

Cross-border Working on the Island of Ireland: Trends, Drivers and Policy Challenges

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Abstract: This study examines the extent of cross-border working on the island of Ireland, highlighting associated challenges and opportunities. Our estimates indicate that the total number of cross-border workers increased from 12,740 in 2011 to between 17,827 and 19,282 in 2021, representing a growth rate of between 40 and 51 per cent. This increase was predominately driven by a rise in individuals travelling from Northern Ireland to the Republic of Ireland for work, likely due to substantially higher wages in the Republic of Ireland. Other factors influencing cross-border worker flows include better career progression opportunities in the Republic of Ireland, access to the NHS for those going from the Republic to Northern Ireland and proximity to the border for all cross-border workers. Despite these opportunities, several barriers persist. Common barriers and challenges include exchange rate risk, tax return requirements, accessing social welfare benefits, commuting costs and difficulties obtaining financial products such as mortgages. Additionally, workers travelling from the Republic to Northern Ireland reported limitations in their ability to work from home due to pre-existing tax rules. From a policy perspective, the research highlights the need to address barriers to foster a more integrated all-island labour market that can be addressed by policy changes and / or co-ordination in both regions. This is particularly pressing given the current tight labour markets in both Northern Ireland and the Republic of Ireland.

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I INTRODUCTION

The COVID-19 pandemic highlighted cross-border working on the island of Ireland, as increased remote and flexible working had tax, social security and employment legislation implications for workers who live and work in different jurisdictions. This follows Brexit, which raised concerns for cross-border workers and employers, given the potential for divergence in employment legislation following Northern Ireland's (NI) exit from the EU.

From a policy perspective, cross-border worker flows can mitigate business cycle impacts, particularly when labour market conditions vary across jurisdictions. During periods of high growth cross-border flows can reduce skill shortages (Heinz and Ward-Warmedinger, 2006), and during low growth they reduce unemployment, particularly when contiguous labour markets are at different business cycle stages, as is often the case on the island of Ireland. McVicar *et al.* (2017) found higher volatility in the Republic of Ireland (RoI) labour market due to its greater exposure to macroeconomic shocks, stemming from the highly open nature of the RoI economy. In contrast, NI's heavier reliance on the public sector tends to insulate the labour market from international shocks (McVicar *et al.*, 2017). More generally, migration acts as a release valve during periods of high unemployment in RoI (McVicar *et al.*, 2017), suggesting cross-border flows could alleviate skill shortages in RoI and lessen unemployment impacts in NI. Optimal cross-border labour flows are also important for all-island economic growth.

Despite its policy importance, empirical evidence on cross-border labour mobility on the island of Ireland remains relatively limited. We believe the reasons for this to be two-fold. Firstly, despite the increased policy debate and the growing numbers of cross-border workers the group remains relatively small on the national scale, 0.3 per cent and 1.2 per cent of the labour force in RoI and NI respectively (Department of Enterprise, Tourism and Employment, 2026); and secondly, data constraints have limited formal data analysis in this space. Using linked small-area Census data from 2011, Ahrens *et al.* (2020) examine the propensity to commute across the border and find that the border remains a significant impediment to cross-border commuting, even after accounting for distance. Their analysis demonstrates that cross-border commuting remains relatively uncommon, and that both geographic and socio-economic factors influence commuting patterns. However, such data do not permit a detailed examination of workers' motivations, experiences or perceptions. Consequently, a mixed-methods approach is required to provide a more comprehensive understanding of the structure of cross-border working and the key issues associated with it. Mixed methods approaches are common in the wider literature and have been used in several

recent Irish studies on key policy issues (e.g. Smyth *et al.*, 2022; Whelan *et al.*, 2020; McGuinness *et al.*, 2018). This paper addresses two main research questions (1) how have cross-border worker flows evolved over time; (2) what are characteristics of cross-border workers and do these differ by direction of travel; and what are the benefits and opportunities of cross-border working and do perceptions around these differ by direction of travel?

To estimate cross-border worker flows, we combined Census data and information provided by Revenue. We also created a survey specifically to gather additional information not available in administrative data. This survey was advertised on social media (particularly X/Twitter) and sent out via email by relevant organisations. There was also a certain element of snowballing as cross-border workers or those engaged in this space shared it amongst their networks. The survey was open for two months in 2023 and received over 600 responses. We analysed the characteristics of cross-border workers using close-ended survey data and identified barriers and opportunities associated with cross-border working using NVivo for open-ended responses. This mixed-methods approach provides a deeper understanding of the issues and helps inform future policy directions.

This paper provides a comprehensive analysis of cross-border employment on the island of Ireland, examining its evolution, worker profiles, and the benefits and challenges associated with working across jurisdictions. By employing a mixed-methods approach, this study provides insights into the factors shaping cross-border labour mobility. Understanding these dynamics is crucial for policy decisions, especially in the context of Brexit, remote work and wage differentials. This research also contributes to the broader discussion of the all-island labour market and highlights areas where policy interventions may enhance cross-border working conditions and cooperation.

The remainder of the paper is structured as follows: Section II describes recent data on wage differentials and taxation agreements impacting cross-border workers. Section III describes trends and characteristics of cross-border employment flows. Section IV presents econometric models on wages and job satisfaction for cross-border workers, and Section V analyses the qualitative data. Section VI concludes.

II RECENT DEVELOPMENTS

2.1 Wage Differentials on the Island

Wage differences between jurisdictions significantly influence cross-border employment flows. Several recent studies highlight significant wage differences between RoI and NI (McGuinness and Bergin, 2019; Bergin and McGuinness, 2021; Smyth *et al.*, 2022). Figure 1 plots the ratios of hourly

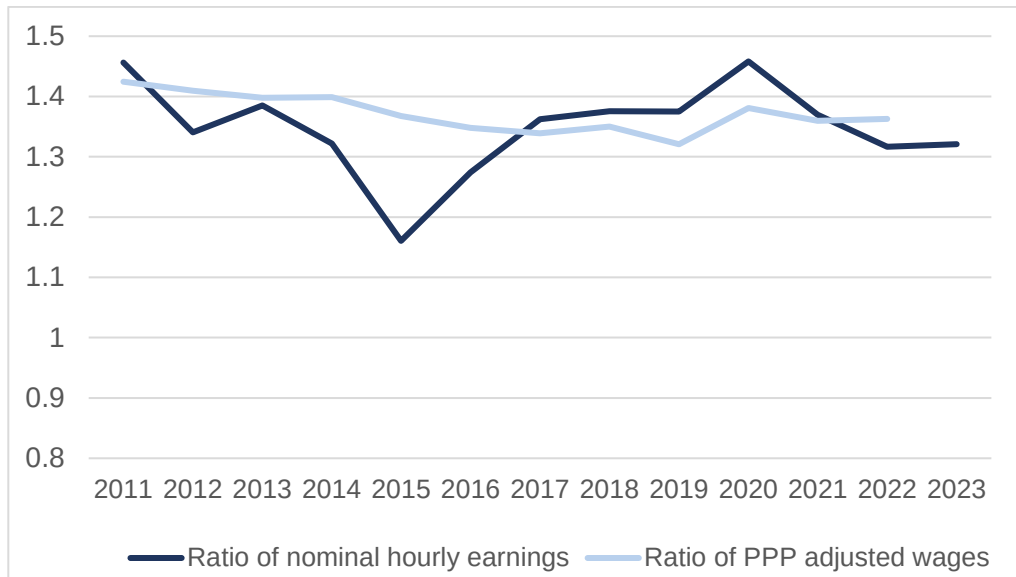
earnings (excluding overtime) for employees in nominal (although in a common currency) and purchasing power parity (PPP) adjusted terms. The PPP-adjusted ratio declined from a ratio of 1.42 in 2011 to 1.36 in 2022, indicating some wage convergence. After adjusting for price differences between jurisdictions, hourly earnings were approximately 36 per cent higher in RoI. For cross-border workers from NI to RoI, the nominal ratio is more relevant as they face NI prices. The nominal ratio decreased from 1.45 in 2011 to 1.32 in 2022. RoI nominal wages approached NI levels in 2015 due to a sharp fall in the euro/sterling exchange rate. The convergence in the PPP-adjusted series is largely driven by higher prices in RoI compared to NI. These measures do not account for tax differences between regions, affecting net pay, but they indicate a strong earnings incentive for North to South cross-border working.

2.2 Recent Developments in Taxation Arrangements impacting Cross-Border Workers

The taxation of cross-border workers is governed by a double taxation agreement between the UK and RoI, similar to other European countries. Under this agreement, cross-border workers pay income tax in the jurisdiction where their income is earned while maintaining tax responsibility to their country of residence.

Existing legislation mandates cross-border workers to submit an annual self-assessment tax return to the revenue authority in their country of residence. If the tax paid on their foreign income is lower than what would have been owed had the income been earned domestically, the worker may need to pay the difference. In effect, this system provides tax relief or credit/relief for any tax paid on foreign income. For example, an NI to RoI cross-border worker must file a self-assessment tax return to HMRC and will be liable for the difference if the tax paid to Revenue is lower than the NI tax liability on the same income. The same principal holds for RoI to NI cross-border workers.

Cross-border workers often have higher salaries, and given RoI's more progressive income tax system, RoI residents working in NI may face additional tax obligations. To mitigate this, the Trans Border Worker Relief (TBWR) scheme, introduced in 1998, allows RoI workers employed in NI to avoid additional tax liabilities if 100 per cent of their income is earned outside RoI. The scheme is beneficial as UK tax rates are typically lower than RoI's; without TBWR many RoI to NI cross-border workers would owe a balancing amount to Revenue.

Figure 1: Ratio of Earnings in RoI Relative to NI, 2011-2023

Sources: CSO (EHECS); NISRA (ASHE); OECD PPP database; ONS and CSO CPI data.

Notes: Ratio of mean hourly earnings (excluding overtime) in RoI relative to NI. RoI data are from the CSO Earnings, Hours and Employment Costs Survey (EHECS, series EHA05), and NI data are from the NISRA Annual Survey of Hours and Earnings (ASHE, series GHWPAA). The nominal series converts NI earnings from sterling to euro using annual average EUR/GBP exchange rates. The PPP-adjusted series uses OECD purchasing power parity (PPP) conversion factors to express earnings in a common price level. CPI indices (CSO for RoI and UK CPI for NI, rebased to 2011=100) are used to construct real wage measures over time. The CSO EHECS data cover employees across the economy, and the NISRA ASHE data relate to employees aged 16 and over.

However, this income must be earned outside of RoI. Remote working has presented a challenge for some cross-border workers, particularly RoI residents employed by NI-based firms. Workers who shifted to remote work from RoI to their NI employer became ineligible for TBWR, potentially resulting in unexpected tax liabilities.

During the COVID-19 pandemic, the Irish government introduced a temporary TBWR concession for remote cross-border workers, in place for 2020, 2021, and Q1 2022. However, after its expiration, some workers who were now working for NI employers from home in RoI owed tax to Revenue. RoI to NI cross-border workers raised concerns about the financial cost of remote working post-COVID. They view the end of the concession as creating inequality in remote working access, while the government believes continuing the concession would create inequality in tax treatment for home-based workers employed by RoI employers. The taxation arrangements

described here reflect the position at the time the research was conducted and may be subject to future policy changes.

III TRENDS AND CHARACTERISTICS OF CROSS-BORDER EMPLOYMENT FLOWS

3.1 Estimating Cross-Border Employment Flows

To estimate cross-border worker flows, we use data from both the NI and RoI Censuses (CSO and NISRA, 2014; CSO, 2017; NISRA, 2023a; CSO, 2023a), as well as Irish Revenue data provided directly by the Revenue Commissioners. We define cross-border workers as individuals who reside in one jurisdiction (NI or RoI) and report their main place of work as being in the other jurisdiction, consistent with the approach used in the respective census data, which identify place of residence and location of main employment.¹ Both censuses ask respondents about their main job, which may lead to underestimation for numerous reasons. Individuals may undertake cross-border work outside their main job; those with variable work locations (e.g. construction workers, delivery drivers) may report “no fixed place” or their starting location (e.g. builders’ yard), and increased remote working may hide cross-border employment if workers report their place of work as their home.

For NI to RoI flows, we combine information from the 2011 and 2021 NI Censuses with Revenue data on PAYE-registered workers with an address in NI for 2016 and 2020. As the Revenue data exclude self-employed workers, we adjust these figures upward by 7 per cent, based on the proportion of self-employed respondents in our survey. Values for intervening years are estimated using linear interpolation. The data indicate substantial growth in NI to RoI cross-border employment over the period. The 2021 NI Census recorded 10,541 individuals whose main place of work or study was in RoI. This compares with 6,324 cross-border workers recorded in 2011, implying growth of approximately 67 per cent. However, the 2021 Census estimate is lower than the adjusted Revenue-based estimate for 2020 (11,394). One possible explanation is that the Census question focuses on a person’s main place of work (rather than employer’s location),² and was conducted during a period when remote and hybrid working arrangements remained

¹ The census estimates relate to employed persons and do not include full-time students crossing the border solely for educational purposes.

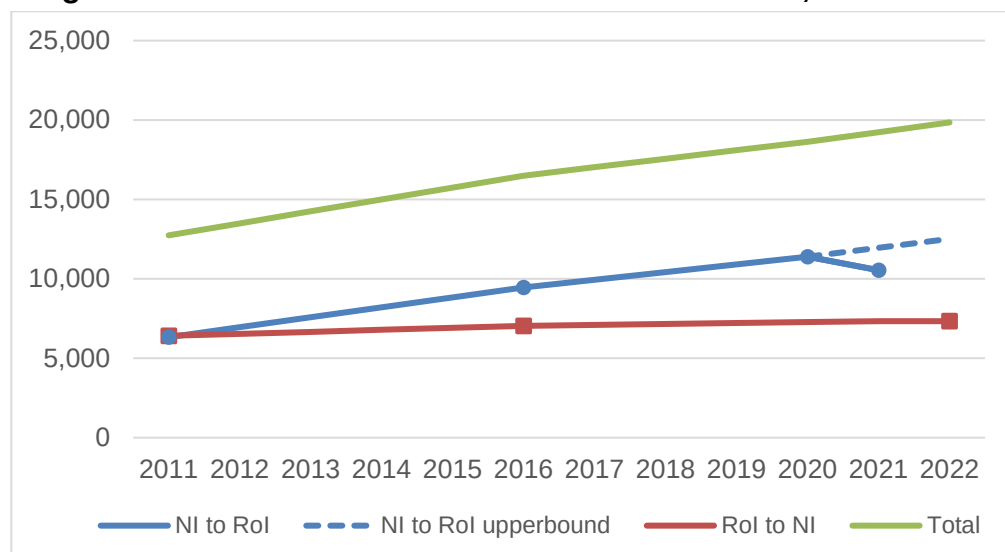
² The NI census question in 2021 was “what is the name and address of your main place of work or course of study”, the information that accompanies the question also states, “Answer for the place that you spend the most time”.

widespread. Given this potential undercount, we also present an upper-bound estimate by extending the pre-2021 trend forward. This yields a figure of 11,949 cross-border workers in 2021. Therefore, we estimate that the number of NI to RoI cross-border workers increased by between 67 per cent (based on the Census estimate) and 90 per cent (based on the upper-bound estimate) between 2011 and 2021.

For RoI to NI cross-border workers, we use RoI Census data for 2011, 2016 and 2022, with linear interpolation for intervening years. The data show that RoI to NI cross-border worker flows trended upwards between 2011 and 2022, but to a much lesser extent than NI to RoI flows. Over the period, the number of workers crossing from RoI to NI increased from 6,416 to 7,333, a growth rate of 14 per cent (see Figure 2).

Overall, from 2011 to 2021, the total number of cross-border workers increased from 12,740 to between 17,827 and 19,282, representing growth of between 40 and 51 per cent, with the bulk of the growth due to the increase in NI to RoI workers.

Figure 2: Estimates of Cross-Border Worker Flows, 2011-2022



Sources: CSO, NISRA and Revenue Commissioners.

Notes: Cross-border workers are defined as individuals resident in one jurisdiction whose main place of work is located in the other jurisdiction. Markers indicate years for which Census or Revenue-based estimates are available. Lines between markers are interpolated values. NI to RoI estimates are based on the 2011 and 2021 NI Censuses and Revenue data for 2016 and 2020 (adjusted to account for self-employment). RoI to NI estimates are based on the 2011, 2016 and 2022 Censuses. The dashed NI to RoI series shows an upper-bound estimate obtained by extending the pre-2021 trend to account for possible under-reporting in the 2021 Census arising from changes in work-location reporting.

3.2 Survey Results

The survey received 600 responses, representing approximately 3 per cent of the total cross-border worker population. It provides rich data on worker characteristics, motivations, advantages and disadvantages of cross-border employment, job satisfaction, impacts of Brexit and COVID-19, as well as job characteristics such as occupation and sector.

To ensure representativeness, we compared the sectoral distribution of RoI to NI cross-border workers from the survey with the 2022 RoI Census. Table 1 shows the survey data are highly representative; however as expected, some sectors like Construction and Transport, are underrepresented likely due to higher shares of self-employed workers who are less likely to engage with online surveys. Conversely, sectors like Professional, scientific, and technical activities and ICT are overrepresented, likely due to greater engagement with the survey promotion groups.

The census reports the top ten employment sectors, covering 85 per cent of RoI to NI cross-border workers.³ These sectors cover 91 per cent of RoI to NI cross-border workers from the survey data. This robustness check confirms the survey data are highly representative of the cross-border worker composition.⁴

³ See <https://www.cso.ie/en/releasesandpublications/ep/p-cpp7/census2022profile7-employmentoccupationsandcommuting/commutingtowork/>

⁴ Unfortunately, since we cannot yet access the NI Census microdata, it was not possible to run the same robustness check for NI to RoI cross-border workers. However, as statistical representativeness increases with sample size, we have no reason to believe that the NI to RoI data, which comprise a larger sample, are not also representative.

Table 1: Sectoral Employment Distribution

<i>Sector</i>	<i>Census</i>	<i>Survey</i>
Human health and social work activities	16%	16%
Wholesale and retail trade; repair of motor vehicles and motorcycles	13%	10%
Manufacturing	11%	10%
Education	11%	13%
Construction	8%	2%
Public administration and defence; compulsory social security	7%	8%
Professional, scientific and technical activities	6%	13%
Information and communication activities	5%	17%
Transportation and storage	4%	0%
Accommodation and food service activities	3%	1%
% of total South to North workers	85%	91%

Source: Authors' analysis.

3.3 Characteristics of Cross-Border Workers

Survey responses reflect Census and Revenue data patterns, with more respondents crossing from NI to RoI than RoI to NI. Table 2 shows 63 per cent of the sample travelled from NI to RoI, while 37 per cent travelled from RoI to NI. Additionally, 53 per cent of NI to RoI workers are male, compared to 45 per cent of RoI to NI workers (Table 3).

Table 2: Direction of Travel, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
%	62.9	37.1
N	372	219

Source: Authors' analysis.

Table 3: Gender, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Male	52.7	45.2
Female	47.3	54.8
Total	100	100

Source: Authors' analysis.

Table 4 indicates that nearly 80 per cent of cross-border workers hold third-level qualifications, and about 10 per cent hold post-secondary qualifications. This high educational attainment contrasts with the general populations, where 36 per cent of NI and 41 per cent of RoI had high education levels in 2019 (Smyth *et al.*, 2022), suggesting cross-border work involves high-skilled labour flows benefiting both economies.

Table 4: Educational Attainment, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Lower secondary	6.8	3.2
Upper secondary	6.2	7.8
Post secondary	9.7	9.2
Third level	77.3	79.7
Total	100	100

Source: Authors' analysis.

Table 5 confirms the high value-added nature of cross-border employment, with about 70 per cent of NI to RoI and 67 per cent of RoI to NI workers in professional and managerial occupations. Additionally, 12 per cent of RoI to NI workers are in associate professional roles, compared to 5 per cent of NI to RoI workers. Non-professional/managerial occupations account for less than a quarter of cross-border workers in either direction.

Table 5: Occupation Distribution, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Professional occupation	38.0	38.9
Manager, director and senior official	32.1	27.8
Associate professional and technical occupations	5.4	12.0
Administrative and secretarial occupations	8.4	6.5
Sales and customer service	5.7	3.2
Skilled trades	4.1	1.9
Caring, leisure and other services	1.4	4.2
Process, plant and machine operatives	1.1	1.4
Other	3.8	4.2
Total	100	100

Source: Authors' analysis.

Over 90 per cent of respondents were employees (Table 6), with the rest self-employed. Self-employment is underrepresented in the sample compared

to the workforce at large, where it accounts for 13 per cent in both NI and RoI (NISRA, 2023b; CSO, 2023b). This could indicate that cross-border work is less common amongst the self-employed or (based on Table 1) that the survey did not fully capture cross-border self-employment, particularly in sectors such as construction and trade occupations.

A substantial proportion (over 90 per cent) of respondents were on permanent contracts, with similar figures for both groups (Table 6). About 40 per cent of cross-border workers were employed in the public sector (Table 7), which is overrepresented relative to the labour force in both jurisdictions – 27 per cent in NI (NISRA, 2023c) and 14 per cent in RoI (IPA, 2022). However, the relationship holds in that for those travelling from RoI to NI employment is slightly larger in the public sector, which is in keeping with the greater public sector employment share in NI relative to RoI (McGuinness and Bergin, 2019).

Table 6: Contractual Status, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Employee	92.7	92.24
Self-employed	7.3	7.8
Total	100	100
Permanent	92.6	91.2
Fixed Term	2.9	4.4
Temporary	4.6	4.4
Total	100	100

Source: Authors' analysis.

Table 7: Public/Private Sector, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Public	38.77	42.0
Private	61.3	58.0
Total	100	100

Source: Authors' analysis.

While cross-border worker profiles are similar in most respects regardless of direction, the main exception is salary. Given much higher incomes in RoI (Smyth *et al.*, 2022), we find that NI to RoI workers generally earn higher salaries than their RoI to NI counterparts. Over 30 per cent of NI to RoI workers earn a salary more than €75,000, in contrast to 12 per cent for RoI to

NI workers. Conversely, just under 40 per cent of NI to RoI workers earned below €50,000 compared to 55 per cent of RoI to NI workers (Figure 3).

Figure 3: Salary (Euros), % of Survey Respondents



Source: Authors' analysis.

Notes: Figures were given in the survey in euros and sterling for these figures using the exchange rate on the day the survey went live.

Most respondents have been undertaking cross-border work for over five years, with 52 per cent of RoI to NI workers doing so for over ten years, compared to 41 per cent of NI to RoI workers. The numbers undertaking cross-border work for less than five years is approximately 10 percentage points higher among NI to RoI workers, consistent with there being a substantial recent increase in NI to RoI workers (Table 8).⁵ We report the distance that cross-border workers live from the border in Table 9 and find that almost 50 per cent (over 40 per cent) of workers travelling North to South (South to North) live within ten miles from the border, with approximately two-thirds living within 20 miles. These findings are consistent with census evidence that cross-border commuting remains highly geographically concentrated, with flows largely occurring in areas close to the border. For

⁵ The distributions in Tables 8 (tenure) and 9 (time spent as a cross-border worker) broadly align; however, they do not match exactly as there will be some who were cross-border workers in their previous employment and others who may not have always been cross-border workers with their current employer.

example, Derry has the most cross-border workers from RoI, 95 per cent of which come from neighbouring Donegal (CSO, 2023b).

Table 8: Time Spent as a Cross-Border Worker, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Less than 1 year	8.6	6.4
1 to 5 years	31.7	24.2
5 to 10 years	18.3	17.4
Over ten years	40.9	52.1
Total	100	100

Source: Authors' analysis.

Table 9: Distance Lived from Border, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Less than 10 miles	49.2	40.2
10 to 19 miles	18.8	24.7
20 to 29 miles	11.3	19.6
30 plus miles	20.4	15.5
Total	100	100

Source: Authors' analysis.

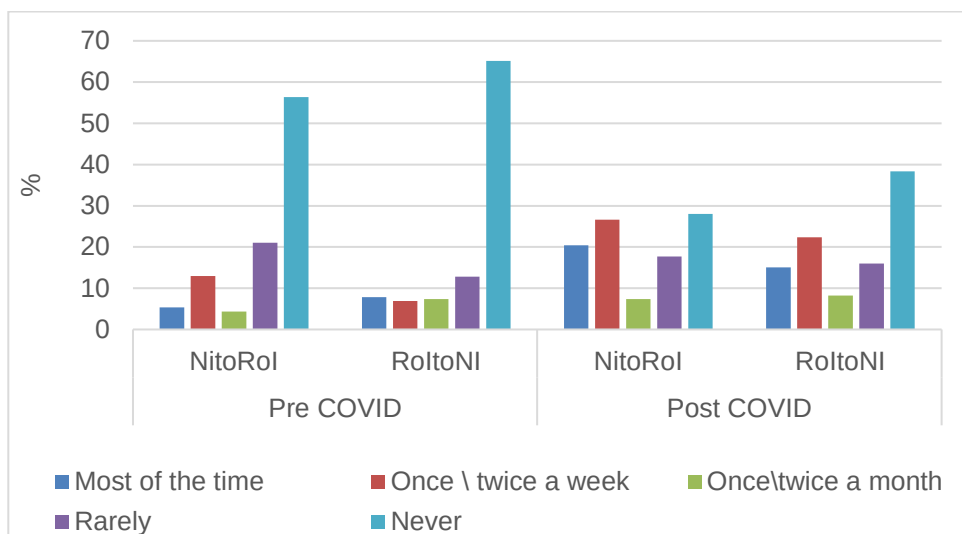
We explored workers' motives for cross-border employment, with the survey providing several potential options that were not mutually exclusive. While the survey results for both sets of cross-border workers have been closely aligned to this point, significant differences exist regarding the motives for cross-border employment. The availability of a better salary and career prospects are primary factors motivating NI to RoI workers, with two-thirds citing higher earnings as a factor and over 40 per cent indicating better career opportunities were in RoI (Table 10). Just over a third of NI to RoI workers cited proximity to the border as an important factor. For RoI to NI workers, no single factor dominated. As was the case with NI to RoI workers, just over a third of those travelling North for employment pointed to proximity to the border as a relevant factor.

Table 10: Motives for Being a Cross-Border Worker, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Work-life balance	23.9	23.3
Better salary	66.7	14.2
Better pension	20.2	5.9
Career progression	41.1	26.5
Type of work available	21.8	24.2
Home/family reasons	23.9	23.3
Company's reputation	13.2	23.3
Leave/holiday entitlement	9.4	11.4
Live close to the border	34.7	35.6

Source: Authors' analysis.

Since the pandemic, remote working has increased in RoI and elsewhere. Figure 4 shows that pre-pandemic, over 75 per cent of cross-border workers rarely engaged in remote working. Post-pandemic, this fell to below 50 per cent. Now, 47 per cent of NI to RoI workers work remotely most of the time or once/twice a week, compared to 37 per cent of RoI to NI workers, indicating lower remote working uptake among RoI to NI workers. Public transport usage is remarkably low among cross-border workers, with 78 per cent of NI to RoI and 90 per cent of RoI to NI workers using cars (Table 11).

Figure 4: Frequency of Remote Working Pre- and Post-Pandemic

Source: Authors' analysis.

Table 11: Mode of Transport, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
Car	77.9	90.8
Train	7.6	1.8
Car and train	4.0	0.5
Bus	0.8	1.4
Car and bus	0.3	2.3
Other	9.4	3.2
Total	100	100

Source: Authors' analysis.

Regarding the pandemic's impact, 12 per cent of NI to RoI workers felt negatively affected, compared to 24 per cent of RoI to NI workers. Most respondents felt the pandemic had no impact or positive impacts (Table 12). Brexit had a markedly different impact, with no respondents perceiving positive effects. While most felt Brexit had no impact, a substantial minority felt negatively affected, especially RoI to NI workers. Among RoI to NI workers, 24 per cent felt Brexit impacted them substantially negatively, compared to under 11 per cent of NI to RoI workers (Table 13).

Table 12: Impact of the COVID-19 Pandemic on Cross-Border Workers, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
A lot negative	3.5	13.4
A little negative	8.5	11.1
None	66.5	51.2
A little positive	9.8	10.1
A lot positive	11.7	14.3
Total	100	100

Source: Authors' analysis.

Table 13: Impact of Brexit on Cross-Border Workers, % of Survey Respondents

	<i>NI to ROI</i>	<i>ROI to NI</i>
A lot negative	10.6	23.5
A little negative	16.1	21.2
None	71.0	53.5
A little positive	1.4	0
A lot positive	0	0
Total	100	100

Source: Authors' analysis.

IV MULTIVARIATE ANALYSIS

We estimate multivariate models to assess the extent to which statistically significant differences exist between both groups of cross-border workers with respect to earnings and job satisfaction. More formally, we estimate a set of models like Equation 1 (using interval regression and probit estimation methods) to initially explore how the relationship between the direction of cross-border work relates to wages and job satisfaction respectively. For job satisfaction, we then use Propensity Score Matching (PSM) to estimate the same relationships in a framework that accounts for sample selection bias. Specifically, PSM aims to construct treatment and control groups that are comparable in terms of their observed characteristics, thereby reducing bias arising from systematic differences between individuals who work across the border in different directions. Rather than comparing all workers directly, PSM compares individuals with similar observed characteristics who differ only in their treatment status. We do not utilise a PSM approach for wages as they are recorded as intervals. And while a PSM with interval data is technically possible, the matching which is necessary would substantially reduce the effective sample size.

The propensity score is defined as the conditional probability of receiving a treatment given certain observed characteristics (Equation 2): D indicates exposure to the treatment and X is a vector of determining characteristics. For the probit and PSM models, the treatment group is NI to RoI cross-border workers ($D=1$), and the control group is RoI to NI cross-border workers ($D=0$). In the second stage of PSM, individuals in the treatment group are “matched” with counterparts in the control group with similar propensity scores, and their actual outcomes are compared.

$$Y_i = \beta_0 + \beta_1 CB_i + \sum_{k=2}^K \beta_k X_{ki} + \varepsilon_i \quad (1)$$

where y_i is the outcome variable (earnings or job satisfaction) for individual i , CB_i is a binary indicator equal to one for NI to RoI cross-border workers and zero for RoI to NI cross-border workers, and X_i is a vector of controls.

$$p(X) = \Pr\{CB = 1|X\} = E\{CB|X\} \quad (2)$$

where $p(X)$, the propensity score, is defined as the conditional probability of receiving the treatment given the set of observed characteristics.

For wages, respondents selected their salary range, so we estimate an interval regression model using logged values of wage bands. The models include a dummy variable for NI to RoI cross-border workers, with additional controls for gender, occupation,⁶ tenure, public sector employment and hours worked. The wage equation model (Table 14) indicates that, after controlling for other factors, RoI to NI cross-border workers incur a wage disadvantage of just under 30 per cent relative to their NI to RoI counterparts. Another key observation of the model results is that female cross-border workers earn approximately 30 per cent less than their male counterparts, after controlling for other factors. To assess the extent to which the gender wage disadvantage is driven by one group of cross-border workers, we estimate the wage equation separately for both the NI to RoI and RoI to NI sub-samples (columns 3 and 4 of Table 14). A gender pay disadvantage was observed among both groups; however, at 34 per cent it is substantially greater among cross-border workers travelling from RoI to NI, compared to 23 per cent for workers travelling from NI to RoI.

We estimate probit models for job satisfaction using a binary variable from the questionnaire. Although the descriptive data indicate that 55 per cent of NI to RoI workers are “very satisfied” with their work, compared to 47 per cent of RoI to NI workers, after controlling for other factors, NI to RoI workers were 9 percentage points less likely to be satisfied in their job relative to those travelling from RoI to NI (Table 15). This suggests RoI to NI workers may be compensated, at least to some extent, for lower earnings with higher job satisfaction.

⁶ This was highly co-linear with measures of educational attainment, so those variables were not included in the models.

Table 14: Wage Model, Survey Respondents

	<i>All</i>	<i>NI to ROI</i>	<i>ROI to NI</i>
Male	0.30*** (0.116)	0.23* (0.141)	0.34* (0.178)
Tenure 1-5 years	0.33 (0.207)	0.21 (0.235)	0.03 (0.378)
Tenure 5-10 years	0.49** (0.221)	0.35 (0.253)	0.17 (0.392)
Tenure 10 plus years	0.42** (0.199)	0.29 (0.228)	-0.01 (0.352)
Professional occupations	0.41*** (0.150)	0.25 (0.180)	0.82*** (0.236)
Manager, director and senior official	0.74*** (0.158)	0.62*** (0.189)	0.96*** (0.251)
Associate professional and technical occupations	0.46* (0.236)	0.39 (0.327)	0.60* (0.312)
Part-time	-0.93*** (0.224)	-1.16*** (0.301)	-0.67** (0.304)
Public Sector	0.03 (0.118)	0.02 (0.145)	-0.09 (0.181)
NI to RoI	0.28** (0.118)		
Constant	9.59*** (0.230)	10.14*** (0.246)	9.77*** (0.369)
N	601	372	219

Source: Authors' analysis.

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 15: High Levels of Job Satisfaction, Marginal Effects

	<i>All</i>
Male	0.00
Tenure	
Ref: Less than 1 year	
1-5 years	-0.01 (0.075)
5-10 years	-0.12 (0.078)
10 + years	-0.07 (0.071)
Professional occupations	0.13** (0.055)
Manager, director and senior official	0.16*** (0.058)
Associate professional and technical occupations	0.16* (0.084)
Part-time	0.04 (0.071)
Public Sector	-0.05 (0.043)
NI to RoI	-0.09** (0.044)
Distance to the Border	
(Ref: Less than 10 miles)	
10 - 19 Miles	-0.05 (0.054)
20 - 29 Miles	0.07 (0.063)
30 + Miles	-0.06 (0.057)
Observations	601

Source: Authors' analysis.

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Finally, Table 16 reports the results from our robustness check on job satisfaction. We do find that NI to RoI cross-border workers were less likely to have high levels of job satisfaction relative to the RoI to NI control group. These results are consistent with the Probit models (Table 15). The post estimation pseudo R^2 is statistically zero, indicating that the matching has successfully controlled for any observable differences between the treatment

and control groups and that, therefore, the post-matching data were appropriately balanced.

Table 16: PSM Robustness Checks

	<i>NI to RoI</i>	<i>Pre R²</i>	<i>Post R²</i>
Job Satisfaction	-0.175***	0.045***	0.004

Source: Authors' analysis.

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

V ANALYSIS OF QUALITATIVE DATA

The survey included open-ended questions to explore opportunities and challenges of cross-border working, and the impacts of Brexit and COVID-19. We use word clouds to visually represent frequently mentioned keywords. To group similar meanings, we combined stemmed words (e.g. commute and commuting) and synonyms (e.g. commute and travel). The most frequent word in each group was displayed in the word cloud, with size indicating frequency. We restricted word clouds to words with four or more letters to exclude common words like 'the' and 'and' as well as NI and RoI. However, for barriers to cross-border work, we included words with three or more letters since 'tax' was a key issue.

Below we discuss findings from these open-ended questions. We balance the quotes by using examples from respondents in both jurisdictions; however, this was not always possible or feasible. For instance, more NI to RoI workers answered the question on benefits, while more RoI to NI workers answered the question on barriers and costs. Therefore, any apparent imbalance in the quotes between jurisdictions is a finding in itself and reflects the responses gathered.

5.1 Benefits of Being a Cross-Border Worker

Some responses were similar to those seen in Table 11, for example salary and career opportunities were frequently cited as benefits. Figure 5 displays a word cloud generated from the responses. Other prominent words which emerged are medical (referring to medical access and cover), pensions, and living (referring to the cost of living).

However, as suggested previously the opportunities and benefits for cross-border workers differed significantly between the two groups of workers. Figure 6 shows the responses by direction of travel. For NI to RoI workers, salary was the most prominent keyword, followed by opportunities. For RoI

Figure 5: Wordcloud Generated from 'What are the Benefits/Opportunities of being a Cross-Border Worker?'



Figure 6: Benefits/Opportunities Cited by Those Travelling North to South (L) and South to North (R)



Source: Authors' analysis.

As discussed above responses differed considerably based on direction of travel. For NI to RoI workers, the most common responses related to better salaries and opportunities. One respondent reported they could earn “4 times the salary” (travelling NI to RoI). Many respondents mentioned higher salaries and better career opportunities as benefits of working in Ireland.

“Salary/opportunities are better in Ireland” (NI to RoI)

Some individuals also reported better working conditions as a benefit of being a cross-border worker. One cross-border worker employed in RoI stated:

“Industry in Republic of Ireland is more professional, less nepotistic, better paid, (and has) better prospects.” (NI to RoI)

For RoI to NI workers, the wordcloud indicates that respondents mentioned benefits which tended to be unrelated to salary e.g. child benefit top-up, medical/healthcare access, pensions etc. Holidays, leave entitlement and flexible working were also mentioned.

Quite clearly a major benefit for those travelling to NI for work related to eligibility for NHS care. About half of the respondents who mentioned benefits of working in NI highlighted healthcare or medical cover as a positive aspect of being a cross-border worker.

“I am eligible for free NHS healthcare which entitles me to a medical card in IRELAND.” (RoI to NI)

“Medical card, better health benefits, better retirement fund” (RoI to NI)

“Access to the other health system because of paying national insurance in NI.” (RoI to NI)

However, not all responses were positive, and some mentioned the current state of the NHS in NI:

“Because I work in the North I can access a doctor there. Although their system is not much better than the Southern system only that you don’t have to pay.” (RoI to NI)

“Free health care, albeit deteriorating NHS services.” (RoI to NI)

Other benefits for RoI to NI workers were varied and included proximity to the border or job availability in the other jurisdiction.

Some RoI to NI workers also mentioned career progression and opportunities, although these were primarily within the health and social care sector, where many RoI to NI cross-border workers are employed.

“Career progression.” (RoI to NI – employed in healthcare)

Some workers also cited benefits provided by their firm which made cross-border working more attractive.

“Much better work life balance policies. I am able to work part time, take additional leave, work compressed hours.” (RoI to NI)

“Company provides exceptional benefits + as a cross-border worker we get medical care in both jurisdictions” (RoI to NI)

Unlike NI to RoI workers, where salary and opportunity were key themes, RoI to NI workers had more varied views. Some keywords or themes were cited by only a minority of the sample.

5.2 Costs of Being a Cross-Border Worker

There were also barriers to being a cross-border worker. Respondents were asked to report the additional barriers they experienced as a result of being a cross-border worker (Figure 7). Not surprisingly, the financial cost of commuting to work was a dominant theme, as were tax issues, exchange rates and the implications of working from home. Unlike the benefits to cross-border work, there was little change in the barriers when broken out by jurisdiction (Figure 8).

While the benefits of cross-border work were straightforward, the barriers were more varied and emotive. Tax issues were prevalent in both jurisdictions, with more perceived complications for workers going South to North, or it may be there is a greater awareness of the complexities. Individuals felt the tax regime was overly complex, and employers were responding to the tax system in various ways:

“Tax matters are much more complicated.” (RoI to NI)

“Lack of harmony in tax regime between Revenue Commissioners and HMRC – nightmare!” (RoI to NI)

“Complex tax issues. The employer paid me by cheque for 2 years as they said they could not pay into an Irish bank account.” (RoI to NI)

For NI to RoI workers, the biggest grievance around tax was needing an accountant to help complete an annual tax return:

“Have to pay an accountant every year to provide a tax return to HMRC.” (NI to RoI)

feeling they were disadvantaged with regards to remote working. The implications of this were varied, with some unhappy about perceived differential treatment, while others were more aggrieved by commuting costs, impact on work/life balance, and family arrangements. It is important to reiterate of the COVID-19 concession on the TBWR does not, in itself, restrict RoI to NI cross-border employees from working remotely. Specifically, if RoI to NI cross-border workers work remotely, they will no longer be entitled to TBWR, putting them in the same tax position as other RoI based workers.

“As a cross-border worker living in the Republic of Ireland, I can’t work from home/work remotely therefore I have more travel expenses than other employees who live in Northern Ireland and I can’t avail of the flexibility that the company offers their employees e.g. leaving/picking up children from school etc” (RoI to NI)

“Unfair working from home limitations due to tax requirement makes my situation unequal to my colleagues” (RoI to NI)

“As I am a cross-border worker I am not allowed to work from home. I feel that I am being discriminated against by the Irish Government. Not having the freedom of choice is very unfair on cross-border workers. It is an unusual situation that people find themselves in and the Government owe it to their people to see this.” (RoI to NI)

One worker emphasised that the systems of HMRC and the Revenue Commissioners were not designed to accommodate cross-border working:

“I also find the tax systems in both jurisdictions are not aware of cross-border working and not designed with the situation in mind, which causes paperwork and confusion.” (NI to RoI)

Knock-on effects of working in a different jurisdiction were also highlighted. Respondents reported issues in accessing mortgages, for example. Some banks will not lend to cross-border workers, while others reduce mortgage amounts due to currency fluctuations:

“I am finding that getting a mortgage in Ireland (through an Irish bank) is becoming an issue due to a stress test that that banks impose and can reduce mortgage amount by 20 per cent, which is adding to the stress of trying to buy a house in Ireland which is already challenging.” (RoI to NI)

“Another major barrier is the reluctance of the banking sectors in regards mortgages some make it extremely difficult and adds

another dimension to an already disadvantaged border region.” (NI to RoI)

Issues around social security eligibility and payments were also raised. Child benefit was mentioned by several respondents and seemed to be particularly relevant for cross-border workers residing in RoI:

“Extra layer of bureaucracy / complications with various aspects of life e.g. finances/exchange rates, tax, banking, family benefits. For example, child benefit is paid in home jurisdiction (South where we live with our children), but they write to me every six months seeking assurances that me/partner are still employed / self-employed there (i.e. payment is predicated on his employment status in South). Obviously not a requirement for residents /families without a cross-border worker.” (RoI to NI)

The survey was conducted in March – April 2023, so it is not surprising that fuel costs and general commuting expenses were frequently mentioned as barriers. Some respondents also highlighted the environmental impact, which they found particularly bothersome. They felt that many people, including colleagues, could work from home but were travelling unnecessarily due to tax laws that were relaxed during the pandemic.

“Travel – time and diesel are added costs right now – during a cost-of-living crisis. And the Government say they are worried about the environment???... while we have to travel in our cars unnecessarily because of a crazy tax law! Bus is not a good option in rural Ireland!!” (RoI to NI)

There was a general consensus that the situation is complex, involving tax returns, working from home tax implications, and access to social security. This complexity was further compounded for individuals working on both sides of the border, often under different types of contracts; e.g. one individual was employed in a part-time permanent role in one jurisdiction and self-employed in a part-time role in the other. Another respondent reported a similar situation:

“It is a bit difficult to navigate the systems. I am part employed (in Ireland) and self-employed (in NI). PSWT Withholding tax from Ireland can take a long time to sort out.” (NI to RoI)

Barriers to being a cross-border worker were similar in both jurisdictions, contrasting with the benefits, which differed considerably based on the direction of travel. However, barriers were more pronounced for those who living in RoI and working in NI. Specifically, 67 per cent of those who live

in Ireland and work in NI reported facing barriers, compared to 47 per cent of those travelling in the other direction.⁷ Many of those working in NI do so because of proximity to the border rather than any strong pull factor.

Furthermore, the different types of transport used for commuting purposes were evident, with many travelling NI to RoI mentioning the cost of public transport and the train, while those travelling to NI for work mentioned fuel. This is reflective of the places people are working, with many going NI to RoI likely to be working in and around Dublin and thus travelling significant distances whereas those travelling from RoI to NI are doing so because they live close to the border and work in a range of areas across NI.

VI SUMMARY AND CONCLUSIONS

Cross-border employment flows represent potentially important mechanisms for mitigating asymmetries in the NI and RoI labour markets. Optimal movement of labour between both regions is likely to be a crucial factor in contributing to the growth of the all-island economy and supporting border regions. The interdependencies of the two economies on the island are clear and have a mutually beneficial impact on one another (Bergin *et al.*, 2025).

The objectives of this study are two-fold. Firstly, to assess the magnitude of cross-border worker flows and the extent to which these are changing over time. Secondly, using survey data to develop an understanding of the profile and characteristics of cross-border workers, as well as the opportunities and barriers associated with cross-border working. Important policy implications emerge for the Irish Government, the NI Executive, and the UK Government.

In terms of labour market flows, we estimate the total number of cross-border workers increased from 12,740 in 2011 to between 17,827 and 19,282 in 2021, representing a total growth rate of 40 to 51 per cent. The bulk of this growth is attributed to the expansion of NI to RoI cross-border workers, likely driven by a persistent wage gap between RoI and NI. Based on nominal data, average hourly earnings were 32 per cent higher in RoI, representing a substantial gain for NI to RoI cross-border workers who benefit from higher earnings in RoI while maintaining lower living costs in NI.

Cross-border workers have a similar education profile, with over 75 per cent holding third-level qualifications, and are concentrated in professional and managerial occupations. These figures suggest that the productivity share of cross-border workers will substantially outweigh their respective employment shares.

⁷ This question was answered by the whole sample.

Motivations for cross-border working vary by direction. NI to RoI workers are driven by better salaries and career prospects, while no single factor dominates for RoI to NI workers who cite proximity to the border and personal reasons like work-life balance amongst a range of other factors.

The COVID-19 pandemic has led to a significant shift in home working patterns. Lower home working rates for RoI to NI workers may be related to tax issues that cross-border workers from RoI argue make remote working more difficult. However, sectoral differences may also explain part of this difference, as higher proportions of RoI to NI cross-border workers are employed in public sector roles, many of which will be in essential occupations less suitable to remote working.

With respect to wage differences, our models indicate that, after controlling for other factors, RoI to NI cross-border workers incur a wage disadvantage of just under 30 per cent relative to their NI to RoI counterparts. This is directly in line with the analysis of official wage data (Figure 1). The wage premium is consistent with the other evidence that North to South cross-border workers are primarily motivated by better salary and career opportunities.

The descriptive data indicate that cross-border workers travelling NI to RoI reported being “very satisfied” in their work, compared to those travelling RoI to NI. However, after controlling for other factors, those travelling NI to RoI were found to be 9 percentage points less likely to be satisfied in their job relative to those travelling RoI to NI. The results suggest that RoI to NI cross-border workers may, at least to some extent, be compensated for lower earnings by higher levels of job satisfaction. This is probably reflective of the sectors and occupations which these individuals work in (e.g. healthcare).

Qualitative analysis confirms the importance of salary and career prospects and working conditions for NI to RoI workers. The advantages accruing to those travelling South to North were more diverse in nature. Nevertheless, a consistent advantage was having access to free GP and other care (by virtue of paying National Insurance); however, this advantage may be declining due to the rise in NHS waiting lists and other issues associated with healthcare in NI. Some workers travelling South to North employed in the health sector indicated better working conditions and career prospects relative to those available in the HSE.

Cross-border workers face common barriers like exchange rate risk, tax return requirements, social welfare access, commuting costs, and difficulties accessing financial products like mortgages. Our research provided strong evidence that these were much more substantial for those travelling South to North. In particular, tax related issues appear to be a much bigger concern for RoI to NI cross-border workers, with concerns expressed around the inability

to simultaneously claim Trans Worker Border Relief and work from home. Many respondents travelling RoI to NI reported that their ability to work from home has been severely restricted following the lifting of TBWR exemptions that were in place during the pandemic. Many felt that they could work from home but would experience a financial penalty or they could travel to their workplaces which were often empty as everyone else worked from home. This was strongly felt to be unfair among survey respondents. Finally, survey respondents generally reported that Brexit has resulted in mainly negative implications for cross-border workers associated with greater bureaucracy, political instability, exchange rate volatility and increased insurance costs.

In terms of implications, there are clear barriers to the smooth functioning of the all-island labour market that can be addressed by policy. Greater cooperation between HMRC and the Revenue Commissioners is needed to understand the nuances associated with cross-border working, particularly in light of an increased prevalence of working from home and hybrid working. There appears to be a considerable information deficit amongst both sets of employees in terms of the complexities associated with being a hybrid cross-border worker. Complementary research has also found information deficits amongst employers of cross-border workers in both jurisdictions which may impact hiring decisions, and in some cases this is impeding investment (O'Reilly *et al.*, 2024). Cross-border working has benefits for individuals as well as broader economic benefits, and as such should be encouraged. Making cross-border working as seamless as possible should be an aim of both the NI Executive and the Irish government particularly given the importance placed on regional balance.

There is also a need for consideration to be given to the non-work related barriers cross-border workers can face such as difficulty accessing financial products, e.g. mortgages and confusion around social security entitlement. Continuing to improve the availability and affordability of commuting options would also be beneficial for existing cross-border workers, particularly as increasing the provision of cross-border trains has seen a significant increase in demand (NI Minister for Infrastructure, 2025). At a time when regional development has become popular in policy-making it may be worthwhile to examine the specific contribution of cross-border working to economies in the border regions and the extent to which enhancing cross-border worker flows can be used as an effective regional policy tool in these traditionally less affluent locations. Given the policy interest in cross-border working and the evolving nature of labour markets, future research should revisit both survey and administrative data to monitor how cross-border employment patterns, opportunities and challenges evolve over time.

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