

DISCUSSION PAPER SERIES

IZA DP No. 16052

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Does It Matter Where You Live?**

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## ABSTRACT

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# Social Inclusion and Levels of Urbanisation: Does It Matter Where You Live?\*

Are individuals living in distinct urban or rural settings more likely to experience barriers to social inclusion? If so, what are the nature of the barriers that they face? Using a unique administrative dataset for Ireland's dominant social inclusion programme, this paper examines the effect of location on the incidence of barriers to social inclusion. We find that some forms of social exclusion, particularly those which are related to economic exclusion, are more prevalent for those in independent urban towns compared to cities, commuter towns or rural areas, even after controlling for area-level deprivation. The results suggest that existing policy, which has traditionally focused on tackling social disadvantage in the most urban or rural areas, is not well targeted and would benefit from having a wider spatial focus.

**JEL Classification:** R10, R58, P25, J15

**Keywords:** social inclusion, urban disadvantage, community economic development, jobless household, lone parents, disability, homelessness, ethnic minority

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## 1. Introduction

Ireland is one of the most regionally unequal countries across both the European Union and the OECD (McCann, 2020). By examining barriers to social inclusion at a small area level, we find that the 'left-behind places' in Ireland aren't necessarily the most urban or the most rural areas which is often the focus of government programmes and policy-related spending. It has long been documented that disadvantage is not confined to particular areas (Sim, 1984). The novel contribution of this paper is that it uses a unique dataset to identify how the scale and nature of barriers to social inclusion vary by levels of urbanisation in Ireland. We find that economic exclusion, even after controlling for area-level deprivation, is considerably more prevalent in 'independent urban towns' compared to other urban or rural areas. For other forms of social exclusion, such as lone parenthood, the same pattern does not hold. This points to a greater need for place-based policy design which considers the level of urbanisation using a more detailed classification, as well as accounting for the heterogeneity in barriers to social inclusion and how they manifest.

Ireland is one of the fastest growing economies in Europe, with sustainably managed public finances and relatively high living standards. The average real wage was on par with the OECD average in the mid-1990s, but now stands more than 15% above (OECD, 2020). Furthermore, a highly redistributive tax and transfer system has contained income inequality in disposable incomes. However, a growing economy alone is not sufficient to support the process of economic development. The cultural and social environment in which an economy is set plays such a vital role in determining the relative success or failure of economic policy in different regions.

In 2017, the Department of Rural and Community Development was established "to promote rural and community development and to support vibrant, inclusive and sustainable communities throughout Ireland." This Department combined the Regional and Rural Affairs Division of the former Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs and the Community Division of the former Department of Housing, Planning, Community and Local Government. The Roadmap for Social Inclusion 2020-2025 (Government of Ireland, 2020) moves away from a sole focus on income to outline specific measures and goals to capture progress across differing aspects of social inclusion, including, housing, healthcare, childcare and social integration. The Roadmap for Social Inclusion 2020-2025 aims to affect real change and delivery in those areas which matter most to establish a better quality of life for citizens. Previous to this the National Action Plan for Social Inclusion 2007-2016 set out a comprehensive programme of actions to reduce poverty and identified the priority the tackling of poverty in urban and rural areas. Furthermore, eradicating poverty and social exclusion is also one of the main priorities of the EU with a number of European policies impacting on enhancing employment, reducing rural poverty and strengthening social inclusion.

The barriers to social inclusion are multifaceted and complex, even defining the concept has its difficulties. In spite of this resolving barriers to social inclusion is a continuous focus of both national governments and international bodies. This is in large part due to the interconnected relationships of social exclusion, unemployment, and poverty (Atkinson, 1998). Being marginalized in society not only has a detrimental impact on the individuals affected but also affects societal cohesion more broadly.

In terms of potential barriers to social inclusion, jobless households face economic exclusion and are at a greater risk of experiencing poverty; lone parents may face barriers to full economic or social participation; housing distress is a crippling factor faced by many individuals and which also creates a significant barrier to full-economic participation as well as wider civic participation. Policy also tends to focus on combating the social exclusion experienced by groups at higher risk of discrimination, such as persons with disabilities and those belonging to ethnic minorities.

In many instances policies designed to combat barriers to social inclusion do not tend to discriminate in terms of spatial environment. Furthermore, where policies do have a spatial focus, such as urban or rural policies, the issues addressed tend to be wide-ranging without a heavily targeted focus. A potential explanation for the absence of spatial variations in policy approaches is a lack of data and understanding of the scale and nature in which social exclusion may vary according to area-level characteristics. This paper contributes to the literature, and the wider policy debate, by using a unique dataset to understand how barriers to social inclusion vary by levels of urbanisation in Ireland.

While numerous barriers to social inclusion exist, this paper examines five areas that have been identified as important within the international literature for which data exists in Ireland. The barriers to social inclusion considered are: (i) belonging to a jobless household; (ii) being a lone parent; (iii) being homeless or affected by housing exclusion; (iv) having a disability; and (v) belonging to an ethnic minority. The study examines the incidence of these barriers, and combinations of these barriers, faced by individuals and their determinants, paying particular attention to the role of spatial factors using the level of urbanisation for

neighbourhood small areas. Rather than using an urban-rural binary, this study utilises a six-way classification of the urban-rural continuum: cities; satellite urban towns; independent urban towns, rural areas with high urban influence; rural areas with moderate urban influence; and highly rural/remote areas. Using the urban-rural dichotomy, we find that whether a person lived in a rural or an urban location had a strong influence on their probability of reporting barriers to social inclusion, with those in urban areas much more likely to face the barriers or combination of barriers examined. However, by utilising the more detailed six-way classification of urban and rural locations our results highlight that when the barriers to social inclusion relate to economic participation (i.e. being from a jobless household) they are not confined to inner city, or the most urban areas. Our results show that individuals located in 'Independent Urban Towns' are significantly more likely to report these types of social exclusion, compared to those in cities, satellite towns and rural locations. For other barriers which do not have an economic component this does not hold, and these are more likely to be experienced in the most urban areas as per the findings when the dichotomy is used.

These 'Independent Urban Towns' in terms of social and economic characteristics show specific peculiarities and dynamics. CSO (2019)<sup>1</sup> using the six-way urban/rural classification, combined with Census and administrative data, examine social and economic characteristics of life in Ireland across a broad range of themes. The findings for 'Independent Urban Towns'

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<sup>1</sup> This six-way categorisation of urban and rural in Ireland were applied to these CSO statistics which varied in the years that the data was available: Censuses of 2011 and 2016; EU Statistics on Income and Living Conditions (SILC) 2017; Labour Force Survey Q1 2018 – Q1 2019; Measuring Distance to Everyday Services in Ireland 2019; New Dwelling Completions 2011 – 2018; Residential Property Prices 2010 – 2018; Geographical Profiles of Income in Ireland 2016. The categorisation was also applied to the integration of CSO datasets with pseudonymised datasets from a range of administrative data sources, to produce aggregated outputs at a geographical level which were not previously available. For more information, please see [reference](#).

show some specific peculiarities and dynamics. For example, between 2011 and 2016, 'Independent Urban Towns' saw the largest increases in local population size with a 5.5 per cent increase, recorded the lowest median annual equivalised disposable incomes in 2017 (€17,422 compared to the state average of €20,869), observed the highest unemployment rate at 6.3 per cent in 2019 (state average of 4.7 per cent), and the highest rates for people aged 65 and over living alone in 2016 at 31.2 per cent (state average of 26.7 per cent). Furthermore, the proportion of usual residents born outside the State varied across the six area types, from just 10.5 per cent in 'Rural areas with high urban influence' to 21.6 per cent in 'Independent Urban Towns'.

In relation to health, 'Independent Urban Towns' observed the highest rate of the population with a disability at 15.4 per cent (state average of 13.6 per cent), and the lowest proportion of individuals describing their health as 'very good' in 2016. Marital breakdown rate was also highest for 'Independent Urban Towns' at 15.5 per cent in 2016 (state average of 11 per cent). 'Independent Urban Towns' had highest proportion of households where working age social welfare was majority of income (21.0 per cent compared to the state average of 13.7 per cent in 2016).<sup>2</sup> Additionally, the deprivation rate and deprivation rate for those at risk of poverty are highest for 'Independent Urban Towns' at 24.2% and 53.3%, respectively.

There is a wide range of policy initiatives in Ireland for tackling deprivation and social exclusion, particularly in highly urban areas, and for rural development. However, it is widely known that reviving and reconnecting 'left behind places' and levelling up the economic

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<sup>2</sup> A household where over half of its gross income came from working age social welfare (excluding child benefits and state pension) was considered majority of income

geography of a country can be difficult for governments to achieve (Martin et al., 2021). The findings herein point to a need for greater attention to the spatial aspects of policy design, as 'Independent Urban Towns' are found to be in most need regarding economic development and appear to be falling between the cracks in terms of current policy.

## **2. Literature**

Social inclusion/exclusion are multi-faceted and complex concepts but generally one is socially included if they are able to fully participate socially, politically and economically in the society in which they live. A whole range of people/groups can be socially excluded but the most recent EU strategy implemented to deal with social exclusion targeted individuals with disabilities, younger and older workers, low-skilled workers, migrants and ethnic minorities, those who live in areas of deprivation, and women active in the labour market.

There is a relatively well-developed literature on the incidence, potential determinants and consequences of each of the barriers to social inclusion considered in this paper. With respect to jobless households at least half of those living in jobless households in most EU countries are either income poor or materially deprived (de Graaf-Zijl and Nolan, 2011). Evidence from Ireland finds that those in jobless households are just over half as likely to subsequently enter employment as an individual from a working household (Watson et al., 2016). Headey and Verick (2006), using Australian data, found that people who lived in jobless households at age 14 were more likely to be welfare dependent and in poverty later in life.

Homelessness and housing distress is now, unfortunately, a consistent feature of almost all modern societies and the social exclusion faced by homeless persons is well documented and researched internationally. Homeless individuals find it difficult to feel part of their community and are also likely to experience many forms of prejudice (Phelan et al., 1997). Those who do not have a permanent address also face economic exclusion as they struggle to find employment, as employers are reluctant to hire individuals with no fixed address. The level of homelessness in Ireland has been increasing substantially over very short periods. In August 2022 there were 10,805 people in Ireland who were homeless and relying on emergency accommodation (Focus Ireland, 2022). In addition to homelessness, many individuals within society also face some degree of housing distress; for example, many have concerns about paying rent.

Lone parents consistently rank as the group most vulnerable to poverty and social exclusion in Ireland and elsewhere (Watson et al., 2016). In 2016, only 47.8 per cent of Irish lone parents were in employment compared to 70.2 per cent of two-parent households (CSO, 2017). Low education levels amongst this group means that the jobs available to lone parents often do not pay enough to justify forgoing welfare payments. Consistent with this hypothesis, Zigel (2014), using German and British data, finds that lone mothers with at least tertiary education are much more likely to be employed than their lower educated counterparts. This poverty trap is made substantially worse in Ireland when combined with relatively high childcare costs.

Across the EU-28 almost 30 per cent of individuals with a disability confront the risk of poverty or social exclusion, with Ireland having one of the highest rates (38 per cent) (European Commission, 2021). Again, this is due to barriers to full economic participation. Individuals with a disability are only about half as likely to be in employment as those who do not have a disability (Watson & Nolan, 2011). Over one-third of individuals in Ireland with a disability who were not employed indicated that they would like to work if the conditions were right (Watson et al., 2017). Furthermore, many individuals with a disability may not actively search for employment, for a variety of reasons including fear of losing welfare payments, lack of knowledge of suitable jobs, and/or employer discrimination. Individuals living with disabilities may also face direct monetary costs in terms of paying for disability-related goods and services and thus reducing disposable income and living standards.

Finally, the barriers to inclusion faced by people from ethnic minorities are also well documented. Those from a minority ethnic or cultural background in Ireland, such as Travellers, Roma, refugees, or asylum seekers, are known to face distinct barriers to social and economic integration. Asylum seekers and refugees are particularly vulnerable to social exclusion due to both the traumatic and psychological distress endured in their lifetime and poorer health. Almost half of refugees and asylum seekers coming to the EU are between the ages of 18 and 34, while 25 per cent are children (European Union Agency for Fundamental Rights, 2019). In addition, non-documented or illegal ethnic minorities are particularly vulnerable to labour exploitation. Their precarious resident status may lead them to accept low pay, long hours, and poor working conditions (Arnold et al., 2017).

While we know the extent of social exclusion among particular groups, and the factors underlying this, little is understood about the degree to which the incidence of social exclusion experienced by individuals is exacerbated by their geographical location. The literature that does exist tends to focus on deprivation within either strictly urban or strictly rural areas. Drudy and Punch (1999) examines the problem of urban disadvantage in Ireland focusing on the Dublin Region, finding that a substantial portion of the population has been largely excluded from the benefits of economic and social progress which the rest of the population has benefited from. Key factors explaining this exclusion relate to high levels of unemployment, educational disadvantage, lone-parent households, as well as the high proportion of people in the unskilled or semi-skilled social classes in urban regions. Langlois and Kitchen (2001) construct twenty indicators of urban deprivation from the Canadian census and using principal component analysis identify the main types of deprivation in the cities and further measure its intensity. This study identifies six main types of urban deprivation (demographic, income, education, language, housing, and employment). Moreover, it is found that urban deprivation is not confined to the inner city, as several of the most severely deprived neighbourhoods are located outside the central city and even in the off-Island suburbs.

Cartmel and Furlong (2000) examine youth employment in rural areas in Scotland focusing on four distinct types of rural areas: a traditional rural area, an urban fringe, a seasonal area, and an ex-industrial rural area. They find that the main differences between the areas relate to the level of job opportunities, the availability of seasonal employment and the extent to which poor transport and housing provision inhibits employment possibilities. Furthermore, they

find that females in rural areas with children also face more severe disadvantage than their urban counterparts given the lack of childcare facilities.

There is some debate around the extent to which the general urban/rural dichotomy is sufficient for the study of deprivation and social exclusion. Langlois and Kitchen (2001) found severe deprivation not to be concentrated within the most urban areas therefore suggesting the need for a more flexible definition of urbanicity. Harris and Longley (2002) claim that conventional measures of urban deprivation fail to adequately detect within and between small area variations in socioeconomic and environmental conditions. They conclude that adequate representation of diversity requires a greater sensitivity to differentiation at finer scales. Finally, the Cartmel and Furlong (2000) analysis demonstrates the advantage of using the more detailed four-way definition of urbanisation in the context of the study of youth unemployment.

While there has been a significant amount of research on urban areas or rural areas (Quigley, 1998; Cervero, 2001; Terluin, 2003; Agarwal et al., 2009), there has been a comparative lack of research differing types of urban and rural areas (for example, small and medium sized towns). The distinction between urban and rural is complex, with the demarcation between the two often being blurred in reality (Tacoli, 1998), and there is an argument for several categories within each based on the 'degree' of rurality. For example, many would regard smaller towns as rural towns, rather than urban centres and there are differences between remote rural areas and those close to urban centres. The interaction between urban and rural is particularly relevant for small and medium sized towns, combining both urban and rural economies. A substantial proportion of the population in Ireland live in small and medium

sized town with over one-third of the population living in settlements of more than 1500 outside of the main cities (O' Donoghue et al., 2014).

In particular, O' Donoghue et al. (2014) highlights that small and medium sized towns, on average, have been impacted to a greater extent with higher increases in unemployment rates by the economic downturn than cities. Additionally, jobs in small- and medium-sized towns and rural areas are disproportionately reliant on industrial sectors with falling employment such as agriculture, construction and industry. Furthermore, poverty rates were shown to be higher in small and medium sized towns and the open countryside, with one-third of working age households with no one in work, 50% higher than in cities.

### **3. Data and Methods**

Data for the study comes from the 2016 monitoring database for Ireland's Social Inclusion and Community Action Plan (SICAP). SICAP aims to tackle poverty, social exclusion and inequality through local engagement and partnerships between disadvantaged individuals, community organisations and public sector agencies. It is the dominant initiative of its kind in Ireland. The programme is funded and overseen by the Department of Rural and Community Development (DRCD)<sup>3</sup> and Pobal. It is co-funded by the European Social Fund (ESF), including a special allocation under the Youth Employment Initiative (YEI) and received a total programme budget of €35.8 million in 2016. The Integrated Reporting and Information

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<sup>3</sup> The responsibility for SICAP was previously with the Department of Housing, Planning and Local Government (DHPCLG) but was moved in June 2017 to the Department of Rural and Community Development (DRCD).

System (IRIS) is an administrative data capture system that is used by SICAP Programme Implementers (PIs) when registering individuals for SICAP supports. IRIS contains information about individuals, such as age, gender, education, and economic status of all SICAP participants. Information on barriers to the specific barriers to social inclusion listed earlier are also captured. Crucially, the data also contains a small area code related to each person's home address, which allowed us to match the data on individuals with the Central Statistical Office (CSO) six-way geographical classification.

IRIS is a national database which includes individuals who are likely to seek supports in the areas of programmes and projects aimed at either: (i) enhancing social inclusion, (ii) providing life-long learning, or (iii) delivering employment supports with a particular focus on disadvantaged job seekers. As SICAP is Ireland's major policy body responsible for programmes designed to address social exclusion, the data provides an accurate national picture of the prevalence of various forms of social exclusion and how these are distributed nationally. The dataset also contains information on a subset of individuals reporting no forms of exclusion, such as those who access SICAP for lifelong learning supports, thus providing us with a natural reference category for our study. As SICAP funding is area based, the dataset is ideal for examining the role of area-based characteristics on social exclusion risk and is quite unique from a research perspective. With respect to the sample, we begin with a complete sample of 46,259 individuals who accessed SICAP supports in 2016 before excluding 1,256 who could not be matched to an urban/rural category, as they had provided no details of their geographical location. Following this exclusion, our operational sample was 46,515.

Our estimation strategy is described as follows; we begin by estimating Equation 1:

$$Ex^* = \alpha + \beta_1 X_i + \beta_2 T_i + \varepsilon_i \quad (1)$$

$Ex^*$  is a latent variable measuring the probability that an individual  $i$  will experience a particular form of social exclusion;  $X_i$  is a set of explanatory variables for individual  $i$  (age, education, gender, nationality, live register status);  $T_i$  is a set of dummy variables that measure urbanisation while  $\alpha$  and  $\varepsilon$  are the constant and error terms, respectively. In each model, the sample will compare all individuals reporting the form of social exclusion against a reference group of individuals who report experiencing no forms of social exclusion. This approach ensures that each sub-group reporting a particular form of social exclusion will be compared with a constant reference group, thus ensuring that the results from the individual models are directly comparable.

However, we must be conscious of the possibility that the location variable may be correlated with other controls in the model, such as, age, gender, nationality, or live register status, which may also determine the probability of experiencing a particular form of social exclusion. If this occurs, then the estimates of our urbanisation coefficients will be confounded with other variables in the model, leading to potentially biased estimates. To overcome this issue, we also estimate the impacts of urbanisation of social exclusion using propensity score matching (PSM) techniques.

The propensity score is defined as the conditional probability of receiving a treatment given certain determining characteristics (Equation 2):

$$p(X) = Pr\{D = 1/X\} = E\{D/X\} \quad (2)$$

$D$  indicates exposure to the treatment (social exclusion) and  $X$  is a vector of determining characteristics.

In the second stage of the PSM estimation procedure, individuals in the treatment group (experiencing a form of social exclusion) are “matched” with counterparts in the control group (reporting no forms of social exclusion) that have similar propensity scores of being subject to the treatment effect and their actual outcomes are compared. Rosenbaum and Ruben (1983) show that matching individuals based on propensity scores is equivalent to matching on actual characteristics. This ensures that any distortions related to selection bias are eradicated. It should be noted that, as in the case of equation 1, a constant control group of individuals, reporting no forms of social exclusion, are used for all the PSM estimates thus allowing for direct comparability.

The main limitations of the PSM approach are: (i) it may not be possible to eradicate all observable differences between the control and treatment groups post matching, and (ii) matching helps control only for observable differences and not unobservable differences; thus, unobserved heterogeneity remains a problem.

To address the former, we undertake several post-estimation tests to ensure that the control and treatment groups are balanced on all covariates relevant to assignment to the treatment. To address the latter, that the PSM approach does not solve for potential selection on unobservables, the reliability of any propensity score matching estimate is dependent upon the Conditional Independence Assumption (CIA) being met. This assumption implies that selection to the treatment is based solely on observables within the dataset, and where all variables that simultaneously impact both the treatment and outcome variable are also observed. By any conventional standards we would be confident that the additional SICAP information contained within our dataset would capture most of the relevant factors.

We nevertheless conduct further sensitivity tests that gives us a sense to which our matching estimates are prone to the presence on unobserved heterogeneity (Becker and Caliendo, 2007). These procedures, which are conducted using the *MHbounds* procedure, in the Stata statistical software package, essentially introduce an unobserved factor that simultaneously increases the likelihood of allocation to the treatment group and the outcome variable. Specifically, the methodology examines the impact of unobservables that increase the odds of allocation to the treatment and are simultaneously associated with higher (termed positive selection bias) or lower (termed negative selection bias) levels of the outcome variable. Effectively, the sensitivity test measures the extent to which an unobserved factor must influence the odds of being allocated to the treatment group, under the assumptions of either positive or negative selection bias, before the estimated treatment effect becomes statistically unreliable. The test does not demonstrate bias per se but gives us a sense of how the statistical significance of our estimates may be sensitive to the presence of unobserved influences.

## 4. Results

Table 1 provides some broad descriptives of the sample. As expected, given the objectives of SICAP individuals, lower-level qualifications are over-represented relative to the national average, with persons qualified to National Framework Qualifications (NFQ) 1,2 and 3 (Junior Certificate or below) accounting for approximately one third of the sample. Persons educated to NFQ 4 and 5 (Leaving Certificate) level account for a further 27 per cent of the sample.

**Table 1: Sample Characteristics**

<b>Variable</b>	<b>Total</b>
<b>Urban/Rural</b>	
Urban	70%
Rural	30%
<b>Gender</b>	
Male	55%
Female	45%
<b>Age</b>	
15–24	16%
25–35	27%
36–45	26%
46–55	20%
Over 55	11%
<b>Education</b>	
NFQ <4	32%
NFQ 4 & 5	37%
NFQ 6 & 7 & 8	27%
NFQ 9 & 10	4%
<b>Nationality</b>	
Irish	81%
EU New	9%
EU Old	5%
Non-EU	5%
<b>Live Register</b>	
Less than 6 months	10%
6-12 months	9%
13-24 months	12%
More than 24 months	29%
<b>N</b>	<b>46,259</b>

There is a broad representation across all age bands and males account for a slightly larger share of SICAP participants than females. Persons born outside of Ireland account for 19 per cent of the population, which is broadly in line with the population average. Finally, with respect to urbanisation, 70% (30%) of the sample are classified as living in urban (rural) settings using the standard dichotomy.

However, as discussed above, the standard binary urban/rural classification is likely to mask substantial heterogeneity with respect to social exclusion and we instead employ a more detailed six-way classification. This six-way classification is a relatively new addition within Irish data. The six-way classification is based on the population of small areas and a measure of the flows of people to cities for work.<sup>4</sup> The classification is broken into three urban area types: cities, satellite urban towns, and independent urban towns with the population share located in each standing at 36 per cent, 9 per cent and 25 per cent respectively. Three rural area types are also included in the six-way classification: rural areas with a high urban influence, rural areas with a moderate urban influence and highly rural/remote areas with associated population shares of 9 per cent, 10 per cent and 12 per cent respectively. Table 2 provides a detailed description of the classifications and information on the population share of each spatial category both within our data (Column 6) and also at a population level (Column 5). The sample is somewhat over-representative of independent urban towns which, given the nature of SICAP, suggests a disproportionately higher incidence of barriers to social inclusion in these areas. Conversely rural areas with high urban influence and satellite urban towns have a somewhat lower share of these barriers relative to the national population.

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<sup>4</sup> For more info on the six-way classification see <https://www.cso.ie/en/releasesandpublications/ep/p-urli/urbanandrurallifeinireland2019/introduction/>

**Table 2: Six-way classification - prevalence in the population and sample**

	Type	Definition	Population (15-64 years)	Total Sample
Urban areas	1 Cities	Towns/settlements with populations greater than 50,000 - using Census 2016 definitions/breakdowns.	35%	36%
	2 Satellite Urban Towns	Towns/settlements with populations between 1,500 and 49,999, where 20 percent or more of the usually resident employed population's workplace address is in 'Cities'.	13%	9%
	3 Independent urban towns	Towns/settlements with populations between 1,500 and 49,999, where less than 20 percent of the usually resident employed population's workplace address is in 'Cities'.	16%	25%
Rural Areas	4 Rural areas with high urban influence	Rural areas (themselves defined as having an area type with a population less than 1,500 persons, as per Census 2016) are allocated to one of three sub-categories, based on their dependence on urban areas. Again, employment location is the defining variable. The allocation is based on a weighted percentage of resident employed adults of a rural Small Area who work in the three standard categories of urban area (for simplicity the methodology uses main, secondary, and minor urban area). The percentages working in each urban area were weighted using multipliers. The multipliers allowed for the increasing urbanisation for different sized urban areas. For example, the percentage of rural people working in a main urban area had double the impact of the same percentage working in a minor urban area. The weighting acknowledges the impact that a large urban centre has on its surrounding area. The adopted weights for: Main Urban areas is 2, Satellite urban communities is 1.5, Independent urban communities is 1. The weighted percentages is divided into tertials to assign one of the three rural breakdowns	16%	9%
	5 Rural areas with moderate urban influence	As above	12%	10%
	6 Highly rural/remote areas	As above	8%	12%
	All		<b>3,061,508</b>	<b>46,255</b>

Table 3 shows the prevalence of the barriers to social inclusion (and the combinations of barriers) which were most prevalent in the sample and the prevalence by area type. The first thing to note is that 48.3 per cent of the sample reported no barriers to social exclusion, with such individuals likely to be receiving life-long learning supports through SICAP; this group represents the comparison group for all our models and the large sample size ensures that our matching estimates are likely to be robust.

Focusing only on those individuals reporting particular barriers to inclusion, we can see that a few categories dominate. Categories are mutually exclusive so each individual can only be in one group, either reporting a single barrier or reporting a combination of barriers. Individuals from jobless households account for 28.7 per cent of the total sample (44 per cent of those reporting barriers), persons from jobless households who are also lone parents make up 5.8 per cent of the total sample (8.9 per cent of those reporting barriers). Other groups of significance are lone parents and persons with disabilities that account for 7 per cent of the total sample (and 15 per cent of those reporting barriers). Five category combinations account for almost two-thirds of all those reporting barriers to exclusion. Some significant differences can be seen with respect to the interaction between barriers to exclusion and the spatial variables, most noticeably, just 39.1 per cent of individuals in independent rural towns report no barriers to exclusion compared the national average of 48.3 per cent; these areas were particularly over-represented among those with jobless households and ethnic minorities. Conversely, the incidence of individuals reporting barriers to inclusion was substantially lower in highly rural/remote areas compared to the national average.

**Table 3: Prevalence of forms of social exclusion**

	<b>Barriers reported</b>	<b>Frequency</b>	<b>%</b>	<b>Cities</b>	<b>Satellite urban towns</b>	<b>Independent urban towns</b>	<b>Rural areas- high urban influence</b>	<b>Rural areas - moderate urban influence</b>	<b>Highly rural/remote areas</b>
1	None	22,344	48.3%	50.1%	49.4%	39.1%	52.6%	51.8%	55.3%
2	Jobless household	13,268	28.7%	24.9%	27.3%	34.0%	29.5%	30.4%	28.3%
3	Jobless household and lone parent	2,682	5.8%	5.9%	6.0%	7.3%	4.6%	4.6%	4.1%
4	Lone parent	1,852	4.0%	5.5%	4.7%	3.1%	2.8%	2.7%	2.9%
5	Person with a disability	1,393	3.0%	2.8%	3.0%	2.6%	3.7%	3.8%	3.5%
6	Jobless household and person with a disability	1,259	2.7%	2.1%	2.3%	3.8%	2.4%	3.0%	2.7%
7	Jobless household and ethnic minority	756	1.6%	1.2%	0.8%	3.7%	0.5%	1.0%	0.9%
8	Jobless household and homeless or affected by housing exclusion	582	1.3%	1.5%	1.8%	1.3%	1.0%	0.7%	0.7%
9	Homeless of affected by housing exclusion	453	1.0%	1.7%	0.9%	0.7%	0.6%	0.4%	0.3%
10	Ethnic minority	428	0.9%	1.1%	1.1%	1.4%	0.4%	0.3%	0.3%
11	Other combinations	1,242	2.7%	3.4%	2.7%	3.1%	2.0%	1.3%	1.2%
	Number of observations	46,259		16,493	4,194	11,434	3,936	4,853	5,349

Table 4 presents the results from a series of probit models based on equation 1, the outcome measure is a binary variable capturing the presence of the main categories of social exclusion discussed above. In each model the sample consists of SICAP respondents experiencing the specific barrier to social inclusion and those reporting no barriers to social inclusion, hence the sample size varies across models. In addition to our measures of urbanisation, each model also controls for gender, age, nationality, education, live register history, and the area-level deprivation. The control variables included in each model vary to account for potential collinearity. The fact that we are controlling for small-area deprivation ensures that any impacts observed in the model are over and above those explained by general levels of deprivation in the six urban/rural categories.

The first row in the model reports the results where we include a single urban binary variable along with the specified set of control variables. Relative to rural areas we can see that individuals located in urban areas are much more likely to experience all forms of social exclusion with the estimated marginal effects highest for individuals in jobless households (8 percentage points) and those who report as both being in a jobless household and a lone parent (6 percentage points). Individuals in urban areas are between 2 and 4 percentage points more likely to report each of the other forms of social exclusion compared to those in rural areas.

We proceed by replacing the single urban binary variable with the new six-way classification measure using the highly rural/remote category as a reference category. We observe substantial variation in the impact of the spatial variables, with the probability of social exclusion higher among individuals in all areas other than the reference category and the marginal effects particularly high for individuals from jobless households. The risk of social exclusion is higher for people living in urban areas but more specifically for those in independent urban towns. Persons from independent urban towns are 15 (12) percentage points more likely to report as being from a jobless household (being from a jobless household and a lone parent) than those from the most rural/remote areas. The respective figures for individuals from cities is 6 and 9 percentage points respectively. In fact, the prevalence of barriers to social inclusion was highest among individuals located in independent urban towns in five of the nine categories measured in the dataset. Four of these are related to economic participation – being from a jobless household; being from a jobless household and a lone parent; being from a jobless household and having a disability; being from a jobless household and being from an ethnic minority.

Persons from satellite urban towns and cities also appear to have an elevated exposure to being in a jobless household, and the combination of jobless household and lone parenthood, but not to the same extent as independent urban towns. Lone parenthood and housing exclusion follow a more linear pattern with the likelihood of these barriers to social inclusion increasing in line with the degree of urbanisation. For some categories, namely belonging to an ethnic minority, the combination of jobless household and housing exclusion, lone parenthood, having a disability, and the combination of jobless and ethnic minority, there is no increased risk of being socially excluded amongst any of the rural spatial categories. While

for social exclusion in the form of being from a jobless household, residing in a rural area with moderate or high urban influence sees an elevated probability relative to counterparts in the most rural areas. These results point to the usefulness of this six-way classification over the urban/rural binary given how the results differ considerably from the urban coefficient in the first row.

Table 4 : Probit Regression Results

	Jobless household	Jobless household and lone parent	Lone parent	Person with a disability	Jobless household and person with a disability	Jobless household and ethnic minority	Jobless Household & Homeless or affected by housing exclusion	Homeless or affected by housing exclusion	Ethnic Minority
<i>Urban</i> <sup>5</sup>	0.08***	0.06***	0.04***	0.02***	0.04***	0.04***	0.02***	0.02***	0.02***
<b>Area Classification</b>									
Cities	0.06***	0.09***	0.08***	0.02**	0.03***	0.02***	0.04***	0.05***	0.03***
Satellite urban towns	0.06***	0.09***	0.07***	0.02**	0.03***	0.00	0.05***	0.03***	0.04***
Independent urban towns	0.15***	0.12***	0.04***	0.02***	0.08***	0.07***	0.03***	0.02***	0.05***
Rural areas with high urban influence	0.05***	0.04***	0.02	0.01	0.01	-0.01	0.01	0.01*	0.08
Rural areas with moderate urban influence	0.05***	0.03**	0.00	0.01	0.02*	0.00	0.00	0.00	0.00
Highly rural/remote areas	Reference Category								
<b>Controls</b>									
Age, education, gender, deprivation	X	X	X	X	X	X	X	X	X
Nationality	X	X	X	X	X		X	X	
Live Register			X	X				X	X
Frequency of barrier/s	13,267	2,682	1,852	1,393	1,258	756	582	453	428
N	28,333	17,508	18,640	17,882	15,936	16,553	15,432	16,255	19,326
Pseudo R <sup>2</sup>	0.03	0.14	0.11	0.09	0.09	0.18	0.04	0.06	0.12

<sup>5</sup> Although we show the urban binary variable and the six-way classification in the one table here for ease of comparison. The marginal effects shown relate to models including only the urban binary variable or the six-way classification included, they are not included together.

## 5. Robustness Checks

We next re-estimate the impacts using a PSM approach designed to eradicate bias related to non-random sample selection. The samples are the same for each estimate (individuals experiencing the barrier to social inclusion, or combination of barriers, and those reporting no barriers faced) with the treatment categories in each case being one of the spatial categories, for instance, persons from cities. Our estimates will measure the extent to which persons in a particular spatial category are more likely to experience a particular barrier to social inclusion compared to those located in the reference category of highly rural/remote areas.<sup>6</sup> The sample construction makes our PSM estimates directly comparable with those from Table 4.

Table 5 contains the PSM estimates alongside those from the previous probit models for ease of comparison. We begin by examining the estimates for the most pronounced impacts, generally the PSM estimates align with those from the probit models in terms of both the levels and significance. Nevertheless, there are a couple of instances where impacts observed within the probit framework are no longer evident under PSM. Most noticeably some of the social exclusion coefficients for cities and satellite towns, evident within the probit analysis, are statistically insignificant within the PSM framework. In no instance did we find a statistically significant result in the PSM that was not evident under the probit models; the PSM analysis generally confirms the results generated by our earlier models. In particular, it confirms the main findings in the previous section that barriers to social inclusion are not necessarily more likely in urban areas but are driven by the independent urban towns.

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<sup>6</sup> To ensure consistency with the probit models, individuals from the remaining spatial categories are dropped from the sample.

Nevertheless, we must ensure that our PSM data is sufficiently balanced so that we can be confident that the individuals in the various treatment groups experiencing various barriers, were indeed matched with individuals with similar characteristics from the control group, those who experience no barriers to social inclusion. If matching were accurate this would ensure that the only characteristic that would differ between the control and treatment group members was the degree of urbanisation of the area in which they reside. A first indication that matching is successful is when the Pseudo  $R^2$  statistic approaches zero when we re-run an outcome model on the matched sample and as can be seen from Table 5, the post-matching Pseudo  $R^2$  estimates fall to either 0.00 or 0.01 from their pre-matched levels.

More formal balancing test statistics included in Table 5 are the Rubin's R and the Rubin's B statistics. The Rubins' B score is the absolute standardised difference of the means of the linear index of the propensity score in the treated and (matched) non-treated group. The Rubins' R score is the ratio of the treated to (matched) non-treated variances of the propensity score index. To indicate that the samples are considered sufficiently balanced, it is recommended that the Rubins' B score is less than 25 and Rubins' R score lies between 0.5 and 2 (See Rubin 2001 for more details). Without exception, all the balancing tests fall within the required ranges, thus confirming the reliability of our matching estimates.

Our final checks relate to the robustness of our PSM estimates to unobserved factors that may potentially impact assignment to the various treatment groups. We use the MH Bounds procedure in STATA (Becker and Caliendo, 2007) that allows us to introduce an unobserved factor that simultaneously increases the likelihood of facing a form of social exclusion and increases the likelihood of allocation to the treatment group (termed positive selection bias)

to assess if our estimated treatment effect remains statistically reliable. Effectively, the sensitivity test measures the extent to which an unobserved factor must influence the odds of being allocated to the treatment group before the estimated treatment effect becomes statistically unreliable.

In terms of acceptable thresholds for the test statistic, an application of the approach to the data from the minimum wage study by Card and Kruger establish that the results of that study would become unreliable with lower values of between 1.34 and 1.5 (Rosenbaum, 2002). Thus, we might think of an MH Bounds statistic over 1.5 as an indication that the estimates are relatively robust to the potential impacts of unobserved heterogeneity. It is important to note that a test statistic of below 1.5 is not an indicator of bias, but simply that the estimate has the potential to be affected by an unobserved biasing factor. The tests are only run on PSM estimates that are statistically significant. We find that of the 21 post estimation tests that were ran, 16 exceeded the acceptable threshold, suggesting that the vast majority of our PSM estimates are likely to be relatively robust to the potential impacts of unobserved heterogeneity. The potentially statistically unreliable results relate to areas with moderate/high rural interest, which is perhaps unsurprising given their similarity to the highly rural reference category.

**Table 5: Propensity Score Matching Results**

<b>Jobless household</b>	Probit Coefficient	PSM (ATT)	Pseudo R2 (Pre)	Pseudo R2 (Post)	B	R	MH Bounds
Cities	0.06***	0.00	0.16***	0.00***	13	1.2	
Satellite urban towns	0.06***	-0.01	0.22***	0.00	8.7	1.1	
Independent urban towns	0.15***	0.11***	0.09***	0.00***	6.9	1.1	1.7
Rural areas with high urban influence	0.05***	0.04**	0.24***	0.00	6.9	1.1	1.1
Rural areas with moderate urban influence	0.05***	0.04***	0.07***	0.00	5.6	1.0	1.1
Highly rural/remote areas			Reference Case				
<b>Jobless household and lone parent</b>							
Cities	0.09***	0.06***	0.18***	0.01***	19.2	1.1	1.9
Satellite urban towns	0.09***	0.02	0.24***	0.01***	26.3	1.3	
Independent urban towns	0.12***	0.10***	0.10***	0.01***	16.2	1.1	2.3
Rural areas with high urban influence	0.04***	0.01	0.24***	0.00	9.6	1.0	
Rural areas with moderate urban influence	0.03**	0.01	0.07***	0.00	8.8	0.9	
Highly rural/remote areas			Reference Case				
<b>Lone parent</b>							
Cities	0.08***	0.09***	0.18***	0.00***	18.2	1	2.2
Satellite urban towns	0.07***	0.06***	0.26***	0.00	15.8	0.9	1.7
Independent urban towns	0.04***	0.04***	0.12***	0.00***	14.1	1	1.3
Rural areas with high urban influence	0.02	0.01	0.25***	0.00	7.4	1.1	
Rural areas with moderate urban influence	0.00	0.00	0.08***	0.00	9.8	0.9	
Highly rural/remote areas			Reference Case				
<b>Person with a disability</b>							
Cities	0.02**	-0.01	0.17***	0.00***	18	1.1	
Satellite urban towns	0.02**	-0.001	0.27***	0.01***	22.4	1.0	
Independent urban towns	0.02***	0.01	0.11***	0.00**	12.7	1.1	
Rural areas with high urban influence	0.01	0.00	0.24***	0.00	8.4	1.1	
Rural areas with moderate urban influence	0.01	0.01	0.08***	0.00	8	1.0	
Highly rural/remote areas			Reference Case				

**Table 5: Propensity Score Matching Results, Cont'd**

<b>Jobless household and person with a disability</b>							
Cities	0.03***	0.02**	0.18***	0.00***	12	1.2	1.1
Satellite urban towns	0.03***	0.02	0.26***	0.00	14.7	1.2	
Independent urban towns	0.08***	0.07***	0.10***	0.00*	10.7	1.0	1.8
Rural areas with high urban influence	0.01	0.01	0.24***	0.00	5.3	1.1	
Rural areas with moderate urban influence	0.02*	0.02**	0.07***	0.00	10.9	0.9	1.1
Highly rural/remote areas			Reference Case				
<b>Jobless household and ethnic minority</b>							
Cities	0.02***	0.01	0.16***	0.00**	8.6	1.0	
Satellite urban towns	0.00	0.00	0.23***	0.01***	21.8	1.0	
Independent urban towns	0.07***	0.08***	0.07***	0.00	8.4	1.0	4.6
Rural areas with high urban influence	-0.01	-0.00	0.24***	0.00	5.2	1.1	
Rural areas with moderate urban influence	0.00	0.01	0.07***	0.00*	12.1	1.0	
Highly rural/remote areas			Reference Case				
<b>Jobless Household &amp; Homeless or affected by housing exclusion</b>							
Cities	0.04***	0.03***	0.18***	0.00***	14	1.2	2.0
Satellite urban towns	0.05***	0.03***	0.26***	0.00	10.3	1.0	2.1
Independent urban towns	0.03***	0.02***	0.11***	0.00	10.6	1.0	1.8
Rural areas with high urban influence	0.01	0.01*	0.24***	0.00	4.8	1.0	
Rural areas with moderate urban influence	0.00	0.00	0.07***	0.00	5.5	1.0	
Highly rural/remote areas			Reference Case				
<b>Homeless or affected by housing exclusion</b>							
Cities	0.05***	0.04***	0.18***	0.01***	16.8	1.1	4.4
Satellite urban towns	0.03***	0.01*	0.27***	0.00*	18.9	1.1	2.0
Independent urban towns	0.02***	0.01***	0.12***	0.00**	13.2	1.0	1.8
Rural areas with high urban influence	0.01*	0.00	0.24***	0.00	8.2	1.1	
Rural areas with moderate urban influence	0.00	-0.00	0.08***	0.00	9.9	1	
Highly rural/remote areas			Reference Case				

**Table 5: Propensity Score Matching Results, Cont'd**

**Ethnic Minorities**

Cities	0.03***	0.02***	0.16***	0.01***	18.9	0.9	3.2
Satellite urban towns	0.04***	0.02***	0.24***	0.01***	21.3	1.1	2.9
Independent urban towns	0.05***	0.03***	0.08***	0.00	8.8	0.9	3.6
Rural areas with high urban influence	0.08	0.01*	0.24***	0.00	8.8	1.0	
Rural areas with moderate urban influence	0.00	0.00	0.08***	0.00	7.0	1.0	
Highly rural/remote areas				Reference Case			

## 6. Conclusions

In this paper, we utilize a novel dataset and a six-way classification of urbanisation to assess the extent to which the risk of various forms of social exclusion are more likely. Using this more detailed classification, rather than the generally used urban/rural binary variable, we find evidence of substantial heterogeneity across differential areas of urbanisation. This is of specific importance given the reliance on the urban/rural dichotomy for policy making reasons.

Using the binary urban/rural variable, we find that individuals residing in urban areas are more likely to face particular barriers to social inclusion relative to their peers in rural areas. However, on stricter examination with the more precise six-way classification, the risk of some forms of social exclusion are noticeably higher not for those in the most urban areas but for people living in independent urban towns; the marginal effects for living in a jobless household only, and the combination of jobless household and lone parent are 15 and 12 percentage points respectively. In fact, the risk of social exclusion was highest among individuals located in independent urban towns in five of the nine social exclusion categories measured in the data (namely, belonging to a jobless household; jobless household and lone parent; jobless household and person with a disability; jobless household and ethnic minority; and ethnic minority). That is, economic exclusion is more likely in independent urban towns than in any other types of areas even after controlling for area level deprivation. While for other barriers to social inclusion which aren't related to economic participation a more linear pattern emerges whereby the more urban areas see greater prevalence of social exclusion.

Persons from satellite urban towns and cities also appear to have an elevated exposure to being from a jobless household and lone parenthood combined and lone parenthood in isolation compared to rural areas but not to the same extent as is the impact of living in an independent urban town.

There may be several potential explanations for this finding. Firstly, policy initiatives tend to be defined as either urban or rural with the focus of programmes and policy-related spending tending to be more concentrated according to aspects of both measures i.e. either within cities or highly rural/remote areas. Consequently, independent urban towns, that fall somewhere between both definitions, tend to be more neglected from a policy perspective which, in turn, raises the incidence of social exclusion in these areas.

Furthermore, 'Independent Urban Towns' differ from 'satellite urban towns' based on the proportion who work in a city and as such are disconnected from economic opportunities. For some independent urban towns they are further away from cities and thus further from opportunity. While for others they aren't necessarily further from cities but may have a lack of transport inhibiting access to economic opportunities. Distance from economic opportunity, services, access to transport and intergenerational contextual mobility are well documented in the literature as impeding social inclusion and may be impacting independent urban towns but not satellite urban towns. For example, Currie (2009) reviews the links between transport and social disadvantage from an economic perspective in urban Australia, finding that land values and infrastructure pricing policies, or a lack thereof, have acted to encourage sprawl and the location of lower income groups in fringe urban areas. Our findings showing that rural communities do not suffer to the same extent from social exclusion despite

often having a lack of access to services and transport may reflect the benefits rural policy has in protecting rural residents from social exclusion.

There is one exception to our main finding. The results differ substantially for the barrier to social inclusion of being a lone parent, rather for this barrier there is a persistent positive relationship with 'urbanness'. As we move from the most rural areas to cities the marginal effect increases steadily, although it remains relatively small. As the groups are mutually exclusive, those in the lone parent group report this as their only barrier so it is going to be less related to economic reasons, such as job opportunities, than those who are both a lone parent and in a jobless household. Therefore, the fact that the results as per other categories does not hold is not surprising. This may be due to the different moral values held by those in more urban areas compared to rural areas. Morris et al. (2021) finds that individuals in cities are less likely to be religious and strongly believe that independence and individualism are important values, as such there may be less of a social stigma in these areas with regards to lone parenthood. Homelessness and housing exclusion also follow the linear path but this is expected as people facing housing issues tend to gravitate towards the large urban areas due to higher demand for housing in urban centres as well as individuals moving towards service provision.

Morris et al. (2021) also conclude that cities are more accepting of minorities which may explain why the marginal effects for being from an ethnic minority are smaller than for other categories. The finding that 'independent urban towns' have a larger effect here may be due to the types of towns where certain migrants and other minorities situate. Migrants and other

minorities may be locating themselves in towns which have relevant job opportunities. However, these may be jobs which are low-paid, low quality, or with potentially with insecure contracts.

Other statistics agencies have also developed similar more detailed urban/rural classifications and the findings herein reiterate the importance of a more precise classification of area and the use of same should be encouraged in both research and policymaking in Ireland and internationally.

Left behind places not only have significance for the individuals residing in them but also have wider implications for society. Huge shifts in politics and in particular the rise in populism in many countries has been attributed in large part to both people and places feeling as if they are left behind (Rodríguez-Pose, 2018; MacKinnon et al., 2022). By examining barriers to social inclusion at a small area level, we find that the 'left-behind places' in Ireland are not necessarily the most urban or the most rural areas which is often the focus of government programmes and policy-related spending. Efficient place-based policymaking is key to levelling up or catching up such left behind places and is particularly important as we move from crises to crises which may result in further divergence for these areas from the economic mainstream.

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