the pub may operate as the centre of their social life, especially if there are no other alternative social facilities' (HUNT and SATTERLEE, 1986, p. 523). Often the role of the pub transcends drinking and is a complementarity to other community events such as sports clubs and book clubs, where the pub is a sponsor or meeting place. Thus, village pubs provide an important contribution to building and shaping community cohesion, which 'is what must happen in all communities to enable different groups of people to get on well together' (DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT (DCLG), 2008, p. 10).

Community cohesion is part of the broader concept of social cohesion, which is the 'glue' that ties and brings together people coming from different classes, religious and cultural components of society (FORREST and KEARNS, 2001). The level of community and social cohesion in a group determines the levels of social capital inside that group. In other words, communities with higher levels of cohesion, where people feel as if they belong to something that goes beyond their attachment to the geographical location, are the ones

producing a higher number of network human relationships diversified according to various aspects of individuals' lives, such as family, work and friendships (GRANOVETTER, 1985; PUTNAM, 1995).

In the light of these considerations, places such as pubs, which foster and help to create community cohesion, represent valuable assets, particularly for residents in rural and remote areas. The next section presents the methods used to explore the role of pubs in promoting community cohesion.

METHODS

The study adopts a two-phase quantitative methodology to address the proposed research questions. Phase one documents the development of a new index measure of community cohesion representative of the English rural scene. Using a robust protocol informed by exploratory factor analysis, existing theory, and academic and village resident insights, a comprehensive four dimension measurement index of community cohesion is constructed. In the second phase, an econometric approach was developed using SEM to examine the relationship between the number of pubs and levels of community cohesion, as reported by the index, in rural Northern England. Multiple SEM models were deployed using grouping analysis and mediation effects to account for potential variations accruing to population size, employment and education.

Data were collected for each phase from a number of sources, including the ONS, National Archives and the Campaign for Real Ale (CAMRA), and calibrated into a unique dataset that comprised 1488 rural pubs operating within 715 parishes serving a population of over 400 000 individuals. Rural parishes were identified following the definition proposed by CABRAS and REGGIANI (2010, p. 6), 'as areas with no more than 3,000 inhabitants, situated at least 5 miles (or 10 minutes' drive) from towns or larger parishes counting 5,000 inhabitants or more'. This definition was deployed as a standard to distinguish the most rural areas from larger town and city areas with higher levels of infrastructure. A spatial representation of the parishes selected is given in Fig. 1.

Phase One: Community cohesion index development

Recognizing the difficulty in empirically measuring or evidencing the existence of community cohesion (ROBINSON, 2005; SABATINI, 2009), the broad definition proposed by KEARNS and FORREST (2000) that comprises five domains as a starting point is used: (1) common values and civic culture; (2) social order and control; (3) social solidarity; (4) social networks and capital; and (5) place attachment and identity. A total of 52 binary categorical variables, representing the presence or non-presence of a community facility, were extracted from the different data sources and

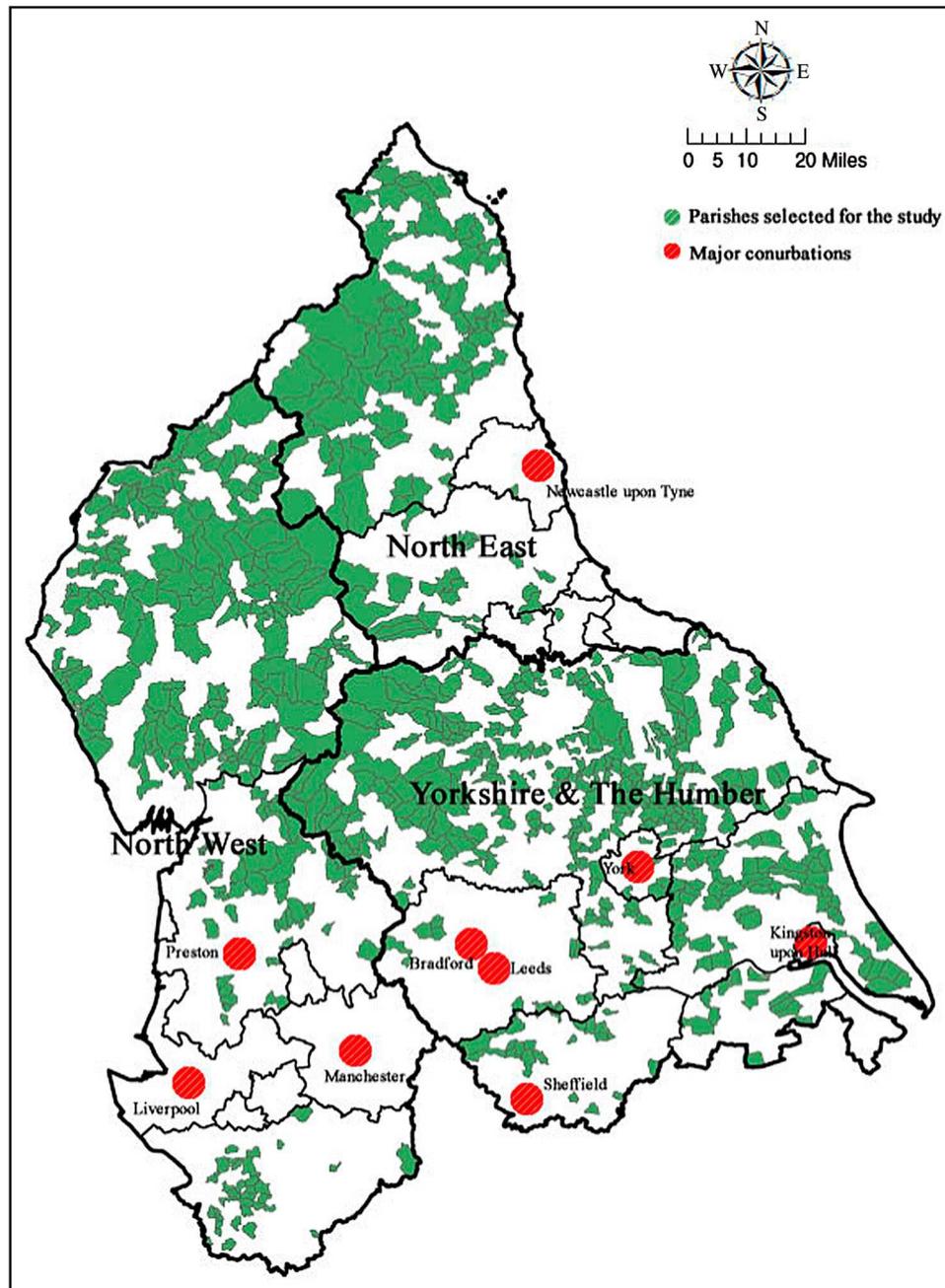


Fig. 1. Spatial map of selected parishes

presented to a focus group of six academics to organize according to their level of fit to one or more domains as defined by KEARNS and FORREST (2000). Following this process, 24 observed variables were retained for factor analysis, many of which spanned multiple components as reported in Table 1.

Factor analysis was used to provide clarity to the underlying structure of the retained variables to construct a comprehensive measure of community cohesion. The suitability of using factor analysis was checked using the Kaiser–Mayer–Olkin (KMO) measure of sampling adequacy, which was above the required threshold of 0.5 (SHARMA, 1996) with the

data demonstrating a value of 0.764. Since all the retained variables were binary categorical, standard methods of performing factor analysis based on Pearson's correlation matrix were insufficient. As a result, a polychoric transformation in STATA statistical software version 12 (STACORP, 2012) using the 'polychoric' command was performed to account for situations where the variables or interest are categorical (RIGDON and FERGUSON, 1991; OLSSON, 1979). However, a polychoric transformation is only appropriate when the variables under consideration are truncated versions of continuous variables, as is the case in this study.

Table 1. Five dimensions of KEARNS and FORREST (2000) and variables retained for factor analysis

Domain	Description	Variables and the related domain ^a	Description	
A	Common values and civic culture	Variables were retained that represented an affiliation with a local institution, club or association, as they were perceived as a signal for shared values and a healthy civic culture	<i>Beavers</i> (A, B) <i>Bowling Greens</i> (A, B) <i>Brownies</i> (A, B) <i>Cafés</i> (E) <i>Community Centre</i> (C, D) <i>Cricket Matches</i> (A, B) <i>Festival/Galas</i> (D) <i>Football/Rugby Matches</i> (A, B) <i>Music/Art Events</i> (D) <i>Markets</i> (E) <i>News</i> (C) <i>Noticeboards</i> (C) <i>Playing Fields</i> (A, B) <i>Restaurants</i> (E) <i>Retired Clubs</i> (A, B) <i>Social Clubs</i> (A, B) <i>Sports Hall</i> (A, B)	Presence of Beavers, Cubs, Venture Scouts operating within the parish Parish contains a bowling green available for use by local residents Presence of Rainbows, Brownies, Guides, Rangers operating within the parish At least one café operating in the parish all year Presence of community/social centres in the parish Whether cricket matches are held within the parish on a regular basis Presence of festival/galas held in the parish at least once a year Whether football/rugby matches are held within the parish on a regular basis Whether art or music events are held within the parish on a regular basis Market and similar fairs held on a regular basis within the parish Parish has a community/parish newsletter actively managed Parish has an public/parish noticeboard actively managed Parish contains a playing field available for use by local residents At least one restaurant operating in the parish all year Presence of recreational clubs for the retired or over 60s in the parish Presence of social clubs operating within the parish Parish contains a sports hall available for use by local residents
B	Social networks	Variables relating to the formation of group activities were retained, such as clubs and sports facilities, as they represent a form of social network among members		
C	Social order and control	Variables that were perceived to condition behaviour or impose social control, such as religious places, local newsletters and noticeboards, were retained as they represent a moral or societal standard		
D	Social solidarity	Variables relating to wider community activities, such as community centres, presence of festival/galas and volunteering initiatives, were retained as they were perceived as a signal for solidarity	<i>Swimming Pool</i> (A, B) <i>Takeaways</i> (E) <i>Tennis Court</i> (A, B)	Parish contains a swimming pool available for use by local residents At least one takeaway operating in the parish all year Parish contains a tennis court available for use by local residents
E	Place attachment and identity	Variables relating to the presence of local services and civic engagement, such as restaurants, markets and volunteering, were perceived as being distinguishing features that can be a signal of identity	<i>Voluntary Clothes Recycling</i> (D, E) <i>Voluntary Paper Recycling</i> (D, E) <i>Worship</i> (C) <i>Youth Groups</i> (A, B)	Presence of voluntary organization(s) providing clothes recycling Presence of voluntary organization(s) providing paper recycling Presence of worship centres/churches in the parish Presence of youth social clubs operating within the parish

Note: ^aVariables provided in alphabetical order (all variables were binary categorical representing the presence [1] or absence [0] of a given facility).

Source: NATIONAL ARCHIVES (2010), with their corresponding domain reported in parentheses. Football/rugby matches were classified as taking place on a regular basis if their frequency was greater than or equal to two matches per month; music/art events at least once a month.

Results of the factor analysis revealed a four-factor structure. Factor outputs were constrained to eigenvalues >1 , as factors with lower values do not account for enough of the total variance to be considered for subsequent analysis. Furthermore, factors with a single item structure along with cross-loading items and items with loadings of < 0.5 were suppressed. This process led to the exclusion of three variables that were originally retained. Since no correlation between factors was assumed, a varimax rotation was used in order to examine the loading structure of items. These were derived using maximum likelihood estimation (MLE), as MLE provides unbiased estimates of the factor scores. Table 2 provides a breakdown of the exploratory factor analysis results.

The four emerging factors and item structures of the factor analysis were externally validated and discussed with the focus group of six academics and village residents. Following an in-depth discussion the factors were labelled and defined as: *leisure activities* (LEI) – variables relating to a community's access to social clubs and recreational activities; *communication* (COM) – variables relating to the spread of information within the community; *food facilities* (FF) – variables relating to a community's access to local food facilities; and *volunteering* (VOL) – variables relating to community-based voluntary activities. It was acknowledged from the focus group that when considered cumulatively, the factors identified represented vital pillars of community cohesion. As such, the variables in each domain were summed and linearly combined to construct a 21-point proxy measure of community cohesion (COMCOH):

$$\text{COMCOH}_i = \sum_{j=1}^9 \text{LEI}_{ij} + \sum_{j=1}^6 \text{COM}_{ij} + \sum_{j=1}^4 \text{FF}_{ij} + \sum_{j=1}^2 \text{VOL}_{ij} + \varepsilon_i$$

The first factor in the index captures engagement and participation in communal activity by comprising the presence of sporting events, youth clubs and other social activities that promote the formation of social networks, common values and social solidarity among residents. It also includes infrastructural variables, such as playing fields that support these activities. The second factor relates to communication and informal exchange occurring within the parish, such as the presence of a church, newsletter or noticeboard, which were perceived as informal control mechanisms that help maintain a societal standard within the community. Places of worship were identified as churches of the same confession (Church of England) in 98.2% of the parishes analysed, excluding possible effects on the index associated with different faiths. The third factor comprises cafes, restaurants and takeaways, which can also be identified as facilitators of community cohesion (CALLOIS and

AUBERT, 2007) in that they promote place attachment. However, these places differ significantly from pubs in relation to opening times, types of services/products supplied and custom targeted (AUTY, 1992; JENNINGS, 2007), with pubs still providing a unique environment with regard to communal spaces (MAYE *et al.*, 2005, MAYO and ROSS, 2009). Finally, the fourth factor comprises community-based voluntary activities, which are indicative of social solidarity and place attachment, as citizens are motivated to club together and sacrifice their spare time for the good of the community.

The resultant index measure of community cohesion is used as a dependent variable in the econometric analysis that follows, which seeks to explore the role of pubs in promoting community cohesion in rural Northern England.

Phase two: Econometric analysis

An SEM approach is used to explore quantitatively the cause–effect relationship between pubs and levels of community cohesion reported in rural communities of Northern England. SEM implies the elaboration of a number of regression equations that form part of the final model when associations among variables are identified in the form of a cause–effect relationship, theoretically justifiable and not falsified by data. The advantage of SEM compared with other types of regression analysis is that each equation represents a cause–effect relationship rather than a mere association, implying directionality in terms of impact (GOLDBERG, 1972; SABATINI, 2009; HAIR *et al.*, 2010). All the statistical models are estimated using the ‘SEM’ command in STATA statistical software version 12 (STATA CORP, 2012) and rely on the maximum likelihood fitting function.

During the SEM modelling procedure, a stepwise process is followed that first examines the impact of pubs on levels of community cohesion and individual components of the index. Secondly, to account for potential variations in population size, parishes are grouped into equal quartiles ($n < 190 = \text{Group 1}$; $190 \leq n < 368 = \text{Group 2}$; $368 \leq n < 874 = \text{Group 3}$; $n \geq 874 = \text{Group 4}$) that roughly separate the smallest most rural parishes from larger more populated parishes. The moderating effects of population size are examined using a grouping analysis based on these quartiles to establish underlying differences. Finally, it is examined whether the relationship between pubs and local communities is confirmed in different economic contexts by specifying employment status (Employed, Unemployed and Inactive) and levels of education according to the UK National Qualifications Framework (Levels 1, 2 and 3–5) as mediator variables. Mediation analysis allows one to isolate the direct effect of pubs on community cohesion while accounting for potential confounding factors, which are specified as indirect effects of the pub that pass through different mediator variables.

Table 2. Exploratory factor analysis results

Variable	Factor 1: Leisure Activities (LEI)	Factor 2: Communication (COM)	Factor 3: Food Facilities (FF)	Factor 4: Volunteering (VOL)
Tennis Court	0.6246	—	—	—
Sports Hall	0.5144	—	—	—
Playing Fields	0.7813	—	—	—
Bowling Greens	0.6822	—	—	—
Cricket Matches	0.6718	—	—	—
Football/Rugby Matches	0.8780	—	—	—
Beavers	0.5921	—	—	—
Brownies	0.6612	—	—	—
Retired Clubs	0.5175	—	—	—
Worship	—	0.6091	—	—
News	—	0.5089	—	—
Music/Art Events	—	0.5915	—	—
Festival/Galas	—	0.7241	—	—
Social Clubs	—	0.5639	—	—
Noticeboards	—	0.7953	—	—
Markets	—	—	0.9103	—
Restaurants	—	—	0.6233	—
Cafés	—	—	0.5946	—
Takeaways	—	—	0.5040	—
Volume Clothes Recycling	—	—	—	0.5863
Volume Paper Recycling	—	—	—	0.8987

Accordingly, three SEM are proposed: Model 1 evaluates the relationship between pubs and community cohesion in all rural parishes studied and provides a breakdown of individual cohesion components; Model 2 evaluates the relationship between pubs and community cohesion in the parishes characterized by different population sizes; and Model 3 evaluates the mediating effects of employment and education on the relationship between pubs and community cohesion in all rural parishes studied. The path diagrams depicted in Fig. 2 present the results of these analyses and report the direct effects between structural paths. The

standardized parameter estimates are included in the arrow paths and coefficients of determination (R^2) are reported for each variable that comprises an explanatory variable across the three models.

Results of the simple structural model depicted in Model 1 suggest that the presence of one or more pubs in a rural parish lead to higher levels of community cohesion. In particular, the analysis shows a strong positive and statistically significant relationship (0.548, $p < 0.01$). This result seems to confirm the proposition of a cause-effect link between pubs and levels of reported community cohesion, emphasizing the importance of

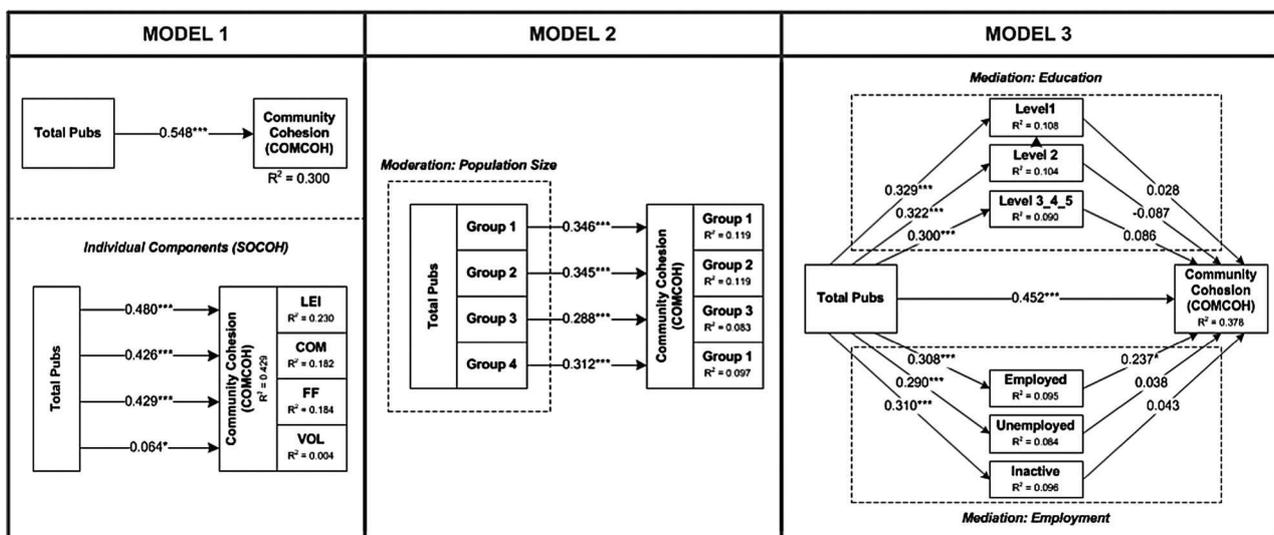


Fig. 2. Path diagrams of structural model results

Note: For all models: ***significant at < 0.01 ; ** < 0.05 ; and * < 0.1 . Estimations are based on maximum likelihood. Model 1: leisure (LEI); communications (COM); food facilities (FF); and volunteering (VOL). Model 2: Group 1 ($n < 190$); Group 2 ($190 \leq n < 368$); Group 3 ($368 \leq n < 874$); and Group 4 (≥ 874).

pubs in stimulating and promoting engagement and involvement at the lowest administrative level. More generally, overall results suggest a relatively equal degree of influence attributed to the pub on leisure (0.480, $p < 0.00$), communication (0.426, $p < 0.00$), and food facilities (0.429, $p < 0.00$) components, which are all strong positive and statistically significant, although the impact of pubs on voluntary components (0.064, $p < 0.1$) is marginal. The reported R^2 (0.300) estimate for the full index also indicates a high level of fit for the type of econometric analysis conducted as well as a reasonable fit for individual components.

This model, however, does not account for potential inflations of the relationship accruing to parishes characterized by larger population sizes, which may skew the results. Thus, to examine the robustness of the relationship, population size is controlled for in Model 2 by using population quartiles as a grouping moderator. Again, results in Fig. 2 suggest a strong positive and statistically relationship between the number of pubs and reported levels of community cohesion in the parishes of Northern England across all population groupings. Interestingly, the results show that the criticality of pubs in this context is relatively stable moving from the smallest, least populated rural parishes (Group 1 ($n < 190$); 0.346, $p < 0.01$) to larger, more populated rural parishes (Group 4 ($n \geq 874$); 0.312, $p < 0.01$). This suggests that the effect of population size is negligible. Considering the fact that observations were isolated according to this distinction, reported R^2 estimates indicate a reasonable level of fit for each grouping quartile.

Finally, to account for potential confounding factors that may bias the estimates, a mediation analysis was conducted in an attempt to isolate more adequately the direct effect of pubs on levels of community cohesion. In particular, the focus was on education level as a proxy for income and employment status, as the role and function of the pub may change according to different categorizations of mediator variables, as well as their effect on the community cohesion index. Individuals categorized in the high income (Levels 3–5) and employed bracket, for example, are more likely to be positively affected by the pub, whereas those in the low income (Level 1) and unemployed bracket are more likely to be negatively affected by the pub. Interestingly, examination of the structural results in Model 3 shows that the pub has a strong positive and statistically significant effect across all mediator variables, which is relatively stable in terms of magnitude. Furthermore, in terms of the mediator variable effects on the dependent variable (COMCOH), it is found that being in active employment leads to higher levels of community cohesion (0.237, $p < 0.1$), whereas all others mediator variables have extremely low and non-significant effects.

Controlling for these mediating effects, a strong positive and statistically significant relationship between the number of pubs and levels of community cohesion

(0.452, $p < 0.01$) is still observed. This result strengthens the argument regarding the importance of pubs within communities, as potential confounding factors owing to education and employment do little to dilute the effect observed in Model 1. To examine the mediation effects further, an analysis of the direct, indirect and total effects interactions with community cohesion is provided in Table 3. Interestingly, the results show that the total magnitude of indirect effects across education and employment mediators (0.104, $p < 0.01$) only accounts for approximately one-fifth (18%) of the total effect of pubs on community cohesion (0.557, $p < 0.01$). Thus, the direct effect of the pub accounts for over 80% of the total effect observed when accounting for education and employment mediators.

Analysis of model mediators shows that income, embodied in the analysis as an education level proxy, has only a very small effect on the relationship observed between pubs and community cohesion, accounting for only 6.5% of the total indirect effect. In particular, it can be seen that the presence of pubs is positive for those individuals educated at Levels 1 and 3 or higher; while it is found that for Level 2-educated individuals the relationship is negative. Moreover, the magnitude of impact increases between Levels 1 and 3 or higher, as for individuals characterized by higher income, the pub is a stronger outlet for positive externalities expressed by the community cohesion index. Finally, considering employment status, it is found that there is a moderate effect on the relationship observed between pubs and community cohesion, accounting for 93.5% of the total indirect effect. Not surprisingly, it can be seen that those in active employment are the largest contributor to the relationship (0.073), with those inactive second (0.013), and unemployed last (0.011). The implications of these results are discussed in the following section.

DISCUSSION

The analysis conducted in the previous section and the findings generated in this study provide more clarity to the functional relationship between pubs and levels of community cohesion. Overall, the results identify the positive impacts of pubs in promoting social engagement and involvement among residents living in rural parishes of Northern England.

This study reveals some key insights regarding the physical role of pubs as incubators and facilitators of community cohesion from the perspective of individual components. Results obtained in Model 1 suggest that pubs tend to have a major impact on leisure activities within the parish, which include the presence of sporting events (such as cricket, football and rugby matches), youth activities (Beavers and Brownies), and elderly activities (retired club). It is also found that there is a high degree of complementarity between pubs and

Table 3. Results of structural equation modelling mediation analysis

Direct effects			Indirect effects						
Dependent effects			Mediator effects						
Dependent	Coefficient	p-value	Mediator	Coefficient	p-value	Mediator	Coefficient	p-value	
Level 1 (COMCOH)	0.028 (0.002)	0.850	No. Pubs (Level 1)	0.329*** (4.015)	0.000	Level 1	0.009	n.a.	
Level 2 (COMCOH)	-0.087 (0.0060)	0.566	No. Pubs (Level 2)	0.322*** (1.523)	0.000	Level 2	-0.028	n.a.	
Level 3–5 (COMCOH)	0.086 (0.0024)	0.393	No. Pubs (Level 3–5)	0.300*** (2.162)	0.000	Level 3,4,5	0.026	n.a.	
Employed (COMCOH)	0.237* (0.002)	0.097	No. Pubs (Employed)	0.308*** (4.701)	0.000	Employed	0.073	n.a.	
Unemployed (COMCOH)	0.038 (0.022)	0.600	No. Pubs (Unemployed)	0.290*** (0.207)	0.000	Unemployed	0.011	n.a.	
Inactive (COMCOH)	0.043 (0.003)	0.709	No. Pubs (Inactive)	0.310*** (2.505)	0.000	Inactive	0.013	n.a.	
No. Pubs (COMCOH)	0.452*** (0.055)	0.000					0.104*** (0.0254)	0.000	
<i>Total effects</i>									
No. Pubs (COMCOH)								0.557*** (0.054)	0.000

Note: ***Significant at < 0.01; **< 0.05; and *< 0.1. Standardized estimates were based on a maximum likelihood procedure. Standard errors are reported in parentheses.

communication and food facilities components of the index, which suggests that pubs are critical for sustaining rural communities' ecosystems in Northern England.

This potential association can be examined in light of two important factors that have occurred in England over the past ten years. Firstly, there has been a gradual disappearance of services and amenities from rural areas (COUNTRYSIDE AGENCY, 2003; ROSE Regeneration, 2011) associated with the progressive decline of agricultural work as the main economic driver (RURAL SERVICE NETWORK, 2010). In addition, rural areas have been hit by a tough reorganization of public sector services, aggravated by the more recent financial crisis, which has favoured more populated centres with regard to the allocation of resources (CRC, 2010). The combination of these factors has resulted in the closure of many services available in rural areas, pushing businesses towards more urbanized locations.

Secondly, the SEM analysis demonstrated that pubs exercise a positive impact on rural communities regardless of their size or the residents' level of income and employment status. These findings corroborate evidence presented in previous studies conducted on rural pubs in England (CABRAS and REGGIANI, 2010; CABRAS *et al.*, 2012; MARKHAM, 2014). However, while these studies prove a positive association between the presence of pubs and levels of community cohesion and social well-being in the English countryside, they do not verify whether this association was maintained in terms of critical mass. Building on this, this study identifies a directional pattern that appears to specify the cause-effect relationship pubs have on

levels of community cohesion, verifying its strength when controlling for population size and employment.

Thirdly, considering the different types of communities analysed in this study, characterized by different income distributions, the pubs' impact in driving community cohesion for different classes of people is examined. The analysis suggests that in more affluent communities, the relationship between the number of pubs and higher levels of community cohesion is even stronger. Higher levels of disposable income can justify the presence of more pubs serving these communities, usually characterized by a larger number of commuters, who may be keen to use local facilities and amenities more frequently (THOMPSON and ATTERTON, 2010).

Indeed, this outcome can be analysed in light of the new trend to relocate to the countryside, which has constantly increased in recent years. According to the COMMISSION FOR RURAL COMMUNITIES (CRC, 2010), the net migration from urban to rural areas in England during 2009 was 92 000 people. This figure reveals a renewed interest for living in rural areas. However, 'only if people in rural communities have ready access to local schools, local jobs, local shops and pubs, and homes which are affordable, will they and their children thrive, and will the nation meet its environmental and economic needs' (p. 28). Yet, there are a declining number of services available in these areas to accommodate increases in population, which also has a direct impact on the local supply chain, hindering firms and enterprises that were dependent on those services for their business. Thus, to ensure that the quality of life of rural residents is maintained,

there is a distinct need to promote factors associated with community cohesion and social integration (THOMPSON and ATTERTON, 2010).

Lastly, government and policymakers can play an important role with regards to halting the decline of pubs in Northern England and in the rest of the country. The Localism Act introduced by the UK Parliament in 2011 increases the level of control for local authorities and parish councils on matters that arise within local communities, including decisions related to community assets and services. In particular, community groups are given priority with regards to services and assets of community value, such as pubs, village shops, libraries and post offices, and can help protect them from closure. These places can be identified by community groups to local authorities, which are then required to insert them on a protected list. When listed assets come up for sale or change of ownership, community groups are given enough time to raise funds to bid and buy the asset when it comes on the open market (UK PARLIAMENT, 2011). This can help villagers and local communities rescue more pubs from closure. The findings from this study provide an opportunity for policymakers and local administrators to evaluate current rural policies and actions in order to support better the development and maintenance of local communities.

It is evident from this study that there is a distinct need to protect and preserve the positive effects related to pubs operating in rural England. The closure of rural pubs is indeed an economic, as well as business, failure simply because these businesses are failing to attract enough custom in order to survive. In a market dominated by pubcos that control more than 55% of the pubs operating in the UK (BBPA, 2010), urban and town areas guarantee pubs higher profits given the critical mass in terms of custom. Hence, there is little surprise that pubs struggle to survive in rural areas. However, the economic perspective remains myopic to the positive impacts rural pubs have in the villages they serve. The new insights generated in this study suggest that the decline of pubs does not only relate to business closures, but has a much wider impact on the local ecosystem.

A potential criticism of this study is the level of indulgence afforded to pubs. Pubs are part of a wider social ecosystem that comprises a plethora of underlying mechanisms of which the study does not account for. As such, the findings presented should be interpreted with caution due to the inherent complexity of the relationship between pubs and proxies of community cohesion studied. Furthermore, while it is acknowledged here that the presence of pubs may also be related to negative externalities, such as antisocial behaviour and alcohol-related crime, such happenings are not accounted for here. Due to the paucity at a parish level and the spatial remoteness of the areas studied, it was not possible to include data related to crime and health in the analysis.

A recent report from the INSTITUTE FOR PUBLIC POLICY RESEARCH (IPPR), however, indicates that the majority of alcohol-related crime in the UK was attributed to urban localities, where there is a higher concentration of on- and off-licence premises in relation to the population (IPPR, 2012). Similar findings are confirmed by the most recent VINTNERS FEDERATION OF IRELAND (VFI) (2014) report conducted on rural pubs in Ireland, which indicates these places and publicans as 'sentinels' of the community, with an active role in relation to preventing and isolating antisocial behaviours occurring in the village. The VFI report also praises the role of rural pubs in fostering social drinking, providing a safer and more controlled place for the consumption of alcoholic drinks and representing an alternative to private/home drinking, whose associated problems often go unreported. Hitherto, the analysis suggest that pubs play a pivotal role in keeping the community together, corroborating evidence about their presence as a significant component for healthy rural communities.

CONCLUSIONS

The study presented in this paper has investigated the role of pubs in facilitating community cohesion and interaction in rural areas of Northern England, which comprises the majority of the English population living in significant and predominantly rural areas. Findings generated from the analysis identified a positive impact exercised by pubs on the levels of social engagement within rural parishes. The SEM analysis proposed not only corroborates evidence from previous studies, but also provides evidence of a possible cause-effect relationship between the presence of pubs and higher levels of community cohesion in the rural parishes examined. Moreover, the results confirm that this relationship is maintained regardless of size or economic context.

These results are extremely important: while many sources appear to describe the decline of pubs as catastrophic for the resilience of rural communities (APPBG, 2008; MAYO and ROSS, 2009; CRC, 2010), there is very little empirical evidence with regards to how and to what extent the disappearance of village pubs affects individuals, damages the level of social engagement and hinders the formation of social capital. The analyses conducted in this study represents a significant contribution to the field and may stimulate research on themes and issues regarding community cohesion in the most rural and remote communities of England.

Therefore, findings from this study provide an important opportunity for policymakers and local administrators to evaluate policies and actions in support of their communities. In the current economic climate and with the market structure in which pubs

now operate, e.g. dominated by large conglomerate organizations and pubcos rather than independent free-houses, the role of pubs fostering and facilitating relationships among residents and increasing community cohesion in rural parishes should be preserved.

There are a number of possible solutions that could halt the decline of rural pubs. The relatively recent rise of cooperative-owned or community-run pubs, documented by several sources (MAYO and ROSS, 2009; CABRAS, 2011; IPPR, 2012) is an example. Locals form a cooperative by raising the money to buy their pub, which is usually leased out to a local manager afterwards. The same locals then become shareholders and customers at the same time, creating a virtuous circle that provides a sustainable pattern of growth for the local community. This trend started out in rural areas of Northern England, with the first cooperative-owned pub opening in Cumbria in 2002 (MAYO and ROSS, 2009). However, cooperative pubs are now beginning to appear in town centres (AITCHISON, 2012) too, thereby supporting the idea that pubs work as centres for community aggregation.

Another solution could be a policy intervention in the pub sector. While focusing on the relationship between pubs and community cohesion in the rural context, this study could not investigate if and how the changes in the pub sector (i.e. ownership structures and the rise of pubcos) had any effect on this relationship. This was mainly due to the severe paucity of data used, magnified by the high level of turnover occurring in the market, which is often unreported. However, targeting those rural pubs operating as managed/tenanted premises and working together with their respective owners could generate more

community-oriented strategies, with positive externalities for the communities and a system of incentives that could eventually compensate pubcos from possible profit losses.

Future research directions

Future research should focus on examining different ownership structures of pubs and their relationship on community dynamics, i.e. the role of independent free houses compared with those administered by large pubcos. More investigations on this aspect may also corroborate evidence related to the presence of a cause-effect relationship between pubs and community cohesion, providing further exogenous shock that can be considered in an extended econometric analysis. Furthermore, given the difficulties related to finding relevant instrumental variables to treat endogeneity convincingly and to proving cause-effect relationships, a more nuanced approach that tries further to unravel and test the complexities of the relationship would help one better understand the impact of pubs on rural communities. The authors believe a particularly fruitful area would be a longitudinal study to see if or how dynamics of the relationship have changed.

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