Economic linkages between urban and rural regions - What's in it for the rural?

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Abstract

Urban-rural interdependences are modelled based on wages, cost of living and inter-regional migration and commuting. Rural-to-urban commuting generates a scenario where the relative level of urban wages can continue to outperform rural wages without residential migration and increased costs of living acting as equilibrating forces.
The spread of urban workers could be detrimental for rural regions without clear mechanisms for their human and financial capital to penetrate local economies. Therefore, "What's in it for the rural?" depends upon the ability of rural regions to capture the value attached to highly mobile, skilled workers choosing to live in the rural region.

Keywords: Rural Development; Rural Economies; Regional labour markets; Commuting; Agglomeration; Spread effects

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Introduction

Following the recent re-ignition of the 'balanced versus un-balanced growth' debate (Martin *et al.,* 2015) where the persistence of regional economic disparities have been highlighted (see also Turok, 2007), this paper considers the experience of rural regions whose economic fortunes tend to be overshadowed by urban regions. To do this, we re-analyse a conceptual model of two competing regions, initially developed by Overman *et al.* (2010). Trickle-down and spread effects are not new concepts (Hirschman, 1958; Myrdal 1957) but Martin *et al*'s evidence of regional divergence, specifically between the North and South of England, leads us to examine the potential for economic development in rural regions too. While drawing this dichotomy, and in keeping with New Economic Geography (NEG), it is recognised that urban and rural economies are increasingly interdependent (Lichter and Brown, 2011) and that they are increasingly seen as complementary parts of a larger economic entity (Cabus and Vanhaverbeke, 2003).

The complex relationships between rural and urban regions are not easily explained by traditional economic models. Increasingly, residential location and lifestyle choices are separated from the spatial limitations of economic employment choices. This makes Overman *et al*'s integration of a cost of living dimension into their two-region model a very welcome contribution. Their assumption that this is heavily dependent on housing costs is reasonable, especially considering that there is a trade-off between house prices and other spatially varying costs such as amenities and travel costs. However, with asymmetric urban and rural regions, as opposed to Overman *et al*'s homogenous regions N and S, evidence implies that

housing-based cost of living becomes less elastic with respect to the size of the local workforce due to the disconnect between local wages and the desirability of that locality/region as a place to live.

Economic linkages between regions take the shape of goods and factor mobility. Goods mobility takes the form of trade. If goods are effectively untradable, the choice of location of residence becomes fundamental in the opportunity to consume these goods (Helpman, 1998). Factor mobility takes the shape of capital and worker mobility. Workers migrate and / or commute between regions in response to, among others, wage signals, commuting costs and regional heterogeneity in terms of untradables or amenities. Even though existing literature has demonstrated the incidence and effects of these linkages, less is known about the mechanisms that can truly capture value within the economies of the regions concerned.

Migration and commuting should moderate differences in regional economic performance and unemployment, but these adjustment mechanisms are more complex than the theoretical constructs might lead us to assume (Turok, 2007). Furthermore, when considering the benefits for a rural region, a binary rural-urban divide is a "fundamental oversimplification" (Partridge *et al*., 2007, p.128), as their different functions do not produce a fixed barrier delineating the urban and the rural (Veneri and Ruiz, 2016, Partridge *et al.,* 2007). Of particular relevance for rural development are the distance to a nearby urban core, the relationship of a rural region to the functional area of the urban core and the extent to which the rural region offers the potential for high rates of commuting (Henry *et al.*, 1997, Gray, 2014).

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Therefore, the primary aim of this paper is to explore these regional interdependencies, by developing the Overman *et al.* (2010) model towards an interdependent urban-rural scenario, to assess the impact of commuting opportunities on urban and rural wages and cost of living. The paper is premised on the view that while increasing returns to scale and resultant rising wages will attract workers to core regions, once commuting is permitted the place of residence may not switch if the peripheral region offers higher amenity values and acceptable commuting costs. Although focusing on the rural, the paper also reiterates earlier observations that commuting has the potential of furthering opportunities for urban productivity growth (Banerjee and Jenesko, 2015, Monte *et al.,* 2015).

In developing the model in this way, we are principally concerned with the implications for rural and peripheral regions but, as Monte *et al*. (2015) have observed, there is undoubtedly wider potential for incorporating commuting more effectively into regional economic models in the future. Overall, the need to understand more about the economic performance of the commutable rural is particularly pertinent. The second aim is also to identify the mechanisms through which the commutable rural may capture urban capital. After illustrating our model's main outcomes using UK district level data, we continue by investigating ways in which the rural might capture some of the value.

Analytical Framework

To consider the impact of growth in an urban region for an adjoining rural region, this paper applies a conceptual model of two competing regions (See Figure 1), initially developed by Overman *et al.* (2010). Arguably this work has been somewhat neglected in subsequent publications but there is significant potential in tailoring this approach towards different

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regional analyses. In their model commuting was assumed not to take place between the two regions under analysis and no urban or rural presumption was made.

In this model, positive returns to scale are assumed such that a larger labour force in one region is assumed to fuel an increase in the real wage in that region. This generates the EE relationship in Figures 1 and 2 where an increase in the Urban:Rural wage ration (Wu/Wr) sees an increase in the urban share of the labour market (λ). Turning to the bottom right quadrant, the relationship between the size of the labour market (λ) and the cost of living (H) is also modelled, with the assumption that the cost of living acts as an equilibrating force. Faced with scenarios where the rural cost of living is increasingly unrelated to rural wage rates (see Table 1 ahead), the ambition of this paper is to apply Overman's model to understanding a two-region urban-rural model, where commuting and uneven amenities are present.

INSERT FIGURE 1 NEAR HERE

INSERT FIGURE 2 NEAR HERE

Overman *et al*. (2010) assumed that the cost of living (based predominantly on housing costs, next to intra-regional commuting and prices of local goods) will, on balance, be higher in the region with the larger share of labour. They represented this with the positive HH relationship shown in the bottom right quadrant in Figure 1. Similar to Monte *et al.* (2015), as the urban labour market grows, agglomeration effects see productivity, and thus wages, rising but demand for urban houses need not escalate to the same degree if workers can commute from rural areas. Moreover, demand from such interregional urban-rural commuters will, ceteris

paribus, push up the price of houses in the rural region. Along with lower intra-regional commuting costs in the urban due to lower levels of congestion, the ratio H_U/H_R does not increase as much once the effects of urban-rural commuting are factored in. It can therefore be argued that the cost of living relationship should be represented with the less elastic curve HH_2 (Figure 2).

Combining these two relationships in the top right quadrant, a number of possible points can be traced out along the ZZ curve. The assumption underlying Overman *et al*'s original model (Figure 1) is that migration will occur to ensure that an equilibrium position will exist where ZZ intersects with the 45˚ line (M) such that there is a balance between the real wage and cost of living. However, the revised HH_2 relationship (Figure 2) generates a ZZ curve that diverges from M, moving into the sector of the graph where the relative wage in the urban region is greater than the relative cost of living in the urban region. As in Overman *et al*'s model, the ZZ curve traces the combinations of relative wages and relative living costs consistent with the division of labour between regions. Unlike in Overman *et al*'s models, however, this schedule is moving away from M (the 45° line where wage ratios are equal to cost of living ratios) into the sector of the graph where the relative wage is consistently greater than the relative cost of living. This implies an unstable equilibrium. It is therefore necessary to elaborate on some possible scenarios in which this situation might exist for longer periods.

Firstly, the elasticities of wages and cost of living with respect to employment are key parameters in this model. Overman *et al*. (2010, p 21) infer that these elasticities in both regions should be more or less the same around symmetric equilibrium. The slope of ZZ

depends on whether returns to scale on the labour market occur, assuming a positive elasticity of cost of living to employment. In the case of the urban-rural setting, the slope of ZZ is determined first and foremost by the positive returns to scale on the labour market, which are now less inhibited by the pressures induced on the housing market.

Secondly, Overman *et al.* explicitly assume symmetric regions, which implies equalized amenity values, productivity parameters and housing market flexibility. In what follows we set out the implications of the urban-rural context that make these assumptions rather more unlikely. Here it is noted that whereas relative wage levels and housing costs suggest an incentive to migrate, this need not be the case when factoring in varying amenity values across regions. Heterogeneous preferences for residential amenities may result in a stable equilibrium off the implied 45° line MM.

There is a weight of evidence to suggest commuting is occurring over larger distances, fuelling the economies of urban regions (Champion *et al.,* 2009; Axisa *et al*., 2012; Ozkul, 2014). Moreover, as labour markets become increasingly complex and technological advances allow people to live more remotely from workplaces, the economies of rural regions cannot be understood in isolation (Coombes and Champion, 2011). The key mechanism that links regions in the model introduced by Overman *et al.* (2010) is migration which serves to equalize amenity-adjusted relative wages with relative housing costs throughout the economy, hence negating the need for further migration. We adapt the Overman *et al*. (2010) framework to pertain to the urban-rural setting, adding interregional commuting to migration among the main economic linkages. In what follows we elaborate on the key assumptions and their implications.

Characterising Rural Economies

Gruber and Soci (2010) described how regional growth models focus more heavily on urban centres as sites of cumulative causation with the periphery having a subservient role of supplying the core region with agricultural and other primary products. The periphery has been conceptualised as a place dominated by constant returns to scale where only immobile resources are employed – the assumption being that mobile resources move to the more productive and profitable core regions where increasing returns to scale are more powerful. This results in the relative disempowerment of peripheral regions in terms of their economic development trajectories. However, as the share of labour employed in agriculture has declined, rural areas have experienced a concurrent expansion in a diverse range of microbusinesses (Woods, 2005; CRC, 2008).

Recent OECD data identifies that compared to urban regions, rural regions in Western Europe have been experiencing faster rates of population and productivity growth since 2002 (McCann *et al.*, 2014). The UK and other developed nations have moved to a rural economy that is driven by consumption – and those consumption demands are associated with a largely urban society (Slee, 2005; Woods, 2005). As a result, "Rural goods and services are directed toward and consumed disproportionately by people with strong ties to urban and big city populations" (Lichter and Brown, 2011, p.574). Thus, there are clearly prospects for rural regions to grow based on demand fuelled by urban growth but further questions emerge concerning the labour market impacts of these firms. While counterurbanisation continues to fuel increases in rural populations, the numbers of jobs within rural regions has not been keeping pace (CRC, 2007; Bosworth, 2010).

In their Canadian research, Partridge *et al*. (2007) concluded that the countryside has a major stake in urban growth and that mutual interest suggests that economic growth takes place in broader regions that benefit from the critical mass needed to generate wide-scale growth. This supports views that rural-urban interactions are increasingly symmetrical rather than asymmetrical, with mutual interdependencies and reciprocal flows of people, goods and services, and information (Lichter and Brown, 2011). However, for more remote rural regions, alternative sources of growth are also needed to overcome the dominance of backwash effects (Partridge *et al*., 2007). For these regions, the out-migration of younger people (Stockdale, 2004) and the level of rural service provision (Malecki, 2003) remain significant concerns for economic development.

Approaches to rural development that are based on local resources and "immobile" forms of capital (Terluin, 2003) are considered to offer the potential for more endogenous development trajectories that are less dictated by urban regions (Lowe *et al.*, 1998). While information, goods and services, skilled labour and capital are increasingly mobile, other resources, including social capital, cultural capital and environmental capital, are recognised as being immobile and intrinsically spatial (Terluin 2003). These attributes make the periphery increasingly dynamic and diverse but the mobility of rural labour markets demands greater understanding of commuting patterns and housing costs within any core-periphery model that attempts to explain the economic processes occurring in rural areas.

An urban-rural geography

The presentation in Overman *et al.* (2010) is essentially place neutral. These forms of 2-region models allow valuable analysis of labour mobility effects relating to agglomeration which would not be possible with asymmetrical geographical structures (Bosker *et al.,*2010). However, the focus on migration as the main linkage and the assumption of equality of amenities between regions in the Overman *et al.* model seem to suggest that the authors have the level of larger, relatively uniform, macro regions in mind. This has two important implications, when shifting the analysis to an urban-rural setting.

Firstly, it is necessary to consider regional spatial scale and its effect on key model assumptions and parameters. It has been argued elsewhere (Brakman *et al.*, 2009, Combes *et al.*, 2005) that a key difference between Krugman's New Economic Geography (NEG) and the field of Urban Economics is scale. The NEG analysis of spatial units is concerned mostly with relations between these units, for example through trade or factor mobility. However, intra-city spillovers as captured by Urban Economics become a stronger focus as we move down the spatial hierarchy to the analysis of individual cities or regions, characterized as smaller, rather solitary units with fixed land supply. Here linkages to other places are featured less prominently. These two approaches need not be contradictory (Brakman *et al.*, 2009), but both the relative importance as well as the nature of interregional linkages may very well be related to the scale at which one seeks to theorize their role. One could also argue that, as the size of the unit under study increases, linkages to places elsewhere become less important compared to the size and scope of activities contained in the area under study. A substantial share of the population in a large spatial unit may also be assumed to work there, even though commuting may be happening within the spatial unit. Conversely, for smaller areas, there is more "foreign" to contend with, more dependencies on resources outside the unit. From this,

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we conclude that with decreasing spatial scale, the distinction between work and residential locations becomes more and more relevant.

A second implication of re-focussing the model on urban-rural linkages concerns the role of regional heterogeneity. Overman *et al.* (2010) assume that the regions involved have the same amenity scores, productivity and housing market shift parameters. All in all, the Overman *et al*. (2010) analysis can be thought of as being concerned with two very similar regions, which, if regions are thought of as sizeable, countries even, is not a very heroic assumption to make. Again, with increasing scale, more activities can be thought of as captured within the unit. As more activities are covered with size, it is likely that two large regions will be relatively similar. When considering the urban-rural case it is likely that the regions involved differ at least in some of these dimensions. The scale issue aside, as smaller regions cannot supply everything, the two regions in the model as elaborated in this paper are heterogeneous by construction along the urban-rural dimension. Furthermore, the very existence of both urban and rural regions suggests heterogeneity in worker/inhabitant characteristics and preferences. For example, spatial sorting on the basis of skills is being thought to spur urban growth (McCann, 2013).

All of this implies that we relax the Overman *et al* (2010) assumption of symmetric regions in our urban-rural setting. In what follows, we discuss what this implies for production and consumption, as this pertains in particular to the amenity values.

Production in the urban rural setting

Overman *et al* (2010) set two main scenarios for the relationship between labour supply and wages. In the "competing" scenario, one region is endowed relatively strongly with sectors that exhibit economies of scale and agglomeration benefits. This leads to a scenario where the elasticity between the relative share of workers in a region and the local wage level relative to the other region is positive: the productivity effect of the addition of extra workers dominates the supply effect. Alternatively, in the "complementary" scenario labour market migration to a higher-wage region is assumed to result in the real wage equilibrating more quickly due to the supply effect dominating. For the Urban-Rural regional comparison, there is an implicit assumption that agglomeration economies apply to the urban region (McCann, 2013), and hence that labour demand and productivity structures differ vastly between the urban and the rural. For our purposes however it suffices to say that these agglomeration benefits accrue to the urban relatively more than to the rural. This does not exclude the possibility of the development of non-constant return to scale businesses in the rural. However, overall the Overman *et al* (2010) "competing" model is more appropriate.

Commuting and cost of living in an urban-rural setting

The introduction of interregional commuting implies a conceptual difference between *local labour force* and *local population*. The local urban labour force consists of urban residents who are employed locally and those that commute towards the urban labour market. A rural resident can now decide to either migrate to the city, or to engage in interregional commuting whilst continuing to reside in the rural. In this paragraph we outline the implications this has for our modifications of the Overman model. Firstly, we discuss the implications for the composition and shape of the cost of living schedule. In particular, we will note that consumer spending could have a rather more vital role. Secondly, we elaborate on the decision to

engage in either migration and/or interregional commuting. Third, we present empirical support for the implications for relative urban-rural housing cost.

The cost of living schedule in Overman et al. original model was conceptualized as to include predominantly the cost of housing, but also the cost of intra-regional commuting and the cost of consumption of local goods and services. The cost of housing, as well as the cost of intra regional commuting is thought to exhibit a positive elasticity with respect to the workforce size. As the workforce increases, this serves to also increase pressure on the local housing market and the local transport system. With respect to the cost of local goods, this is not necessarily the case. Overman *et al* (2010) note that, in NEG thinking, with an increase of scale through either variety or economies of scale, the elasticity between the cost of local consumption and the size of the workforce may well be negative., On balance, as pointed out before, the elasticity for the total cost of living schedule remains positive due to commuting and housing costs being more important, but this negative elasticity for the cost of local consumption is a potentially important and dampening force in the overall schedule.

When interregional commuting is introduced, labour and residents become conceptually separate. This implies that urban regions with an increasing workforce may not experience such a large increase in market thickness and the associated decline in the cost of local consumption. Following this line of theory, rural areas could find that an increase in the number of residents fuelled by interregional commuting may lead to decreases in the cost of consumption of some local goods, as more and more existing and new rural functions start to experience economies of scale. A central question then becomes to what extent spending is bound to location of residence, or whether this in itself is mobile as well. On the one hand, an

increase in the number of residents in the rural should lead to higher rural spending, but, likewise, if this concerns previously urban residents (counterurbanisers), it may well be that their spending patterns may not entirely follow their residential choices. Interregional commuters retain the relatively cheap option of consumption and work in the urban and residence in the rural, as their transport costs have already been incurred. We return to this central issue later in the paper, when we ask to what extent the rural might be capable of capturing more of this spending.

We turn now to the decision to either reside where you work, or to engage in interregional commuting. In the literature, the location problem of economic agents or households is often approached as one where the location which provides the highest level of utility is attained is selected. Utility in such approaches is the result of a trade off between the consumption of local goods, including non-tradable commodities such as housing services or amenities, and the costs associated with housing and commuting, both within and between regions. This commuting cost is for example modelled as a pure distance or time-spent measure, or conceived in terms of an iceberg cost (Monte *et al*., 2015, Ahlfeldt *et al.*, 2015). In a multi-region setting, with workers experiencing idiosyncratic amenity shocks, commuting patterns are heterogeneous as well which warrants incorporation in individual utility functions. Alternatively, commuting costs are sometimes viewed as an integral part of the cost of residing in a certain area (Combes *et al.*, 2005). In other words, the housing cost is thought to internalize the cost that needs to be incurred to reach the nearest urban labour market, as well as any cost associated with congestion or within-city commuting costs. As such, some authors have treated commuting as the result of employment and residential location decisions (Van Ommeren *et al.,* 1999).

In our two-region setting, all rural-urban commuters can be thought of as incurring the same cost. On top of that, there is the cost of intra-urban commuting incurred by all workers who reside and work in the urban. Similar to Ahlfeldt *et al.* (2015), we can think of both types of commuting costs increasing with the relative size of the workforce in the urban, due to congestion. For our purposes it does not matter whether we think of commuting costs as integral part of individual utility functions or as integrated in rural / urban housing cost: an increase (decrease) in commuting cost will, ceteris paribus, lead to a lower (higher) demand for rural housing, and, in turn to lower (higher) prices of rural housing. We note here also that this may lead to selective counterurbanisation: only those that can afford the combined cost of interregional commuting as well as the rural housing cost may consider engaging in a move to the rural. These individuals' choices are likely to consider rural housing as a positional good and place a higher amenity value on non-tradable features of rural living.

In adapting the Overman et al (2010) framework, we propose that the combined effects of rural-urban commuting dampen the upward pressure on urban cost of living while inflating rural cost of living, predominantly as a result of the effects on housing cost. The development in cost of local consumption may dampen this up to an extent, but we return to this issue later. Therefore, taking the degree of housing market flexibility, or land use planning restrictions, as fixed, even though H_u will increase as W_u increases, so too will H_r increase. Thus the elasticity of the ratio H_U/H_R relative to the proportion of the labour force in U (L_U/L_R) will be lower than in the case with only migration. This assumption is supported by evidence that traditional rural workers are being priced out of their communities as a result of the amenity values attributed to them (Gallent, 2007, Cloke and Milbourne, 2006; Gallent and

Robinson, 2011) and by data on housing affordability shown in Table 1. Our modifications to Overman et al. models imply that in an urban-rural setting, $W_U/W_R > H_U/H_R$ could hold consistently under commuting. Rearranging this generates the expression $H_R/W_R > H_U/W_U$. As demonstrated in Table 1 this appears to hold from Other Urban and onwards down the urban hierarchy. The global city example of London is a particular exception influencing the "major urban" category as housing affordability is a significant issue here too but when considering contiguous urban and rural regions elsewhere in the UK, housing is relatively more affordable in urban districts.

INSERT TABLE 1 NEAR HERE

Therefore, from the perspective of the urban worker commuting from a rural region, reduced pressure on urban house prices and increased pressure on rural house prices enable the urban labour market to continue to outperform that of the rural region. Relative urban housing cost is less elastic to employment as a result. One could argue that this partly explains the "London effect" where global cities can continue to expand and increase their dominance of national economies because the higher costs of living in the rural hinterland, relative to the wages, reduce labour market-based incentives for decentralisation. Arguably, the regeneration and gentrification of other city centres and subsequent demand for city-living, particularly among the "creative class" (Florida, 2002) of young professional groups, provides a contradictory trend. However, when assessing the relative cost of living between urban and rural regions, this is insufficient to redress the imbalances shown in Table 1. Indeed, the strength of urban labour markets fuelled by commuting and subsequent congestion problems, alongside the

rising costs of housing in commutable rural areas, could all be viewed as catalysts for urban regeneration.

Commuting enables workers to tap into highly productive agglomerated labour markets while enjoying the consumption of non-tradable features of other (non-)agglomerated locales. In re-conceiving the diagrammatic framework above, it has been assumed that the commuting effect reduces the elasticity of house prices in relation to intra-regional wages, on the premise that rural regions offer more desirable residential locations. Furthermore, as Monte *et al.* (2015) point out, non-prohibitive barriers to commuting enable regions to respond to shocks more favourably. In addition it could be stressed that not all commuter consumption need take place in the residential location: non-tradable goods close to the employment location (restaurants, for example) may capture part of the expenditure and may even serve to support the commute in the first place (after-work shopping, other urban services).

Implications and equilibrium

One of the values of Overman *et al*'s original model was that it allowed analysis of the forces that would return the two-region system back to equilibrium. However, taking the evidence above to indicate that the cost of living in a rural region might still increase even though rural wages are in comparative decline, it is possible to conceive of an outcome which does not tend back to equilibrium. Incorporating commuting between urban and rural regions in Figure 2, results in a conceptual separation of population and the labour force, which were assumed equal by Overman *et al.* In a world with commuting, this need no longer be the case. Here, λ is specifically defined as the share of workers active in Region U relative to the number active in the rural region. The share of population in urban regions (P_U/P_R) is not made explicit,

but acts in the background as the difference between P_U/P_R and L_U/L_R and signals the incidence of commuting.

This heterogeneity between regions combined with the commuting effects, leads to a situation where the introduction of a productivity increase for one region has a greater impact. The potential for urban wages to outperform rural wages without the control mechanism of migration and cost of living effects indicates that the rural region will endure a more disadvantageous position relative to the urban. As the urban wage rate increases, the ZZ schedules moves further away from equilibrium. Once again adapting Overman *et al.* (2010), this is illustrated in Figure 4 where a productivity shock in the urban region accentuates the disparity, with minimal corrective forces derived through the cost of living effect. This contrasts to the original model where a positive productivity shock in a growing region sees increased wages equilibrated by increases in the cost of living in that region (Figure 3).

INSERT FIGURE 3 NEAR HERE

INSERT FIGURE 4 NEAR HERE

Figure 4 suggests pessimistic conclusions for the rural, where rural house price inflation combined with growing urban wages widens the gap in economic performance between the two regions. Overman *et al*. (2010) do discuss a scenario where the positive returns to scale on the labour market initially outweigh the positive elasticity of housing costs with respect to labour. However, this "divergent" case is still developed with the assumption that inter-

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regional commuting is not taking place and thus they assume that cost of living constraints will still eventually have an impact. Instead, this paper recognises commuting as a key variable with implications for both the relative cost of living and labour migration between regions raises significant questions about the prospects of rural regions in the shadow of urban productivity growth. To understand how the economy of the rural region might experience trickle-down benefits, more behavioural understanding of rural populations and firms is needed.

What is in it for the Rural?

Earlier research has shown that in many developed economies, residential preferences for rural areas have generated significant rates of counterurbanisation (Champion, 1989; Woods, 2005; Halfacree, 2008; De Groot *et al.,* 2012) sometimes linked to new business creation through commercial counterurbanisation trends too (Bosworth 2010; Mitchell and Madden 2014). Furthermore, the convenience of rural locations for dual career families (Green *et al*., 1999) adds to demands for rural living.

The extension of commuting trends in the UK is continuing (ONS 2014), despite simultaneous increases in home-working which is arguably still an example of rural dwellers employing their labour in urban regions (Newbery and Bosworth 2015). As counterurbanisation continues, Champion *et al*. (2009) have also indicated that the predilection of in-migrants towards rural regions and commuting further will continue to fuel this trend. While the UK has seen the most consistent patterns of counterurbanisation, cyclical counter-urban trends have also been established in the US, and in each case, the growth of rural populations is largely due to migration and not natural change (Champion and Brown, 2012). These trends are connected

to multi-earner households, complex commuting patterns and more IT-enabled working, all of which facilitate more rural residents to engage in urban labour markets (Coombes and Champion, 2011). Interestingly, Coombes and Champion (2011) also note that the greater dispersal of labour markets, exacerbated by increasingly diverse commuting patterns can have profound impacts upon both urban and rural regions. Where lower paid, industrial jobs are in more peripheral areas, inner-city residents cannot afford to commute the longer distances or migrate to the more expensive housing there. In parallel, they also suggest that gentrification of the "accessible" rural areas sees people commuting longer distances and increasing competition for jobs in the city without boosting the local labour market.

While our analysis indicates that commuting trends are benefiting urban regions, the title of this paper asks "what's in it for the rural?" which is a more complex question. Measures of rural populations where a significant proportion are engaged in an urban labour market will often produce indicators of high incomes, high education levels and high quality of life (ONS, 2011) but this can mask the realities of the region's economic performance and significant levels of hidden poverty (Milbourne, 2014). Starting from the perspective of workers in the rural region, a relative decline in productivity sees the rural wage decline in relation to the urban region. Overman *et al.* indicate that this should be equilibrated through a fall in the cost of living, largely influenced by house prices, but the argument here is that counterurbanisation and commuting negate this. For the worker in the rural region, growth in the urban region sees their cost of living increase while their relative wage falls. Therefore, it is imperative to explore alternative ways that the rural region might capture value from its position as a supplier of labour for urban markets.

Capturing forms of capital in the Rural Region

The outcome of this analysis is not intended to lead to the conclusion that commuting is bad for rural regions, rather to highlight the fact that the impacts need to be better understood. The general relationship between commuting and economic performance tends to be positive as more open and porous regions are more dynamic, with greater flows of knowledge and innovation facilitated by movements of people. Analysis of commuting into and out of all districts in England (Figure 5) illustrates that more "self-contained" districts tend to score lower on the UK Competitive Index (Huggins and Thompson, 2010), and this trend applies across both and urban and rural district types. With smaller districts, the R^2 value is relatively small but if we look at the 8 larger regions of England (excluding London), the relationships indicates that more "contained" regions have a lower level of GVA with an R^2 value of 0.45.

INSERT FIGURE 5 NEAR HERE

On the basis that restricting commuting is not the answer, the question must focus on how the different forms of capital attached to mobile people can generate value for the region in which they live. The first of these is consumption demands that can generate new economic opportunities and support existing businesses in the rural region but this requires rural businesses to adapt to changing competition and demand patterns. New rural populations and their associated demands are connected to the amenity value of the rural area leading to the commodification of the countryside (Woods, 2005) and the development of new types of businesses in rural regions. This would entail that spending occurs in the rural more and more as well. As noted earlier, this would allow some existing and new rural functions to gradually incur economies of scale with lower cost to local rural consumption as a result, or, at the very

minimum, meet some subsistence level. The central question raised above concerned the extent to which these spending patterns would indeed occur, or whether instead commuters would retain at least part of their consumption in the urban.

This depends upon two mechanisms that both hinge on the degree of commuter integration in their rural communities. Firstly, rural businesses are now, through their spatially mobile clientele, effectively competing with the urban suppliers of (spatially) supplementary and complementary goods. Capturing expenditure will depend on the ability of these rural businesses to either tailor services or supply adequate complements to what is available to the commuter in the urban, or, alternatively, valorise the distinctly rural qualities of their produce and factor in to the amenity value of rural life. This in turn could enable rural businesses to start exercising monopolistically competitive market power in their own right. This critically hinges on the second mechanism: the prevention of any urban-rural cultural divide or network immiscibility from obstructing the communication of commuters' demands to the rural businesses and the adjustment of these businesses to the realities of the new rural economy.

Drawing financial capital into the rural region through the conduit of commuters' new networks and social capital can benefit the rural region. However, these link to the urban economy and highlight the dependence on urban regions, so rural businesses need to adapt to new market opportunities and work out how best to employ capitals drawn from the rural region to maximise inter-regional market opportunities. Concerns have been raised that "Working age in-movers who commute long distances spend a significant time away from home, and it is likely that their community participation and local spending is diminished as

well" (Champion *et al*., 2009: 1258). Additionally, a lot of the wealth is invested in their housing stock with gentrification creating further cost of living increases for the rural region and adding to the divide between commuters and those reliant on local rural wages (Phillips, 2007).

It is possible to argue that this penetration of urban norms marginalises rural social capital and emphasises the dominance of urban economies. Taking Bourdieu's logic that social capital can have exclusionary effects towards those outside of the dominant networks (Field, 2003), the recognition and value attached to traditional rural skills and rural attitudes can fall outside of the dominant socio-economic hegemony. The importance of connections to the urban region becomes the guiding principles for infrastructure investments that once again reinforce the importance of the urban region as the economic driver. This discussion illustrates that growth in the rural region is dependent upon how its economy is oriented towards the urban region. As Turok (2007) observed, theoretical adjustment mechanisms do not operate outside of their unique contexts; instead, the economy of a rural region evolves according to an array of external relationships as well as its internal resources. This reinforces calls for rural development to be based on local immobile resources (Terluin, 2003) under the control over local actors (Ray, 2006).

In exploring urban-rural population growth linkages, Veneri and Ruiz (2016) concur that over-emphasising any rural-urban divide might be misleading but they suggest that governance responses should address the appropriateness of policies and investments at different spatial scales. Instead, the analysis here indicates that market forces can influence the necessary adjustments and that local entrepreneurship within rural regions can capitalise on new

economic opportunities associated with increased financial, human and social capital. This is, however, dependent upon commuters integrating into the economy of their place of residence, with either existing firms developing new products and services to meet commuters' demands, or commuters themselves spotting opportunities for new business activities that draw upon both rural place-based assets and more extensive personal networks and experiences.

Conclusions

More recently, the growth of connectivity through improved internet accessibility has increased the desirability of rural locations and reduced the costs associated with being outside of an urban region. Indeed, as rural economies are increasingly subsumed into global circuits of value (Hudson, 2011), driven by rapidly changing information technology and globalization trends (Lichter and Brown, 2011), rural regions are becoming increasingly integrated into wider economic processes. From a place-based perspective, this suggests that rural regions with high amenity values and positive connections to urban regions are well placed to benefit from the outflow of population away from congested urban regions. However, the nature of this 'benefit' depends upon the integration of the ex-urban commuter into the rural region.

Overman *et al*. (2010) argued that three relationships play a key role in determining the economic linkages between urban regions: the link between local employment and earnings; the link between local employment and the cost of living; and the migration response to differences in real wages between locations. The purpose was to provide a framework to consider how gains in one region spillover positively or negatively to other areas. Overman *et*

al. concluded that with a positive relationship between employment and earnings, based on agglomeration economies, regions are in a competitive relationship whereby "the process of adjustment to shocks tends to amplify the gains to one area" (Overman *et al*., 2010: 29). They also noted that commuting is a partial substitute for migration but went no further in the analysis of commuting within the framework.

Re-interpreting this framework to incorporate the effects of commuting and to consider heterogeneous urban and rural regions offers further insights into inter-regional economic linkages. Developing their conclusions, Overman *et al.* (2010) continue to explain that perfect mobility of labour would see migration flows responding to higher nominal earnings in one region but that this in turn would raise the cost of living offsetting the earnings differential. However, allowing for commuting from a rural region with higher amenity values into the higher wage urban region diminishes the cost of living effect. We illustrated this in a revised version of Overman *et al'*s framework with a less elastic *cost of living:wages* relationship. More research is required to test these patterns at different regional scales but they enable deeper consideration of the implications for urban and rural regions in this context.

For the urban region, greater inflows of labour and agglomeration economies are facilitated without the cost of living constraint proposed by Overman *et al*. This offers the scope for extended growth in the urban region but raises questions about how the benefits of growth might reach to the rural region. The new framework does not indicate that migration and real wage adjustments serve to rebalance any inter-regional equilibrium and we have hypothesises that residential migration out of a congested city region combined with commuting back from the rural to the urban region can be detrimental to the prospects of

the rural region's economy. In particular, this can have a negative impact on housing affordability in the rural region and this can be exacerbated where planning constraints, especially in amenity-rich rural regions, act as an impediment to the housing market responding to the increased demand for rural homes.

These conclusions partly concur with Overman *et al*. insofar as the problems are more acute for less mobile workers. Overman *et al.* consider this to be the case in the expanding region as a result of increasing cost of living but the new argument here is that commuting lessens the pressure on house prices in the urban region. Overman *et al*. also pay less attention to the fortunes of those in the contracting region. However, focusing on the rural region, it becomes evident that the least mobile people suffer a falling wage relative to the growing urban region and are subjected to increasing costs of living fuelled by commuters earning the urban wage and expressing residential preferences to live in an amenity rich rural region. This highlights the importance of connecting people to their local economies and ensuring that the stocks of capital attached to the higher earning residents in the rural region can trickle down into economic opportunities for rural businesses. This could occur through individuals' consumption demands or through more nuanced processes such as the development of urban-rural networks, inflows of innovation, the creation of new rural businesses or investments in infrastructure. Without these alternative forms of trickle-down from urban growth, the risks of a two-tier rural society with divergent wage levels and productivity rates raise questions over the sustainability of rural communities for the future. Taking a longer term view, as rural populations age more rapidly than urban ones, the implications for service provision, employment opportunities and economic vitality are brought into even sharper focus.

This analysis also leaves a more fundamental question – when assessing the relative "performance" of regions, are we more concerned with the quality of life for the people living there or with the scale of economic activity taking place within the region? If it is the former, encouraging greater commuting may yield the highest dividends but if it is the latter, the prevailing scenario is more problematic. From the rural studies perspective, the social sustainability or "liveability" of rural regions, opportunities for less mobile rural residents and the potential for alternative value creation attached to immobile rural resources all provide strong arguments to consider place-based development indicators that transcend individual wealth measures. Indeed, one of the key arguments in Martin *et al*'s (2015) pamphlet is that agglomeration effects in core urban regions are seeing public funds diverted to dampening down the diseconomies of scale effects but our findings suggest that this is already happening through the market and thus perhaps more public investment should be made in tackling inequalities that impact rural regions.

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