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AN GHNÍOMHAIREACHT BAINISTÍOCHTA RIALTAIS ÁITIÚIL
LOCAL GOVERNMENT MANAGEMENT AGENCY

THE IMPACT OF **ONLINE TRADING** ON **LOCAL GOVERNMENT**

By Pat McCloughan,
PCMA Economic Consulting

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Management Association (CCMA)

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Disclaimer

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Foreword

This work was commissioned to assess the impact of the growth in online trading on physical retailing and consequently on local authority rates income, as commercial rates are a primary source of local government funding. We were also interested in understanding how the trend in online shopping influences the social, economic and cultural development of our cities and towns and how best to shape their future development to take advantage of the opportunities and challenges presented within this changing environment.

The first question was addressed through an econometric analysis of data. The findings revealed that rates income was not directly impacted by these changes in retail habits, rather, the issue having most impact on rates income is the level of people's disposable income. While this may seem obvious once proven, it gives us the evidence to support actions that focus on boosting disposable income, which is generated predominantly through employment or self-employment. **Therefore, we now understand that the work we undertake in promoting and facilitating economic development should focus on generating high quality employment opportunities**.

However, the research progresses to consider how local authorities should best respond to the consequences of online trading on town and city centres. The author presents a key finding from research carried out in the UK which asserts that policies and initiatives that prioritise 'consumption' are less successful than those that aim to make urban centre more attractive to businesses, especially those providing high quality jobs. **Much of the focus therefore should be on creating cities and towns that are vibrant and offer a diverse set of amenities**.

However, there is a clear relationship between the economic strength of a town or city and the diversity of the amenities it can offer. The research carried out in the UK reinforces the point that the economic strength of towns is fuelled by levels of disposable income of its residents. **Therefore, rather than focusing on shopfronts we need to give attention to jobs, the higher quality the better, with the improved shopfronts and diversity of amenities, ultimately following on foot of high levels of disposable income**.

There are many aspects of local authority activities that will be impacted by the evidence presented in this report; planning, development, finance, community, transportation, environment, housing, etc. There are obvious and immediate actions that could support the suggested development focus, such as the development of digital hubs that enable towns to attract persons engaged in value added activities to work remotely. However, to take full advantage of the opportunities offered and the challenges posed to town and city centres by online trading, local authorities will require a wider set of policies and initiatives (i.e., transport links, broadband, etc) that can combine to promote sustainable development in line with the *Project Ireland 2040, National Planning Framework*.

Eamonn O'Sullivan,
Chair, CCMA Finance Committee

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Glossary of Terms

€	Euro (currency of the eurozone, which includes Ireland).
€m	Millions of euro.
A priori	Latin term commonly used in economics, meaning what one would expect to observe from first or general principles (prior to data analysis).
AILG	Association of Irish Local Government.
Annex	Annex of Supplementary Information.
ARV	The Annual Rate on Valuation.
BERD	Business expenditure on R&D.
B2C	Business to Consumer.
c.	Short for *circa* (Latin), meaning 'around', 'about', 'approximately' (usually in reference to dates but also used in respect of other quantitative information) (sometimes abbreviated as 'ca.').
CAGR	Compound annual growth rate (measure of the average annual growth rate).
CCMA	County and City Management Association.
Ceteris paribus	Latin term commonly used in economics meaning 'other things being equal'.
CSO	Central Statistics Office.
DBEI	Department of Business, Enterprise and Innovation.
DCCAE	Department of Communications, Climate Action and the Environment.
DECLG	Department of the Environment, Community and Local Government (today the DoHPLG).
DESI	Digital Economy and Society Index.
DoHPLG	Department of Housing, Planning and Local Government (formerly the DECLG).
DSL	Digital subscriber line.
DSTRI	Digital Services Trade Restrictiveness Index (DSTRI) (OECD).
EGFSN	Expert Group on Future Skills Needs.
Economic impact multiplier	Economic multipliers permit estimation of the knock-on economic impacts associated with a given direct economic impact. They are estimated using a country's input-output and supply-and-use tables, which give the interactions among all sectors of an economy (in Ireland the data are published by the Central Statistics Office). There are output, gross value added, employment and income multipliers, which can be Type I or Type II multipliers (see Type I, Type II multipliers, indirect effects and induced effects).
EMRA	Eastern and Midland Regional Assembly.
EU	European Union.
EU15	Pre-2014 Members States of the European Union (EU).
EU15 and EU28	The EU15 countries are: Austria; Belgium; Denmark; Finland; France; Germany; Greece; Ireland; Italy, Luxembourg; Netherlands; Portugal; Spain, Sweden; and the UK. Added to the EU15 are the following countries giving the EU28: Bulgaria; Croatia; Cyprus; Czech Republic; Estonia; Hungary; Estonia; Hungary; Latvia, Lithuania; Malta; Poland; Romania; Slovakia; and Slovenia.
EU28	The twenty-eight Member States of the European Union (EU).

Eurostat	Official statistics agency of the EU.
Ex-post	Latin term, meaning 'after the event'.
FDI	Foreign direct investment.
FDI RRI	Foreign Direct Investment Regulatory Restrictiveness Index (OECD).
FE	Fixed effects specification for estimating econometric panel data models.
FTE	Full-time equivalent.
FTTB	Fibre-to-the-building.
FTTH	Fibre-to-the-home.
FTTP	Fibre-to-the-premises.
GDP	Gross domestic product (measure of an economy's national income).
GFCF	Gross fixed capital formation.
GNI*	Alternative measure of national income for Ireland.
GVA	Gross value added. The monetary value of output less intermediate consumption of goods and services used as inputs in the production process.
Heteroscedasticity	One of the assumptions underpinning econometric analysis is that the error term is homoscedastic or has a constant variance. Heteroscedasticity occurs when this assumption is violated and may result in larger standard errors and incorrect inferences being made. It is important, therefore, that standard errors are robustly estimated. Heteroscedasicity may be detected by reference to scatterplots of the dependent variable and explanatory variables, showing marked variation in observations depending on high and low values of the explanatory variables; under homoscedasticity the variation is uniform/constant regardless of the values of the explanatory variables.
ICT	Information and communications technologies (interchangeable with IT).
IMF	International Monetary Fund.
Indirect effects	Indirect effects refer to the knock-on economic impacts in intermediate production (along the supply chain). Indirect effects are captured using Type I economic impact multipliers. Compare with induced effects.
Induced effects	Induced effects capture the knock-on economic impacts associated with household spending or final demand. Induced effects are captured using Type I and Type II economic impact multipliers. Compare with indirect effects.
Infra	Latin citation term meaning 'as cited below'.
Inter alia	Latin term meaning 'among other things'.
IoT	Internet of Things.
IP	Intellectual property.
IP5	The IP5 is the name given to a forum of the five largest intellectual property offices in the world that was set up to improve the efficiency of the examination process for patents worldwide. The IP5 comprises the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the National Intellectual Property Administration of the People's Republic of China (CNIPA) and the US Patent and Trademark Office (USPTO).
IPC	International Patent Classification.
Ireland	Republic of Ireland or the State.

IT	Information technologies (interchangeable with ICT).
JUAP	Joint Urban Area Plan.
Kbps	Kilobits per second.
KPI	Key performance indicator.
LECP	Local Economic and Community Plans.
LEO	Local Enterprise Office. The LEOs were formed in 2014 from the former County and City Enterprise Boards and have responsibility for supporting micro enterprises (employing fewer than 10 employees). They work with local authorities and with Enterprise Ireland with the aim of assisting progression to export markets.
LGA	Local Government Association.
LGMA	Local Government Management Agency.
m	Million.
m²	Square metre.
M2M	Machine-to-machine.
MDR	Mixed dry recyclable (household waste stream).
NACE	Abbreviation (from French) of *Nomenclature générale des Activités économiques dans les Communautés Européennes* (or the Statistical Classification of Economic Activities).
NI	Northern Ireland.
NUIG	National University of Ireland Galway.
NUTS (EU NUTS)	Abbreviation (from French) of *Nomenclature des Unités Territoriales Statistiques*. NUTS is a hierarchical system for dividing up the economic territory of the EU for the collection, development and harmonisation of European regional statistics. See Table A1 (p. 43) which shows the current NUTS Regions of Ireland and how they map against the 26 counties of the State and its 31 local authority areas.
OECD	Organisation for Economic Cooperation and Development.
OLS	Ordinary least squares (estimation procedure for fitting lines to empirical data).
ONS	Office for National Statistics (the UK equivalent of the CSO).
OSI	Ordnance Survey Ireland.
pa	Per annum.
PIAAC	Programme for International Assessment of Adult Competencies (OECD).
PISA	Programme for International Student Assessment.
PMCA	PMCA Economic Consulting.
POWSCAR	Place of Work, School or College Census of Anonymised Records (CSO Census data).
pp.	Pages (in a report/document).
R&D	Research and development.
R^2	Coefficient of variation and a measure of overall goodness of fit of an econometric model to data. The closer the R^2 value is to 1 or 100% (depending on how it is presented), the stronger the goodness of fit or overall explanatory power of the model. In panel data models, there are the overall R^2 (all observations pooled), between R^2 (cross-sectional units) and within R^2 (time units). The relevance of the latter two statistics depends on whether the variation in the dependent variable is mostly cross-sectional or time series.

RE	Random effects specification for estimating econometric panel data models.
RGDATA	Retail Grocery Dairy & Allied Trades Association.
RSES	Regional Spatial and Economic Strategy.
SCSI	Society of Chartered Surveyors of Ireland.
SFI	Science Foundation Ireland.
SIM	Subscriber identification module.
SME	Small and medium-sized enterprises.
State	Ireland or the Republic of Ireland.
STEM	Science, technology, engineering and mathematics.
Supra	Latin citation term meaning 'as cited above'.
TOV	Trading Online Voucher.
Type I multiplier	Economic impact multiplier allowing estimation of the indirect impacts from a given direct impact (e.g. employment or gross value added). Indirect effects refer to the knock-on economic impacts in intermediate production (along the supply chain). Compare with Type II multiplier.
Type II multiplier	Economic impact multiplier allowing estimation of both the indirect and the induced impacts from a given direct impact (e.g. employment or gross value added). Indirect effects refer to the knock-on economic impacts in intermediate production (along the supply chain), while induced effects capture the knock-on economic impacts associated with household spending or final demand. Type II multipliers are larger in magnitude than Type I multipliers.
UK	United Kingdom.
Via	Latin term meaning 'by way of' or 'through'.
Vice-versa	Latin term meaning 'the other way around'.
Vis-à-vis	French term meaning 'relative to' or 'compared with'.
Viz	Latin term, and short for *videlicet*, meaning 'namely' or 'that is to say'.

Executive Summary

Introduction

This report by Dr. Pat McCloughan (PMCA Economic Consulting) for the CCMA presents the results of a research study on online trading trends in Ireland in an international context and their impacts from a local authority perspective. Of particular interest is whether the growth in online shopping is impacting on physical retailing and local authority commercial rates income. This is examined using econometric panel data analysis. Accompanying the quantitative analysis is a review of good/best practices on what local authorities can do to help sustain physical retailing in parallel with online shopping. The review includes consideration of a recent study from the UK that challenges the traditional view that retailing is central to city/town centres, recommending instead that policy should focus on facilitating high quality employment opportunities, along with premium amenities, to make retailing and city/town centres more sustainable.

Key Findings

> *"The frequency of online shopping by consumers in Ireland does not exert a statistically significant impact on local authority commercial rates income."*

> *"It follows that initiatives serving to boost disposable income will lead to increases in commercial rates income."*

The economic impact of online/digital/internet activities is large in Ireland, accounting for 7.5% of national income and growing at approximately double that proportion annually. Online trading represents an important opportunity for enterprises to broaden their markets, which is particularly important in the context of Brexit and trade tariffs by the US. Section 3 shows that Irish enterprises perform comparably strongly among advanced countries in respect of selling online, including small enterprises; however, retail enterprises lag behind the enterprise population regarding online selling capability (Section 3), which reflects the fragmented nature of retailing in Ireland (Section 2).

The econometric evidence in Section 4 reveals that the frequency of online shopping by consumers in Ireland (for which there are data) does not exert a statistically significant impact on local authority commercial rates income. Instead the analysis highlights the role played by people's disposable incomes, where it is estimated that a given (e.g. 10%) increase (decrease) in disposable income per person is associated with the same proportionate rise (fall) (i.e. 10%) in local authority commercial rates income. It follows that initiatives serving to boost disposable income will lead to increases in commercial rates income. The principal source of disposable income is primary income from

work or self-employment, implying that policies stimulating high quality employment opportunities represent a means of growing commercial rates income and helping to sustain local authority financing. The econometric results therefore imply that local authorities should be *highly proactive* in facilitating economic development in their towns and cities, where the opportunities for such employment growth are likely to be greatest.

The research review of Section 5 discerns two approaches to city town centre rejuvenation. Firstly the 'traditional' approach, tends to place retailing as central to city/town centres (for example the Retail Consultation Forum report of April 2017 *A Framework for Town Centre Renewal*, which contains a series of practical initiatives).

Secondly an 'alternative' approach, outlined with supporting evidence in the UK Centre for Cities report of September 2019, prioritises skilled jobs in city/town centres, along with premium amenities, upon which retailing can be sustained. The growing incidence of digital hubs in Ireland may be seen as an example of this approach. In light of the econometric evidence from Section 4, there is much to commend the alternative approach, which squares with local authorities' economic objectives of facilitating employment growth according to their settlement hierarchies.

Recommendations

> ***"Local authorities should be highly proactive in facilitating economic development in their towns and cities."***

1. Echoing the view of Dr. Stephen Brennan (Chief Digital Advisor to the government) who presented to the CCMA on the growing impact of online /digital/internet activities in 2017, local authorities should embrace online trading as enabling enterprise development, supporting innovation and also improving local authority operational efficiency. Many have already embarked in this way.
2. In view of the lagging performance of retailers in regard to online selling capability, compared with the general enterprise population in Ireland, whose capacity to trade online is comparably strong internationally, initiatives such as the TOV (Trading Online Voucher) scheme and the (pilot) Online Retail Scheme (through Enterprise Ireland) should be promoted proactively by local authorities and LEOs, not least to retailers lacking in online selling capability.
3. The econometric results highlighting the importance of disposable income per head to commercial rates income imply that local authorities should be *highly proactive* in facilitating economic development in their towns and cities, where the opportunities for such employment growth are likely to be greatest. There are various ways in which this can be achieved, including engaging with wealth creators capable of delivering permanent employment projects and zoning of strategic employment sites in towns of varying sizes to ensure entrepreneurs have options to create high quality jobs in locations with attributes such as transport links, skills availability, infrastructure etc.

> ***"The process of local authorities becoming more proactive in facilitating economic development can be enhanced by purposeful data capture ."***

4. The process of local authorities becoming *more proactive* in facilitating economic development can be enhanced by *purposeful data capture* aimed at *meaningfully informing* progress on their economic objectives and strategies. There are myriad economic variables capable of being populated with data but not all indicators are centrally relevant. Arising out of the results of this study, the following indicators are deemed key: disposable income per person and primary income per person, its key determinant; the number of persons at work in a local authority area and in settlements within local authority areas; the composition of persons at work by place of residence and place of work, enabling identification of (a) people who both live and work in their local authority areas and/or settlements, (b) inbound commuters and (c) outbound commuters; places of residence of the inbound commuters and places of work of the outbound commuters (which informs on economic sphere of influence and regionality); employment in FDI firms and larger indigenous enterprises (who tend to be engaged in higher-order economic activities, like exporting and innovation); and the composition by sector of the jobs in local authority areas (retailing, professional services etc.). The educational attainment and other skills characteristics of the three categories of workers ((a), (b) and (c)) help to inform the competitiveness of local authority areas and their promotion to potential investors.
5. The UK Centre for Cities report (2019) illustrates that 'unusual' commuting patterns affect cities'/town's performance. Careful consideration needs to be given to assessing the patterns that exist in towns and cities in an Irish context in order to develop appropriate strategies to address the consequences of these patterns.
6. To the list of economic variables, local authorities may also consider putting together databases concerning digital hubs in their areas, reflecting their increasing importance for various reasons – addressing broadband deficits, commuting issues and carbon abatement etc.
7. There is merit in local authorities capturing data on the composition of their commercial rates income by sector (retailing and other sectors) per year.

Section 1
Introduction

1.1 Purpose of the Report

This report is prepared by Dr. Pat McCloughan, Managing Director of PMCA Economic Consulting, for the Finance Committee of the County and City Management Association (CCMA). It provides the results of a research study on online trading trends in Ireland in an international comparative context and the relationship, if any, between online and physical retailing from a local authority perspective, based on whether or not growth in online retailing is impacting on local authorities' commercial rates income. The study also reviews good/best practices regarding what local authorities can do to help sustain physical retailing as attractive for consumers in parallel with the online/digital environment.

1.2 Terms of Reference

The terms of reference for the study were as follows:

- Analyse the trends in the digital economy and online trading in Ireland in an international comparative context, including online selling capability among the general population of enterprises (distinguishing between small, medium and large firms) and retailing businesses.
- Examine the impacts, if any, of the trends in online trading on local authority revenue, in particular commercial rates income, and within which commercial rates income due specifically to retailing (subject to data availability among the local authorities in the State).
- Consider what lessons, if any, might be learned from other countries and/or local authorities in the State offering 'exemplars' of good/best practices in terms of helping to sustain physical retail trading as attractive for consumers in parallel with the online/digital environment.
- Make recommendations aimed at identifying issues that local authorities may have to address as a consequence of the growth in online trading.

1.3 Background

In 2017, Dr. Stephen Brennan (Chief Digital Advisor to the government) gave a presentation to the CCMA on the extent and impacts of online trading. The presentation drew in part from a study by Indecon for the (now-titled) Department of Communications, Climate Action and Environment (DCCAE) completed in March 2016 which estimated the digital economy to be worth €12.3 billion in 2015 (or 7.5% of modified gross national income (GNI*), an alternative measure of the size of the Irish economy stripping out globalisation effects).[1] Dr. Brennan's presentation observed that Ireland lies in the top half of the EU28 regarding the extent of online shopping by individuals and that *"The* **majority** *of impact of Digital is in the* **traditional** *economy"* (emboldened text in Dr. Brennan's presentation).

The presentation concluded that the digital economy and online trading are *"Major opportunities to transform the economy and society"* with digital adoption supporting new businesses and unlocking creative potential, leading to new jobs, sustaining jobs and empowering people. The presentation recommended that local authorities embrace the growth of digital activities and online trading as enabling enterprise development and supporting innovation, and as a means of improving local authority operational efficiency.

1.4 Context

Project Ireland 2040: National Planning Framework includes provision for "*digital connectivity*" supporting the National Strategic Outcome of "*A Strong Economy, supported by Enterprise, Innovation and Skills*" as well as the National Strategic Outcome of "*Strengthened Rural Economies and Communities*". The Regional Spatial and Economic Strategies (RSESs) of the new EU NUTS 2 Regions of Ireland (the Eastern and Midland Region, the Northern and Western Region, and the Southern Region) aim to support the implementation of *Project Ireland 2040: National Planning Framework*, the National Development Plan 2018-2027 and the economic policies of government by providing a coordinated and strategic planning and economic framework for regional development.[2]

The implementation of the national and regional strategies will occur alongside local authorities' City and County Development Plans (and their Local Economic and Community Plans (LECP)), within which their economic development plans and settlement hierarchies will be important to the sustenance of physical retailing as it competes with, and complements, online retailing. In adhering to the cascade of national, regional and local planning objectives and policies, it is important that local authorities engage in continual commitment to appraisal that their initiatives are working in practice through data capture from relevant and reliable sources.

[1] Assessment of the Macro-Economic Impact of Internet/ Digital on the Irish Economy, which can be accessed **here**.

[2] Table A1 in the Annex shows the compositions of the new NUTS 2 and NUTS 3 Regions by constituent counties and local authority areas. NUTS stands for *Nomenclature d'Unités Territoriales Statistiques* and was created by Eurostat to define territorial units for the production of regional statistics across the European Union.

1.5 Methodology

A large volume of quantitative evidence has been assembled for the purposes of this study, based on analyses of data from the OECD (Organisation for Economic Cooperation and Development), Eurostat (the official statistics agency of the EU), the Central Statistics Office (CSO) and other sources (Sections 3 and 4). The details of the results are presented in the Annexes at the end of the report, permitting the main body of the study to focus on the main findings and their significance for local authorities. An important part of the study is the construction of a panel dataset comprising the 31 local authorities during 2014-2019, resulting in a large sample of 186 observations embodying both cross-sectional and time series variation. The panel dataset permits econometric analysis of the extent, if any, to which the frequency of online shopping affects retailing and other economic sectors, and thus local authority commercial rates income, while simultaneously controlling for disposable income per person and commercial vacancy rates within local authority areas.

The quantitative data analysis is complemented by a review of local authority and related initiatives aimed at supporting city/town centres (Section 5), including a recent report from the UK (September 2019) which recommends:

(a) improving workforce skills as the primary tool for investment and city/town development and

(b) remodelling city/town centres away from a reliance on retail, where instead the 'high street' should be aimed at supporting skilled workers with more food, drink and leisure activities.

The UK study's emphasis on prioritising skilled job opportunities in city/town centres is consistent with the econometric results, which highlight the importance of disposable income per head (a fundamental economic performance indicator) in accounting for local authority commercial rates income.[3] Both the quantitative and qualitative findings lead to the view that, in the context in which online activities are growing strongly, local authorities should be *highly proactive* in promoting skilled employment opportunities in their areas. The approach emphasised in the UK study is conducive to sustainable retailing in city/town centres.

[3] In the course of the report, boxes containing related/relevant information are presented.

1.6 Structure of the Report

The rest of the report is structured as follows:

- Section 2 provides a brief overview of the structure and performance of the retail sector in the State in the context of growing online shopping in the country.
- Section 3 considers the evidence regarding online trading in Ireland compared with other advanced economies, including online shopping by consumers and online selling capability by enterprises, within which retailers as well as the general population of enterprises.
- Section 4 presents the results of the econometric analysis of whether the extent (frequency) of online shopping impacts on local authorities' commercial rates income.
- Section 5 comprises the research review regarding initiatives (currently and in the past) applied in seeking to rejuvenate towns and cities in Ireland, and in the UK.
- Finally, Section 6 summarises the conclusions of the study and lists recommendations for local authorities arising from the main findings of the work conducted for the report.

The main body of the report focuses on the key results of the study. Underpinning these is the extensive quantitative and qualitative analyses carried out, the details of which are given in the Annexes. The main body of the report also contains boxes of supplementary information (including case-studies), designed to complement the study.

Section 2
Overview of the Retail Sector in Ireland

> *"Retailing is a fragmented sector with mostly very small firms and ease of entry (and exit)."*

Retail (NACE 47) is the largest employer of any (NACE 2-digit) sector in the State.[4] According to the CSO's Labour Force Survey, there were 210,200 persons aged 15 years and over in employment in the retail sector in 2019 Q2. The corresponding number in the upstream wholesale sector (NACE 46) was 47,500.

However, the retail sector is precarious: Retail Ireland has observed that *"retail sales growth has struggled since early 2008"* and the low inflationary environment threatens the recovery of the sector, against which *"the cost of doing business continues to escalate – rates, rents, local services and wage increases are combining to add significant pressure on retailers' margins"*.[5]

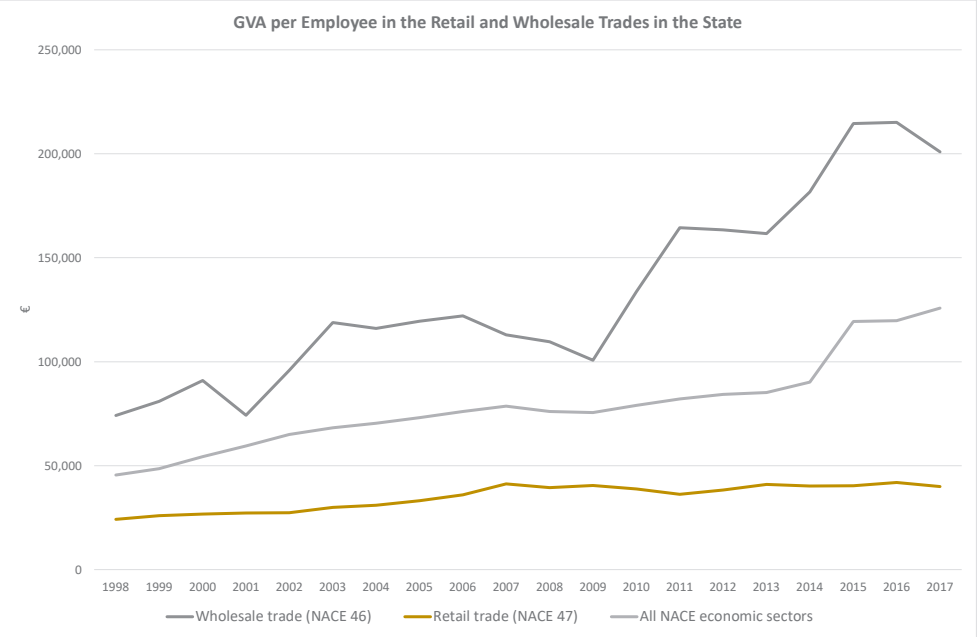
The underperformance of retailing *vis-à-vis* its close neighbour wholesaling and all NACE 2-digit sectors of the Irish economy is illustrated in Figure 2.1, which shows the striking trends in gross value added (GVA) per person employed during 1998-2017. In 2017, GVA per person was over €200,000 in wholesaling and €126,000 on average in all sectors, in sharp contrast to the approximately €40,000 in the retail sector.

GVA per person indicates the relative rate of return or earnings in a sector, and the graph on the following page illustrates the sharp divergence between the retail sector and other sectors of the economy. In turn, the contrasting trends between the retail and wholesale sectors reflect their structural differences: the latter is characterised by predominately large firms, whereas retailing is a fragmented sector with mostly very small firms and ease of entry (and exit), even if there are economies of scale in retailing, like wholesaling.

[4] NACE is short for *Nomenclature générale des Activités économiques dans les Communautés Européennes*. (the system for classifying economic sector activities in the EU).

[5] Quotes reproduced from the website of Retail Ireland (**here**).

Figure 2.1: GVA per Person Employed in the Retail, Wholesale and all Sectors of the Irish Economy (1998-2017)



Source: CSO, PMCA Economic Consulting analysis.

Table 2.1 shows the types of goods purchased online by individuals in Ireland, the EU15 and the EU28 in 2018 and 2010, the percentage changes during the period and the correlation coefficients between Ireland and the EU and within the EU in each of 2018 and 2010. The following findings are noteworthy:

- The growth in clothes and sports goods purchased online by individuals in Ireland has exceeded that in the EU15 and EU28. In 2018, clothes and sports goods accounted for 42% of all goods purchased by individuals in Ireland, up by more than threefold from the 13% in 2010.
- The same finding is apparent in household goods, which accounted for 23% of all online purchases of goods in 2018 (medicines account for a very small but nonetheless growing proportion).
- The correlation coefficients at the bottom of the table reveal that commonality between online shoppers in Ireland and the rest of the EU has increased between 2010 and 2018, reflecting the international nature of online shopping (with apparently converging consumer preferences).
- In addition, there is evidence of a positive relationship between retail sales growth and growth in the proportion of individuals buying online in sub-sectors of Irish retailing, which suggests that growth in online shopping is beneficial for retailing (physical as well as online) (Figure A1, p. 44).

Table 2.1: Online Purchases by Individuals by Goods/Services Purchased

	% Individuals Buying Online								
	2018			2010			% Change (2010-2018)		
Good/Service	Ireland	EU15	EU28	Ireland	EU15	EU28	Ireland	EU15	EU28
Clothes, Sports Goods	42%	41%	38%	13%	22%	19%	223%	86%	100%
Travel and Holiday Accommodation	42%	37%	32%	28%	25%	20%	50%	48%	60%
Tickets for Events	32%	27%	23%	22%	17%	14%	45%	59%	64%
Household Goods	23%	30%	27%	6%	16%	14%	283%	88%	93%
Electronic Equipment	19%	16%	15%	10%	11%	10%	90%	45%	50%
Books/Magazines/Newspapers	17%	22%	19%	11%	17%	14%	55%	29%	36%
Films/Music	15%	18%	15%	10%	15%	13%	50%	20%	15%
Telecom Services	15%	14%	12%	5%	7%	6%	200%	100%	100%
Computer Software	11%	16%	13%	8%	14%	11%	38%	14%	18%
Food/Groceries	6%	16%	15%	2%	6%	5%	200%	167%	200%
Computer Hardware	5%	12%	10%	2%	9%	7%	150%	33%	43%
e-Learning Material	4%	5%	4%	1%	3%	2%	300%	67%	100%
Medicine	2%	10%	9%	1%	5%	4%	100%	100%	125%
Correlation Coefficients									
2018									
Ireland & EU15	*94%*								
Ireland & EU28	*93%*								
EU15 & EU28	*100%*								
2010									
Ireland & EU15				*85%*					
Ireland & EU28				*83%*					
EU15 & EU28				*100%*					

Source: Eurostat data, PMCA Economic Consulting analysis.

> ***"Retailing is closely linked with other sectors of the Irish economy, where each direct job in the retail sector helps to create or sustain comparably many jobs in other sectors through supply chains and at final demand level."***

The knock-on economic impacts of retailing on other sectors of the Irish economy are large, compared with wholesaling and other sectors of the Irish economy. The results are presented in Table A2 (p. 45) in the Annex to Section 2. They illustrate that retailing is closely linked with other sectors of the Irish economy, where each direct job in the retail sector helps to create or sustain comparably many jobs in other sectors through supply chains and at final demand level (consumers).

Section 3
International Online Trading Trends

3.1 Introduction

This section presents the results of analyses of online trading trends in Ireland compared with other countries in Europe and internationally, using data from the OECD and Eurostat, *inter alia*. A substantial amount of information has been assembled and analysed for this part of the study. In what follows, the key results are given (with additional results shown and commented upon in the Annex to Section 3).

3.2 OECD Data

Founded in 1961, the OECD is an inter-governmental body of 36 member countries (predominantly advanced economies, including Ireland) with the aim of promoting economic progress and world trade.

The OECD's Going Digital Toolkit seeks to help countries assess their state of digital development in an international comparative context and formulate policy strategies in response. The Toolkit comprises the following seven policy dimensions:

- **Access** to communications infrastructures, services and data.
- **Use** by people, enterprises and public bodies.
- **Innovation** to drive job creation, productivity and sustainable growth.
- Digital transformation for more and better **jobs**.
- Balance of the benefits and risks of digital technologies for **society**.
- **Trust** in digital environments for economic and social progress.
- **Market openness** to enable digital technology to support competition, trade and investment.

Table 3.1: OECD Going Digital Toolkit – Ireland in an International Comparative Context: All Dimensions

Policy Dimension (Latest Year for which Data are Available)	OECD Score Ireland	OECD
Access		
Broadband penetration (fixed) (2018)	63	66
M2M (machine-to-machine) penetration (2017)	15	15
Broadband penetration (mobile) (2018)	60	64
Broadband access (households) (2018)	89	86
Broadband > 30 Mbps (business) (2017)	69	64
Use		
Internet users (2018)	83	87
Uptake of digital government services (2018)	59	62
People buying online (2018)	80	74
Small firms selling online (2017)	62	41
Adults proficient in problem-solving in technology-rich environment (2012)	57	69
Innovation		
ICT investment intensity (2017)	39	56
Business R&D in information industries (2016)	17	27
Share of start-up firms (up to 2 years old) in the business population (2016)	28	68
Top-cited computer science research publications (2016)	45	53
ICT patents (2013-2016)	75	59
Jobs		
ICT task-intensive jobs (2015 Ireland and EU28, 2017 UK and OECD)	66	57
Digital-intensive sectors' share in total employment (2016)	84	89
Workers receiving employment-based training, as a percentage of total employment (2012)	84	78
New graduates in STEM subjects, as a percentage of new graduates (2015)	70	65
Public spending on active labour market policies, as a percentage of GDP (2016)	46	39
Society		
Internet users aged 55-74 years (2018)	56	67
Low income internet users (2018)	67	75
Young female coders (2017)	93	74
Regular teleworking from home (2018)	63	70
Students performance in science, maths and reading (2015)	60	59
Trust		
Internet users not experiencing privacy violations (2015)	99	98
Security and privacy concerns not a barrier to online purchases (2017)	85	72
Post-transaction trust concerns not a barrier to online purchases (2017)	99	82
Business' security and data protection capabilities (2017)	56	59
Market Openness		
Cross-border e-commerce (2016)	84	67
Predominantly digitally-delivered services trade (2017)	81	42
Digital services trade openness (2018)	93	93
FDI openness (2018)	96	94
Totals	**15**	
	6	
	15	

Source: OECD Going Digital Toolkit (website available **here**).

Note: Green signals Ireland above the OECD average; amber Ireland the same/about the same as the OECD average; and red Ireland less than the OECD average. The corresponding tables, and commentaries, detailing Ireland's relative performance in the dimensions of the OECD Going Digital Toolkit are presented in the Annex to Section 3 (Table A3-Table A9, pp. 46-53).

> *Individuals and firms in Ireland have comparably strong access to the internet.*

Ireland's performance compared with all of the OECD countries on average is summarised in Table 3.1 on the previous page. The scores attributed to Ireland and the OECD are those of the OECD. The traffic light system is by PMCA and based on the OECD's scores. The noteworthy findings regarding Ireland's relative performance in the OECD Going Digital Toolkit are:

- Individuals and firms in Ireland have comparably strong access to the internet.
- The extent of people buying online and small firms (10-49 employees) selling online is relatively high in Ireland.
- Ireland also scores highly in the OECD in respect of security and privacy concerns not being a barrier to online purchases and post-transaction trust concerns not inhibiting people engaging in online shopping.
- The extent of cross-border e-commerce is comparably high in Ireland. This facet of the OECD data may reflect the small size of physical retailing in Ireland, and the real or perceived high prices in stores as well as the opportunities to engage in online shopping given Ireland's comparably strong access to the internet. The high degree of cross-border e-commerce probably also reflects the aforementioned trust placed by people living in Ireland in engaging in e-commerce.
- The extent of individuals using the internet to interact with public authorities in Ireland is below the OECD average (this includes completing forms online).

3.3 Macroeconomic Impact of Online/Digital/ Internet Trading on the Irish Economy

The 2016 Indecon report for the (now-titled) DCCAE estimated that the total impact of internet/digital-related economic activities in Ireland was €12.3 billion in 2015 and grew by 11.7% CAGR (compound annual growth rate) since 2012, which represents rapid growth by any comparison.

Indecon also estimated that online shopping by households (from all sources, domestic and overseas) was worth €6,437.1m in 2015 and grew by 12.6% CAGR during 2012-2015, and that Ireland exports more consumer goods than it imports *via* online (€3,172.5m versus €1,334m in 2015, with respective CAGRs (2012-2015) of 13.5% and 13.8%). It is not clear from the Indecon study what consumer goods are included and/or whether or not they reflect the significant role of foreign-owned enterprises in Ireland's export performance, specifically pharma firms. Analysis of Eurostat data presented in this report by PMCA indicates that the principal consumer goods purchased by individuals living or based in Ireland through online means are clothes and sports goods (which together accounted for 42% of all such sales in 2018) followed by travel and holiday accommodation (42%), tickets for events (32%), household goods (23%), electronic equipment (19%) and books/ magazines/newspapers (17%) (Table 2.1, p. 7).

Box 3.1: Implications of Online Shopping in Ireland for Packaging Waste and Transportation/Logistics

For the past three years PMCA has been carrying out research for Ireland's national packaging compliance coordinator, Repak, with the objective of estimating the number of consumer goods being imported into Ireland as a result of online shopping by people living in the country, and the corresponding volume of imported packaging, which tends to end up being aggregated into household mixed dry recyclable (MDR) waste, the cost of which is borne largely by businesses who are members of Repak as the predominant route for complying with the packaging waste legislation.

The latest PMCA report for Repak (published on 'Black Friday', 29 November 2019) estimates that the quantity of consumer goods purchased from abroad *via* online means by people living in Ireland was almost 39 million units in 2019 and growing rapidly, namely by 14% CAGR since 2015. But this particular form of e-commerce is just part of all online shopping by consumers in Ireland (which includes domestic as well as imported). Based on the Indecon study of 2016, the particular form of e-commerce underpinning PMCA's work for Repak was worth €1,334m in 2015 or about one-fifth of all online shopping by consumers from all sources (domestic and overseas) in that year (€6,437m).[6]

As a rough calculation, this suggests in the region of 200 million units of goods moving into and around the country as a result of online shopping in Ireland per year. Factoring in online purchases by businesses, and government (central and local), as well as consumers, means that the volume of goods moving into and around the country as a result of online trading is much higher again, not to mention the goods leaving the country as a result of e-commerce sales by enterprises based in Ireland to overseas markets.

The rapidly growing trends in e-commerce in Ireland by consumers, businesses and government are giving rise to growth in demand for transport and logistics services – where for example An Post has been reporting exceptionally strong growth in its parcels business in the past year. The escalating trend is set to continue, putting more trucks on the road, leading to more traffic congestion, not to mention the carbon-related environmental impacts that come with more deliveries from e-commerce.

Source: PMCA Economic Consulting research.

[6] Table A10 (p. 54) summarises the key estimates of the Indecon study (2016). The latest PMCA report for Repak on the packaging implications of cross-border e-commerce by consumers in Ireland is accessible on Repak's website (**here**).

3.4 European Commission and Eurostat Data

3.4.1 The EU Digital Economy and Society Index (DESI)

> *"Ireland attained top position in the Integration of digital technology dimension, particularly because Irish SMEs were judged to excel in the use of e-commerce (however Irish retail businesses perform comparatively weakly in the use of e-commerce."*

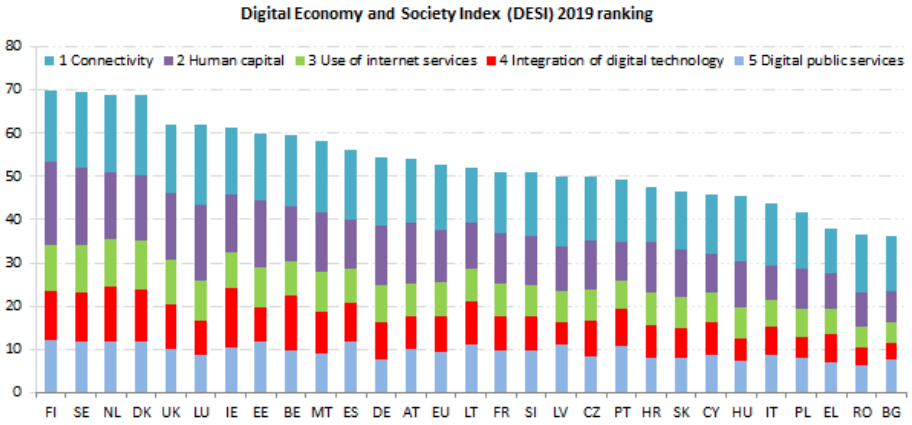
The European Commission has been monitoring Member States' digital competitiveness in its Digital Economy and Society Index (DESI) reports since 2015. Ireland ranks 7th among the 28 EU Member States in the latest DESI report for 2019 (Figure 3.1). Its overall score increased due to an improved performance in all DESI dimensions measured. Noteworthy in the latest publication is that Ireland attained top position in the *Integration of digital technology* dimension, particularly because Irish SMEs were judged to excel in the use of e-commerce (however, as we shall see with reference to Eurostat data below, Irish retail businesses perform comparatively weakly in the use of e-commerce).

While Ireland has improved its scores for *Connectivity* and *Human capital*, it ranks outside the top 10 in both of these dimensions, as well as in the *Use of internet services* by people.

In particular, ultrafast broadband coverage is below the EU average and broadband in general is still relatively expensive. Although Ireland performs above the EU average in high-level digital skills, the average digital skills of people living in the country are low: only 48% have at least basic digital skills, below the EU average of 57%. It is therefore not surprising that the proportion of internet users is also below the EU average, according to the DESI 2019.[7]

The DESI report for 2019 also notes that, on 7 May 2019, the Irish government announced the approval of the appointment of a preferred bidder to the National Broadband Plan (NBP), in which the contract will be awarded after confirmation of State Aid Approval by the European Commission (which was subsequently confirmed by the European Commission on 15 November 2019).

Figure 3.1: Ireland's Position in the EU Digital Economy and Society Index (DESI) (2019)



Source: European Commission (the DESI 2019 is accessible **here**).

[7] These findings from the DESI 2019 are also observed by the National Competitiveness Council's Ireland Competitive Challenge 2019 (accessible **here**).

3.4.2 Comparative Trends in the EU based Analysis of Eurostat Data – Key Results

The extensive analysis conducted of Eurostat data enables insights to be gained on Ireland's comparative performance among the EU15 and EU28 regarding online purchases by consumers and e-commerce sales by enterprise. Additional analysis has also been undertaken using CSO data to gain understanding of the extent of online purchases by individuals in Ireland among the NUTS 3 Regions (e.g. Border Region, Dublin Region etc.), the NUTS 3 Region being the most disaggregated geographical delineation for which CSO data are available on the frequency of online shopping by individuals in the State (i.e. county or sub-county level data are not available from the CSO). The most noteworthy findings from the analysis are as follows:

Online purchasing by consumers/individuals

- Ireland ranks in the bottom half of the EU28 in respect of the proportion of individuals making online purchases from domestic sellers in 2018, with selected percentages being the UK (74%), the EU15 (56%), the EU28 (52%) and Ireland (44%) (Figure A3, p. 57).
- On the other hand, Ireland is in the top half for the percentage of individuals making online purchases from sellers in other EU countries in 2018, with selected proportions Ireland (35%), the UK (28%), the EU15 (24%) and the EU28 (21%) (Figure A4, p. 58).
- The proportion of individuals purchasing online 6-10 times in the last three months was 19% in Ireland in 2018, compared with 23% in the UK, 17% in the EU15 and 16% in the EU28. The proportionate growth in this indicator of online shopping was greatest in Ireland during 2015-2018 (Figure A9, p. 63).
- The UK had by far the highest percentage of individuals purchasing online more than 10 times in the last 3 months in the EU in 2018 (34%). The corresponding figure in Ireland was 15%, the same as the EU28 but lower than the EU 15 (17%). The Eurostat data show that the indicator is growing strongly in Ireland (Figure A10, p. 64).
- Within Ireland, CSO data show that the proportion of individual purchasing online more than 10 times in the last 3 months was highest in the Dublin Region in 2019 (19%) and lowest in the Border Region (4%) (Figure A11, p. 65).

E-commerce sales by enterprises

- Ireland comes top of the EU28 for the proportion of enterprises selling to consumers *via* a website or apps (business-to-commerce, B2C) regardless of enterprise size, whether all enterprises, small enterprises, medium enterprises or large enterprises (Figure A13-Figure A16, pp. 67-70).
- However, the proportion of retail enterprises selling to consumers *via* a website or apps in Ireland comes further down the ranking of EU28. Nonetheless, the proportion for retail enterprises has increased relatively rapidly in Ireland since 2013 (Figure A17, p. 71).
- The proportion of enterprises with web sales to home country is comparatively high in Ireland in an EU context in 2017, regardless of the size of enterprises, and that percentage has grown strongly in Ireland since 2011 (Figure A18-Figure A21, pp. 72-75).
- But turning to the same proportion for retail enterprises, Ireland ranks in the bottom half of the EU28 (23%) although the trend is rising in Ireland (Figure A22, p. 76).
- The same patterns are evident in respect of the proportion of enterprises with web sales to other EU countries, in which Ireland ranks highly among the EU28 in regard to the general population of enterprises (whether small, medium or large) but less strongly for retail enterprises (Figure A23-Figure A26, pp. 77-80).
- The results show that Ireland's comparative performance in an EU context regarding online selling is less strong among retailers than the general enterprise population.

3.5 Section Summary

Ireland ranks relatively strongly among the OECD countries and EU Member States in regard to online purchasing by consumers and also in respect of online sales by enterprises generally, regardless of enterprise size – whether small, medium or large firms in Ireland. On the other hand, however, online sales by retailers in Ireland are less strong in an EU context, which may reflect the fragmented nature of the retail sector and issues such as skills, digital/online assets and its attractiveness as a career option. Nevertheless, the trend in online selling capability among retailers is growing.

Box 3.2: Summary of the Findings and Recommendations of the Irish SME Digital Health Index 2019 Report

IE Domain Registry published the 2019 edition of its SME Digital Health Index (DHI), the seventh report since 2014 and the second in annual format.[8] The report is based on a survey of 1,000 SMEs, looking at their use of websites and e-commerce, and their attitudes to digital technology learning and investment.

The key findings of the study in the context of this report by PMCA are as follows:

- 87% of SMEs have at least one digital asset, such as a website or an e-commerce web sales platform.
- 72% of SMEs say that being online and 'digitally savvy' has increased customer awareness of their business.
- Only 23% of SMEs with a website can take sales orders or process transactions through it.
- Consumers are reluctant to shop with businesses having no online presence, and will shop abroad instead.

In regard to the last finding, the study observes that (p. 2):

"59% of consumers say making online purchases is important to them. Consumers are online and spending, and they won't wait for their local high street shops to catch up with rival businesses and international online competitors."

The report concludes that *"Ireland's digital infrastructure development is haphazard and uncoordinated"* (p. 4). Awareness campaigns, funding programmes, and digital activation initiatives, both private and public, need focus, according to IE Domain Registry. The report cites IE Domain Registry's Digital Town Initiative, which has been applied in Sligo Town and Gorey, Co. Wexford. These are based around digital hubs in the towns, which provide infrastructure for digital skills development, high speed broadband and networking/collaboration. Based on the experiences of these towns, the report recommends the following actions:

- Adopt a 'regional digital hub' approach to government investment in digital infrastructure.
- Simultaneously, integrate the regional digital hub approach into the NBP.
- Identify the towns, villages, and regions most likely to quickly generate economic and social returns on investment.
- Focus on connecting high growth, high-potential areas, rather than remote, sparsely populated villages and townlands.
- Prioritise digital service rollouts and training/funding programmes in these areas.
- Co-working spaces, startup incubators, and remote working hubs should be prioritised for super-fast broadband for speedier returns on investment.

There is growing evidence of public policy support, and funding, for digital hubs outside of the cities as a means of addressing broadband issues, commuting and employment opportunities outside Ireland's cities. These issues are considered further in Section 5, which examines differing approaches to city/town centre renewal and revitalisation.

Source: 'SME Digital Health Index 2019', PMCA Economic Consulting research.

[8] The report is available here.

Section 4
Econometric Analysis of Online Shopping and Commercial Rates Income

4.1 Introduction

This section presents the results of econometric panel data analysis of commercial rates income allowing for multiple explanatory variables believed to influence this important source of local authority income simultaneously. At the outset of this study, the Research Monitoring Group on behalf of the Finance Committee of the CCMA were interested to see whether or not a relationship exists between the extent of online shopping and commercial rates income. The trends analysis in Section 3 showed that online shopping by people living in Ireland isrelatively high, compared with the 36-nation OECD, the EU15 (western Member States of the EU) and the EU28. That section also showed that online shopping in Ireland is growing strongly, and that the proportion of enterprises with web sales domestically and internationally is comparably high in Ireland, which holds for small, medium and large firms; however the corresponding percentage is not as high for retail businesses. These facts suggest a positive relationship between online shopping and commercial rates income, which has generally grown among the 31 local authorities in recent years, in line with the economic recovery. But is the relationship *statistically significant* and, if so, what is the *quantitative impact* of online shopping on commercial rates income?

> *"Econometrics is that branch of economics concerned with the empirical analysis of economic data, with the purpose of testing the validity or otherwise of economic theories, principles or beliefs."*

Econometrics is that branch of economics concerned with the empirical analysis of economic data, with the purpose of testing the validity or otherwise of economic theories, principles or beliefs. It enables empirical analysis of the extent, if any, to which a 'dependent variable' (in this case local authority commercial rates income) is accounted for by one or more 'explanatory variables' (which in this study include the frequency of online shopping). The panel data considered here comprise data on the 31 local authorities over the 6-year period 2014-2019, giving a sample size of 186 observations, which is appreciably large. The data assembled allow econometric analysis of two dependent variables (separately) (i.e. two econometric models are examined):

- Total commercial rates income (i.e. commercial rates income from all sectors).
- Commercial rates income due specifically to the retail sector.

The data on total commercial rates income for all local authorities are publicly available for each of the six years during 2014-2019. On the other hand, the data on commercial rates income due to retailing are sporadic: apart from Dublin City Council, for which there are data on commercial rates income due to retailing for all years between 2014 and 2019, the corresponding information for the other local authorities are available for 2015 and/or 2016 or not at all. The latter data were received from the CCMA/LGMA, while the data on commercial rates income due to retailing for Dublin City Council were received from that local authority.

On average, commercial rates income due to retailing accounted for 27% of total commercial rates income, varying from 6% for Laois County Council (2016) to 44% for Donegal County Council (2015) (22% for Dublin City Council).

Econometric analysis is necessarily technical and panel data econometric analysis is an advanced form of econometrics. The details of the econometric panel data analysis applied in this study can be found in the Annex to Section 4. What follows here are the key results of the econometric analysis.

4.2 Econometric Analysis of Online Shopping and Total Commercial Rates Income

4.2.1 Specification of the Econometric Model of Total Commercial Rates Income

The dependent variable (or the variable that we are seeking to explain) is total commercial rates income, a key source of local authority revenue income and believed to be potentially sensitive to the growth of online shopping, with the possibility that online shopping is mostly competing with physical retailing, thereby putting pressure on commercial rates income from retailing, and from other sectors impacted by retailing, and hence on total commercial rates income. This view suggests that the extent of online shopping exerts a negative effect on total commercial rates income. On the other hand is the possibility that physical retailers gain from online shopping and that a positive relationship exists between the extent of online shopping and total commercial rates income.

To examine these beliefs econometrically, we must include in the econometric model an explanatory variable capable of capturing the extent of online shopping. Two such explanatory variables are incorporated into the econometric model: first the proportion of individuals who purchased online more than 5 times in the last 3 months; and secondly the percentage of individuals who purchased online more than 10 times in the last 3 months (each explanatory variable captures high frequency online purchasing, with the latter variable capturing particularly intensive online shopping). Thus, so far, the econometric model of total commercial rates income consists of two (independent or unrelated) explanatory variables incorporating high frequency or strong online shopping (for which there are independent data from the CSO).

To mitigate the risk of the econometric model being biased towards the online shopping explanatory variables, we need to also consider additional explanatory variables that may affect total commercial rates income. Two other explanatory variables are incorporated into the econometric model. The first such variable is (household) disposable income per person, where disposable income is primary income (from work/self-employment) after income tax and social transfers. It is expected that higher disposable income per person is associated with larger total commercial rates income. Disposable income per person is an indicator of economic performance and its significance is outlined in Box 4.1 (p. 21). The second additional explanatory variable is the extent of commercial vacancy, which we would expect to be negatively related with total commercial rates income.

In summary, the econometric panel data model seeking to explain total commercial rates income of local authority *i* in year *t* (denoted by $lncomminc_{it}$) consists of the following explanatory variables:

- $lnonlinepur5_{it}$ or the proportion of individuals who purchased online more than 5 times in the last 3 months and resident in local authority area *i* in year *t*. The effect of this explanatory variable on total commercial rates income could be positive or negative – positive if online shopping complements physical relating, negative if online shopping displaces physical relating.
- $lnonlinepur10_{it}$ or the percentage of individuals who purchased online more than 10 times in the last 3 months and resident in local authority area *i* in year *t*. Like $lnonlinepur5_{it}$, the impact of this variable on total commercial rates income could be positive or negative – positive if online shopping complements physical relating, negative if online shopping displaces physical relating.
- $lndisincpp_{it}$ or disposable income per person in local authority area *i* in year *t*. We would expect this variable to exert a positive influence on total commercial rates income.
- $lncommvac_{it}$ or commercial vacancy rate in local authority area *i* in year *t*. We anticipate that this variable will be negatively related to total commercial rates income.

The '*ln*' prefix before each variable refers to the natural logarithmic function. The advantage of specifying a double log form is that the coefficients of the econometric model are 'elasticities': each coefficient gives the % change in the dependent variable due to a given % change in the corresponding explanatory variable, which makes the interpretation of the results straightforward and intuitive.[9]

4.2.2 Data Sources for Analysis of the Econometric Model of Total Commercial Rates Income

4.2.2.1 Dependent Variable – Total Commercial Rates Income

There are two publicly available sources of data for the dependent variable: the *Local Authority Budgets* series published by the DoHPLG; and NUIG (National University of Ireland Galway). The latter source is used here, by virtue of the data being available for electronic download.[10]

The second column of Table 4.1 shows that total commercial rates income of all 31 local authorities totalled €1,547.6m in 2019 and represented 31% of all local authorities' income in that year.

Also shown in the same table are the CAGRs of total commercial rates income during 2014-2019 for each local authority and in the final column the natural logarithm of total commercial rates income (*lncomminc*) in 2019. The effect of taking the natural logs is to 'flatten' the considerable variation in total commercial rates income among the local authorities – another advantage of the double-log specification.

[9] A formal treatment of the econometric model is given in the Annex to Section 4, which also includes the results in full.

[10] The NUIG data can be downloaded from **here**.

Table 4.1: Commercial Rates Income (2019) and CAGR of Commercial Rates Income (2014-2019) among the 31 Local Authorities in the State

	Commercial Rates Income		
Local Authority	**2019 (€)**	**CAGR (2014-19) (%)**	**2019 (ln€)**
Carlow County Council	14,600,000	0.22%	16.4965
Cavan County Council	14,276,864	4.87%	16.4742
Clare County Council	43,003,947	0.66%	17.5768
Cork City Council	66,804,300	0.50%	18.0173
Cork County Council	133,047,202	3.18%	18.7062
Donegal County Council	34,380,806	4.05%	17.3530
Dublin City Council	338,194,241	-0.24%	19.6391
DLR County Council	84,515,900	0.35%	18.2525
Fingal County Council	126,537,400	1.36%	18.6560
Galway City Council	36,917,557	1.03%	17.4242
Galway County Council	28,231,157	3.35%	17.1559
Kerry County Council	41,292,888	1.37%	17.5362
Kildare County Council	59,282,109	4.46%	17.8978
Kilkenny County Council	19,618,700	1.40%	16.7920
Laois County Council	13,443,543	2.26%	16.4140
Leitrim County Council	5,466,192	1.09%	15.5141
Limerick City & County Council	55,977,993	0.84%	17.8405
Longford County Council	8,176,631	-0.29%	15.9168
Louth County Council	32,589,030	-0.41%	17.2995
Mayo County Council	32,507,838	9.96%	17.2970
Meath County Council	37,213,426	2.39%	17.4322
Monaghan County Council	13,027,730	5.83%	16.3826
Offaly County Council	17,009,136	4.93%	16.6493
Roscommon County Council	11,953,400	1.55%	16.2965
Sligo County Council	13,479,142	3.75%	16.4167
South Dublin County Council	122,914,400	0.02%	18.6270
Tipperary County Council	31,749,999	8.61%	17.2734
Waterford City & County Council	30,808,571	0.91%	17.2433
Westmeath County Council	16,124,426	0.94%	16.5958
Wexford County Council	36,503,485	13.39%	17.4129
Wicklow County Council	27,939,564	9.53%	17.1456
Total	**1,547,587,577**		
% of All Local Authority Income	***31%***		

Source: NUIG local authority finance data (supra footnote 10), PMCA Economic Consulting analysis.

Note: '*ln*' denotes the natural logarithmic function.

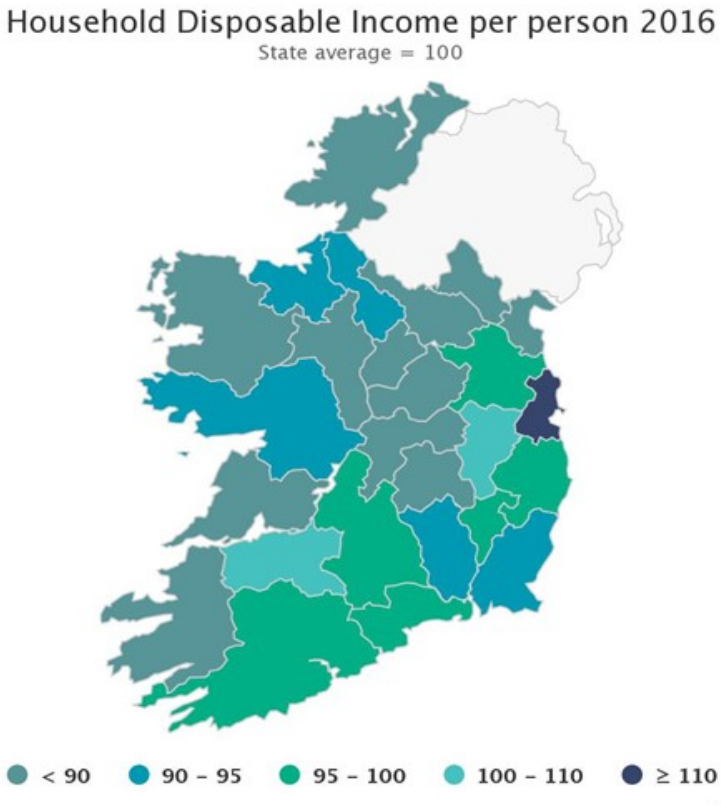
Box 4.1: Disposable Income per Person – A Potentially Important Indicator of Local Economic Performance

The latest CSO data on county incomes were published on 3 April 2019 and are for 2016. According to the CSO:

"Dublin, Limerick and Kildare are the only counties where per capita disposable income exceeded the State average in 2016 with Wicklow, Cork and Waterford, in order just below".

However, the CSO proceeds to state that at *"the other end of the spectrum, some counties have never had per capita disposable income greater than the State average during the entire period 2004 to 2016."*

The CSO's map showing disposable income per person in the 26 counties relative to the State (=100) in 2016 is reproduced below. Dublin had the highest disposable income per person (greater than or equal to 110), followed by Kildare and Limerick (100-110) and then Carlow, Cork, Meath, Tipperary, Waterford and Wicklow (95-100).



Source: Latest CSO data on county incomes and regional GDP (available **here**).

4.2.2.2 Data Sources for the Explanatory Variables

The data used to identify the first explanatory variable ($lnonlinepur5_{it}$ or the natural log of the proportion of individuals who purchased online more than 5 times in the last 3 months and resident in local authority area *i* in year *t*) are from the CSO but pertain to the NUTS 3 Regions (data for lower levels of geographical disaggregation, such as county or local authority area, are not available). It is assumed that the local authority areas within each NUTS 3 Region take their Region's value for each of 2015-2019 (the CSO data cover this period), which means that while there are 151 observations in the panel dataset for this explanatory variable, the variation in each year is effectively limited to the 8 NUTS 3 Regions rather than the 31 local authority areas (Table A1, p. 43 maps the local authority areas against the new NUTS 3 Regions). This assumption is necessary in the absence of any other data, from the CSO or Eurostat, on the extent of online shopping by consumers sub-NUTS 3 level.[11]

The second explanatory variable is another measure of the intensity of online shopping, namely the percentage of individuals who purchased online more than 10 times in the last 3 months and resident in local authority area *i* in year *t* ($lnonlinepur10_{it}$) and is incorporated into the panel dataset using the same assumption as that for the preceding explanatory variable.[12]

The third explanatory variable is designed to incorporate income into the analysis, with the prior expectation that local authority commercial rates income will be higher where people's income is higher, *ceteris paribus*. The third explanatory variable ($lndisincpp_{it}$) is the natural log of disposable income per person in local authority area *i* in year *t* and is identified using the CSO's estimates of household income by county. County is the lowest geographical disaggregation of these data (26 counties in the State), which necessitates the assumption that the CSO data for the NUTS 3 Dublin Region apply to each of the four local authority areas within the Dublin Region and similarly for Cork in respect of the Cork City Council and Cork County Council local authority areas and likewise for Galway in regard to the Galway City Council and Galway County Council local authority areas. In addition, the latest year available for the CSO data on county (and regional) incomes is 2016. Using the actual rate of change 2014-2016 for each county (CAGR basis), we estimated the values of this explanatory variable for 2017, 2018 and 2019, in order to maximise the sample in regard to this explanatory variable.[13]

The fourth explanatory variable ($lncommvac_{it}$) is the natural log of the commercial vacancy rate in local authority area *i* in year *t*, which we would anticipate to exert a negative effect on local authority commercial rates income, other things being equal. The data for this explanatory variable are based on GeoDirectory information from An Post and Ordnance Survey Ireland (OSI). The data are made available twice per year and the latest publication at the time the analysis was carried out in late 2019 was the second quarter of 2019. Table 4.2 overleaf shows the commercial vacancy rates by county from 2014 to 2019 from this source. The counties are ranked based on the largest vacancy rates in the latest quarter and the last column shows the percentage point change between the latest quarter and the second quarter of 2014. The commercial vacancy rates data are at county level (26) and to map them to the local authority areas (31) it is assumed that the commercial vacancy rates for the Dublin Region apply to the capital region's four

[11] The CSO data for this explanatory variable are illustrated in Figure A12 (p. 66).

[12] The CSO data for this explanatory variable are shown in Figure A11 (p. 65).

[13] PMCA considers that this assumption is justifiable given the economic recovery nationally since 2014.

constituent local authority areas and similarly in regard to Cork City Council and Cork County Council, and for Galway City Council and Galway County Council.

Table 4.2: Commercial Vacancy Rates by County in Ireland (2014-2019)

	Commercial Vacancy Rates by County (%)											
County	**2014Q2**	**2014Q3**	**2015Q2**	**2015Q4**	**2016Q2**	**2016Q4**	**2017Q2**	**2017Q4**	**2018Q2**	**2018Q4**	**2019Q2**	**Change**
Sligo	16.0	16.6	16.8	16.4	16.8	18.0	18.0	18.7	18.8	18.9	18.9	2.9
Leitrim	15.5	15.5	15.9	16.1	16.3	16.4	16.2	15.6	15.6	16.4	16.7	1.2
Mayo	13.2	13.2	13.2	13.5	14.5	15.6	15.5	15.3	15.6	15.8	16.3	3.1
Roscommon	13.7	13.6	14.1	14.1	14.2	14.4	14.3	14.9	15.4	15.7	16.3	2.6
Galway	14.8	15.1	15.4	15.1	15.3	15.4	15.6	16.2	16.2	16.0	16.2	1.4
Donegal	13.2	13.5	14.2	14.2	15.1	15.6	15.1	15.1	15.0	15.6	15.8	2.6
Offaly	13.2	13.2	12.7	12.7	14.7	14.7	15.0	15.0	15.3	15.4	15.5	2.3
Limerick	13.9	14.3	15.0	15.3	15.3	15.3	15.9	15.0	15.1	15.2	15.3	1.4
Longford	13.2	13.1	13.2	13.2	12.9	14.9	14.9	15.1	14.4	15.0	15.0	1.8
Clare	12.9	12.9	13.3	12.8	13.6	14.6	14.7	14.5	14.9	14.9	14.8	1.9
Tipperary	11.7	11.9	11.7	11.9	12.7	14.1	14.5	14.4	14.0	14.2	14.3	2.6
Louth	12.5	13.0	13.2	12.8	13.8	14.5	14.3	14.3	14.4	14.2	14.1	1.6
Waterford	13.3	13.6	13.2	13.2	13.3	14.6	14.6	14.3	14.3	14.1	14.1	0.8
Carlow	13.2	13.0	12.1	11.9	12.0	13.5	13.7	13.7	13.4	13.4	13.8	0.6
Kildare	12.4	12.3	11.9	11.9	12.4	12.9	13.1	13.2	13.1	13.0	13.5	1.1
Laois	13.1	13.0	13.3	13.2	13.6	14.2	14.1	14.1	14.2	13.0	13.2	0.1
Monaghan	10.7	11.2	11.3	11.2	11.6	12.8	12.6	12.9	12.8	13.2	13.2	2.5
Cavan	10.9	10.8	11.0	11.0	11.3	11.8	13.1	12.9	12.6	13.1	12.8	1.9
Kilkenny	11.3	11.3	11.0	10.9	11.2	12.0	12.2	12.2	12.0	12.0	12.6	1.3
Dublin	13.7	13.7	13.4	13.4	13.8	13.7	13.6	12.4	12.1	12.2	12.1	-1.6
Wicklow	11.9	12.2	12.2	12.5	12.6	12.6	12.6	12.4	12.0	12.2	12.0	0.1
Cork	11.5	11.5	11.3	10.9	11.5	11.7	11.6	11.8	11.5	11.6	11.6	0.1
Westmeath	9.9	10.1	10.0	9.7	10.4	10.5	11.2	11.0	11.0	11.1	11.6	1.7
Wexford	10.0	9.8	9.7	10.1	10.3	10.9	10.8	10.8	10.8	11.0	10.9	0.9
Kerry	9.0	8.9	9.3	9.2	9.4	10.2	10.6	10.5	10.4	10.6	10.6	1.6
Meath	10.1	10.1	10.1	10.2	10.3	10.8	10.8	10.7	10.4	10.4	10.1	0.0
Mean	***12.5***	***12.6***	***12.6***	***12.6***	***13.0***	***13.7***	***13.8***	***13.7***	***13.7***	***13.8***	***13.9***	***1.4***
Standard Deviation	***1.74***	***1.81***	***1.92***	***1.91***	***1.95***	***1.96***	***1.87***	***1.94***	***2.05***	***2.08***	***2.15***	***0.4***

Source: GeoDirectory from An Post and Ordnance Survey Ireland (OSI), PMCA Economic Consulting analysis.

Table 4.3 overleaf provides descriptive statistics on the dependent and explanatory variables. For each variable, the mean, standard deviation, minimum value and maximum value, along with the number of observations are given. The term 'overall' in the table refers to the pooled sample of all local authorities and years for which the variables are identified with independent data, 'between' shows the variation across the 31 local authorities and 'within' the variation over time.

Most of the variation in the dependent variable (commercial rates income, in natural logarithmic form) derives from differences between local authorities rather than over time. Consequently, in assessing the goodness of fit of the econometric model to the data, emphasis is placed on the R^2 *between* statistic and the R^2 *overall* statistic rather than the R^2 *within* statistic (panel data econometric analysis produces three R^2 statistics compared with the usual R^2 statistic of conventional regression analysis).[14]

[14] The main caveats are the assumptions used to identify the two online shopping variables (*lnonlinepur5* and *lnonlinepur10*) from CSO data pertaining to the NUTS 3 Regions to the 31 local authority areas, and the assumption made to extrapolate the CSO data on disposable income per person per county during 2014-2016 for 2017-2019.

Table 4.3: Descriptive Statistics of the Dependent Variable and the Explanatory Variables of the Econometric Model of Local Authority Total Commercial Rates Income – Variables in Natural Logarithmic Form

Variable		Mean	Std. Dev.	Min	Max	Observations	
lncomminc	overall	17.23567	0.894118	15.45967	19.6513	N =	186
	between		0.9003445	15.48108	19.61531	n =	31
	within		0.1036117	16.77556	18.10416	T =	6
lnonlinepur5	overall	3.202167	0.2948496	2.681021	3.688879	N =	155
	between		0.1469219	2.961676	3.449887	n =	31
	within		0.2567312	2.77582	3.675644	T =	5
lnonlinepur10	overall	2.19682	0.4494178	1.335001	3.091043	N =	155
	between		0.2129758	1.828105	2.520753	n =	31
	within		0.3972352	1.483759	3.027956	T =	5
lndisincpp	overall	9.890167	1.225343	9.619532	10.22318	N =	186
	between		0.1135894	9.685372	10.12334	n =	31
	within		0.0496067	9.79072	9.994902	T =	6
lncommvac	overall	2.578767	0.1453947	2.197225	2.939162	N =	186
	between		0.1378382	2.297118	2.874619	n =	31
	within		0.0515144	2.455423	2.679384	T =	6

Source: NUIG local authority finance data (supra footnote 10), CSO, GeoDirectory and PMCA Economic Consulting analysis.

Note: Results produced using the specialist software package Stata.

4.2.3 Results of the Econometric Analysis of Total Commercial Rates Income

4.2.3.1 Introduction

The procedure for the econometric panel data analysis of total commercial rates income of the 31 local authorities in the State during 2014-2019 is based on a tried-and-trusted methodology in the research literature, beginning with bivariate analysis entailing scatterplots of the dependent variable *(lncomminc)* on each of the four explanatory variables *(lnonlinepur5, lnonlinepur10, lndisincpp and lncommvac)* to get a visual sense of the relationships and whether they accord with *a priori* expectations. Then, the multivariate analysis seeks to arrive at a best model specification for the dependent variable. The details of the results are given in the Annex to Section 4.

4.2.3.2 Bivariate Results - Scatterplots

The scatterplots of the dependent variable (*lncomminc*) in Figure 4.1 indicate the following:

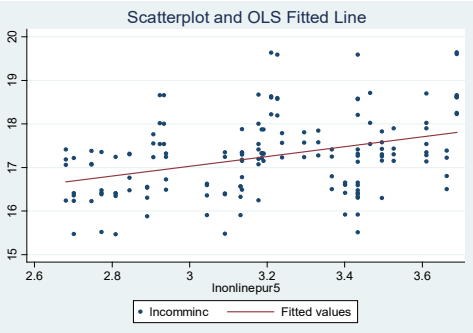
- Total commercial rates income is positively related to each of the online purchasing variables (*lnonlinepur5* and *lnonlinepur10*) suggesting online shopping complements physical retailing.
- Total commercial rates income and disposable income per person (*lndisincpp*) are positively related (as expected).
- Total commercial rates income and commercial vacancy rates (*lncommvac*) are negatively related (as expected).
- The best looking/tightest relationship appears to be that between *lndisincpp* and *lncomminc*.

"Online shopping complements physical retailing."

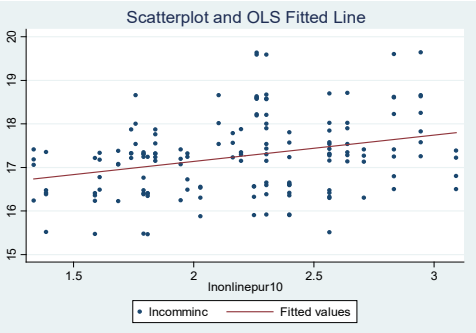
"Total commercial rates income and disposable income per person are positively related."

Figure 4.1: Scatterplots and Fitted Ordinary Least Squares (OLS) Lines of Total Commercial Rates Income and the Explanatory Variables of the Econometric Model

lncomminc-v-lnonlinepur5

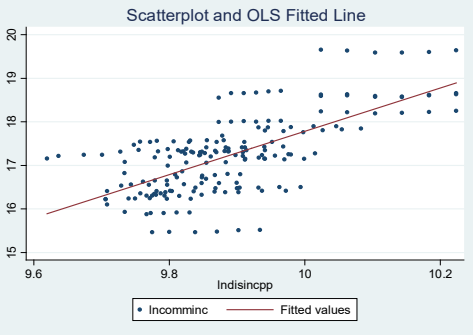


lncomminc-v-lnonlinepur10

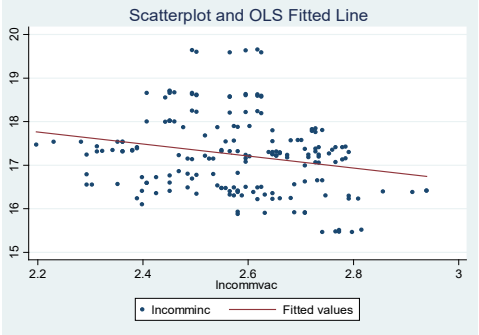


Note: The variables are in natural logarithmic form. Sample sizes of 155 observations for graphs 1 and 2; 186 observations for graphs 3 and 4. Scatterplots produced using Stata. OLS stands for ordinary least squares – a method for fitting lines to scatterplots like those above.

lncomminc*-v-*lndisincpp



lncomminc*-v-*lncommvac



Source: NUIG local authority finance data (supra footnote 10), CSO and PMCA Economic Consulting analysis.

4.2.3.3 Multivariate Results – Best Econometric Model for Total Commercial Rates Income

> ***Stimulating high quality employment opportunities represent a means of growing commercial rates income.***

The best econometric model is one in which disposable income per person alone explains 53% of the variation in total commercial rates income among local authorities; the other explanatory variables, including the frequency of online shopping variables, are not statistically significant. The quantitative impact of the sole explanatory variable is that any given x% rise (fall) (e.g. 10%) in disposable income per person is associated with the same x% rise (fall) (i.e. 10%) in local authority commercial rates income – the relationship is in line or in proportion. The best model results are given in Table A14 (p. 93) and the pathway to this model is outlined in the Annex to Section 4.

It follows that initiatives that serve to boost disposable income per head in local authority areas are likely to boost local authority commercial rates income. The main source of a person's disposable income is his or her primary income from work or self-employment, which implies that initiatives aimed at stimulating high quality employment opportunities represent a means of growing commercial rates income and in turn sustaining local authority financing over time.

The results imply that local authorities need to become *highly proactive* in facilitating economic development in their main towns and cities, where the opportunities for such employment growth are greatest.

This in turn will necessitate local authorities accumulating relevant intelligence/data on the comparative strengths (and weaknesses) of their areas to inform progress on their economic development strategies/objectives, and to respond to investment opportunities capable of delivering high quality jobs. It therefore follows that local authorities should think carefully and strategically about lands/sites with the potential to deliver high quality employment, at an appreciable scale, in turn meriting consideration of skills pools, transport links and proximity to markets in respect of such locations.

Note: The variables are in natural logarithmic form. Sample sizes of 155 observations for graphs 1 and 2; 186 observations for graphs 3 and 4. Scatterplots produced using Stata. OLS stands for ordinary least squares – a method for fitting lines to scatterplots like those above.

4.3 Econometric Analysis of Online Shopping & Commercial Rates Income Due to Retailing

As well as examining total commercial rates income, econometric analysis has also been conducted on commercial rates income due specifically to the retail sector. The results of the analysis indicate that the extent or frequency of online shopping has no statistically significant effect on commercial rates income from this source and the same is true of commercial vacancy rate. On the other hand, disposable income per head emerges as more important but is not statistically significant (with a p-value of 0.117, see Table A19, p. 100). However, this result may be due to the sporadic nature of the data on commercial rates income due to retailing, in which data for the years between 2014-2019 were only available for Dublin City Council, whereas the corresponding data for the other local authorities were limited to 2015 and/or 2016 or were not available in the case of three local authorities. The details of the results of this part of the econometric analysis are presented in the Annex to Section 4.

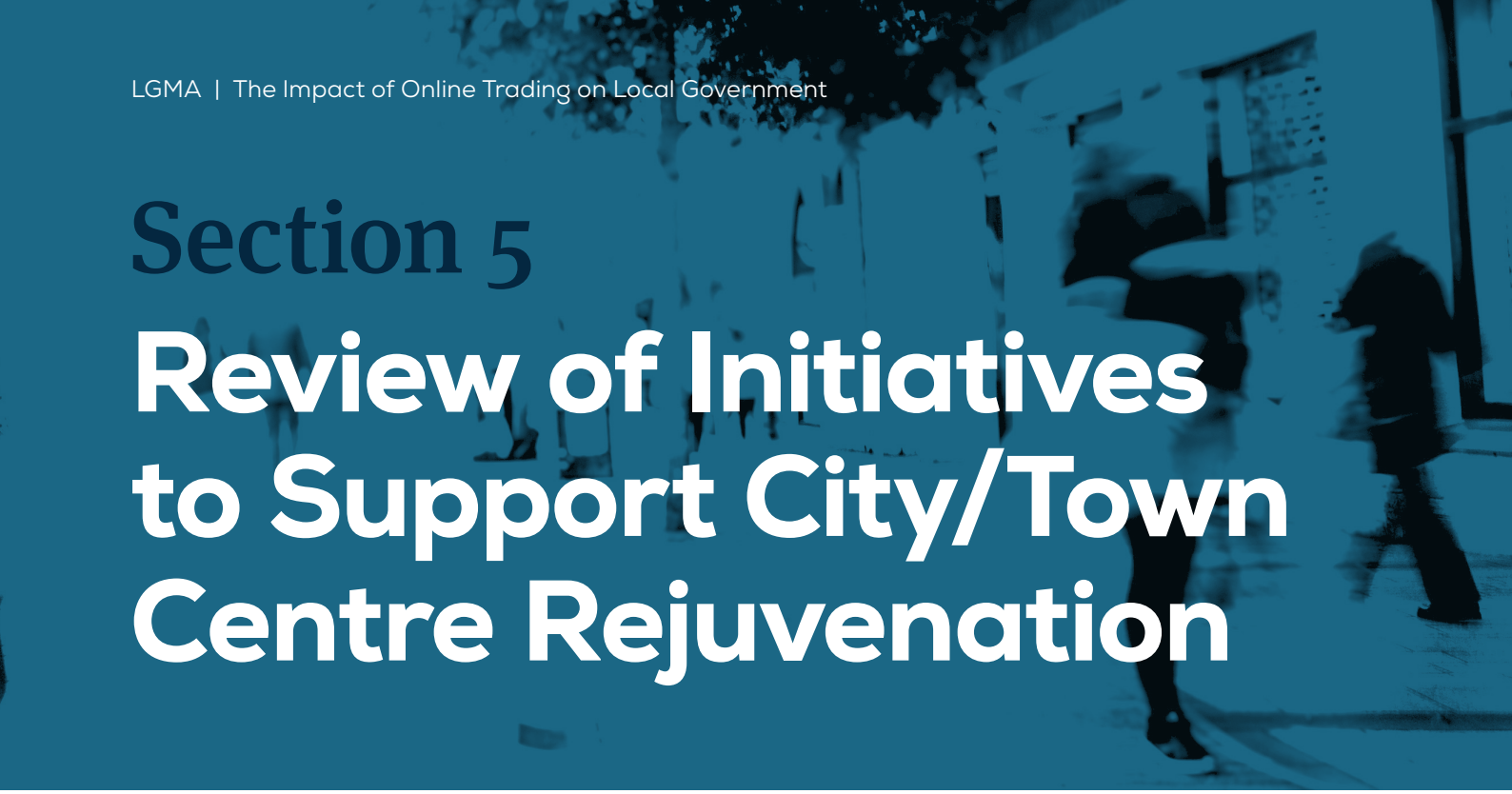
4.4 Section Summary

The key results from the econometric panel data analysis of local authority commercial rates income carried out in this section of the report are summed up as follows:

- The frequency of online shopping by individuals has no statistically significant or quantitatively strong impact on local authority commercial rates income from all sectors (retailing and other).
- On the other hand, disposable income per person exerts a highly statistically significant and quantitatively strong impact on local authority commercial rates income from all sources.
- In respect of the quantitative impact, a 10% rise (fall) in disposable income per person is associated with a corresponding 10% rise (fall) in commercial rates income from all sectors.
- In regard to commercial rates income due specifically to retailing, none of the explanatory variables emerge as statistically significant or quantitatively strong, including disposable income per person (the results are shown in the Annex to Section 4). However, the absence of a statistical relationship could reflect the sporadic availability of data on local authority commercial rates due to retailing among the 31 local authorities in the State.

It follows from the econometric analysis that initiatives that serve to boost disposable income per head in local authority areas will serve to increase local authority commercial rates income. The main source of a person's disposable income is primary income from work or self-employment, which implies that initiatives aimed at stimulating high quality employment opportunities represent a means of growing commercial rates income and sustaining local authority financing over time. The econometric results imply that local authorities should be *highly proactive* in facilitating economic development in their towns and cities, where the opportunities for such employment growth are greatest.

This in turn will necessitate local authorities accumulating relevant intelligence/data on the comparative strengths (and weaknesses) of their areas to inform progress on their economic development strategies, and to respond to investment opportunities capable of delivering high quality jobs. Identifying employment sites in settlements (large and small) proximate to skills, transport links and giving access to markets represents a means in which local authorities can help deliver such employment opportunities. In the next section of the report, one of the themes to emerge from the review is the importance of having a robust, evidence-based baseline to inform decision-making and actions for city/town centre renewal and revitalisation, and to maintain that intelligence to track progress of interventions.



Section 5
Review of Initiatives to Support City/Town Centre Rejuvenation

5.1 Introduction

There are myriad initiatives from central government, local authorities and other stakeholders (such as chambers of commerce) aimed at strengthening online capability among retailers, improving digital skills of businesses and supporting city/town centre renewal and revitalisation. Often local authorities and chambers work successfully together in this regard. Both traditional and alternative approaches share the same goal of making city/town centres more attractive to shoppers and visitors, and the importance of assembling and updating relevant evidence to inform and monitor action-planning is a common theme permeating the different approaches. A striking example of an alternative approach is the recent study by the UK-based Centre for Cities (September 2019) which concludes that initiatives aimed at improving the performance of urban economies by prioritising *consumption* are unlikely to succeed, because they do not address the fundamental reasons why these local economies are struggling or reflect the direction of the relationship between the economic performance of a place and its amenity offering.

> *"A more focused approach to digital development through targeted investment in digital hubs."*

Instead the study recommends that policies should focus on making urban centres more attractive to businesses, especially those providing high quality, well-paid jobs. This will provide those living and working in larger towns and cities with the income they need to enjoy a greater range of amenities and keep them open. This recommendation does not necessarily apply to all towns in Ireland but nevertheless highlights the importance of local authority economic development strategies being linked to settlement hierarchies, locally and regionally as set out in Regional Spatial and Economic Strategies (RSESs) and City/County Development Plans (CDPs), which in turn reflect the overarching *Project Ireland 2040: National Planning Framework*.

The Centre for Cities study is also noteworthy because it chimes with the study by IE Domain Registry (November 2019) (summarised earlier in Box 3.2, p. 15), calling for a more focused approach to digital development through targeted investment in digital hubs, where it cites the digital hubs in Gorey, Co. Wexford and Sligo Town.

These studies are consistent with the econometric results presented in Section 4, which suggest that supporting investment and skilled job opportunities are key to local economic development, including town centre retailing, and to local authorities' commercial rates income.

5.2 Government Initiatives

5.2.1 Retail Consultation Forum

The government's *Action Plan for Jobs 2014* established the Retail Consultation Forum, which is convened and supported by the Department of Business, Enterprise and Innovation (DBEI). The purpose of the Retail Consultation Forum is to allow issues of relevance to the sector to be discussed with a view to identifying practical actions which can be taken by government (national or local) or by industry itself to support the sector. Among the achievements of the Retail Consultation Forum to date is the Report of the Forum's Working Group on Town Centre Renewal (2017) considered presently.

5.2.2 Report of the Retail Consultation Forum's Working Group on Town Centre Renewal

Completed in April 2017, *A Framework for Town Centre Renewal* sets out key characteristics of successful town centres and identifies both existing supports and good/best practice examples from around the country. It also includes an Action Plan for Town Centre Renewal, as a 'blueprint' for towns and villages.[15]

The report observes that international experience shows that successful town centre management is most likely to be achieved where there is a genuine partnership between the public and private sectors together with town residents. It also comments (p. 6) that:

"*While volunteerism is essential to the development and implementation of a town centre renewal plan, a greater range of supports needs to be put in place to enable successful town centre renewal. These supports could take the form of administrative supports by the Local Authority, training supports for Town Centre Coordinators or other town stakeholders and a variety of financial supports such as further grants from the Local Authority for office fit outs, shop front grants, or supports for starting businesses. Consideration also needs to be given to greater levels of central government funding, such as funding under the Town and Village Renewal scheme or further urban regeneration funding.*"

The key attributes of a successful town centre identified in the report are reproduced in Figure 5.1 on page 32. On first impression, few would argue against the comprehensive set of features, but noteworthy in the context of this study are the following characteristics:

- Local steering group or 'town team' that is representative of all stakeholders in the town, which the 2017 report states "*is key to developing a vision for the town and setting out a plan that has the support of all sectors of the community. The local*

[15] The report is accessible **here**.

steering group or Town Team might also focus on area promotion which will support local businesses and attract new businesses and activity" (p. 10). The latter role of a town team – concerning its contributing to investment and wider economic development – is noteworthy in view of the results of the econometric analysis presented in Section 4 of this report and in light of the importance of high quality employment development emphasised in the Centre for Cities study (2019) considered below.

- Artisan food and craft supports – this attribute is highlighted here because it relates to the need for the retail mix in town centres to be *"varied and interesting"*, as remarked on p. 12 of the 2017 report. This means that the retail offering should seek to distinguish itself from out-of-town centre retailing, which is different in scale and its set of offerings. Rather than attempting to compete with out-of-town centre retailing, town centre retailing should see itself as complementary, in an alternative setting.
- In regard to the growth of online shopping, the 2017 report considers that *"Town centres need to become responsive to the changing retail landscape. Increasing numbers of shoppers now shop online for convenience. There is a unique opportunity for town centres to take their town to the next level and to capture a share of this emerging market sector by branding town centres as a collective shopping platform where you can shop for all your needs in one place. It can also have a real appeal by offering an on demand aspect that provides convenience and caters for the immediacy of every day need"* (p. 12).

The Retail Consultation Forum's Framework report (2017) proceeds to outline the steps making up an action plan for town centre renewal, which are three-fold as follows:

- Step one – stakeholder engagement and health check.
- Step two – establish a town centre management team or 'town team'.
- Step three – prepare and implement a town centre plan, setting out a vision for the town centre, key objectives, priority projects and measureable goals or key performance indicators (KPIs).

The Framework report (2017) then gives examples of good/best practices, for example the Roscommon Town Teams Project, Dún Laoghaire BIDS and Sligo BIDS. All of these initiatives share the common characteristic of having being developed in association with the respective local authorities and LEOs, where the 2017 report highlights the earlier CCMA report of 2015 on what local authorities can do to support retailing and improve towns and cities (see Sub-Section 5.3).

Figure 5.1: Characteristics of a Successful Town Centre

Source: A Framework for Town Centre Renewal (supra footnote 15).

The 2017 Framework report provides a template and guide for stakeholders, including local authorities, in terms of putting together town centre action plans and tracking performance, where the report provides a comprehensive set of KPIs, namely retail sales growth, footfall, car parking usage, public transport usage, rental yields, rental values, office rents and vacant spaces, vacancies and premises for sale, retail investment, customer satisfaction, employment statistics and crime figures. All of these KPIs can be measured using data – local (survey-based) as well as official (CSO, government/DBEI etc.) – and it is important that monitoring of action plans occurs, aiding critical review of implementation.

Perusal of the Minutes of the Retail Consultation Forum to date suggests that the 2017 report lost momentum in terms of implementation of its actions (the advent of Brexit at that time came to dominate the policy agenda). Nonetheless, the practical actions contained in the 2017 report continue to be relevant and thus should continue to be disseminated among local authorities and other stakeholders.[16]

[16] Minutes of the Retail Consultation Forum Meetings of relevance to this study are given in the Annex to Section 5.

5.3 Local Authority Initiatives

5.3.1 CCMA Report Local Authority Retail Support, Improving Our Cities and Towns (2015)

This report by the CCMA, in collaboration with the Association of Irish Local Government (AILG), was prepared in the context of the specific action of the *2015 Action Plan for Jobs* (namely Action 325), which stipulated the need to:

"Identify best practice initiatives which are being undertaken by local authorities to support retail at local level which could serve as exemplars for consideration by other local authority areas."

The report highlights (at a high level) supports offered by local authorities and good/best practices in a number of key areas:

- *Improving business conditions*, such as commercial rates, financial incentives, traffic management and parking, marketing and collaborative networks (between local authorities, business associations and community groups, including tidy towns and other voluntary initiatives).
- *Creating a welcoming environment*, examples being public realm, streetscape, cleanliness, and orientation (signage and way-finding systems aimed at visitors and tourism).
- *Adding to the retail experience*, including festivals, heritage and culture, parks and playgrounds, tourism and the night-time economy (Purple Flag award scheme).
- *Community, well-being and safety*, such as CCTV and policing, civic pride programmes, town centre management initiatives.

Examples of advocacy initiatives include 'town teams', where the Carlow Town Team has focussed on the promotion of local events such as art exhibitions, artisan food experiences, litter management and the elimination of dereliction; six town teams have been setup in Roscommon; while in Waterford City, a city centre management group has been established; and a similar initiative in Tipperary has been branded as town centre forums. The report also observes initiatives in Sligo Town and Letterkenny that have been part-funded between local authorities and the private sector (town centre management positions), while South Dublin County Council has funded a sustainable business officer position within the chamber of commerce to network directly with retail businesses and to liaise with the local authority on issues raised. BIDSs also feature in the CCMA report (2015).

Box 5.1: Drogheda's Experiences and its Business Improvement District Scheme (2019)

In 2016 Drogheda recorded a population of 40,956, making it the largest town in the State. It had 16,108 resident workers in any location and 12,361 persons at work in the town, or a jobs-to-resident workers ratio of 0.767. It is favourably located in the Dublin-Belfast Corridor and benefits from excellent transport infrastructure, including the M1 Motorway, McBride Railway Station, access to Dublin Airport (30 minutes' drive), Dublin Port and Drogheda Port. However, Drogheda's favourable location is also sometimes seen as a curse as well as a blessing – too close to Dublin to be an employment centre in its own right and losing out to Dundalk in regard to FDI. The jobs-to-resident workers ratio less than unity reflects the outbound commuting from the town. Dundalk is only 25 minutes on the M1 Motorway, so the growing FDI coming into that town benefits Drogheda as well as other towns in the north-east.

Such has been the growth of Drogheda over the past twenty years that it has expanded rapidly into County Meath. In 2016-2017, there was a review of the boundary between Louth and Meath in Drogheda, with the Independent Review Group concluding that there be no change to the *status quo* but that Louth and Meath County Councils should institute a Joint Urban Area Plan (JUAP) for the town. Drogheda, along with Athlone and Dundalk, are designated 'Regional Growth Centres' in the EMRA (Eastern and Midland Regional Assembly) RSES.

Much has happened in Drogheda recently, good and bad. The latter include the recent drugs feud, while the former include the Fleadh hosted in the town in 2018 and 2019, and before that the Local Heroes campaign, triggered by the RTÉ TV programme of the same name, as a response to the economic crisis of the time (2011).

Drogheda's experience of the Local Heroes initiative was discussed at the Retail Consultation Forum Meeting of 27 April 2015, to which members of Drogheda Chamber of Commerce, the Chief Executive of Louth County Council and local traders were invited to outline their experience in revitalising Drogheda town centre during the recession as part of the Local Heroes campaign, which was led by the late Senator Fergal Quinn.

The Chamber representatives at the meeting emphasised the importance of partnership between the key stakeholders – business owners, local authorities, customers, local community groups and central government. Early on in the Local Heroes process, an audit was carried out of Drogheda's strengths and weaknesses, prompting new initiatives, including a new brand for the town (based on the River Boyne). But the meeting also learned that Drogheda's experience has been to embrace a number of plans over time, the net effect of which has been positive.

The latest initiative is Drogheda BIDS, which, it is envisaged, will enable commercial ratepayers to draw up a scheme of projects, services and works additional to those provided by the local authority for the benefit of the town and its environs, which extend into Counties Louth and Meath towards a wider population approaching 80,000. The new scheme will be financed by an annual contribution from local ratepayers, commencing in 2020 and run for 5 years.

Source: PMCA Economic Consulting research.

5.3.2 UK Local Government Association Report (2018)

This report is entitled *Revitalising town centres*, sub-titled *A handbook for council leadership*, which starts with the premise that (p. 2):

"Part of the response to town centre revitalisation requires big thinking – avoiding the traps of having a narrow focus on retail, one street or block or single issues such as parking, anti-social behaviour or business rates. Town centre success requires a multitude of factors to be successful."

"Many town centres are finding a new purpose – a rebalancing of the functions they serve including employment, commercial, leisure, community, housing, healthcare and educational uses."

The Chair of the Local Government Association's (LGA) Economy, Environment, Housing and Transport Board emphasises that:

"key to success is a strong evidence base, meaningful engagement with the town's stakeholders and embracing new technology. They avoid dealing with single issues and responding to anecdote alone and instead take a much more strategic approach."

Taking a joined-up approach to town centre revitalisation also involves *"the routine monitoring of impacts to measure success"* (p. 4).

The success factors for town centre revitalisation are as follows, according to the report:

- *Foundations* – evidence of strengths and weaknesses, objectives of intervention, tracking trends and use of quantitative performance indicators, including footfall, vacancy rates, customer origin and purpose of visits.
- *Function*, comprising
  - Parking, access and travel and taking a customer-led approach.
  - Property and planning, which includes local authorities setting out a vision in local area plans and being sensitive to business mix, such as proliferation of fast food takeaways and gambling.
  - Streetscape and public realm, aimed at ongoing improvement in the town environment.
  - Business support, with strategies aimed at enhancing the quality and distinctiveness of retail, services, hospitality and leisure services based on current provision and knowledge of success in other towns and urban centres.
  - Place branding and marketing, is there a clear understanding of the town branding and a creative, collective marketing campaign?
  - Digital technology and data, including digital intelligence to promote the town and monitor town centre usage.
- *Form* – which concerns having in place appropriate structures to coordinate multiple stakeholders and drive implementation consistently and over time.
- *Folk* – public, private and community engagement, clearly delineated roles in town teams etc.
- *Funding* – finances and investment, illustrating commitment from stakeholders and robust financial structures and management.
- *Forward planning* – which refers to a well-defined forward framework with a vision and plan to achieve the vision, including monitoring of outcomes along the journey towards the vision.

The handbook contains case-studies, complemented by more detailed resources and supports on the LGA website (available **here**, including the report).

5.4 Alternative Approach in the Centre for Cities Report (2019)

> *"There is a clear relationship between the economic strength of a city and the diversity of its amenity offer."*

The Centre for Cities study entitled *What's in store? How and why cities differ for consumers* (September 2019) contains findings of relevance to this report, not least for highlighting the importance of economic and employment development in larger towns as a key part of supporting vibrant urban centres and their catchment areas, including smaller towns, villages and rural areas.[17]

The report sets out the role cities (or larger towns) play as places of consumption, where it finds that:

- Cities are vibrant places where people go to spend time and money.
- They offer a more diverse set of amenities than other parts of the country.
- The density and scale of cities means they can sustain a richer set of amenities.
- But not all cities offer this variety. There is a clear relationship between the *economic strength* of a city and the *diversity of its amenity offer.*
- *Cities with stronger economies house a richer set of amenities*, with many specialist and premium options for consumers. In contrast, cities with weaker economies struggle to provide more than the necessities. The limited spending power of those living and working in these cities mean it is difficult to sustain much more than the day-to-day, such as supermarkets and cafés, and their city centres suffer from high vacancy rates.

According to the study, if policy is to change this, and enable cities to be vibrant places, it is vital that interventions are based on an understanding of the role cities play as places of consumption and how this relates to their economic performance.

The study goes on to state that (p. 2):"

"Attempts to improve the performance of urban economies by prioritising the consumption offer are unlikely to succeed. They do not address the fundamental reasons these economies are struggling or reflect the direction of the relationship between the economic performance of a place and its amenity offer."

Instead, according to the study (p. 2):

"Policy must focus on making cities more attractive to businesses, especially those providing well-paid jobs. This will provide those living and working in cities with the income they need to enjoy a greater range of amenities and keep them open."

To do this, the report recommends that cities with underperforming economies should do three things:

- **Improve the skills of the workforce.** Initiatives include education and training supports.
- **Invest in the consumer offering, but not as the primary tool for economic growth.** Improvement in skills and investments in amenities and culture are primary tools for attracting businesses to provide high quality employment. The study contains a noteworthy chart showing a positive correlation between the share of a city's jobs in high-skilled exporting firms (2015) and premium amenities per 10,000 population (2018) (using data from the Office for National Statistics, the UK equivalent of the CSO). Cambridge, Oxford, Brighton and London are among the strong performing cities having both high skilled jobs and premium amenities. Slough scores strongly in skilled jobs but is judged as weak in premium amenities.

[17] The report is accessible **here**. Centre for Cities is a charity-based research and policy institute.

- Further on in the study, a case-study on Slough sheds more light on its performance. First, it has 'unusual' commuting patterns in which most of its high skilled jobs are taken by inbound commuters living elsewhere, while most of its own residents at work commute outside of Slough to do so, meaning there is less consumption in the city compared with the typical commuting pattern in the sample in which a city imports a minority of its workers and exports a minority of its residents at work. Second, most of Slough's high-skilled jobs are located in the outskirts of the city, reducing these workers' consumption in the centre of Slough. Third, Slough is close to other, amenity-rich locations, like London, which serves to disperse consumption from Slough.
- **Remodel city centres away from a reliance on retail.** Alongside other policies to attract more high-skilled jobs, cities should adapt their high streets to better suit customer preferences. This means providing offices for new jobs and reshaping the high street away from retail and towards more food, drink and leisure. The development of digital hubs in Irish towns is consistent with this objective.

The implications for the evidence-based recommendations of the Centre for Cities study for policy aimed at driving urban development in Ireland include the following:

- Digital hubs and other initiatives aimed at supporting the location of skilled jobs in town centres are significant and have environmental benefits as well as economic and social benefits. Thus, they are likely to become even more important with time, as tackling climate change becomes even more urgent.

> ***"Economically successful towns are ones that import a minority of their workers and export a minority of their residents at work."***

As recommended in the Centre for Cities report (p. 3): *"The priority for struggling high streets is to attract jobs, rather than improve the retail offer. This means that funds must accommodate a range of investments, including the provision of quality office space in city centres"* (digital hubs are an achievable response to this recommendation in smaller settlements, such as found in Ireland).

- Evidence on commuting patterns into and out of towns is valuable for planning purposes and should be considered by local authorities. *Economically successful towns are ones that import a minority of their workers and export a minority of their residents at work* (implying low inbound and outbound commuting rates, less than 50%). Towns that provide jobs (where the ratio of jobs-to-residents at work is greater than unity) are also successful but could become even more successful if most of the high quality jobs are taken by their residents. The aim of achieving successful towns importing a minority of their workers and exporting a minority of their residents at work is also in line with climate action to reduce people's carbon footprints.
- Further to the proceeding point, actors in planning and development of towns, including local authorities and LEOs, have an incentive to support high quality education and training of their residents – highly skilled people both living and working in towns is a recipe for economic success and yields other benefits too, regarding transport and the environment.
- Towns and urban centres should build up and out to meet demand for housing, where the Centre for Cities report states that (p. 3):

"A restrictive planning system has prevented the supply of workspace and housing from increasing with demand, resulting in rapidly rising prices especially in the strongest city centres. This must be tackled or unaffordability will prevent these cities being vibrant places of consumption." To help accommodate optimal commuting and consumption in towns, employment developments should entail residential elements to attract skilled workers, according to the report.

5.5 Section Summary

Two approaches to city/town centre rejuvenation may be discerned: the 'traditional' approach that includes a central role for retailing; and the alternative approach (as outlined in the UK Centre for Cities report, 2019) which prioritises skilled jobs in city/town centres, along with premium amenities, upon which retailing will then be supported. The growth and rollout of digital hubs in Ireland may be seen as consistent with the latter approach and is gaining momentum. There is empirical evidence for both approaches, and it is a matter for local authorities to choose either or a mixture of the approaches, depending on particular circumstances. Ultimately, both approaches are complementary and non-rivalrous and the rising popularity of digital hubs in enterprise policy provides indication of the importance of the need to create high quality employment opportunities in or close to town/city centres.

Box 5.2: Letterkenny – An Economically Successful Town but with Issues to Tackle

With a population of 19,274 in 2016, Letterkenny is the second largest settlement in the Northern and Western Regional Assembly area (after Galway city and suburbs 79,934 and ahead of Sligo Town 19,199). In that year, Letterkenny had 7,669 residents at work in any location and 11,395 persons at work in the town, implying a jobs-resident workers ratio of 1.486, meaning that it is an important employment centre for Donegal and the wider north-west region, stretching across the border to Derry/Londonderry and Tyrone. Most of the 4,000+ persons at work in foreign-owned enterprises in County Donegal (which has doubled since 2010) do so in Letterkenny, illustrating the extent of high quality employment in the town. Other major employers include University Hospital Letterkenny and Letterkenny Institute of Technology, currently embarked on the pathway towards technological university status (in partnership with IT Sligo and Galway-Mayo Institute of Technology) (the 'Connaught-Ulster Alliance').

While Letterkenny is widely perceived to be a progressive and commercially successful town, there are nevertheless pockets of commercial vacancy at the foot of the Main Street, which have been highlighted in the local media.

Donegal County Council is planning for Letterkenny to grow its population to 35,000+ and become a regional economic driver of the North West City Region (as envisaged in *Project Ireland 2040*). While Derry City to the east of Letterkenny has a population of 100,000 (just 20 miles away), Letterkenny has never thought of itself as being in the shadow of the Maiden City.

A survey published in October 2018 found that: 80% travelled into the town by car; 58% felt that there was not enough public space in the town centre; 93% said that connections between the Main Street and the retail parks outside the town centre were very poor; and just 29% identified the Main Street as their preferred retail location. According to the Heritage Council, co-authors of the report along with Queen's University Belfast, Donegal County Council and Retail Grocery Dairy & Allied Trades Association (RGDATA), *"The Letterkenny study demonstrates the importance of having a robust baseline and research data to inform decision-making and investment proposals for town centre renewal and revitalisation"*.[18]

As a result of the 2018 report, the town, which does not lack for employment, is gearing up to improve its transport and public realm infrastructure (i.e. its amenities in the language of the Centre for Cities report, 2019), including a multi-modal transportation hub, an urban greenway network to connect the Main Street to the Letterkenny Public Service Centre, enhanced public realm along the Main Street and Market Square and a 'Slips Strategy' to improve the connections between the Main Street (believed to be the longest of its kind in the State) and the more recent retail developments on the outskirts of the town.

Source: PMCA Economic Consulting research.

[18] The study is accessible **here**. The quote from the Heritage Council is reproduced from the article 'Future City Letterkenny', which appears on page 5 of the Letterkenny and District Christmas Annual (38th Edition 2019).

Section 6
Conclusions & Recommendations

6.1 Conclusions

In principle, online trading and shopping by enterprises and consumers is generally a force for good, economically. Online shopping represents an additional form of competition with positive effects, including more choice and convenience for consumers, greater selling opportunities for enterprises and lower prices. It also helps drive digital skills and innovation, and, contrary to what some might lead us to believe, online activities enable employment growth.

The impact of online/digital/internet activities is strong in Ireland (7.5% of national income and growing at almost double that proportion annually) and online trading represents an important opportunity for Irish enterprises to broaden their markets, which is particularly important in the context of Brexit and trade tariffs by the US. Section 3 showed that Irish enterprises perform comparably well among advanced countries in respect of selling online, including small enterprises; however, the evidence also indicated that retail enterprises in Ireland lag behind the general enterprise population in terms of having online selling capability, reflecting the fragmented nature of Irish retailing (Section 2).

The econometric evidence in Section 4 revealed that the extent (frequency) of online shopping by consumers in Ireland does not exert a statistically significant impact on local authority commercial rates income. Instead the analysis highlighted the role of people's disposable incomes: a given (e.g. 10%) increase (decrease) in disposable income per person is associated with the same proportionate rise (fall) (i.e. 10%) in local authority commercial rates income (from all sectors). It follows that initiatives that boost disposable income will lead to increases in commercial rates income. The principal source of a person's disposable income is primary income from work or self-employment, implying that initiatives aimed at stimulating high quality employment opportunities represent a means of growing commercial rates income and helping to sustain local authority financing. The econometric results imply that local authorities should be *highly proactive* in facilitating economic development in their towns and cities, where the opportunities for such employment growth are likely to be greatest.

This research review of Section 5 discerned two approaches to city/town centre rejuvenation. What might be deemed the 'traditional' approach places retailing as central to city/town centres (for example the Retail Consultation Forum report of April 2017 *A Framework for Town Centre Renewal*, contains a series of practical initiatives). An 'alternative' approach (outlined with supporting evidence in the UK Centre for Cities report of September 2019) prioritises skilled jobs in city/town centres, along with premium amenities, upon which retailing can be sustained. The growth of digital hubs in Ireland may be seen as an example of this approach. In view of the econometric evidence from Section 4, there is much to commend the alternative approach, which squares with local authorities' economic objectives aimed at facilitating employment growth according to their settlement hierarchies.

6.2 Recommendations

1. Echoing the view of Dr. Stephen Brennan (Chief Digital Advisor to the government) who presented to the CCMA in 2017, local authorities should embrace online trading as enabling enterprise development, supporting innovation and also improving local authority operational efficiency. Many have already embarked in this way.
2. In view of the lagging performance of retailers in regard to online selling capability, compared with the general enterprise population in Ireland, whose capacity to trade online is comparably strong internationally, initiatives such as the TOV (Trading Online Voucher) scheme and the (pilot) Online Retail Scheme (under the auspices of Enterprise Ireland) should be promoted proactively by local authorities and LEOs, not least to retailers lacking in online selling capability.
3. The econometric results highlighting the importance of disposable income per head to commercial rates income imply that local authorities should be *highly proactive* in facilitating economic development in their towns and cities, where the opportunities for such employment growth are likely to be greatest. There are various ways in which this can be achieved, including engaging with wealth creators who can deliver permanent employment projects and the zoning of strategic employment sites in towns of varying sizes to ensure that entrepreneurs have options to create high quality jobs in different locations with attributes such transport links, skills availability, infrastructure etc.
4. The process of local authorities becoming *more proactive* in facilitating economic development can be enhanced by *purposeful data capture* aimed at *meaningfully informing* progress on their economic objectives and strategies. There are myriad economic variables capable of being populated with data but not all indicators are centrally relevant. Arising out of the results of this study, the following indicators are deemed to be key: disposable income per person and primary income per person, its key determinant; the

number of persons at work in a local authority area and in settlements within local authority areas; the composition of persons at work by place of residence and place of work, enabling identification of (a) people who both live and work in their local authority areas and/or settlements, (b) inbound commuters and (c) outbound commuters; places of residence of the inbound commuters and places of work of the outbound commuters (which informs on economic sphere of influence and regionality); employment in FDI firms and larger indigenous enterprises (who tend to be engaged in higher-order economic activities, like exporting and innovation); and the composition by sector of the jobs in local authority areas (retailing, professional services etc.). The educational attainment and other skills characteristics of the three categories of workers ((a), (b) and (c)) help to inform the competitiveness of local authority areas and their promotion to potential investors.

5. The UK Centre for Cities report (2019) illustrates that 'unusual' commuting patterns affect cities'/town's performance. Careful consideration needs to be given to assessing the patterns that exist in towns and cities in an Irish context in order to develop appropriate strategies to address the consequences of these patterns.
6. To the list of economic variables, local authorities may also consider putting together databases concerning digital hubs in their areas, reflecting their increasing importance for various reasons – addressing broadband deficits, commuting issues and carbon abatement etc.
7. There is merit in local authorities capturing data on the composition of their commercial rates income by sector (retailing and other sectors) per year.

Annex to:
Section 1: Introduction

Table A1: European Union NUTS 1-3 Regions of Ireland with Counties and Local Authority Areas

NUTS 1	NUTS 2	NUTS 3	County	Local Authority
Ireland	Northern & Western	Border	Cavan	Cavan County Council
			Donegal	Donegal County Council
			Leitrim	Leitrim County Council
			Monaghan	Monaghan County Council
			Sligo	Sligo County Council
		West	Galway	Galway City Council
				Galway County Council
			Mayo	Mayo County Council
			Roscommon	Roscommon County Council
	Southern	Mid-West	Clare	Clare County Council
			Limerick	Limerick City & County Council
			Tipperary	Tipperary County Council
		South-East	Carlow	Carlow County Council
			Kilkenny	Kilkenny County Council
			Waterford	Waterford City & County Council
			Wexford	Wexford County Council
		South-West	Cork	Cork City Council
				Cork County Council
			Kerry	Kerry County Council
	Eastern & Midland	Dublin	Dublin	Dublin City Council
				Fingal County Council
				Dún Laoghaire-Rathdown Council
				South Dublin Council
		Mid-East	Kildare	Kildare County Council
			Louth	Louth County Council
			Meath	Meath County Council
			Wicklow	Wicklow County Council
		Midland	Laois	Laois County Council
			Longford	Longford County Council
			Offaly	Offaly County Council
			Westmeath	Westmeath County Council

Source: Central Statistics Office (**here**), PMCA Economic Consulting analysis.

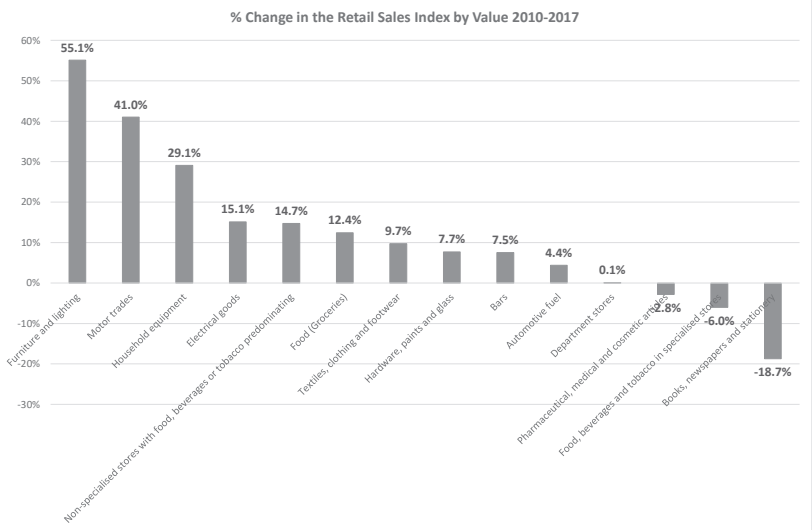
Note: Supra footnote 2.

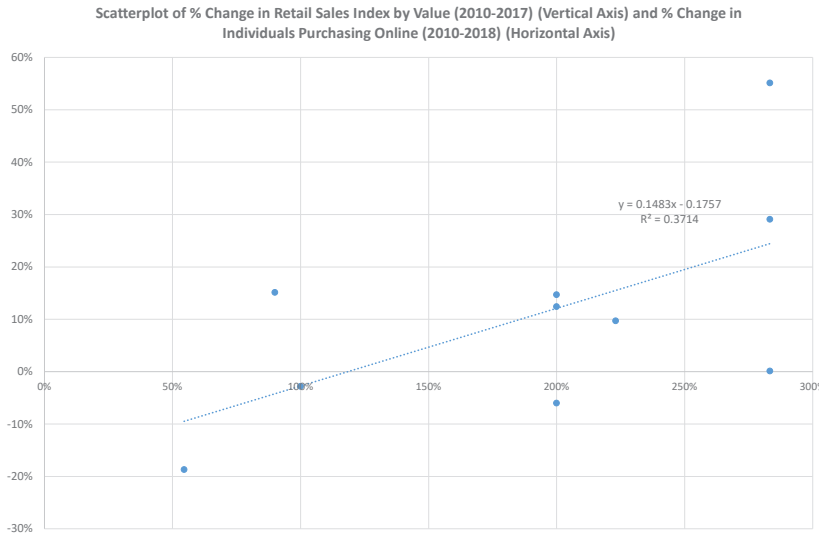
Annex to:

Section 2: Overview of the Retail Sector in Ireland

Change in the Retail Sales by Value and the Proportion of Individuals Shopping Online

Figure A1: Sub-Sectors in Retailing Ranked by Change in the Retail Sales Index by Value (2010-2017) Bar Chart and Scatterplot





Note: In the bottom panel chart online purchasing by individuals is informed by Eurostat data (Table 2.1, p. 7). Excluded sectors in the regression analysis (due to data availability) are motor trades, hardware, paints and glass, bars and automotive fuel, which tend to be characterised by offline search and purchase. The p-value on the coefficient of the explanatory variable (% change in the proportion of individuals buying online) is 0.06, marginally more than the conventional p-value of 0.05 for statistical significance (the lower the p-value, the greater the significance).

Source: CSO, PMCA Economic Consulting analysis.

Economic Impact of Retailing

Table A2 summarises the economic impacts in respect of gross value added (GVA) and employment due to retailing, wholesaling and the average of all sectors (NACE 2-digit) in the State.

In regard to GVA, each €1 due directly to retailing is associated with €1.07 in other sectors of the Irish economy due to indirect or intermediate supply chain effects and induced effects (which stem from people working in retailing spending a proportion of their wages and salaries on other goods and services). The knock-on GVA impact of retailing (namely €1.07 from both indirect and induced effects due to each €1 due directly to retailing) exceeds the corresponding knock-on GVA impacts of wholesaling (€0.80 per €1 direct) and the average of all sectors (€0.84 per €1 direct).

The knock-on employment impact of retailing is especially high (2.43 full-time equivalent (FTE) persons at work in other sectors for every 1 FTE working directly in retailing) when compared with the other sectors (0.48 FTEs per direct FTE in wholesaling and 1.31 FTEs per direct FTE for the average of all sectors).

Table A2: Economic Impacts of Retailing, Wholesaling and All Sectors (NACE 2-Digit) in the State (2015)

	Economic Impacts				
Economic Impact Variable	Direct [1]	Indirect [2]	Induced [3]	Total Knock-On [2]+[3]	Total [1]+[2]+[3]
Gross Value Added (GVA) (€)					
Retail Trade	1.00	0.77	0.30	1.07	2.07
Wholesale Trade	1.00	0.66	0.14	0.80	1.80
Average of All Sectors	1.00	0.63	0.22	0.84	1.84
Employment (Persons, FTEs)					
Retail Trade	1.00	1.95	0.47	2.43	3.43
Wholesale Trade	1.00	0.25	0.22	0.48	1.48
Average of All Sectors	1.00	0.97	0.34	1.31	2.31

Source: CSO supply-and-use and input-output tables (2015), PMCA Economic Consulting analysis.

The knock-on impacts shown in the table above (i.e. the indirect and induced effects) are based on economic impact multipliers estimated by PMCA. Type I multipliers capture indirect effects, while Type II multipliers embody both indirect and induced effects, so that the difference between Type II and Type I multipliers permits derivation of induced effects. The CSO's supply-and-use and input-output tables enable accurate and reliable estimation of Type I and II multipliers for the sectors of the Irish economy.

The latest tables are for 2015 and were published by the CSO on 23 October 2018. In that release (available **here**), the CSO produced estimates of the Type I output multipliers for each of the 50+ sectors (NACE 2-digit) of the Irish economy. PMCA independently confirmed the CSO's Type I output multipliers, before estimating the other Type I multipliers (GVA, employment and income) and the four forms of Type II multiplier for each sector (using advanced matrix computations and specialist software).

Annex to:
Section 3: International Online Trading Trends

OECD Going Digital Toolkit Dimensions – Access

This dimension refers to access to communications infrastructures, services and data, which underpin digital transformation and become more critical as more people and devices go online. Table A3 shows how Ireland compares with the OECD average on the access dimension (the scores in this table and each subsequent table to Table A9 (p. 53) are the OECD's) (the colour coding based on the scores is by PMCA). (In the following tables regarding the OECD Going Digital Toolkit, green indicates Ireland higher than the OECD, amber Ireland the same or about the same as the OECD, and red Ireland below the OECD.)

Table A3: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Access

Policy Dimension (Latest Year for which Data are Available)	OECD Score	
	Ireland	OECD
Access		
Broadband penetration (fixed) (2018)	63	66
M2M (machine-to-machine) penetration (2017)	15	15
Broadband penetration (mobile) (2018)	60	64
Broadband access (households) (2018)	89	86
Broadband > 30 Mbps (business) (2017)	69	64

Source: OECD Going Digital Toolkit (website available **here**).

Note: Green signals Ireland above the OECD average; amber Ireland the same/about the same as the OECD average; and red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

Fixed broadband penetration, in the form of the number of subscriptions per 100 inhabitants to services with an advertised download speed of 256 Kbps or greater, provides a measure of the uptake of fixed broadband technology by the population. These services are provided over DSL (digital subscriber line), cable, fibre-to-the-home (FTTH), fibre-to-the-building (FTTB), satellite, terrestrial fixed wireless or other fixed-wired technologies. Ireland is lower than the OECD average on this metric.

M2M penetration, the number of machine-to-machine (M2M) SIM (subscriber identification module) cards on mobile networks per 100 inhabitants, provides a measure of one component of the Internet of Things (IoT) – for which M2M communication is an important foundational technology. The indicator relates to SIM cards assigned for use in machines and devices (e.g. cars, smart meters, consumer electronic goods) and that are not part of a consumer subscription.

These SIM cards can be embedded in machines such as personal navigation devices, smart meters, trains and automobiles, among many other applications. Dongles for mobile data and tablet subscriptions are excluded. Ireland is judged by the OECD to be on par with the OECD average on this measure.

Mobile broadband penetration, the number of subscriptions per 100 inhabitants to mobile network services offering speeds of 256 Kbps or more, gives a measure of the uptake of mobile broadband technology by the population. Figures relate to the number of handset-based and computer-based (dongles) mobile-broadband subscriptions to the public internet that are regarded as active, due either to including a recurring subscription fee for data/Internet access or the subscriber having accessed the Internet in the last three months. Ireland is judged as below the OECD average on this particular indicator.

The average monthly data usage per mobile broadband subscription gives an indication of the extent to which mobile broadband is enabling households/users to access online services and content. Network capacity will need to continue to expand in order to meet the rapidly increasing demand for mobile data. Ireland is deemed to be greater than the OECD average on this particular indicator.

Businesses subscribed to fixed-line broadband services of 30 Mbps or more contracted speed, as a percentage of all businesses, provides a measure of uptake of fixed broadband technology by businesses and can be broken down based on business size or sector. Fixed broadband comprises DSL, cable, fibre-to-the-premises (FTTP), FTTB, satellite, terrestrial fixed wireless and other fixed-wired technologies. Ireland is higher than the OECD average on this metric.

OECD Going Digital Toolkit Dimensions – Use

This dimension of the Toolkit arises from the fact that the power and potential of digital technologies and data for people, firms and governments depends on their effective use.

Table A4: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Use

Policy Dimension (Latest Year for which Data are Available)	OECD Score		
	Ireland	OECD	
Use			
Internet users (2018)	83	87	
Uptake of digital government services (2018)	59	62	
People buying online (2018)	80	74	
Small firms selling online (2017)	62	41	
Adults proficient in problem-solving in technology-rich environment (2012)	57	69	

Source: OECD Going Digital Toolkit (website available **here**).

Note: Green signals Ireland above the OECD average; red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

Internet users as a share of individuals tracks the uptake of the internet by the adult population. In most OECD countries it takes values between 80% and 100% for 16-74 year-olds. Ireland is deemed as lower than the OECD average on this particular indicator of use.

Individuals using the internet to interact with public authorities is based on the percentage of all individuals aged 16-74 years. Measured interactions range from simply obtaining information from government websites to interactive procedures where completed forms

are sent *via* the Internet. It excludes manually typed e-mails. It should be noted, however, that the need to submit forms, as well as the availability of online submission channels, varies between countries. Public authorities refer to public services and administration activities at the local, regional or national level. Ireland is found to be below the OECD average on this metric.

People buying online is captured by internet users who have purchased online in the last 12 months, as a percentage of internet users. According to the OECD, this indicator measures the prevalence of a relatively sophisticated internet activity, though its level can also reflect the maturity of a country's e-banking and e-payment systems, as well as cultural habits and preferences related to privacy, security and consumer protection for online transactions. Ireland is above the OECD average on this measure of use.

Small firms selling online is measured through small businesses (10 to 49 persons employed) that made e-commerce sales in the last 12 months, as a percentage of all businesses with 10 employees or more. An e-commerce sale describes the sale of goods or services conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders. E-commerce proliferation in small businesses can be compared to that among medium and large enterprises, which tend to have higher uptake, as well as comparing e-commerce uptake by businesses across industries, where Ireland lies above the OECD average.

The last use metric in Table A4 refers to adults scoring Level 2 or above for problem-solving in technology-rich environments as a percentage share of all adults (16-65 year olds). This indicator provides a measure of adults' ability to use digital technologies, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks. The assessment focuses on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals and plans, and accessing and making use of information through computers and computer networks. Ireland is below the OECD average on this aspect of use.

OECD Going Digital Toolkit Dimensions – Innovation

According to the OECD, innovation pushes out the frontier of what is possible in the digital age, driving job creation, productivity and sustainable growth.

Table A5: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Innovation

Policy Dimension (Latest Year for which Data are Available)	OECD Score	
	Ireland	OECD
Innovation		
ICT investment intensity (2017)	39	56
Business R&D in information industries (2016)	17	27
Share of start-up firms (up to 2 years old) in the business population (2016)	28	68
Top-cited computer science research publications (2016)	45	53
ICT patents (2013-2016)	75	59

Source: OECD Going Digital Toolkit (website available **here**).

Note: Green signals Ireland above the OECD average; red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

ICT investment intensity is captured through ICT investment as a percentage of GDP, which provides a measure of ICT diffusion throughout the economy. ICT investment refers to gross fixed capital formation (GFCF) in the information and communication equipment sector and the computer software and databases sector. Ireland is well below the OECD on this metric.

The second measure of innovation is business expenditure on R&D (BERD) performed by enterprises in information industries, irrespective of funding sources, as a percentage of GDP. This indicator provides a measure of the relative R&D intensity of information industries in a country and can be broken down into component industries or benchmarked against sector digital intensity groupings. Information industries include manufacturers of ICT equipment, providers of ICT services and the content and media sector. Ireland is deemed to be well below the OECD on this metric.

The third measure of innovation is the percentage share of start-up firms up to two years old (i.e. newly born enterprises plus those that are one and two years old) in the total number of enterprises. Ireland is well below the OECD average on this variable.

The next innovation metric refers to the top 10% most-cited documents in computer science, as a percentage of domestic documents in the top 10% citation-ranked documents. This indicator provides a measure of scientific excellence in computer science relative to the country's average level of scientific excellence. Computer science documents comprise documents featured in journals specialising in this area and can be benchmarked against journals in other disciplines. Ireland is below the OECD average on this indicator of innovation.

The last measure of innovation is patents in ICT-related technologies as a percentage share of total IP5 (see Glossary) patent families, by country of ownership. Patents protect technological inventions (i.e. products or processes providing new ways of doing something or new technological solutions to problems). As such, this indicator can be used as a proxy of technological development in ICT. ICT patents are identified using International Patent Classification (IPC) codes and encompass 13 areas (e.g. mobile communication, high-speed network, high-speed computing and large-capacity information analysis). This is the only indicator within the innovation dimension of the OECD Going Digital Toolkit in which Ireland is comparably strong *vis-à-vis* other OECD countries.

OECD Going Digital Toolkit Dimensions – Jobs

How Ireland compares within the OECD regarding the jobs dimension of the Toolkit is shown in Table A6.

Table A6: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Jobs

Policy Dimension (Latest Year for which Data are Available)	OECD Score	
	Ireland	OECD
Jobs		
ICT task-intensive jobs (2015 Ireland and EU28, 2017 UK and OECD)	66	57
Digital-intensive sectors' share in total employment (2016)	84	89
Workers receiving employment-based training, as a percentage of total employment (2012)	84	78
New graduates in STEM subjects, as a percentage of new graduates (2015)	70	65
Public spending on active labour market policies, as a percentage of GDP (2016)	46	39

Source: OECD Going Digital Toolkit (website available **here**).

Note: Green signals Ireland above the OECD average; red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

Workers with ICT task-intensive occupations as a percentage share of total employment provides a measure of the share of the workforce that performs ICT-related tasks, including and beyond those carried out by ICT specialists. ICT task-intensive occupations are defined as those having a high propensity to include ICT tasks ranging from simple use of the internet, through the use of word processing or spreadsheet software, to programming. This indicator is calculated based on OECD exploratory factor analysis of responses to 11 items on the OECD Programme for International Assessment of Adult Competencies (PIAAC) survey, which relates to the performance of ICT tasks at work. Ireland performs relatively well in the OECD on this indicator of jobs.

Employment in digital-intensive sectors as a share of total employment gives a measure of the share of the workforce employed in sectors characterised by high and medium-high digital intensity. Examples of high digital-intensive sectors include transport equipment, ICT services, finance and insurance, legal and accounting, R&D, advertising and marketing. Examples of medium-high digital-intensive sectors include wholesale and retail

Ireland is below the OECD average on this metric (India comes highest).

Individuals receiving employment-based training, as a percentage share of total employment, highlights the extent to which workers in the country benefit from firm-based training, which represents an important means of complementing and building upon academic and other qualifications, and is essential to adaptation and re-skilling in the digital era. Both formal training and on the job training are included. Formal training consists of organised training conducted outside the work environment and resulting in the attainment of a degree at an educational institution. On-the-job training can take place both inside and outside a firm, but does not typically lead to the attainment of a formal degree. Ireland scores comparably strongly in this measure of jobs.

New tertiary (third-level) graduates in science, technology, engineering, including ICT fields, and mathematics as a percentage of new graduates provides a measure of the human capital that is highly relevant for thriving in the context of the digital transformation.

It should be noted, though, that modern degree programmes in other fields can also endow relevant ICT skills. For example, graduates in the arts, graphic design, journalism and information are likely to be especially suited to producing and managing digital content. Ireland scores relatively highly on this metric.

The last component of the jobs dimension of the Toolkit is spending by central government and local authorities, as a percentage of GDP, on schemes aimed at 'targeted persons', namely those unemployed (i.e. not in work, actively seeking), inactive (i.e. would like to work, not actively seeking) or employed but at risk of involuntary job loss. Chief among active labour market policies in many countries is training to help people gain skills needed for work, including ICT skills. Ireland performs relatively well on public spending on active labour market policies.

OECD Going Digital Toolkit Dimensions – Society

Table A7: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Society

Policy Dimension (Latest Year for which Data are Available)	OECD Score	
	Ireland	OECD
Society		
Internet users aged 55-74 years (2018)	56	67
Low income internet users (2018)	67	75
Young female coders (2017)	93	74
Regular teleworking from home (2018)	63	70
Students performance in science, maths and reading (2015)	60	59

Source: OECD Going Digital Toolkit (website available **here**).

Note: Green signals Ireland above the OECD average; amber Ireland the same/about the same as the OECD average; and red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

Digital technologies affect society in complex and interrelated ways, and all stakeholders must work together to balance benefits and risks. As illustrated in Table A7 above, the percentage of individuals aged 55-74 years who accessed the internet within the last three months prior to being surveyed provides a measure of potential room for improvement in the overall level of internet uptake of the population. Age is among the main factors that explain differences in uptake within countries. Ireland is below the OECD average in respect of this particular indicator.

The proportion of individuals living in households in the lowest income quartile who are internet users (defined as those who accessed the internet within the last three months prior to being surveyed) gives a measure of the 'digital divide' related to differences in household income. Ireland is judged to lie below the OECD average on this metric of the society dimension of the Toolkit.

Women as a share of all 16-24 year olds who can program informs the gender divide in programming skills, often cited as among the most needed competencies in the digital era. Ireland is well above the OECD average.

The percentage of individuals who use computers, portable devices or computerised machinery at work and telework from home once a week or more (i.e. 'teleworking from home') can impact work organisation and work-life balance in both positive and negative ways. Ireland is relatively weak on this measure.

The proportion of students aged 15-16 years who are top performers in science, mathematics and reading highlights the level of foundational skills acquired at an early stage needed to be well equipped in the digital era. Top performers are those who achieved the highest level of proficiency (i.e. Levels 5 and 6) on the OECD PISA (Programme for International Student Assessment). Ireland is about the same as the OECD average on this particular indicator of the society dimension of the OECD Going Digital Toolkit.

OECD Going Digital Toolkit Dimensions – Trust

Trust in digital environments is essential; without it, an important source of economic and social progress will be left unexploited, according to the OECD. How Ireland rates against the OECD average on this dimension of the Toolkit is shown in Table A8 and outlined below.

Table A8: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Trust

Policy Dimension (Latest Year for which Data are Available)	OECD Score		
	Ireland	OECD	
Trust			
Internet users not experiencing privacy violations (2015)	99	98	
Security and privacy concerns not a barrier to online purchases (2017)	85	72	
Post-transaction trust concerns not a barrier to online purchases (2017)	99	82	
Business' security and data protection capabilities (2017)	56	59	

Source: OECD Going Digital Toolkit (website available **here**).

The percentage of internet users who experienced online privacy violations within 12 months prior to being surveyed captures abuse of personal information that has been sent *via* the internet and/or other violations such as abuse of pictures, videos or personal data uploaded onto community websites. This proportion is very high in Ireland; but the proportion is also very high in the OECD, which is on par with Ireland.

The metric internet users who did not buy online due to payment security and privacy concerns as a percentage of internet users who did not order goods or services over the Internet in the last 12 months is better in Ireland compared with the OECD average.

The indicator internet users not buying online due to concerns about returning products as a percentage of internet users who did not order goods or services over the Internet in the last 12 months is also better in Ireland than the OECD average.

Enterprises in which ICT security and data protection tasks are mainly performed by own employees as a percentage of all enterprises with ten employees or more provides one measure of the extent to which businesses integrate digital security risk management into their own processes. ICT security and data protection tasks include security testing and developing or maintaining security software. Ireland is a little below the OECD average on this metric of trust.

Note: Green signals Ireland above the OECD average; amber Ireland the same/about the same as the OECD average; and red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

OECD Going Digital Toolkit Dimensions – Market Openness

Digital technologies change the way firms compete, trade and invest; market openness creates an enabling environment for digital transformation to flourish. Table A9 shows how Ireland compares against the OECD average on this dimension of the Toolkit.

Table A9: OECD Going Digital Toolkit – Ireland in an International Comparative Context: Market Openness

Policy Dimension (Latest Year for which Data are Available)	OECD Score	
	Ireland	OECD
Market Openness		
Cross-border e-commerce (2016)	84	67
Predominantly digitally-delivered services trade (2017)	81	42
Digital services trade openness (2018)	93	93
FDI openness (2018)	96	94

Source: OECD Going Digital Toolkit (website available **here**).

Ireland is judged to be greater than the OECD average for cross-border e-commerce and in respect of predominantly digitally-delivered services trade, which comprises both imports and exports.

The Digital Services Trade Restrictiveness Index (DSTRI) is a composite index taking values between 0 and 1, where 0 indicates an open regulatory environment for digitally-enabled trade and 1 indicates a completely closed regime. Ireland is the same as the OECD average in regard to this metric.

The Foreign Direct Investment Regulatory Restrictiveness Index (FDI RRI) is a composite index which takes values between 0 and 1, with 1 being the most restrictive. Ireland is on par with the OECD average here.

Note: Green signals Ireland above the OECD average; amber Ireland the same/about the same as the OECD average; and red Ireland less than the OECD average. Table 3.1 (p. 9 of the main body of the report) shows Ireland's comparative performance in all dimensions of the OECD Toolkit.

Indecon Report (2016)

A tabular summary of the key results of the Indecon study for the now-titled DCCAE (*supra* footnote 1) is presented in Table A10 below. Shown towards the bottom of the table are the latest available estimates of Ireland's GDP from the International Monetary Fund's World Economic Outlook Database (October 2019), which suggest that digital/internet economic activities accounted for 4.7% of GDP in 2015.

However, GDP is today doubted as a reliable measure of Ireland's national income and the alternative measure known as modified gross national income was recommended by the Economic Statistics Review Group (convened by the CSO in 2016). The alternative measure (GNI*) is designed to exclude globalisation effects impacting disproportionally on the size of the Irish economy and produces estimates of Ireland's national income that are much lower than GDP. On this basis, internet/digital-related economic activities are estimated to account for 7.5% of national income in 2015, as shown at the bottom of Table A10.[19]

Table A10: Summary of the Indecon Study on the Macroeconomic Impacts of Digital/Internet Activities in Ireland (2016)

	Estimated Impact (€m)					
Component of Impact	2012	2013	2014	2015	CAGR (%) (2012-15)	% Total (2015)
1. Internet/Digital-Related Household Consumption	***5,431.1***	***6,382.7***	***6,705.9***	***7,426.1***	***11.0%***	***60.5%***
1(a). Internet/Digital-Enabling Infrastructure and Technology	269.3	264.6	273.1	290.7	2.6%	2.4%
1(b). Internet Service Providers/Broadband Connections	656.4	667.9	684.5	698.3	2.1%	5.7%
1(c). Online Shopping	4,505.4	5,450.2	5,748.3	6,437.1	12.6%	52.5%
2. Internet/Digital-Related Business Investment	***507.9***	***623.8***	***746.7***	***683.8***	***10.4%***	***5.6%***
2(a). Telecoms Network Investment	404.0	502.0	620.0	532.0	9.6%	4.3%
2(b). Digital-Related Business Capital Investment	103.9	121.8	126.7	151.8	13.5%	1.2%
3. Internet/Digital-Related Government Expenditure	***1,416.0***	***1,632.9***	***1,712.1***	***1,722.8***	***6.8%***	***14.0%***
3(a). Internet/Digital-Related Government Capital Expenditure	13.0	21.9	27.1	20.8	17.0%	0.2%
3(b). Internet/Digital-Related Net Current Expenditure by Central and Local Government	1,403.0	1,611.0	1,685.0	1,702.0	6.7%	13.9%
4. Internet/Digital-Related Net Exports	***1,453.5***	***1,583.1***	***2,188.1***	***2,439.5***	***18.8%***	***19.9%***
4(a). Exports	7,114.5	7,455.1	8,422.1	9,387.5	9.7%	76.5%
4(a)(i). Producer Goods Exports	954.0	399.4	393.5	491.2	-19.9%	4.0%
4(a)(ii). Consumer Goods Exports	2,172.3	2,366.4	2,678.3	3,172.5	13.5%	25.9%
4(a)(iii). Services Exports	3,988.2	4,689.3	5,350.3	5,723.8	12.8%	46.6%
4(b). Imports	5,661.0	5,872.0	6,234.0	6,948.0	7.1%	56.6%
4(b)(i). Producer Goods Imports	2,110.0	2,372.0	2,694.0	3,053.0	13.1%	24.9%
4(b)(ii). Consumer Goods Imports	906.0	1,089.0	1,171.0	1,334.0	13.8%	10.9%
4(b)(iii). Services Imports	2,645.0	2,411.0	2,369.0	2,561.0	-1.1%	20.9%
5. Total Impact of Internet/Digital-Related Economic Activities in Ireland	**8,808.5**	**10,222.5**	**11,352.8**	**12,272.2**	**11.7%**	**100.0%**
IMF Estimates of Ireland's National Income (World Economic Outlook Database, Oct 2019)						
GDP Ireland (Gross Domestic Product, Current Prices) (€m)	174,967	179,421	194,551	262,504	14.5%	
Total Impact of Internet/Digital-Related Economic Activities % GDP in Ireland	*5.0%*	*5.7%*	*5.8%*	*4.7%*		
CSO Estimates of an Alternative Measure of National Income for Ireland						
Modified Gross National Income (GNI*, Current Prices) (€m)	126,498	136,959	148,738	162,656	8.7%	
Total Impact of Internet/Digital-Related Economic Activities % GNI in Ireland*	*7.0%*	*7.5%*	*7.6%*	*7.5%*		

Source: Indecon report for the (now-titled) DCCAE entitled Assessment of the Macro-Economic Impact of Internet/Digital on the Irish Economy (March 2016), PMCA Economic Consulting summary of the main results of the Study.

[19] The adoption of the alternative GNI* measure of Ireland's national income was originally triggered by the 26% increase in Irish GDP between 2014 and 2015, which led to the phrase 'Leprechaun economics'. That increase in GDP was subsequently revised to the even higher rate of over 34%, which is implied by the GDP figures in Table A10.

The IMF estimates of GDP and the CSO estimates of modified gross national income for Ireland were obtained by PMCA.

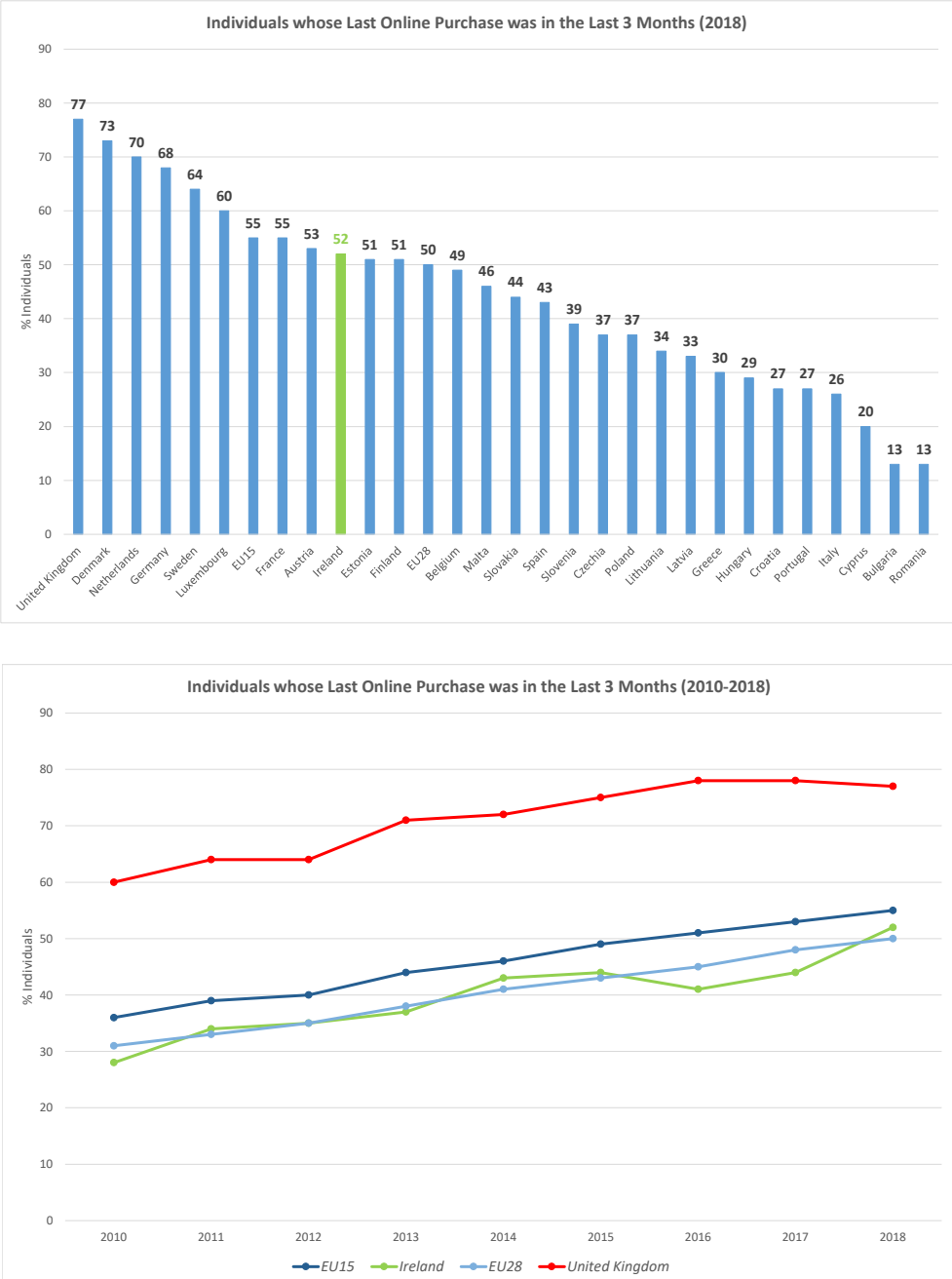
Detailed Results Regarding Online Purchases by Individuals in the Last Three Months

Figure A2 on the following page (top panel) shows that Ireland ranks in tenth position in the EU in regard to the proportion of individuals whose last online purchase was in the last 3 months. The percentage in Ireland in 2018 was 52%, which was much lower than the 77% observed in the UK and slightly lower compared with the EU15 group of western European countries.

The bottom panel of Figure A2 shows how the UK has stood apart from the rest of the EU, including Ireland, in terms of individuals engaging in online shopping. Nonetheless it is notable that the trend since the beginning of this decade has been upward in Ireland, the EU15 and the EU28, as well as the UK.[20]

[20] The EU15 countries are as follows: Austria; Belgium; Denmark; Finland; France; Germany; Greece; Ireland; Italy, Luxembourg; Netherlands; Portugal; Spain, Sweden; and the UK. Added to the EU15 are the following countries giving the EU28: Bulgaria; Croatia; Cyprus; Czech Republic (referred to as 'Czechia' in the Eurostat data); Estonia; Hungary; Latvia, Lithuania; Malta; Poland; Romania; Slovakia; and Slovenia.

Figure A2: Online Purchases by Individuals in the Last 3 Months

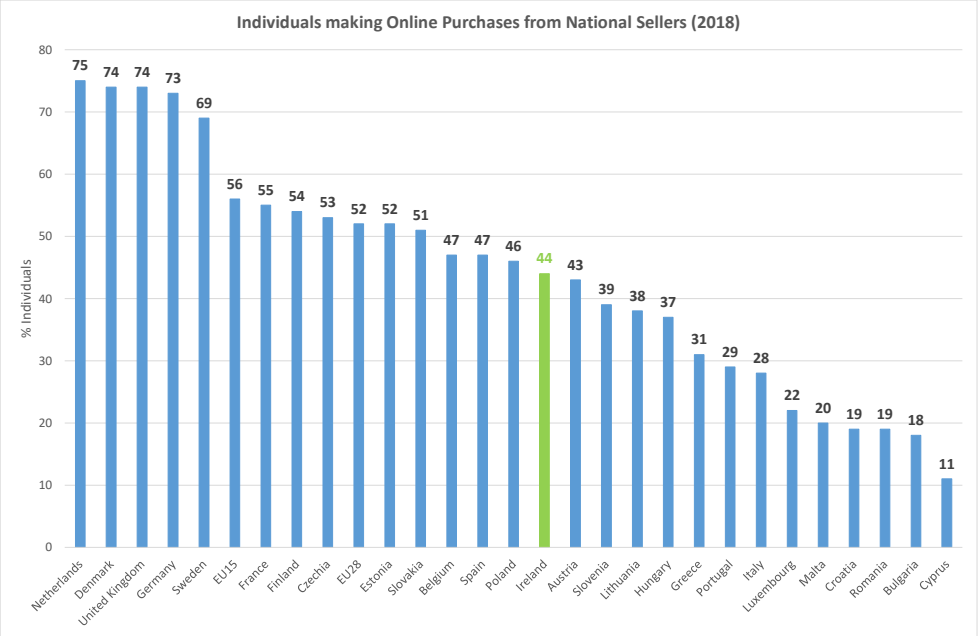


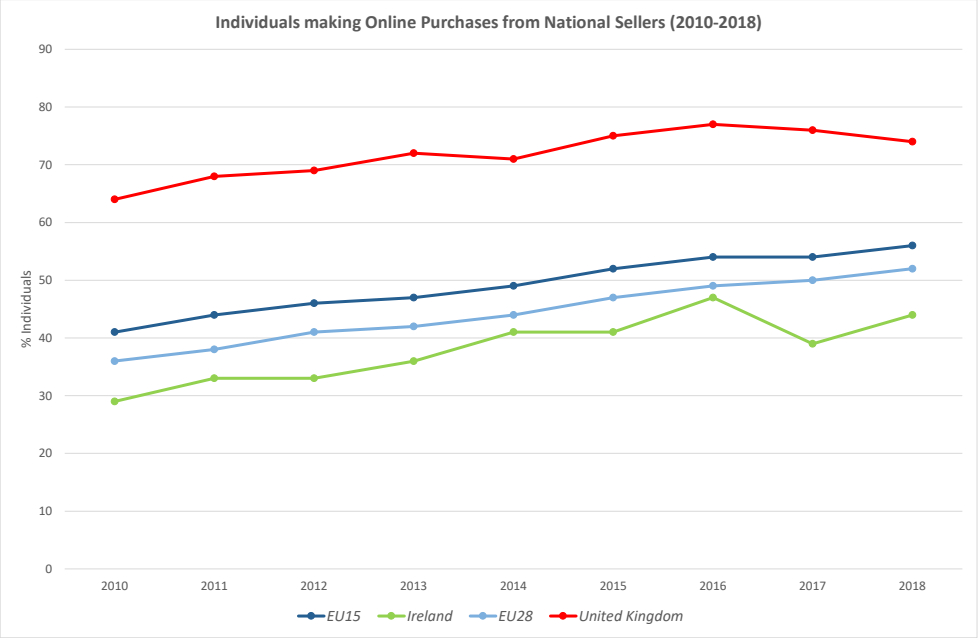
Source: Eurostat data, PMCA Economic Consulting analysis.

Detailed Results Regarding Online Purchases by Individuals by Location of Seller

Figure A3 shows that the percentage of individuals making online purchases from national sellers is relatively low in Ireland (44%) and that the proportion has been lower in Ireland compared with the UK, the EU15 and the EU28 during 2010-2018.

Figure A3: Online Purchases by Individuals from National Sellers

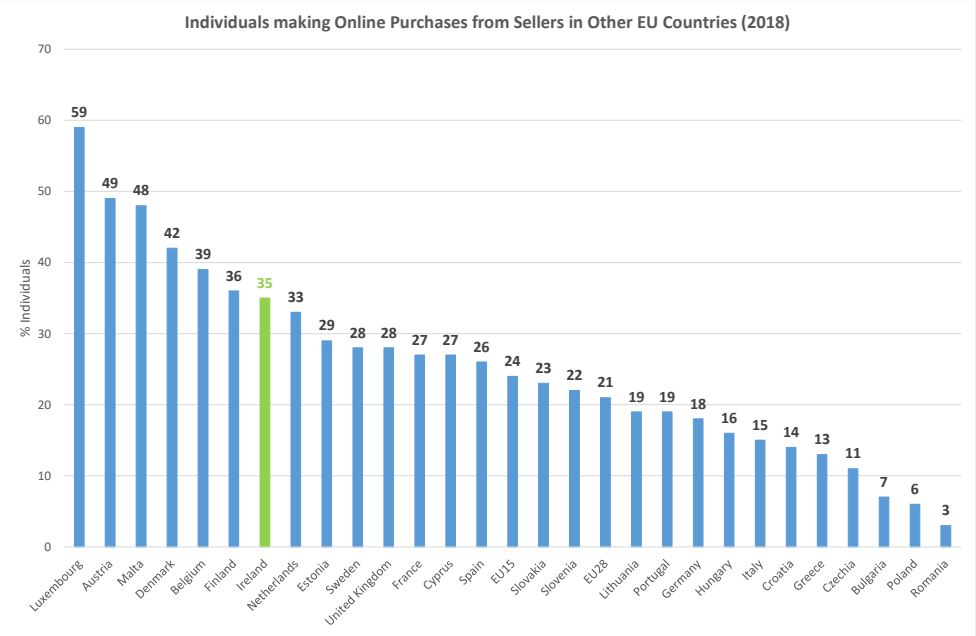


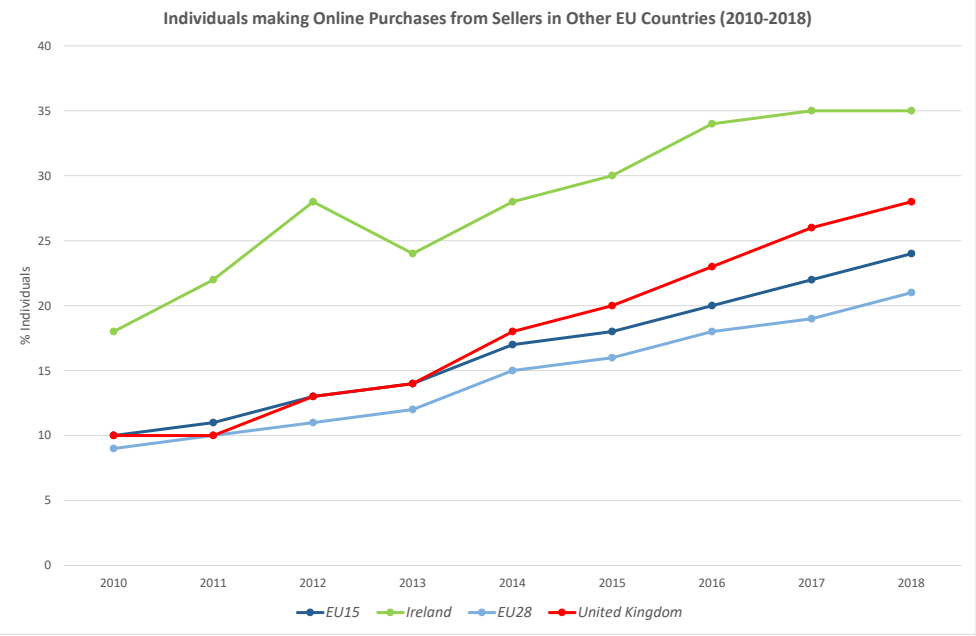


Source: Eurostat data, PMCA Economic Consulting analysis.

Figure A4 shows that Ireland ranks higher in the EU in regard to the proportion of individuals making online purchases from other EU countries (35%) and the percentage in Ireland has been growing strongly.

Figure A4: Online Purchases by Individuals from Sellers in Other EU Countries

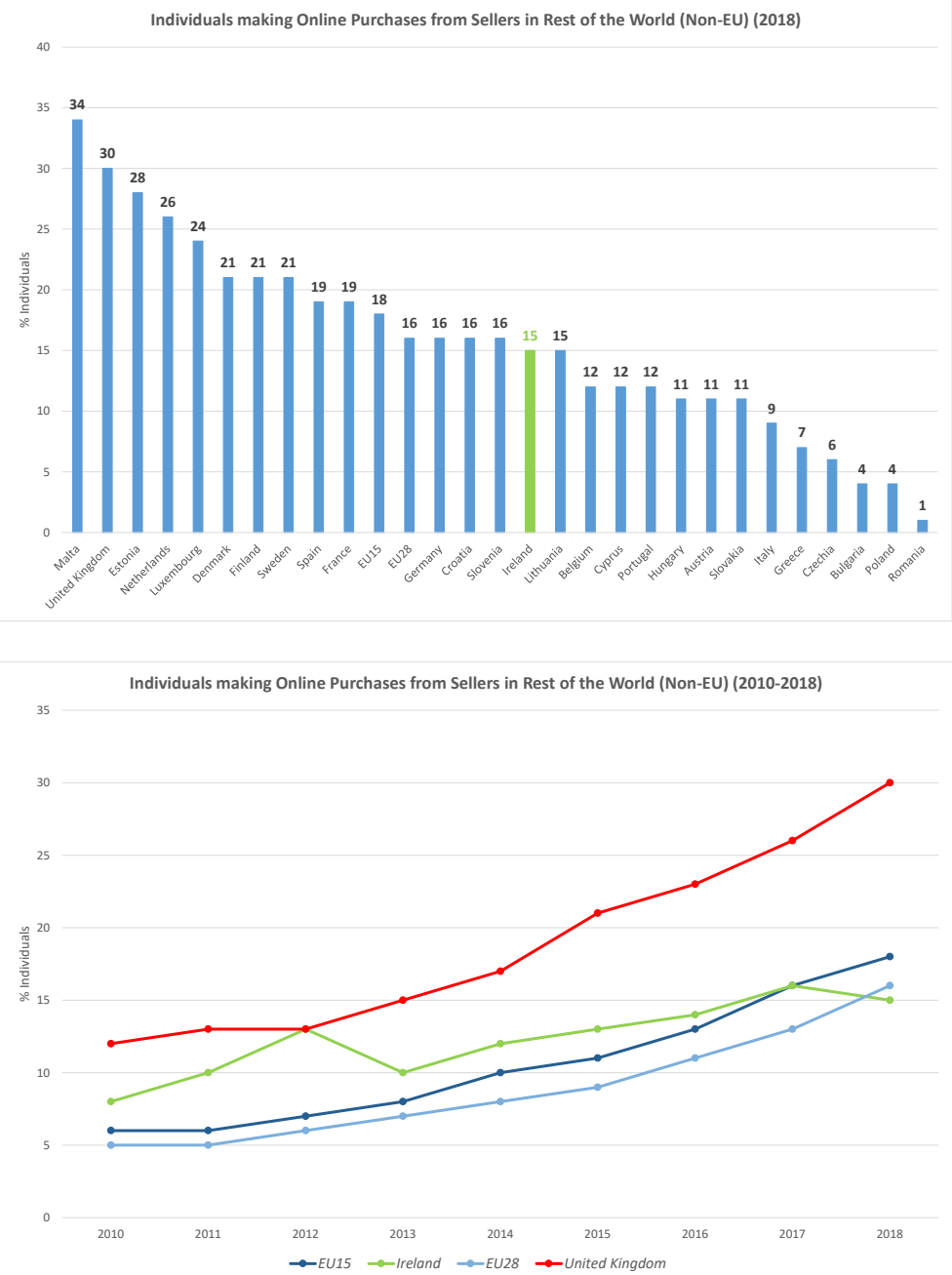




Source: Eurostat data, PMCA Economic Consulting analysis.

Outside of the EU, a much smaller proportion of individuals making online purchases is observed in Ireland (15%). The bottom panel of Figure A5 shows that the proportion has been rising strongly in the UK (albeit from a low base), with more subdued growth in Ireland.

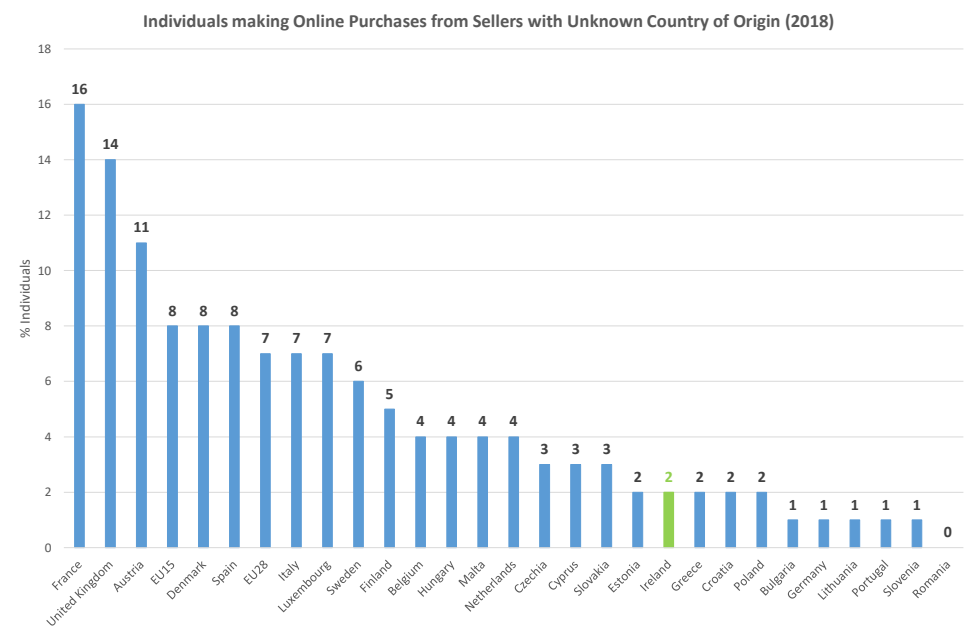
Figure A5: Online Purchases by Individuals from Sellers in Non-EU Countries

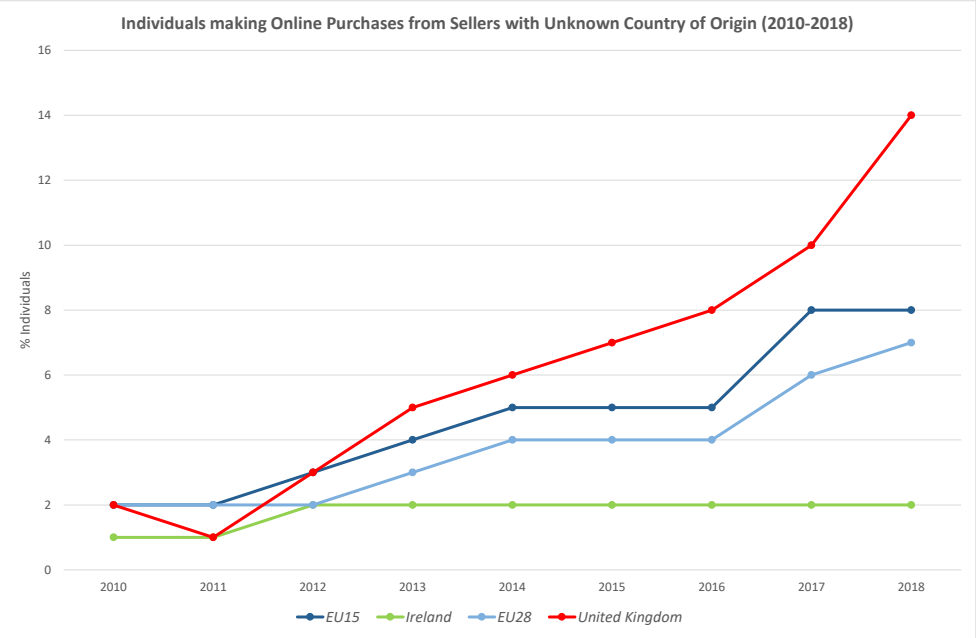


Source: Eurostat data, PMCA Economic Consulting analysis.

When engaging in cross-border online shopping, most people are aware of the country of origin of the goods purchased in this way. This is evident in Ireland and most of the EU as shown in Figure A6, apart from a small number of countries, including the UK, where the proportion has risen strongly since 2010.

Figure A6: Online Purchases by Individuals from Unknown Country of Origin



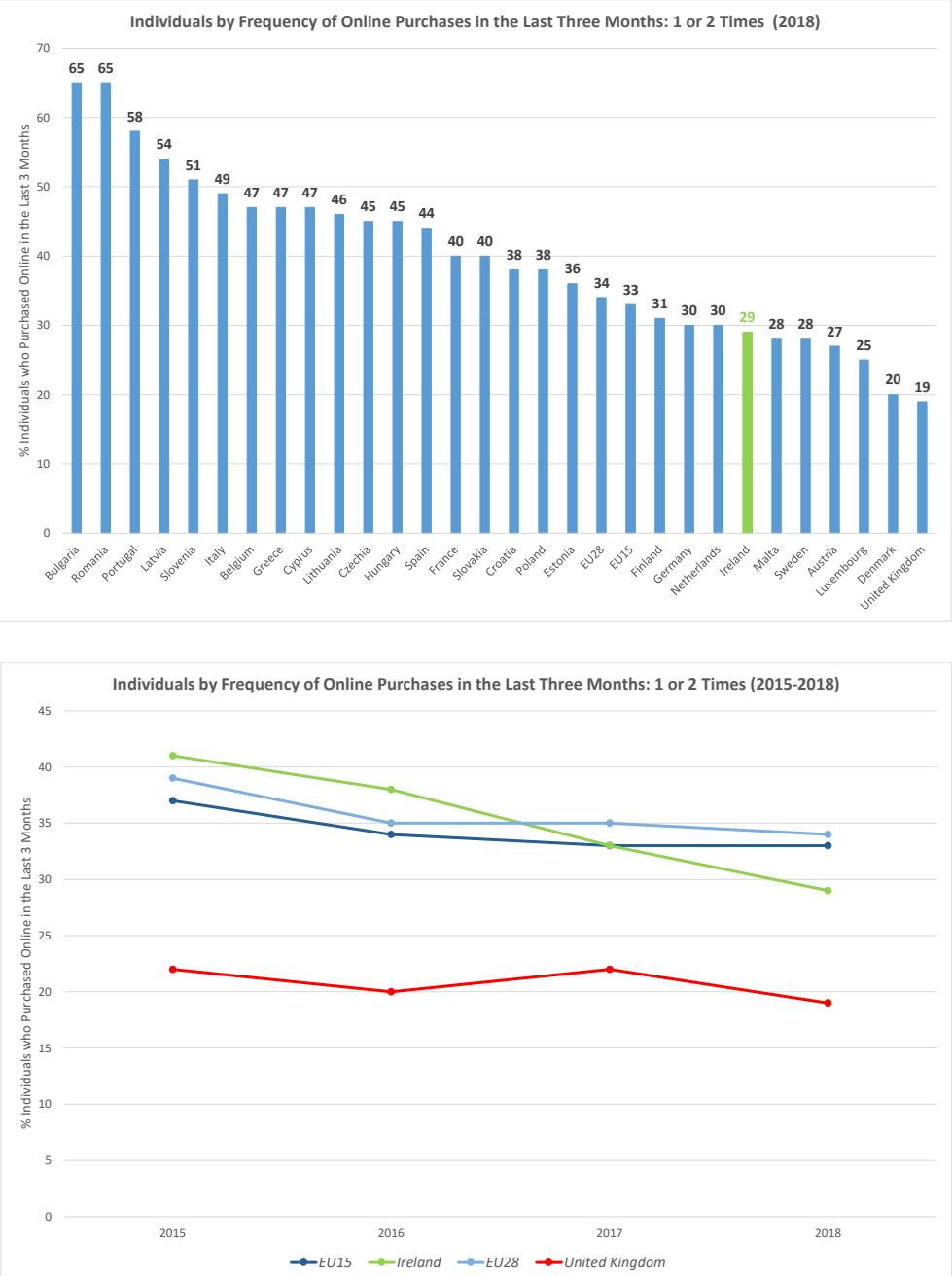


Source: Eurostat data, PMCA Economic Consulting analysis.

Detailed Results on the Frequency of Online Purchases by Individuals in the Last 3 Months

Beginning with individuals purchasing only 1-2 times in the last three months, the proportion is relatively low in Ireland (29%) and the percentage is seen to be decreasing in Ireland, the UK, the EU15 and the EU28, as shown in the bottom panel of Figure A7. This is not surprising because we expect the proportion to be higher and growing with more frequent online purchasing in the last 3 months.

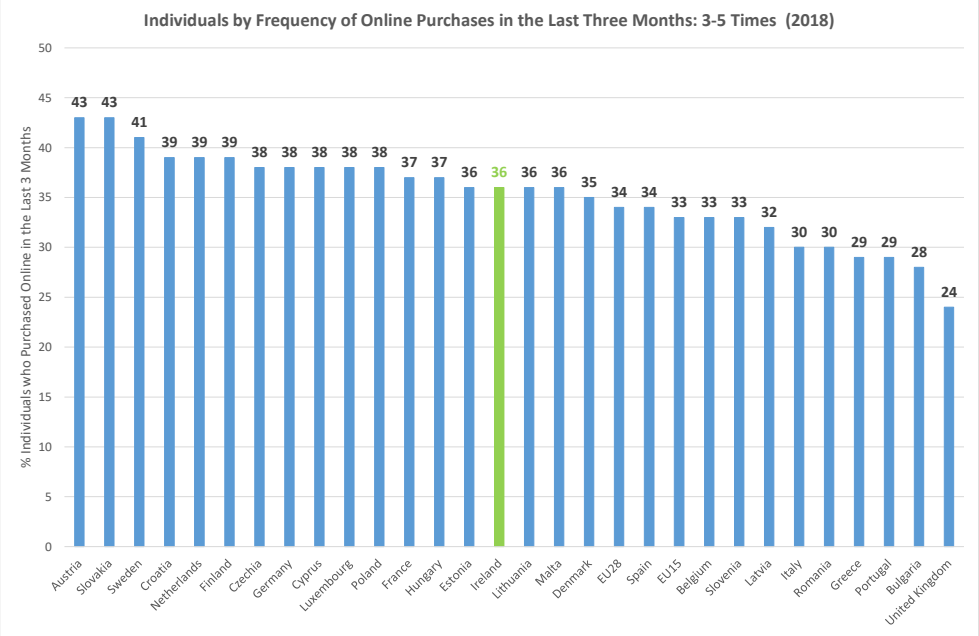
Figure A7: Frequency of Online Purchases by Individuals in the Last 3 Months – 1-2 Times

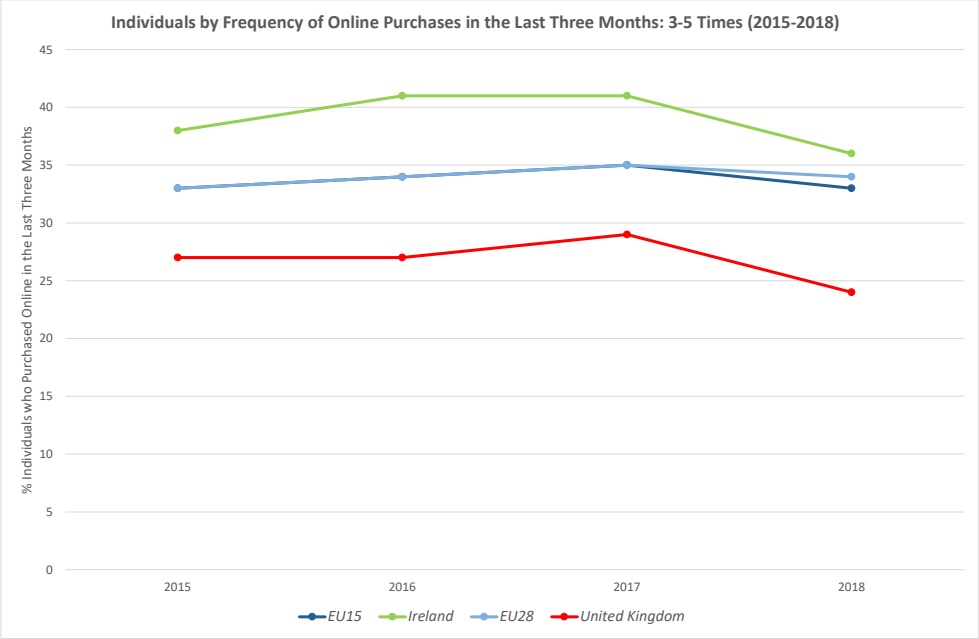


Source: Eurostat data, PMCA Economic Consulting analysis.

As expected, the proportion of people making online purchases between 3-5 times in the last three months is higher in Ireland compared with the previous chart for 1-2 times (36% compared with 29%) although the trend in the proportion in Ireland, the UK and the EU15 is downward (Figure A8).

Figure A8: Frequency of Online Purchases by Individuals in the Last 3 Months – 3-5 Times

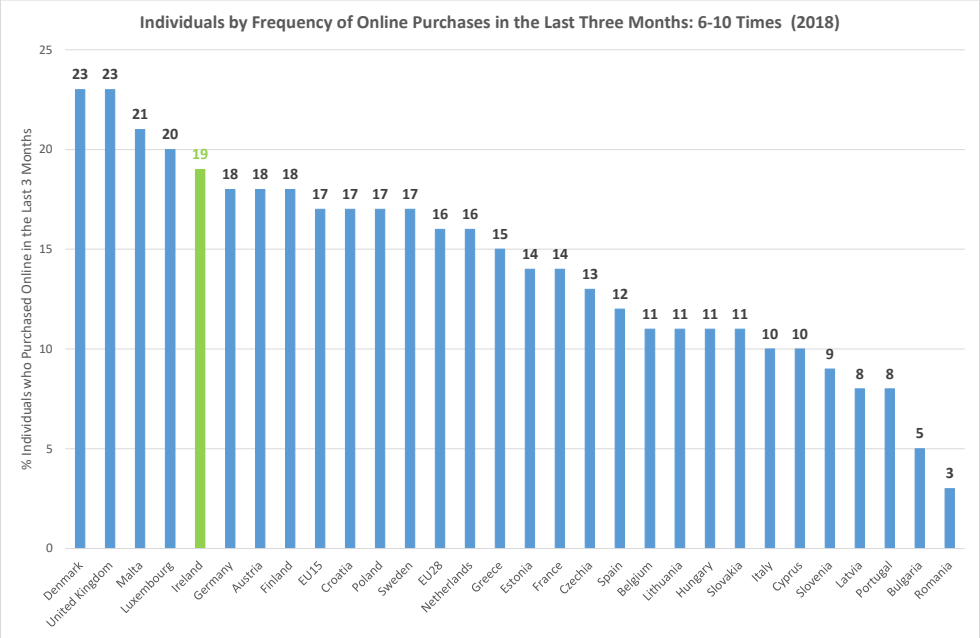


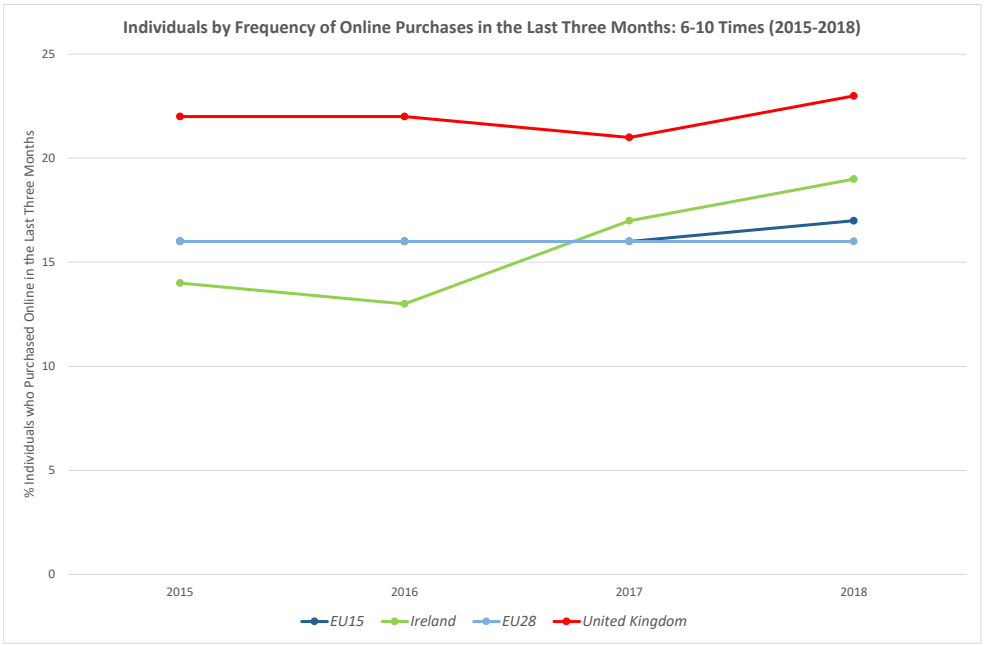


Source: Eurostat data, PMCA Economic Consulting analysis.

Noteworthy about the proportion of people making online purchases between 6-10 times in the last three months (top panel of Figure A9) is not the value of the proportion in Ireland (19%) but Ireland's position towards the top of the EU (fifth place in 2018). The bottom panel of Figure A9 reveals that this particular proportion has grown strongly in Ireland since 2016. The Eurostat data echo the OECD information on consumers online buying presented earlier in Table A4 (p. 47).

Figure A9: Frequency of Online Purchases by Individuals in the Last 3 Months – 6-10 Times

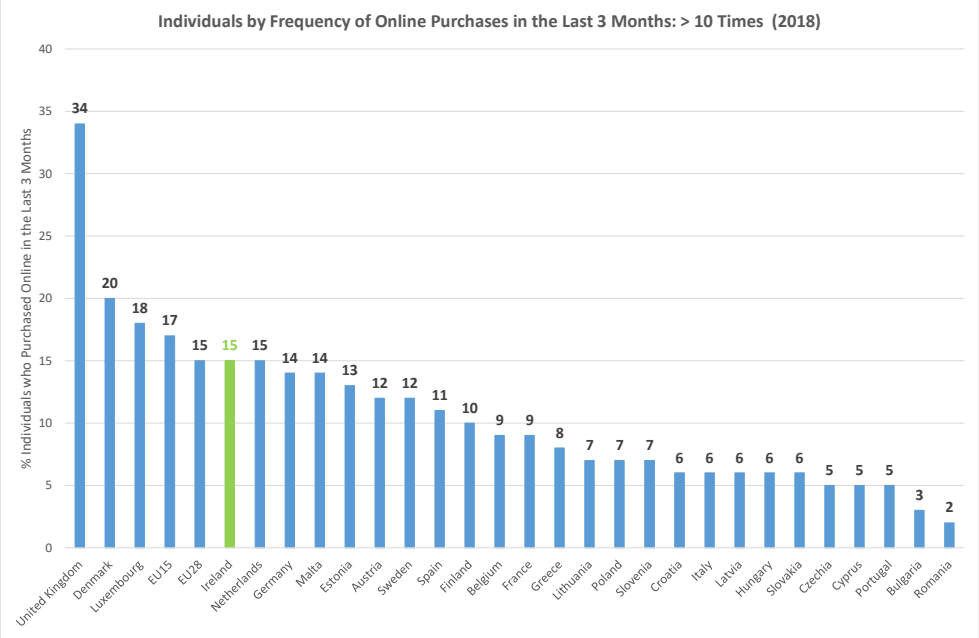


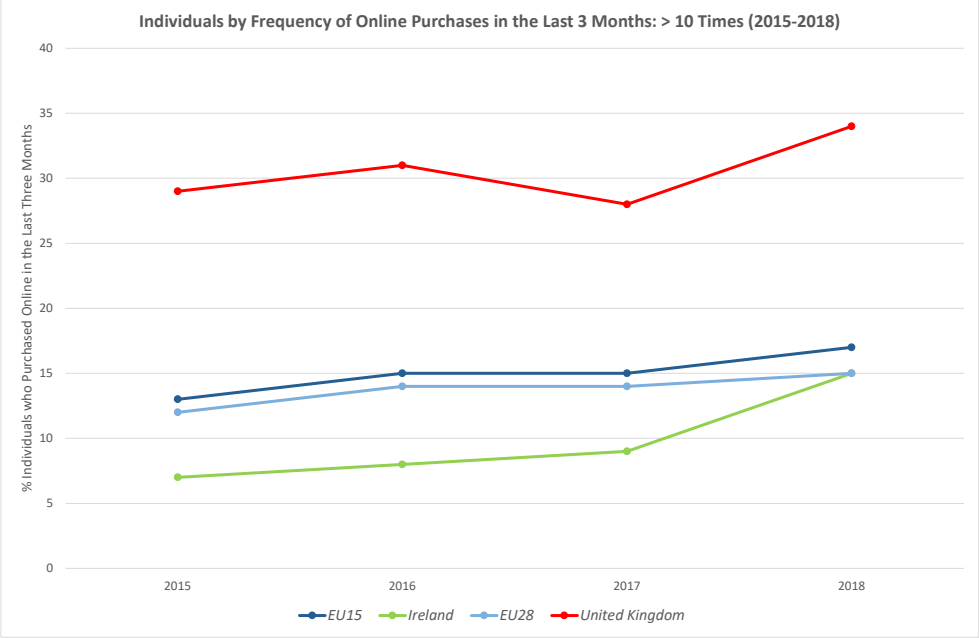


Source: Eurostat data, PMCA Economic Consulting analysis.

Figure A10 is striking in showing that the UK is an outlier in respect of the proportion of people making more than 10 purchases in their online shopping during the last three months. The percentage in Ireland is 15% (the same as that in the EU15 and EU28, which is influenced to a large extent by the UK). The bottom panel of Figure A10 illustrates that this particular proportion has risen strongly in Ireland.

Figure A10: Frequency of Online Purchases by Individuals in the Last 3 Months – More than 10 Times

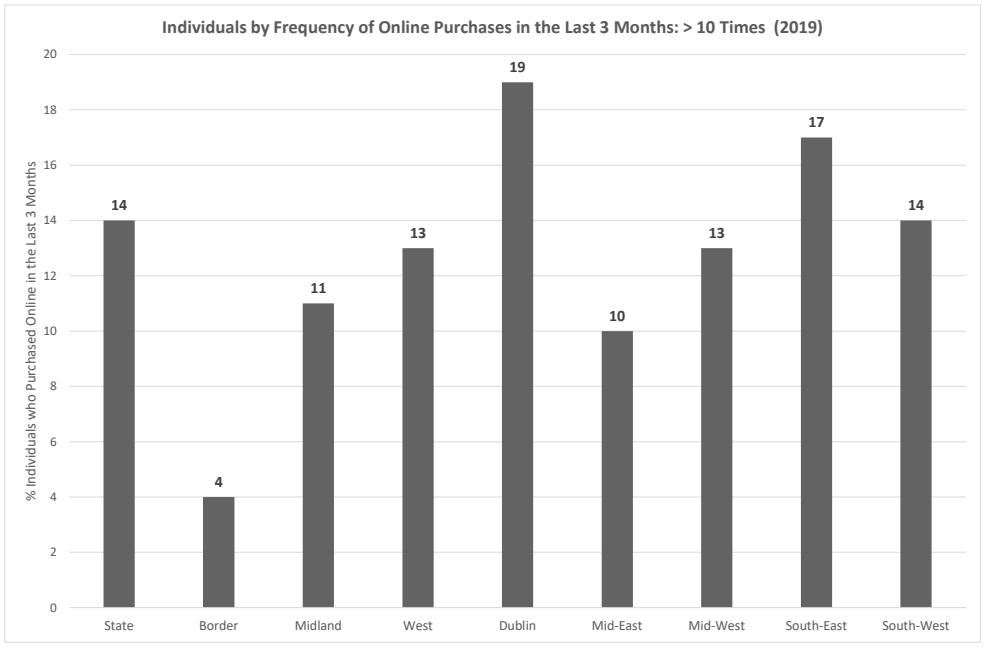


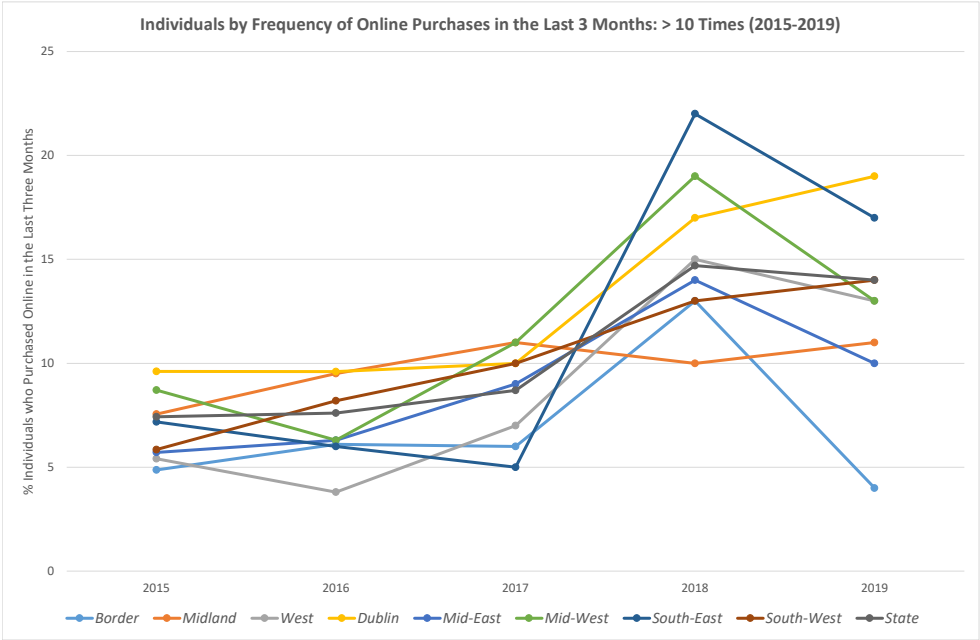


Source: Eurostat data, PMCA Economic Consulting analysis.

Data on the proportion of individuals purchasing more than 10 times in the last three months are also available from the CSO, where the lowest geographical disaggregation is the NUTS 3 Region and the information for 2019 were recently published in October. Figure A11 reveals that the intensity of online shopping (interpreted in this way) is greatest in the Dublin Region (19%) and lowest in the Border Region (4%). The bottom panel suggests that the latter proportion is an aberration or sample-dependent.

Figure A11: Frequency of Online Purchases by Individuals in the Last 3 Months by NUTS 3 Region of Ireland – More than 10 Times



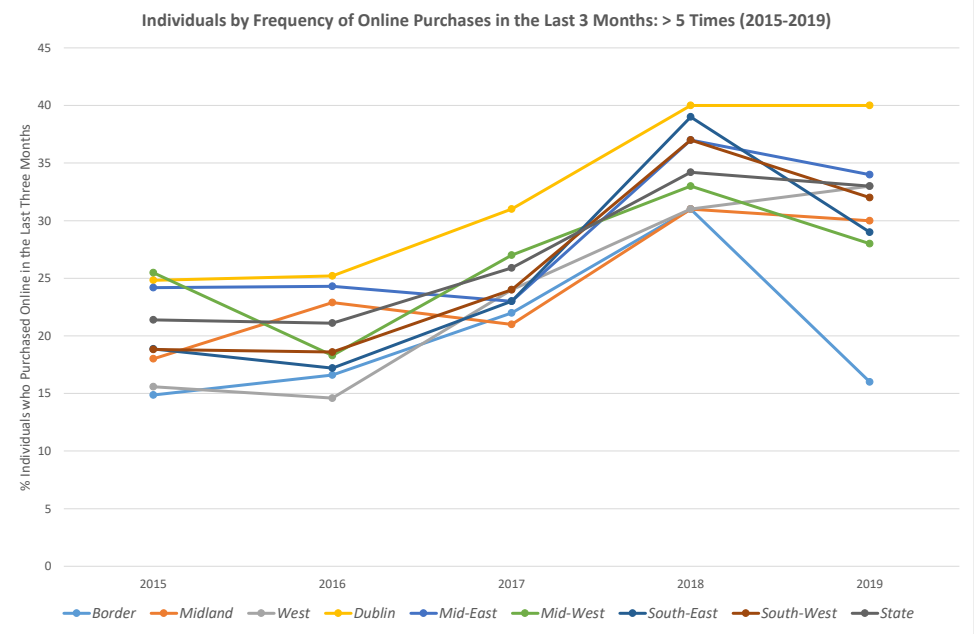


Source: CSO data, PMCA Economic Consulting analysis.

Finally in this part of the trends analysis, Figure A12 shows the proportion of people making online purchases more than 5 times in the last three months (by amalgamating the categories '6-10 times' and 'more than 10 times'). It is seen that more than 5 online purchases in the last three months is now commonplace in Ireland, varying from less than 30% to 40% in the case of the Dublin Region (the pronounced drop in the Border Region could be an aberration of the CSO's latest survey in 2019).

We will incorporate the trends data in Figure A12 and in Figure A11 above into the econometric analysis of Section 4 to investigate whether the intensity of online shopping (measured by the proportions of individuals purchasing more than 5 times in the last 3 months and more than 10 times in the last 3 months) affects local authorities' commercial rates income.

Figure A12: Frequency of Online Purchases by Individuals in the Last 3 Months by NUTS 3 Region of Ireland – More than 5 Times

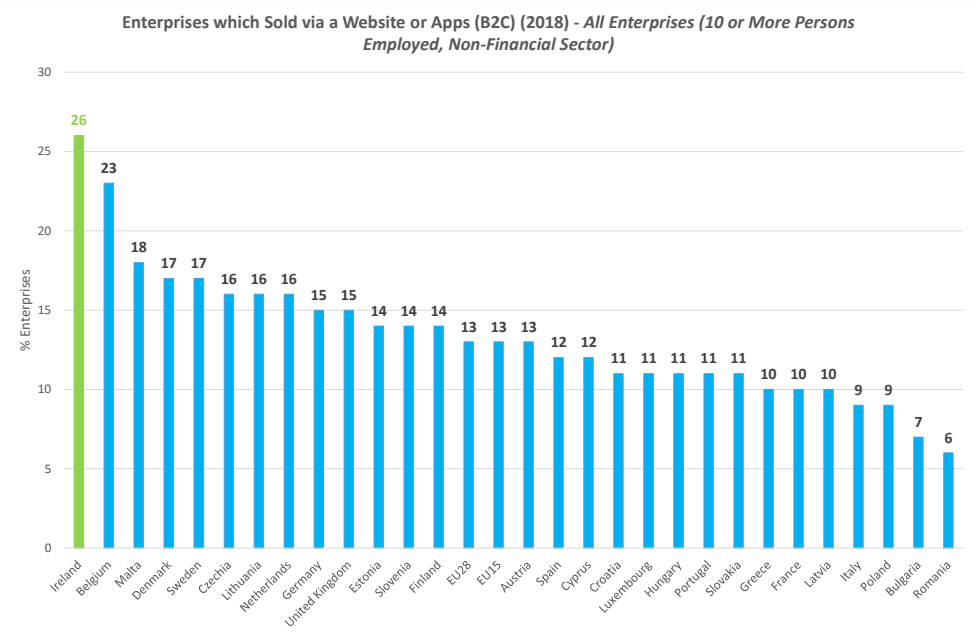


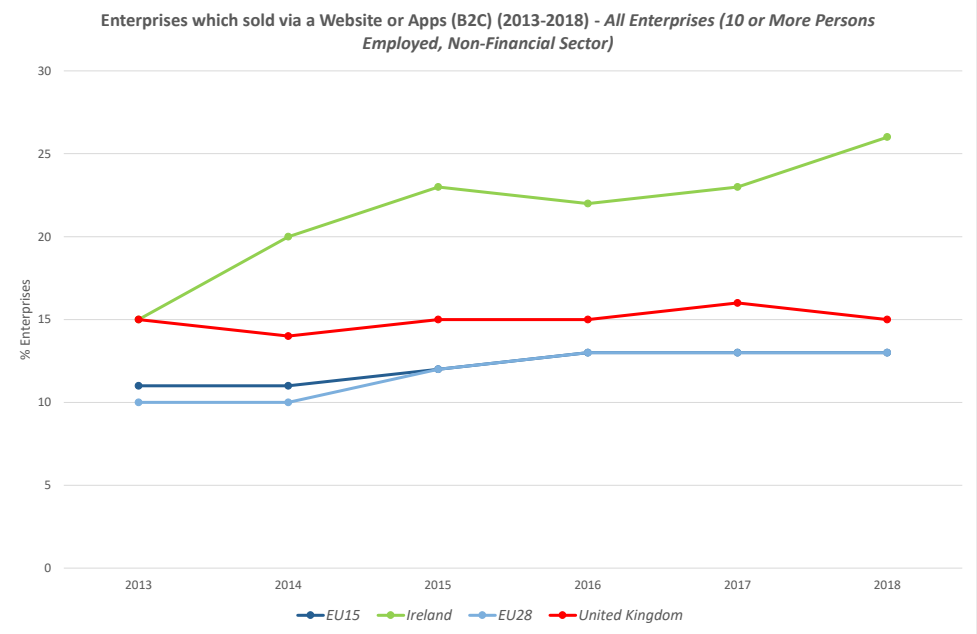
Source: CSO data, PMCA Economic Consulting analysis.

Detailed Results Regarding E-Commerce by Enterprises

We next turn to the Eurostat data on e-commerce by enterprises in Ireland and other EU Member States. Figure A13 below shows that the proportion of all enterprises (with 10 or more persons employed and excluding the financial sector) selling to consumers *via* a website or apps (business-to-consumer, B2C was highest in Ireland in 2018 (26%) and that the proportion in Ireland has grown strongly since 2013, the earliest year for which these particular Eurostat data are available.

Figure A13: Enterprises which Sold by a Website or Apps (B2C) – All Enterprises

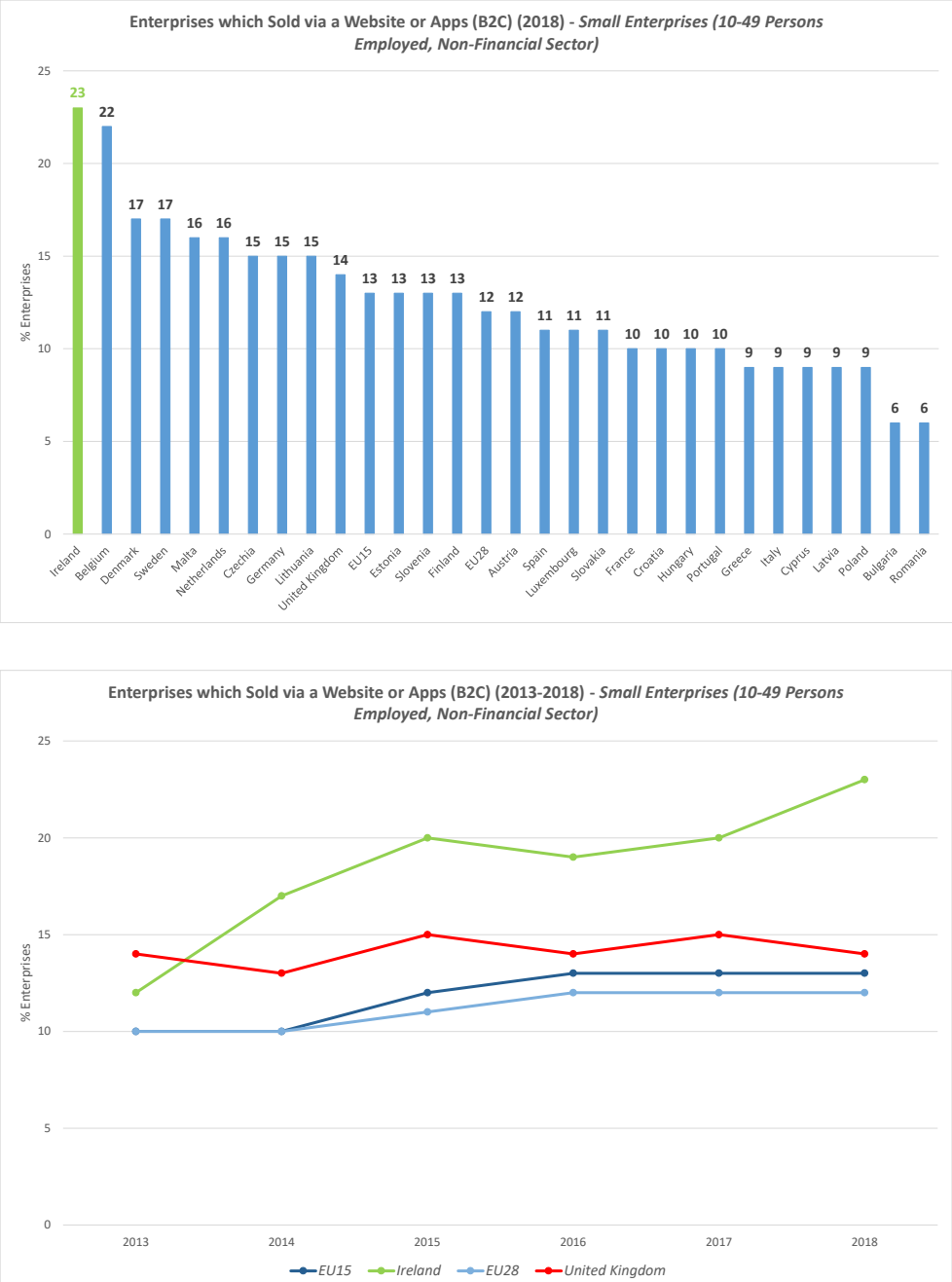




Source: Eurostat data, PMCA Economic Consulting analysis.

Similar to the previous graph, Figure A14 below shows that the proportion of small enterprises (10-49 persons employed and excluding the financial sector) engaging in B2C through a website or apps was highest in Ireland in 2018 (23%) and has grown strongly since 2013 compared with the UK, the EU15 and the EU28. This is consistent with the data on small firms selling online from the OECD (Table A4, p. 47).

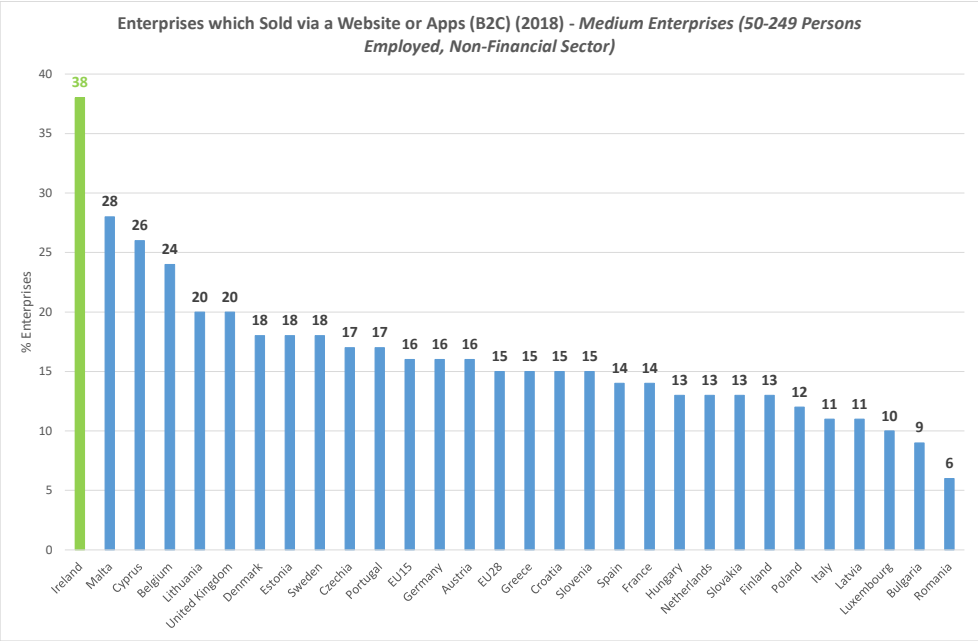
Figure A14: Enterprises which Sold by a Website or Apps (B2C) – Small Enterprises

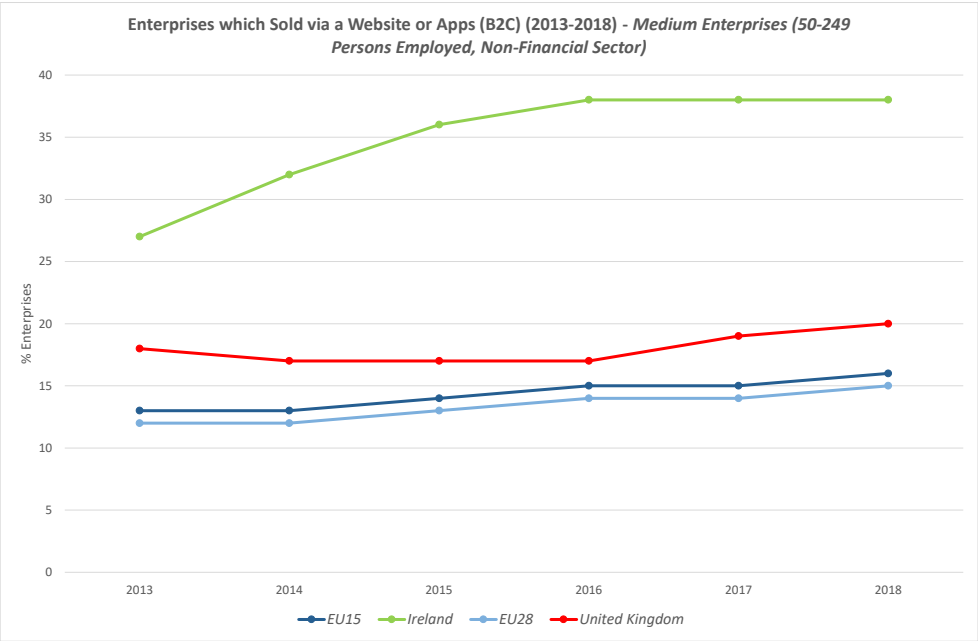


Source: Eurostat data, PMCA Economic Consulting analysis.

The proportion of medium enterprises (50-249 persons employed and excluding the financial sector) engaging in B2C through a website or apps was highest in Ireland in 2018 (38%) and the percentage in Ireland has been well above that in the UK, the EU15 and the EU28 during 2013-2018 as indicated in the bottom panel of Figure A15.

Figure A15: Enterprises which Sold by a Website or Apps (B2C) – Medium Enterprises





Source: Eurostat data, PMCA Economic Consulting analysis.

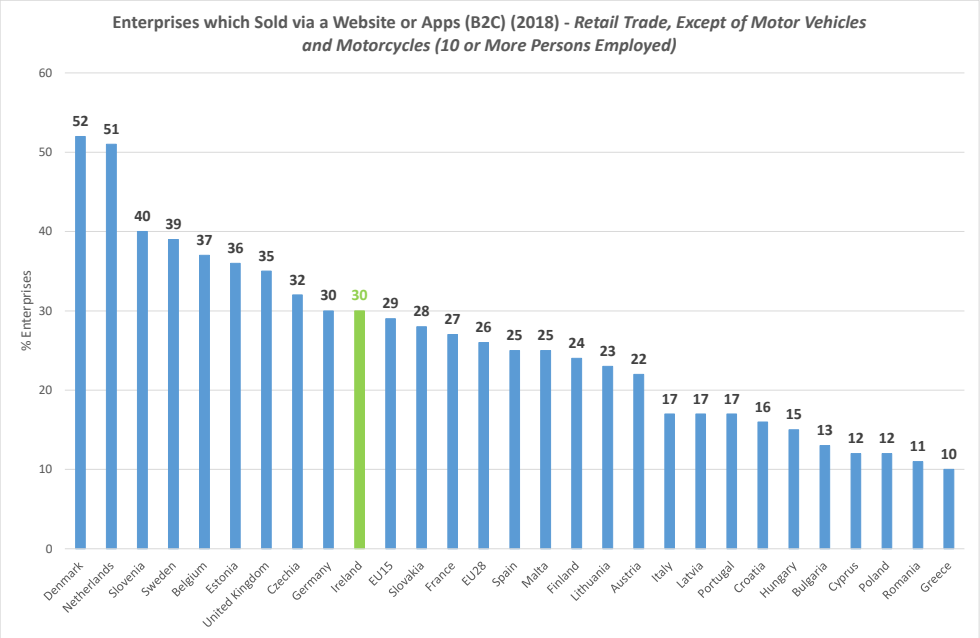
Consistent with the preceding three sets of charts, Figure A16 shows that the proportion of large enterprises (with 250 or more persons employed and excluding the financial sector) selling to consumers *via* a website or apps (B2C) was greatest in Ireland in 2018 (39%) and that the percentage in Ireland has been well above that in the UK, the EU15 and the EU28 in recent years (bottom panel).

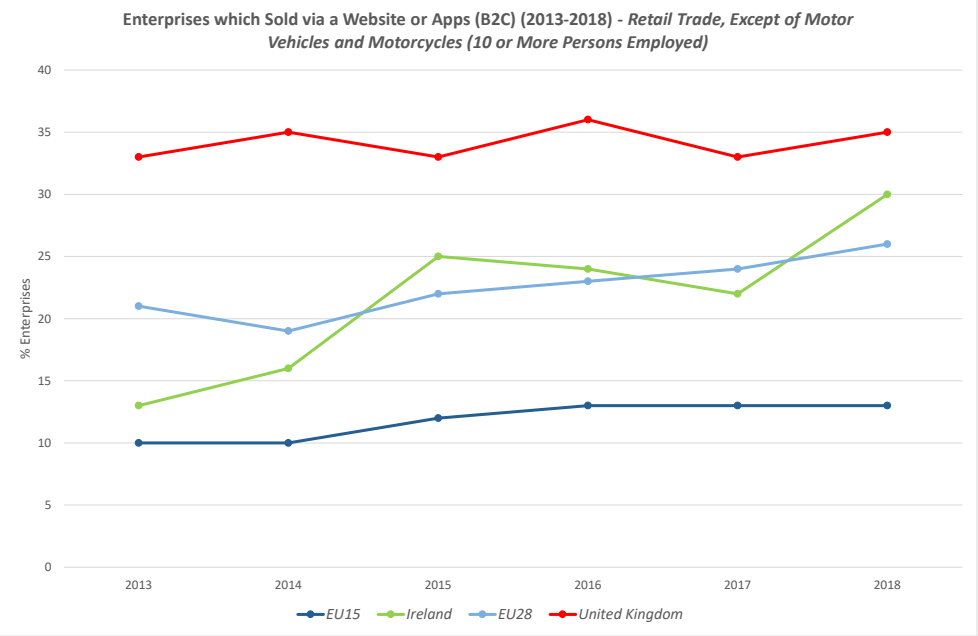
Figure A16: Enterprises which Sold by a Website or Apps (B2C) – Large Enterprises

Source: Eurostat data, PMCA Economic Consulting analysis.

The preceding four sets of graphs (Figure A13-Figure A16) show that enterprises in Ireland are relatively strong in the EU regarding e-commerce sales to consumers *via* a website or apps, and that this is true for small, medium and large enterprises (data on micro enterprises with less than 10 persons employed are not available from Eurostat). Focusing on retail enterprises, Figure A17 shows that Ireland is ranked further down in the EU, with a proportion of 30% in 2018, yet up strongly from 13% in 2013.

Figure A17: Enterprises which Sold by a Website or Apps (B2C) – Retail Enterprises



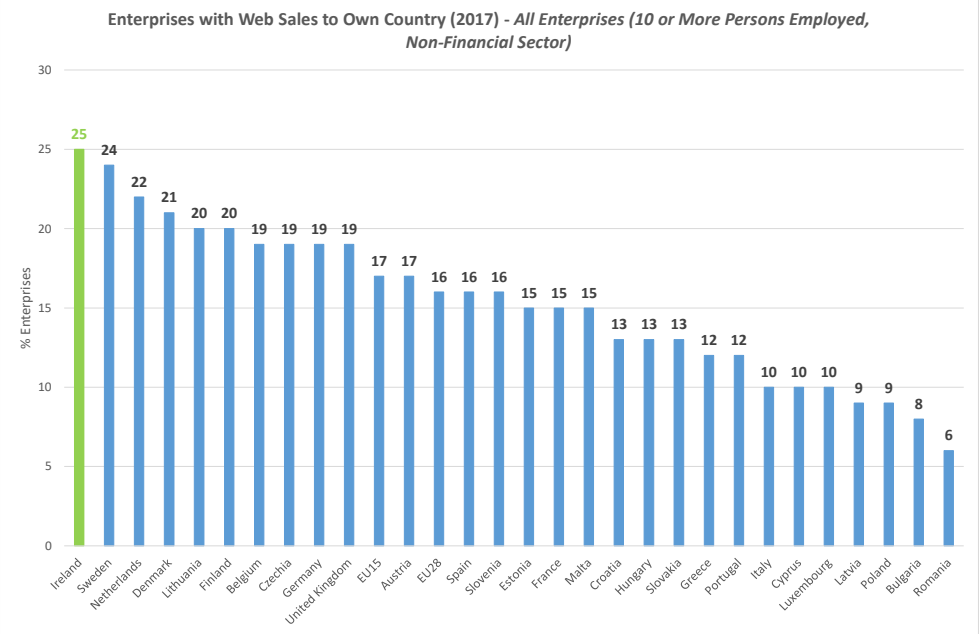


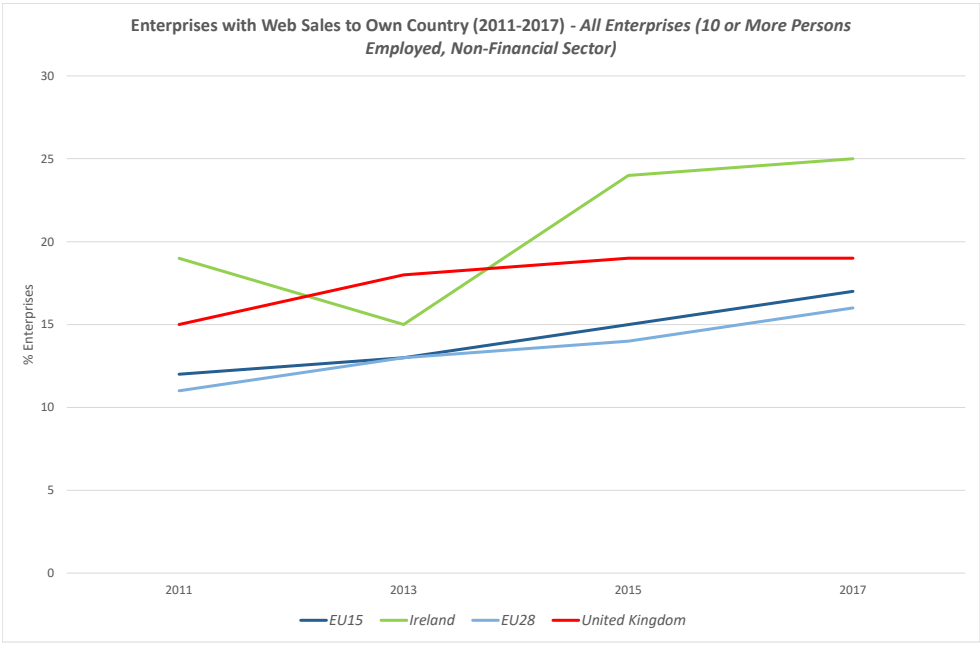
Source: Eurostat data, PMCA Economic Consulting analysis.

Detailed Results Regarding E-Commerce by Enterprises to Own Country

Turning to web sales to consumers in their own country, Figure A18 reveals that the proportion of all enterprises (10 or more persons employed and excluding the financial sector) engaging in this particular form of e-commerce was highest in Ireland in 2017 (the latest year for which the data are available from Eurostat) (25%) and that the trend in Ireland since 2011 has been upwards, as it has elsewhere in the EU.

Figure A18: Enterprises with Web Sales to Own Country – All Enterprises

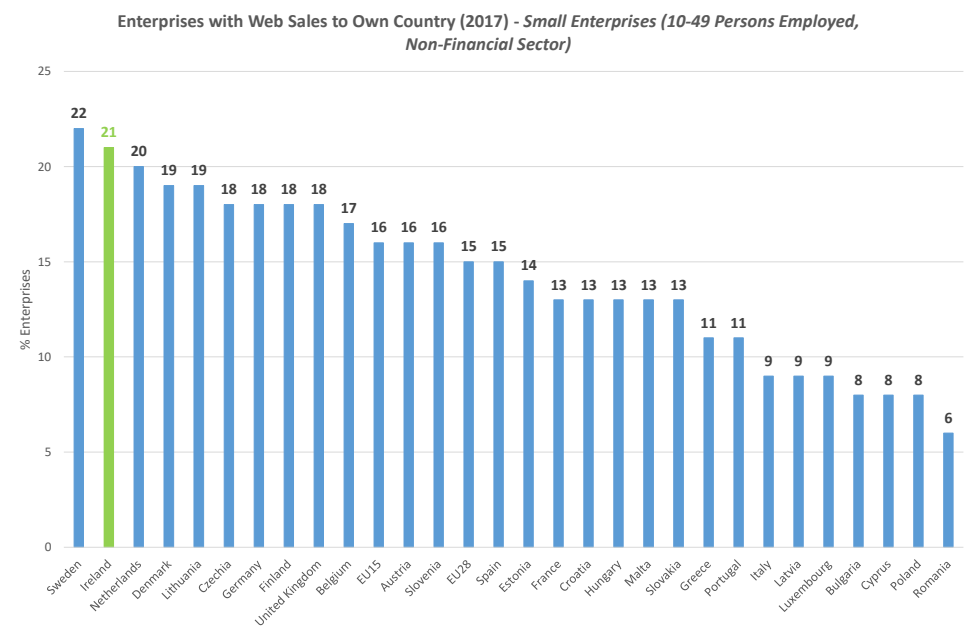


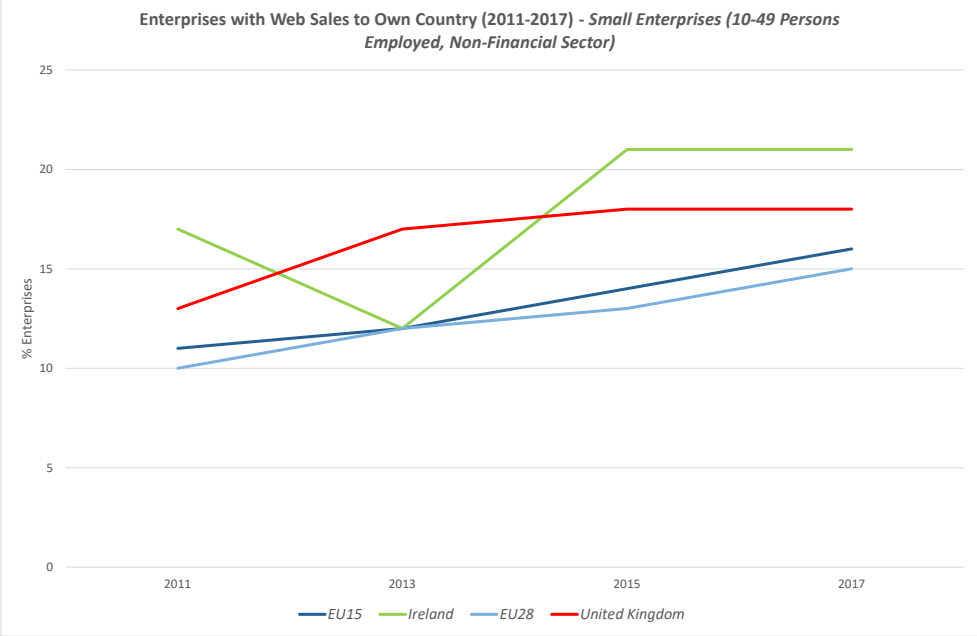


Source: Eurostat data, PMCA Economic Consulting analysis.

Figure A19 shows that the percentage of web sales to shoppers in own country by small enterprises in Ireland was the second highest in the EU in 2017 (21%) and that the trend in Ireland has been positive since earlier in the decade.

Figure A19: Enterprises with Web Sales to Own Country – Small Enterprises

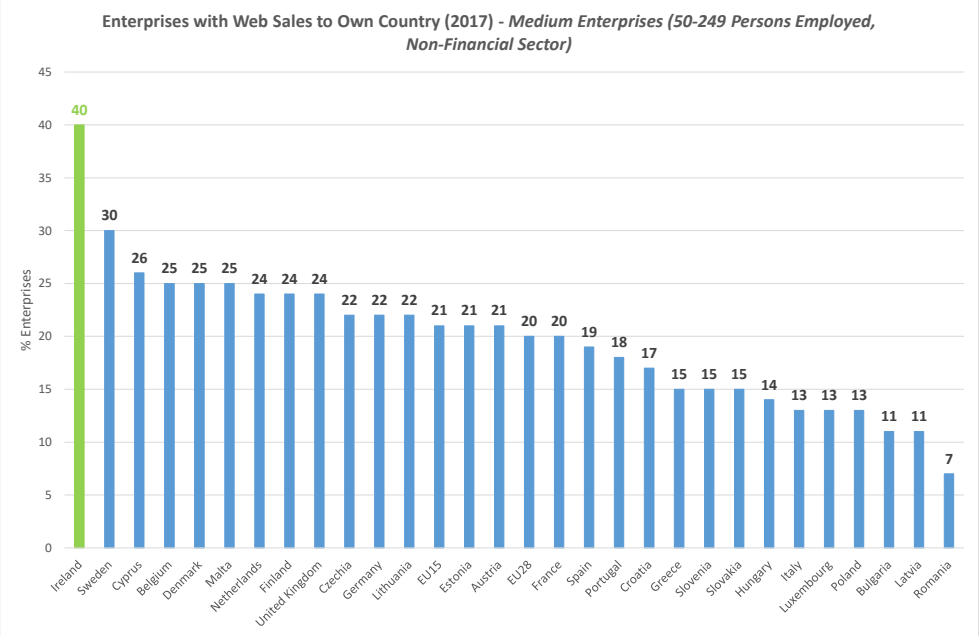


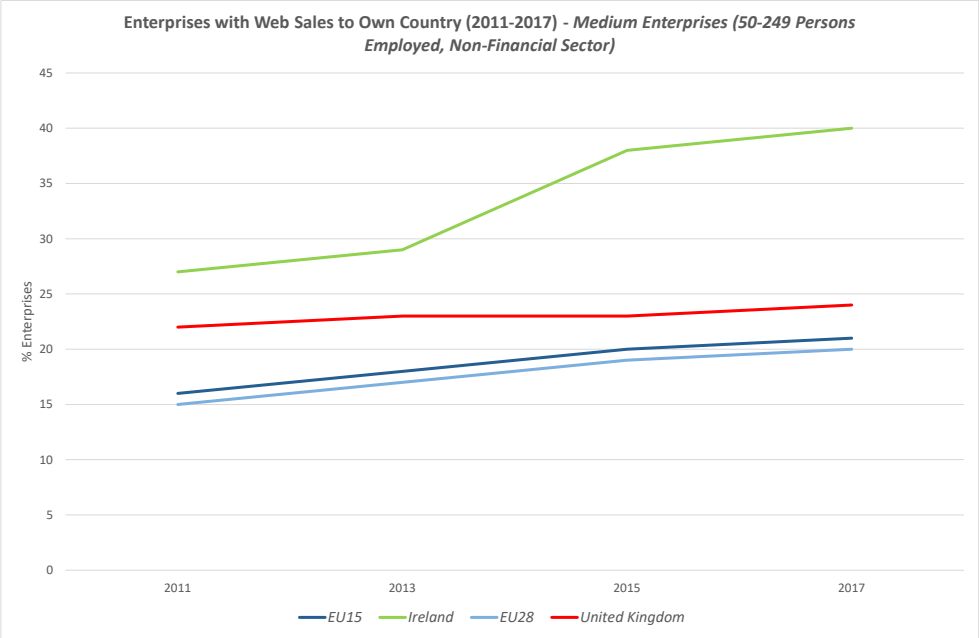


Source: Eurostat data, PMCA Economic Consulting analysis.

Figure A20 illustrates that the proportion of web sales to own country shoppers by medium enterprises in Ireland was by some margin the largest in the EU in 2017 (40%) and it is also evident that the trend in Ireland has been strong since 2011.

Figure A20: Enterprises with Web Sales to Own Country – Medium Enterprises

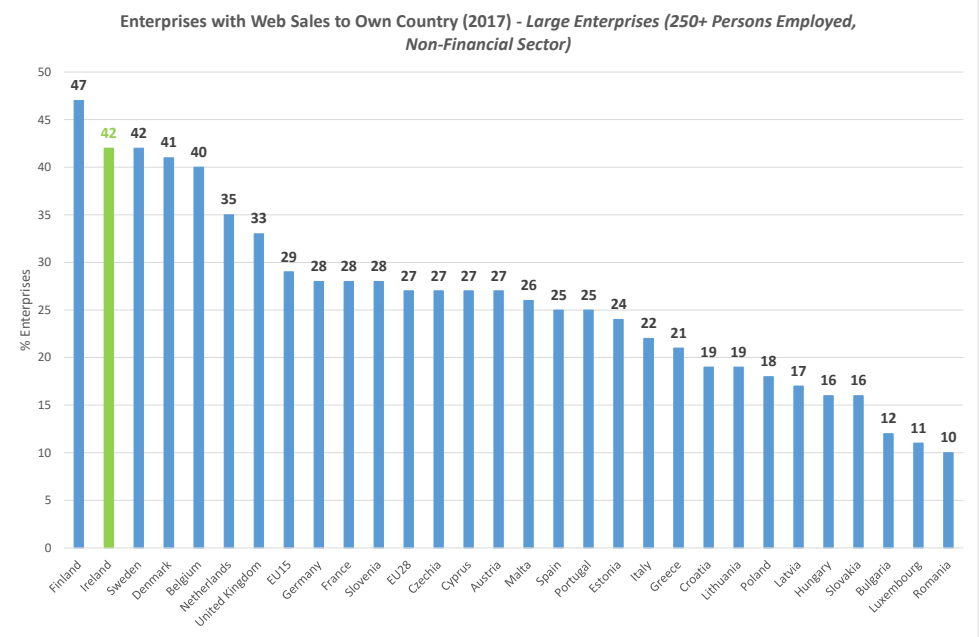


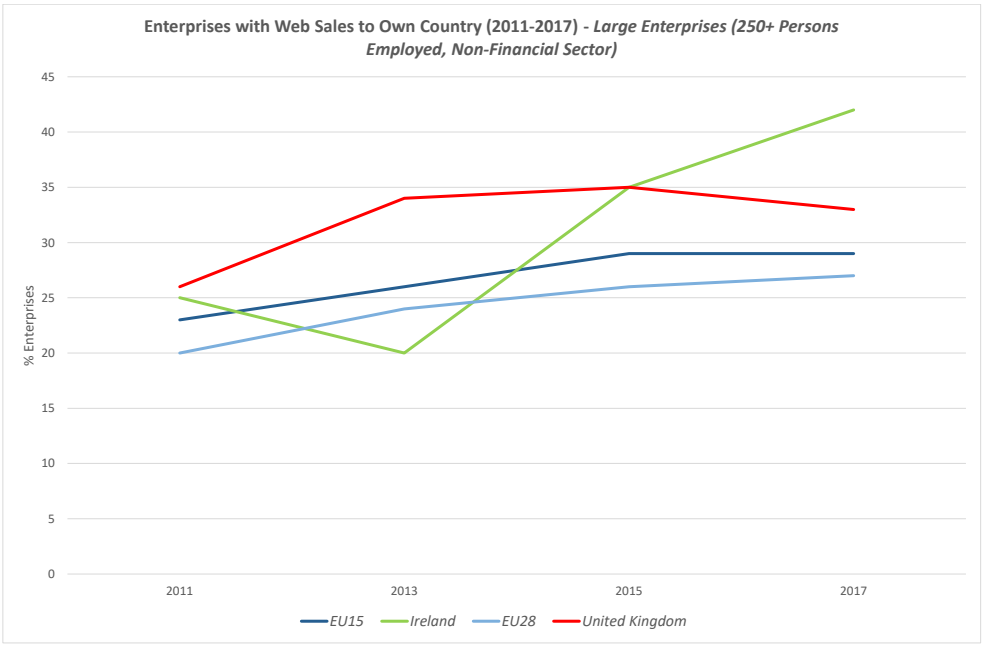


Source: Eurostat data, PMCA Economic Consulting analysis.

Ireland is close to top of the table in respect of the proportion of web sales to own country by large enterprises in the EU in 2017 (42%) and that upward trend in Ireland has been especially strong since 2013, as illustrated in Figure A21.

Figure A21: Enterprises with Web Sales to Own Country – Large Enterprises

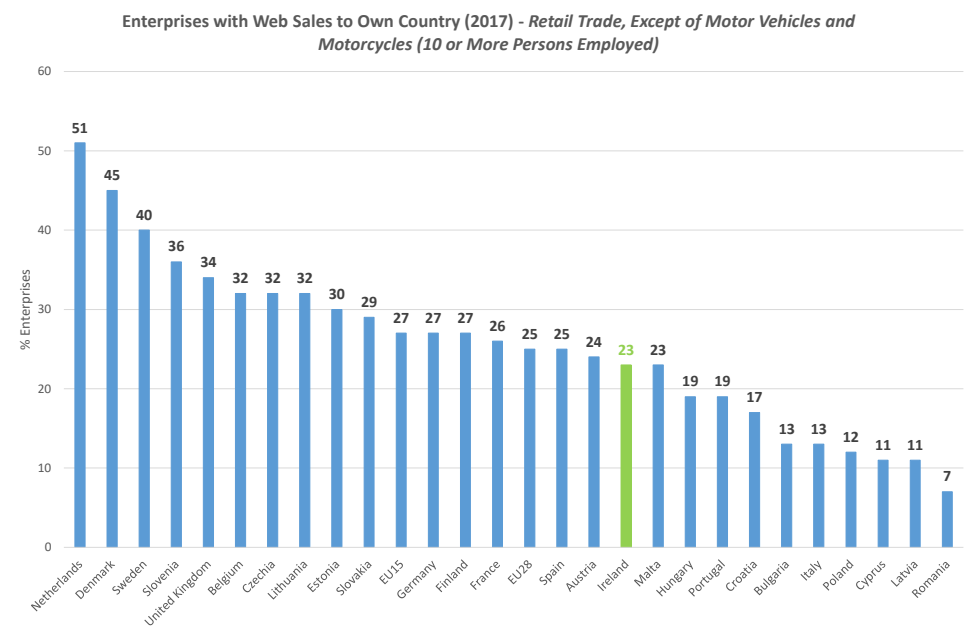


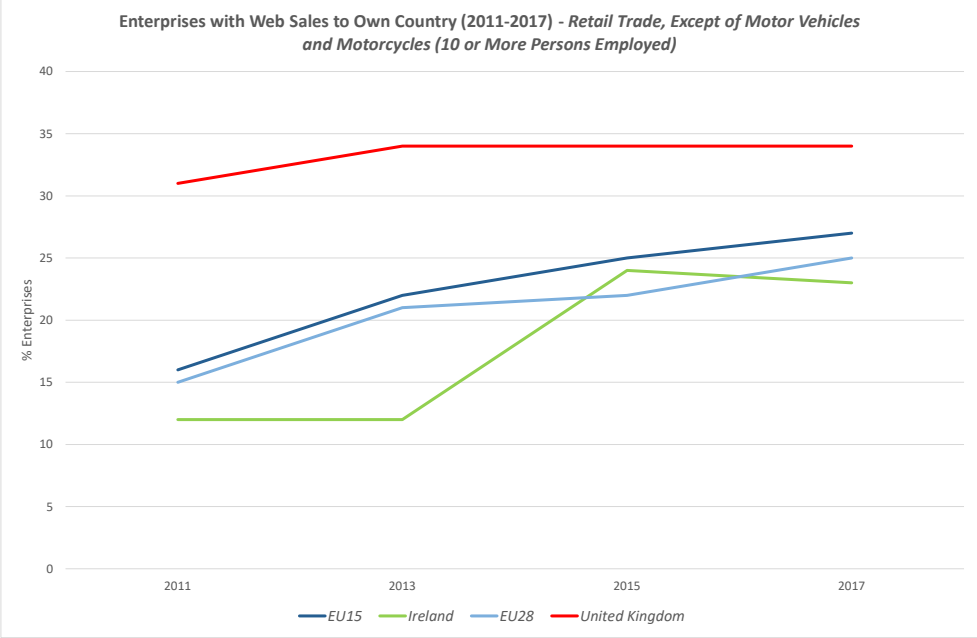


Source: Eurostat data, PMCA Economic Consulting analysis.

However, when it comes to retail enterprises, the percentage of web sales to own country shoppers is comparably low in Ireland, where the top panel of Figure A22 shows Ireland placed towards the bottom of the EU (23%), below the UK, the EU15 and the EU28. Nonetheless, the bottom panel indicates that Ireland is catching up with the EU28 in regard to this particular measure of e-commerce.

Figure A22: Enterprises with Web Sales to Own Country – Retail Enterprises



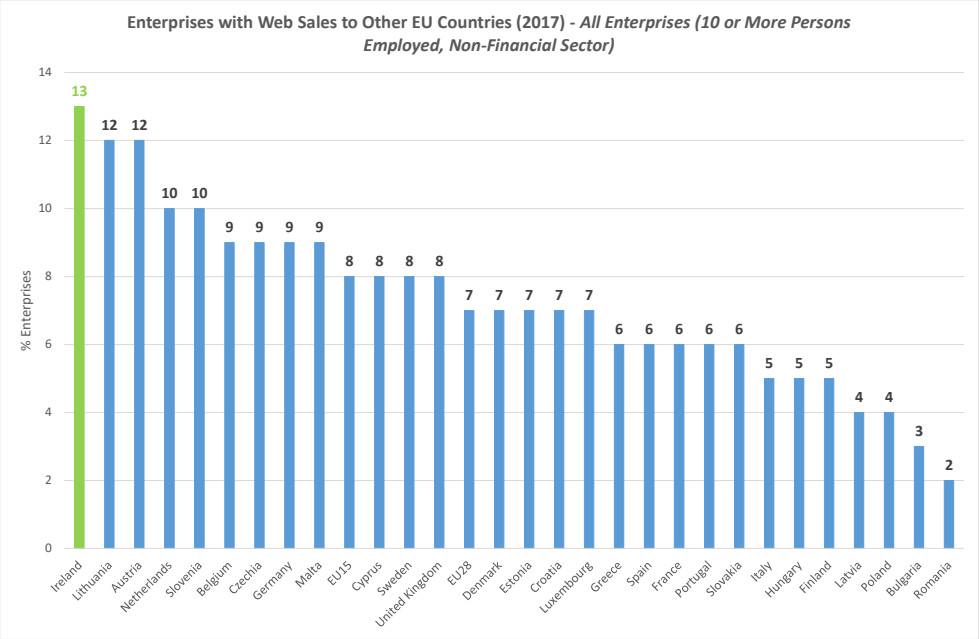


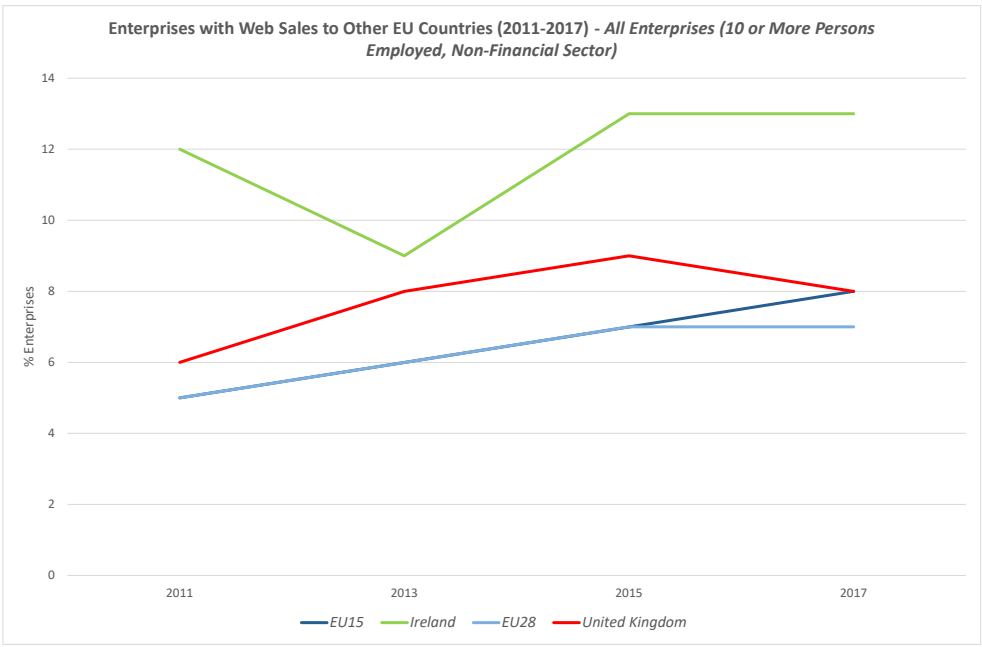
Source: Eurostat data, PMCA Economic Consulting analysis.

Detailed Results Regarding E-Commerce by Enterprises to Other EU Countries

Turning to the proportion of all enterprises with web sales to other EU countries, Figure A23 shows that Ireland ranks first place in the EU with a percentage of 13% in 2017 and that Ireland has been above the UK, the EU15 and the EU28 in 2011, 2013 and 2015 as well as 2017, as indicated in the bottom panel chart.

Figure A23: Enterprises with Web Sales to Other EU Countries – All Enterprises





Source: Eurostat data, PMCA Economic Consulting analysis.

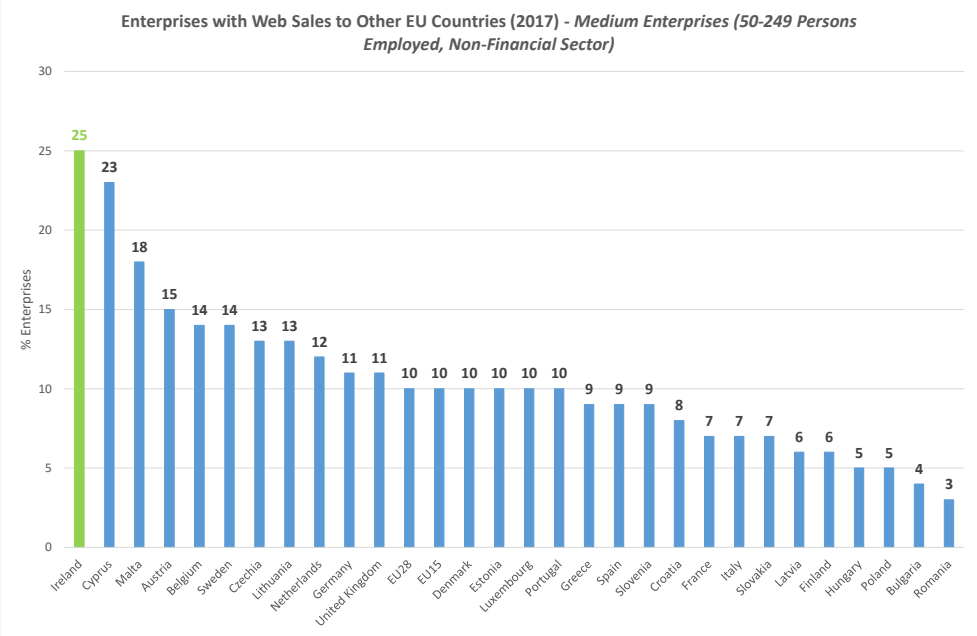
While the percentages are relatively small, Ireland performs comparably well in regard to web sales to other EU countries among small enterprises. The bottom panel of Figure A24 shows that the trend in Ireland has been upward in recent years.

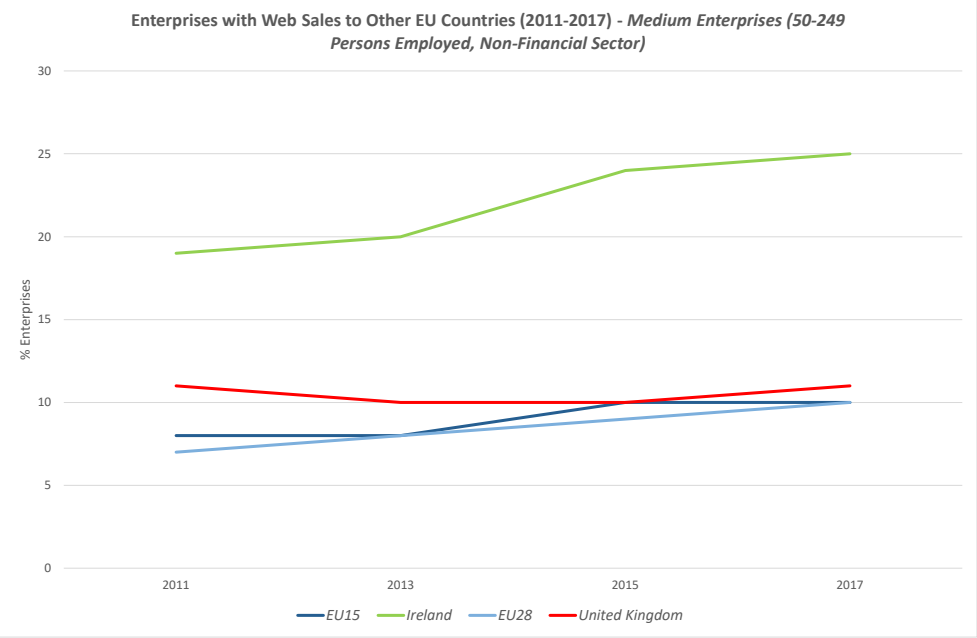
Figure A24: Enterprises with Web Sales to Other EU Countries – Small Enterprises

Source: Eurostat data, PMCA Economic Consulting analysis.

Ireland also attains first place in the EU in regard to the proportion of medium enterprises with web sales to other EU countries, and the percentage in Ireland has been appreciably higher than that in the UK, the EU15 and the EU28 in each of 2011, 2013, 2015 and 2017 (Figure A25).

Figure A25: Enterprises with Web Sales to Other EU Countries – Medium Enterprises

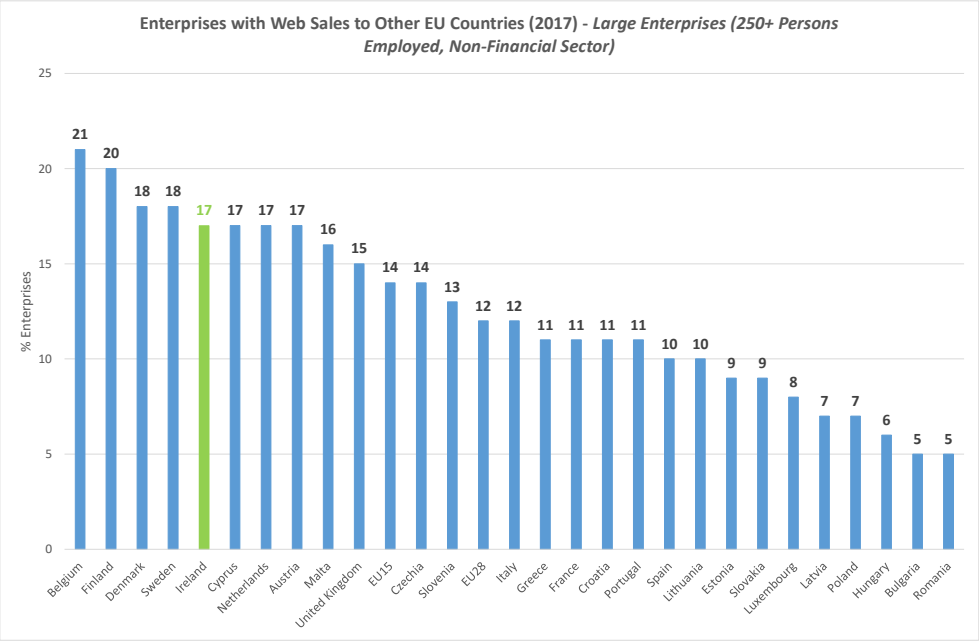


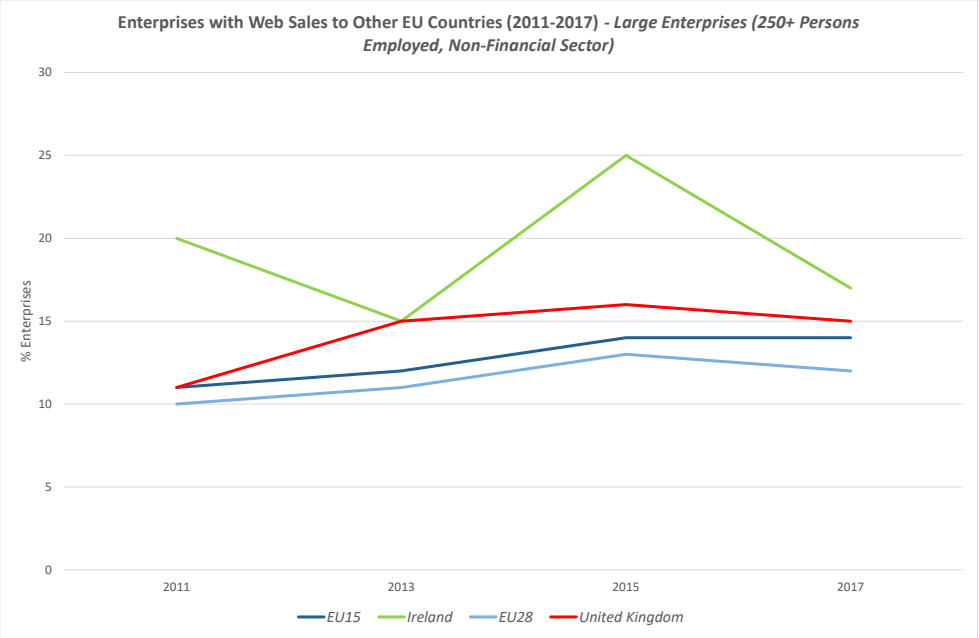


Source: Eurostat data, PMCA Economic Consulting analysis.

In 2017, 17% of large enterprises in Ireland had web sales to other EU countries, which meant that Ireland has ranked fifth in the EU in regard to this form of e-commerce in that year. The bottom panel of Figure A26 shows a relatively volatile trend in Ireland in regard to this form of e-commerce, whereas the trend in the UK, the EU15 and the EU28 has been one of a mild increase.

Figure A26: Enterprises with Web Sales to Other EU Countries – Large Enterprises

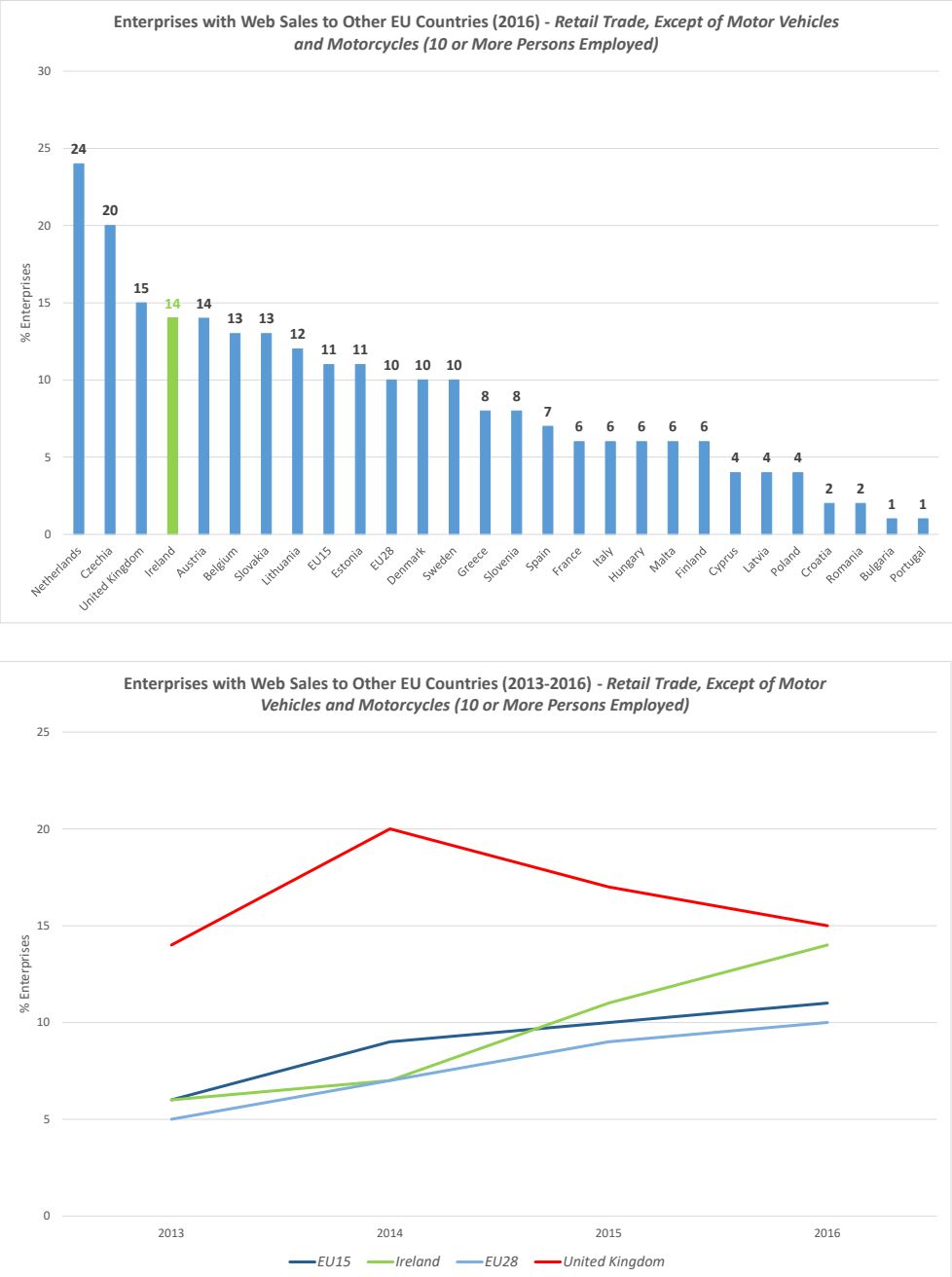




Source: Eurostat data, PMCA Economic Consulting analysis.

Turning to retail enterprises, the proportion of firms in this sector with web sales to other EU countries was 14% in Ireland in 2017 and has grown comparably strongly since 2011, albeit from a low base, as indicated in the bottom panel of Figure A27.

Figure A27: Enterprises with Web Sales to Other EU Countries – Retail Enterprises

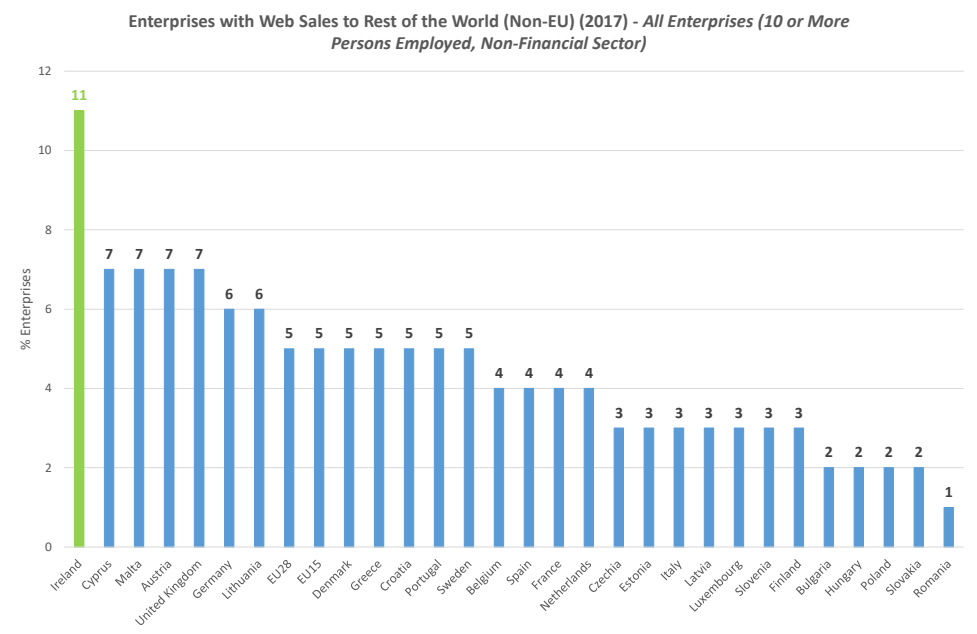


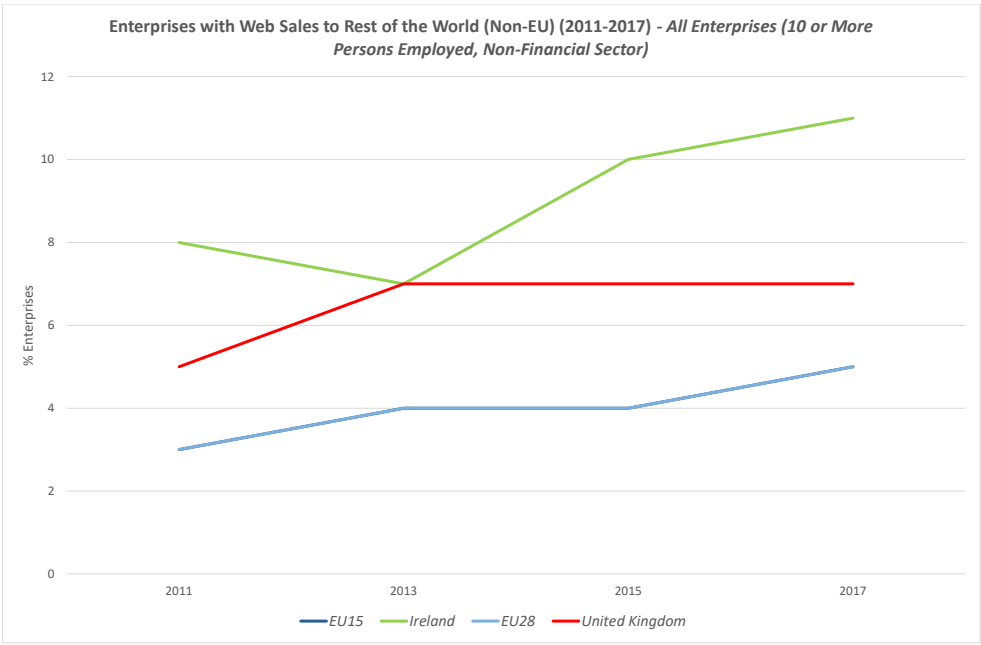
Source: Eurostat data, PMCA Economic Consulting analysis.

Detailed Results Regarding E-Commerce by Enterprises to Other Countries (Non-EU)

Finally, regarding e-commerce by enterprise to other countries (outside of the EU), the proportion of all enterprises with web sales to 'third countries' in the rest of the world was highest in Ireland in 2017 and the percentage has grown strongly in Ireland since 2013, albeit from a low base (Figure A28).

Figure A28: Enterprises with Web Sales to Other Countries (Non-EU) – All Enterprises

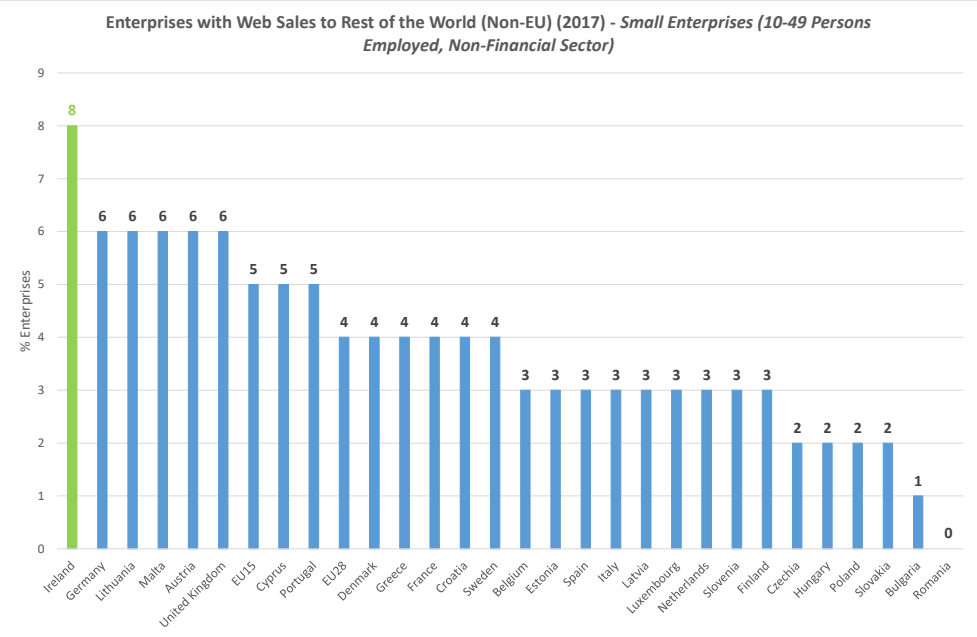


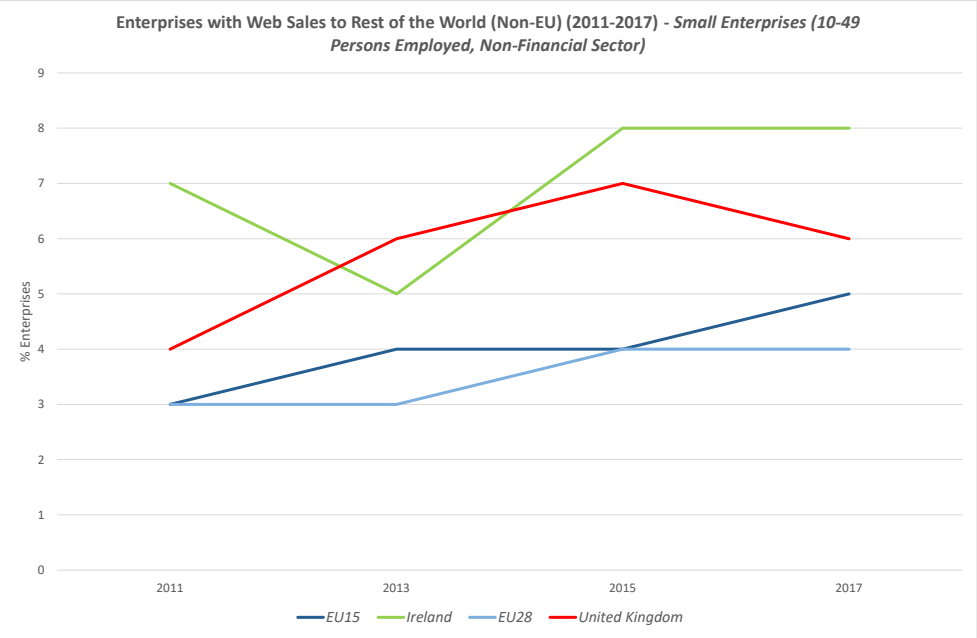


Source: Eurostat data, PMCA Economic Consulting analysis.

While the percentages are relatively small, the proportion of small enterprises with web sales to non-EU countries was highest in Ireland in 2017 (8%) and the figure has grown in recent years (Figure A29).

Figure A29: Enterprises with Web Sales to Other Countries (Non-EU) – Small Enterprises

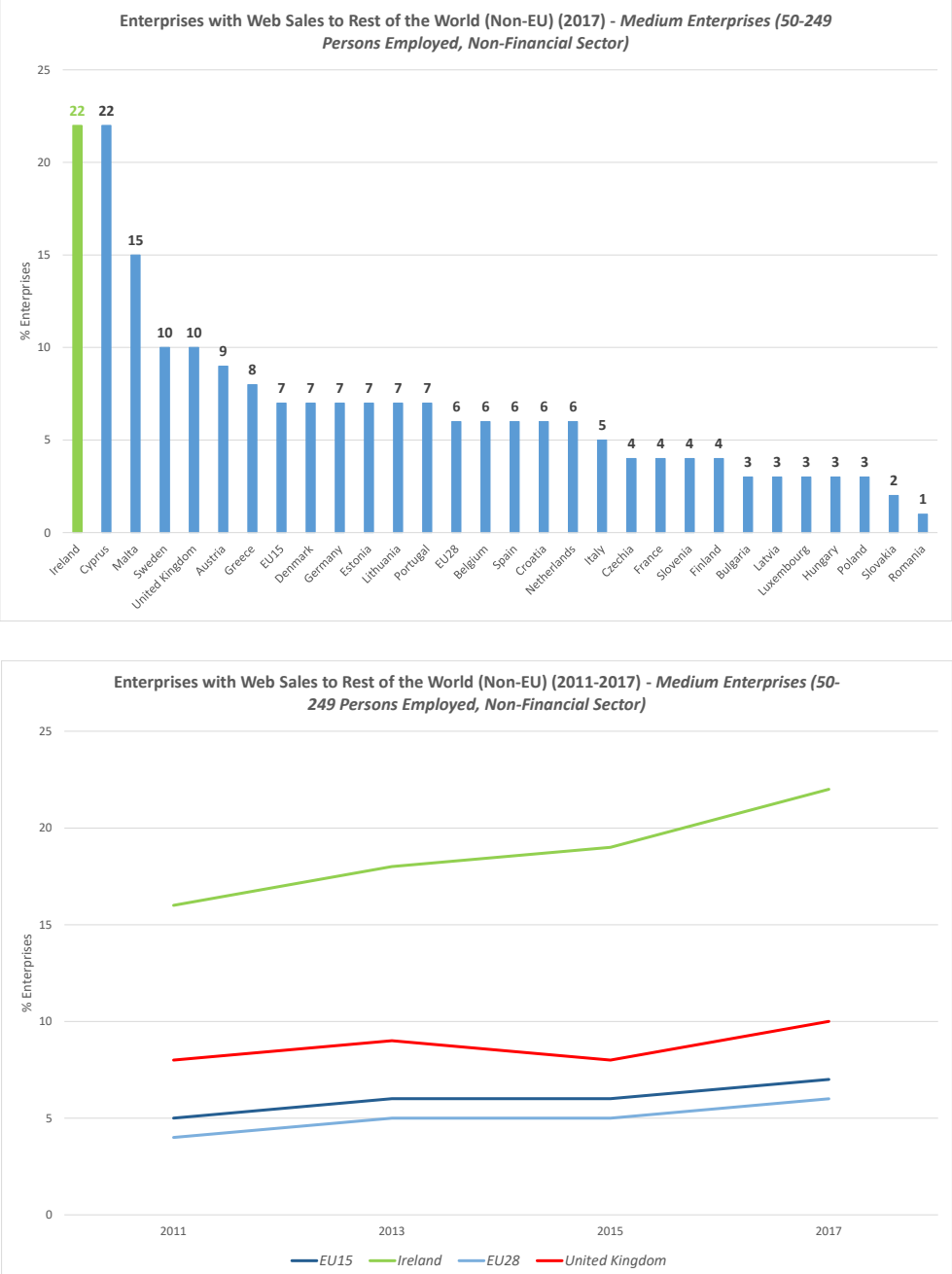




Source: Eurostat data, PMCA Economic Consulting analysis.

Similarly, as shown in Figure A30, Ireland performs comparably well in the EU in regard to the percentage of medium enterprises with web sales outside of the EU (22% in 2017), having grown steadily since 2011.

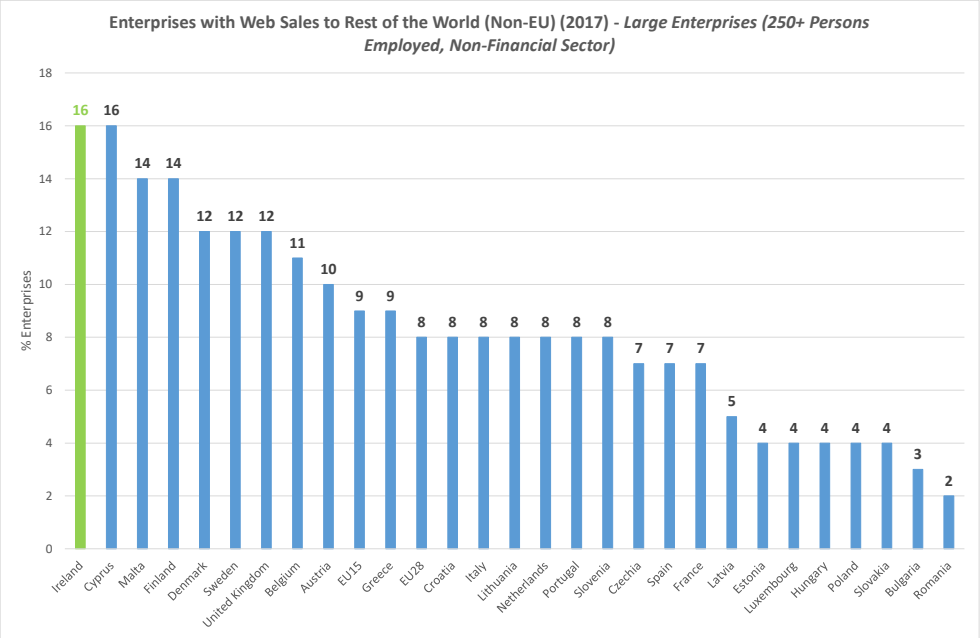
Figure A30: Enterprises with Web Sales to Other Countries (Non-EU) – Medium Enterprises

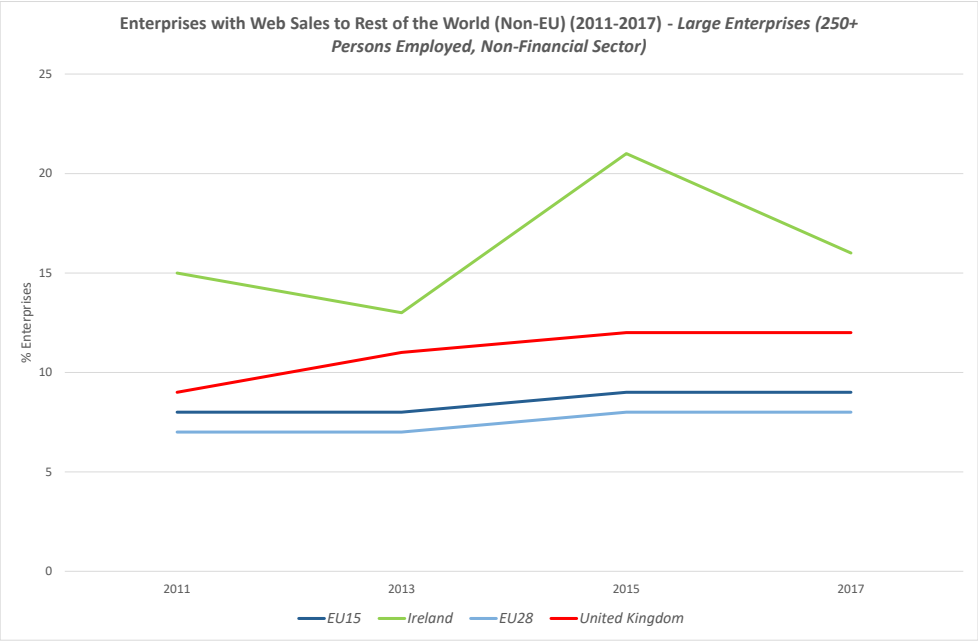


Source: Eurostat data, PMCA Economic Consulting analysis.

The proportion of large enterprise with web sales to other countries (rest of the world) is also comparably high in Ireland in an EU context, although the percentages in 2017 are relatively small, and the trend in Ireland since 2011 has been volatile, as shown in the bottom panel of Figure A31.

Figure A31: Enterprises with Web Sales to Other Countries (Non-EU) – Large Enterprises

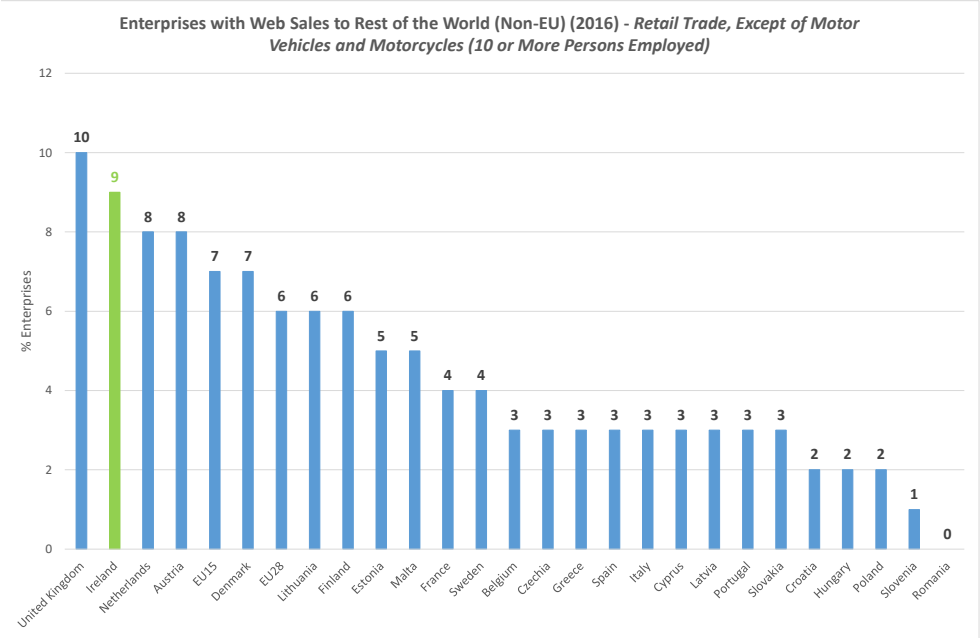


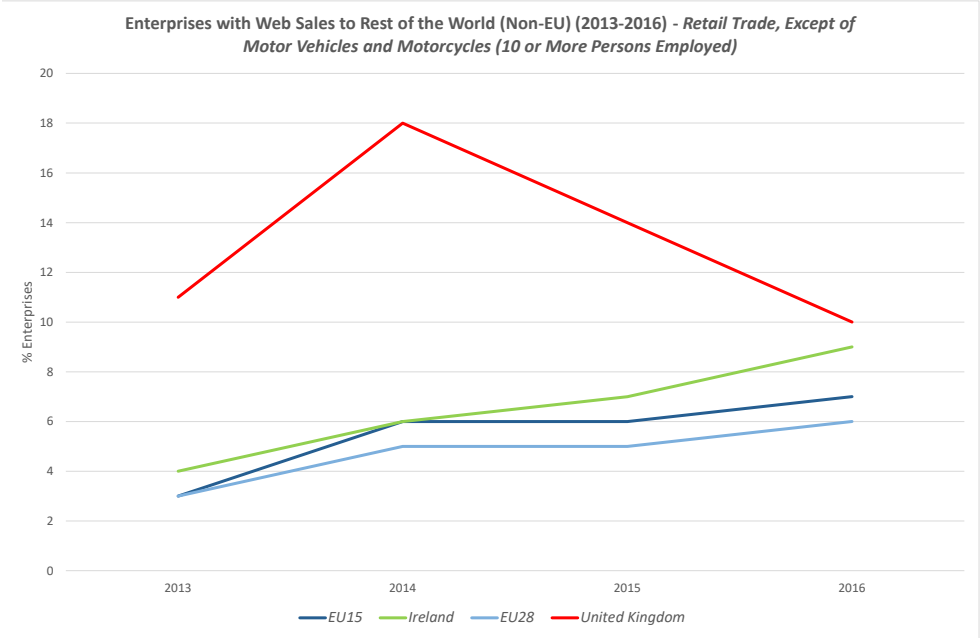


Source: Eurostat data, PMCA Economic Consulting analysis.

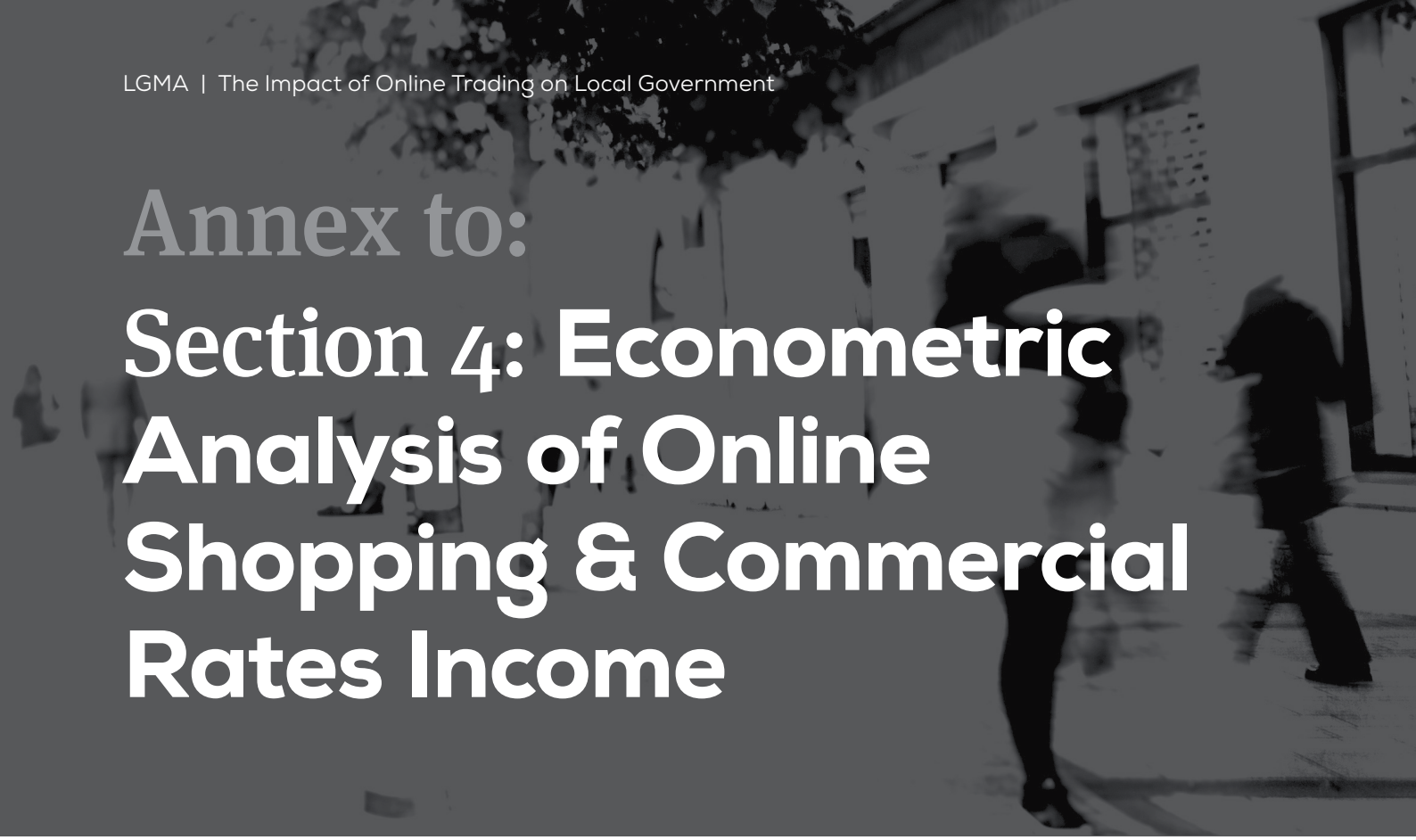
Figure A32 illustrates that the proportion of retail enterprises with web sales to countries outside the EU was relatively high in Ireland in 2017 (9%) and has grown steadily since 2013, albeit from a low base. China represents a potentially significant opportunity for Irish firms to reach consumers in non-EU markets – it is the largest e-commerce market in the world with revenue of over €500 billion and growth of 24% during 2016-2017 compared with €450 billion and 13% in the US (37% of all clothing/apparel sales in China are generated online, compared with c. 20% in the EU and US (*Digital Economy Compass 2018*, statista).

Figure A32: Enterprises with Web Sales to Other Countries (Non-EU) – Retail Enterprises





Source: Eurostat data, PMCA Economic Consulting analysis.



Annex to:

Section 4: Econometric Analysis of Online Shopping & Commercial Rates Income

Specification of the Econometric Panel Data Model of Total Commercial Rates Income

The econometric panel data model of local authority total commercial rates income is specified as follows:

$$lncomminc_{it} = \alpha_i + \beta_1 lnonlinepur5_{it} + \beta_2 lnonlinepur10_{it} + \beta_3 lndisincpp_{it} + \beta_4 lncommvac_{it} + \varepsilon_{it} \; (i=1,...,N;\; t=1,...,T)$$

The variables and parameters of the model are described presently.

- $lncomminc_{it}$ is the dependent variable (which we are seeking to explain) and denotes the natural logarithm of total commercial rates income of local authority *i* in year *t* (hence the prefix *'ln'* which signifies the natural logarithmic of the dependent variable and the explanatory variables below).
- $lnonlinepur5_{it}$ is the first of the explanatory variables and given as the natural log of the proportion of individuals who purchased online more than 5 times in the last 3 months and resident in local authority area *i* in year *t*.
- $lnonlinepur10_{it}$ is the natural log of the percentage of individuals who purchased online more than 10 times in the last 3 months and resident in local authority area *i* in year *t*.
- $lndisincpp_{it}$ is the natural log of disposable income per person in local authority area *i* in year *t*. Disposable income is primary income plus social transfers less income tax, and by taking disposable income *per person* we are neutralising the effect of local authorities with larger populations having larger total disposable incomes.
- $lncommvac_{it}$ is the natural log of commercial vacancy rate in local authority area *i* in year *t*.
- β_1-β_4 are the parameters of the model to be estimated. Each parameter defines the relationship between its explanatory variable and the dependent variable, such that we expect:

- β_1>0 in which case more online purchasing (given by higher $lnonlinepur5_{it}$) is associated with higher commercial rates income, suggesting that online shopping complements physical retailing; on the other hand, β_1<0 implies that greater online purchasing (bigger $lnonlinepur5_{it}$) is associated with lower commercial rates income, or that online shopping competes with or displaces physical retailing. If β_1=0, the frequency of online shopping (given by $lnonlinepur5_{it}$) has no impact on commercial rates income.
- Similarly, β_2>0 implies that more frequent online shopping (given by $lnonlinepur10_{it}$) is associated with higher commercial rates income and *vice-versa* in respect of β_2<0.
- β_3>0 means that higher disposable income per person is associated with higher commercial rates income, which is what we anticipate on *a priori* grounds.
- β_4<0 implies that larger commercial vacancy rates are associated with lower commercial rates income, which is what we would expect *a priori*.
- ε_{it} is the error term (capturing extraneous factors not present among the explanatory variables).
- α_i is a cross-sectional effects term treated in either of two ways: *fixed effects* (FE) whereby the α_i are related to the explanatory variables; and *random effects* (RE) in which the α_i are random.
- By taking the natural logs of the dependent variable and the explanatory variables, the coefficients (βs) are 'elasticities' (as opposed to 'slopes') – each β measures the *percentage* change in the dependent variable due to a given *percentage* change in its explanatory variable.

The data used to estimate and test the model comprise 31 cross-sectional units (all local authorities in the State) observed over 6 years, implying a panel data of 186 observations (i.e. N=31 and T=6).

Procedure for Analysis of the Econometric Model of Total Commercial Rates Income

Figure A33 shows the process in estimating and testing the econometric panel data model of local authority total commercial rates income.

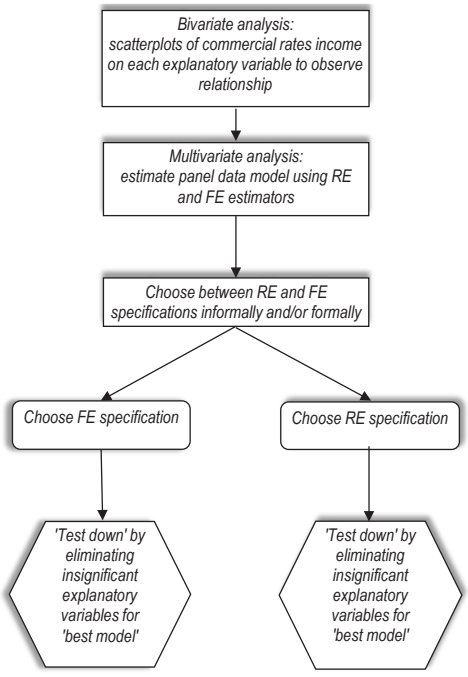
The first step involves bivariate analysis, in which we undertake preliminary analysis of the relationship, if any, between commercial rates income and each of the explanatory variables using graphical scatterplots.

We then estimate the econometric model in full using the aforementioned FE and RE estimators and, in each case, we note the statistical significance and quantitative impacts of the explanatory variables, and whether they meet our prior expectations and are consistent with the bivariate analysis.

The third step is to choose between the FE and RE specifications. This can be done *informally*, by appraising the extent to which the results 'make sense' in terms of our prior beliefs and the bivariate results, or *formally*, by conducting a statistical test (the Hausman Test) which enables selection between the FE and RE specifications. However, performing the Hausman test is not without issue and tends to be employed where it is not possible to distinguish between the FE and RE specifications informally.[21]

Finally, with the preferred specification chosen (FE or RE), we 'test down' by eliminating statistically insignificant explanatory variables to arrive at a 'best model' of local authority commercial rates income.

Figure A33: Procedure for Estimation and Testing of the Econometric Model of Local Authority Commercial Rates



Source: PMCA Economic Consulting.

[21] Another issue with the Hausman Test is that it cannot be applied to 'fat' panel datasets comprising mainly cross-sectional units as opposed to time periods that necessitate adjustment for robust estimation of standard errors due to the presence of heteroscedasicity (see Glossary). This is relevant to the panel data at hand in this study.

Details of the Econometric Analysis of Total Commercial Rates Income

Observations from the Bivariate Analysis

The scatterplots presented in Figure 4.1 in the main body of the report (pp.25-26) suggest the presence of heteroscedasticity (see Glossary for a short explanation of this issue). This necessitates estimation of robust standard errors to address the issue. The implication of this corrective action is that it precludes use of the Hausman Test for choosing between the FE and RE specifications. But this is not a problem because we can select between the two specifications on informal grounds as outlined earlier.

Fixed Effects (FE) Specification

Table A11 below gives the results from estimating the econometric model of total commercial rates income using the FE specification, in which the cross-sectional effects term (α_i in the equation above) are related to the explanatory variables. The results indicate a model with poor explanatory power – the between R^2 and overall R^2 values are very low (the between R^2 value is particularly important given that the panel data are more cross-sectional than time series, with 31 local authorities versus 6 years). Apart from *lncommvac*, none of the coefficients on the explanatory variables is statistically significantly different from zero (the p-values in the fifth column are greater than the 0.10 criterion for statistical significance. The coefficient on *lncommvac* is significant but positive, which contradicts the scatterplot between this explanatory variable and the dependent variable (*lncomminc*) in Figure 4.1 (pp.25-26).

Table A11: Results of Econometric Analysis of Local Authority Total Commercial Rates Income – Fixed Effects Specification

```
Fixed-effects (within) regression               Number of obs      =       155
Group variable: laid                            Number of groups   =        31

R-sq:  within  = 0.0850                         Obs per group: min =         5
       between = 0.0499                                        avg =       5.0
       overall = 0.0381                                        max =         5

                                                F(4,30)            =      7.56
corr(u_i, Xb)  = 0.1526                         Prob > F           =    0.0002

                                              (Std. Err. adjusted for 31 clusters in laid)
------------------------------------------------------------------------------
             |               Robust
  lncomminc  |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 lnonlinepur5|   .0940569   .0743891     1.26   0.216    -.0578659    .2459798
lnonlinepur10|  -.0341046   .0388948    -0.88   0.388    -.1135383    .0453291
   lndisincpp|    .129732   .1733326     0.75   0.460    -.2242604    .4837243
    lncommvac|   .2157131   .0949203     2.27   0.030     .0218601    .4095661
        _cons|   15.18578   1.446852    10.50   0.000     12.23091    18.14065
-------------+----------------------------------------------------------------
     sigma_u |  .88910468
     sigma_e |  .08620716
         rho |  .99068641   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Note: Results produced using Stata.

Source: NUIG local authority finance data (supra footnote 10), CSO, GeoDirectory and PMCA Economic Consulting analysis.

Random Effects (RE) Specification

The random effects specification produces a much higher degree of explanatory power compared with the FE specification. Table A12 shows a between R^2 value of 48% and an overall R^2 value of 40% (compared with the respective values of just 5% and 3% for the FE model in Table A11). Just one of the explanatory variables is statistically significant in the FE specification, namely *lndisincpp* (disposable income per person) with a p-value on its coefficient of 0.009, which is highly statistically significant.

The estimated coefficient on this explanatory variable accords with our *a priori* expectations, which is to say a positive relationship between disposable income per person and local authority total commercial rates income.

Table A12: Results of Econometric Analysis of Local Authority Total Commercial Rates Income – Random Effects (RE) Specification

```
Random-effects GLS regression                   Number of obs      =       155
Group variable: laid                            Number of groups   =        31

R-sq:  within  = 0.0723                         Obs per group: min =         5
       between = 0.4800                                        avg =       5.0
       overall = 0.4008                                        max =         5

                                                Wald chi2(4)       =     55.19
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                                (Std. Err. adjusted for 31 clusters in laid)
------------------------------------------------------------------------------
             |               Robust
   lncomminc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 lnonlinepur5 |   .0742372   .0750466     0.99   0.323    -.0728514    .2213259
lnonlinepur10 |  -.0365167    .038071    -0.96   0.337    -.1111345    .0381012
   lndisincpp |   .4584377   .1765722     2.60   0.009     .1123626    .8045129
    lncommvac |   .0730863    .094111     0.78   0.437    -.1113678    .2575404
        _cons |   12.36807   1.471596     8.40   0.000     9.483793    15.25234
-------------+----------------------------------------------------------------
      sigma_u |  .60227515
      sigma_e |  .08620716
          rho |  .97992346   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: NUIG local authority finance data (supra footnote 10), CSO, GeoDirectory and PMCA Economic Consulting analysis.

Note: Results produced using Stata.

Testing Down

Focusing on the RE specification, we next test whether it is justified to eliminate the three explanatory variables found to be individually insignificant in Table A12. The null hypothesis of the hypothesis test is that the three explanatory variables in question (*lnonlinepur5, lnonlinepur10 and lncommvac*) are jointly equal to zero.

The result of the test in Table A13 below is a p-value much greater than 5%, which means that we cannot reject the null hypothesis that the three explanatory variables together are irrelevant, and therefore we can remove these explanatory variables from the model.

Table A13: Results of the Joint Significance Test that the Explanatory Variables of the Panel Data Model (Except Disposable Income per Person) are Irrelevant in the Preferred RE Specification

```
( 1)  lnonlinepur5 = 0
( 2)  lnonlinepur10 = 0
( 3)  lncommvac = 0

          chi2(  3) =    1.01
        Prob > chi2 =    0.7985
```

Source: NUIG local authority finance data (supra footnote 10), CSO, GeoDirectory and PMCA Economic Consulting analysis.

Note: Results produced using Stata.

Best Model for Explaining Local Authority Total Commercial Rates Income

Removing the three statistically insignificant explanatory variables from the RE specification of the model leads to the 'best model' estimates in Table A14. Disposable income per person alone explains 53% of the variation in commercial rates income among local authorities on the basis of the between R^2 value. The estimated coefficient on *lndisincpp* is highly significant (p-value of zero) and suggests that a 10% rise (fall) in disposable income per person is associated with a 9.2% rise (fall) in commercial rates income.

A significance test of whether the estimated coefficient on that explanatory variable is equal to unity yields a p-value of 0.6093, which is not significant, which in turn means that any given x% rise (fall) in disposable income per person is associated with the same x% rise (fall) in local authority commercial rates income – the relationship is in line or in proportion.

Table A14: Results of Econometric Analysis of Local Authority Total Commercial Rates Income – Best Model (Bivariate Model with RE Specification)

```
Random-effects GLS regression                   Number of obs      =       186
Group variable: laid                            Number of groups   =        31

R-sq:  within  = 0.1479                         Obs per group: min =         6
       between = 0.5349                                        avg =       6.0
       overall = 0.4655                                        max =         6

                                                Wald chi2(1)       =     34.75
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 31 clusters in laid)
------------------------------------------------------------------------------
             |               Robust
   lncomminc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lndisincpp |   .9202205   .156098     5.90   0.000     .6142741    1.226167
        _cons |   8.134539   1.597306    5.09   0.000     5.003877     11.2652
-------------+----------------------------------------------------------------
     sigma_u |  .62303378
     sigma_e |  .10482549
         rho |  .97247119   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: NUIG local authority finance data (supra footnote 10), CSO, GeoDirectory and PMCA Economic Consulting analysis.

Note: Results produced using Stata.

Details of the Econometric Analysis of Commercial Rates Income Due to Retailing

Specification of the Econometric Model

Having generated clear and unambiguous results from the econometric panel data analysis of total commercial rates income, we next turn to the econometric analysis of commercial rates income relating specifically to retailing among all local authorities in the State.

The same form of econometric model is specified here, apart from the dependent variable being the natural log of local authority rates due to the retail sector (*lnretrates*) and a new set of coefficients to be estimated (γs as opposed to the *b*s previously). Of interest is to see whether disposable income per person (*lndisincpp*) emerges as statistically significant and quantitatively important, as it has in regard to total commercial rates income, and whether the frequency of online shopping is important or not (it is not important for total commercial rates income as found earlier).

$$lnretrates_{it} = \xi_i + \gamma_1 lnonlinepur5_{it} + \gamma_2 lnonlinepur10_{it} + \gamma_3 lndisincpp_{it} + \gamma_4 lncommvac_{it} + \upsilon_{it} \; (i=1,...,N;\; t=1,...,T)$$

Estimation and Testing Procedure

The same estimation and testing procedure as applied to the econometric analysis of total commercial rates income is employed presently for commercial rates income due to retailing.

Data Used for the Econometric Panel Data Analysis

Whereas data on total commercial rates income for each of the 31 local authorities are available currently (2019) and for previous years from publicly available information sources (the DoHPLG and NUIG, which we have used in this study), data on commercial rates income due to retailing are not available in the public domain and are sporadic. The retail data for Dublin City Council were obtained from that local authority and pertain to each of 2014-2019. On the other hand, the commercial rates income data due to retailing for the other local authorities available from the CCMA/LGMA pertain to either 2015 or 2016 or both of these years or are unavailable (as in the case of Louth, Monaghan and Offaly). Thus we have far fewer observations compared with the data on total commercial rates income and this may mean less robust results.

Note: Results produced using Stata.

Table A15 below provides descriptive statistics on the dependent and explanatory variables. For each variable, the mean, standard deviation, minimum and maximum values, along with the number of observations are given. The term 'overall' in the table refers to the pooled sample of all local authorities and years for which the variables are identified with independent data, 'between' shows the variation across the 31 local authorities and 'within' the variation over time. Most of the variation in the dependent variable (*lnretrates*) comes from differences between local authorities rather than over time. Given the sporadic nature of the dependent variable, the number of observations in the following panel data analysis is much lower compared with the previous analysis of total commercial rates income.[22]

Table A15: Descriptive Statistics of the Dependent Variable and the Explanatory Variables of the Econometric Panel Data Model of Local Authority Commercial Rates Income Due to Retailing – Variables in Natural Logarithmic Form

Variable		Mean	Std. Dev.	Min	Max	Observations
lnretrates	overall	16.07954	1.125557	13.47105	18.13711	N = 50
	between		1.01026	13.47105	18.11693	n = 28
	within		0.0625442	15.82675	16.33234	T = 1.78571
lnonlinepur5	overall	3.202167	0.2948496	2.681021	3.688879	N = 155
	between		0.1469219	2.961676	3.449887	n = 31
	within		0.2567312	2.77582	3.675644	T = 5
lnonlinepur10	overall	2.19682	0.4494178	1.335001	3.091043	N = 155
	between		0.2129758	1.828105	2.520753	n = 31
	within		0.3972352	1.483759	3.027956	T = 5
lndisincpp	overall	9.890167	1.225343	9.619532	10.22318	N = 186
	between		0.1135894	9.685372	10.12334	n = 31
	within		0.0496067	9.79072	9.994902	T = 6
lncommvac	overall	2.578767	0.1453947	2.197225	2.939162	N = 186
	between		0.1378382	2.297118	2.874619	n = 31
	within		0.0515144	2.455423	2.679384	T = 6

Source: CCMA/LGMA, CSO, GeoDirectory and PMCA Economic Consulting analysis.

[22] As before, the main caveats of the econometric analysis are the assumptions used to identify the two online shopping variables (lnonlinepur5 and lnonlinepur10) from CSO data pertaining to the NUTS 3 Regions to the 31 local authority areas, and the extrapolation of the CSO data on disposable income per person per county during 2014-2016 for 2017-2019.

Note: Results produced using the specialist software package Stata.

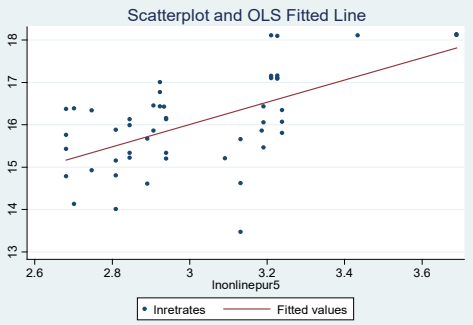
Results of the Econometric Panel Data Analysis – Scatterplots

The scatterplots of the dependent variable (*lnretrates*) in Figure A34 below show the following:

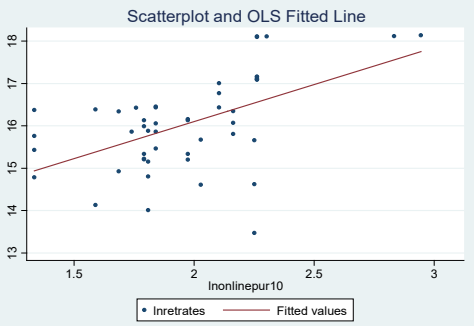
- Commercial rates income due to retailing is positively related to each of the online purchasing variables (*lnonlinepur5* and *lnonlinepur10*) suggesting that online shopping complements physical retailing.
- Commercial rates income due to retailing and disposable income per person (*lndisincpp*) are positively related (as expected).
- Total commercial rates income due to retailing and commercial vacancy rates (*lncommvac*) are negatively related (as expected).

Figure A34: Scatterplots and Fitted Ordinary Least Squares (OLS) Lines of Commercial Rates Income Due to Retailing and the Explanatory Variables of the Econometric Model

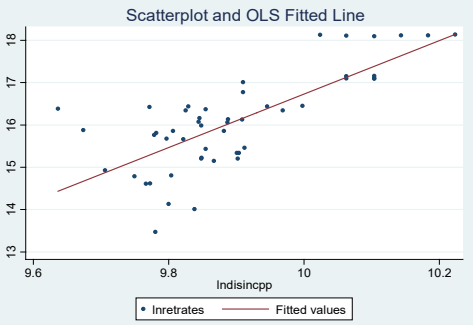
lnretrates*-v-*lnonlinepur5



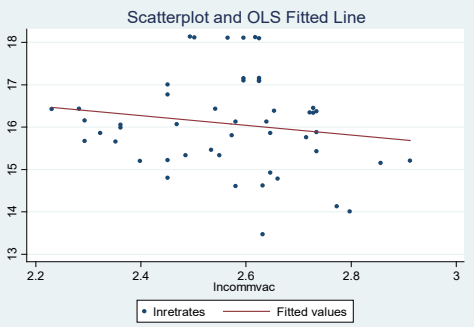
lnretrates*-v-*lnonlinepur10



lnretrates*-v-*lndisincpp



lnretrates*-v-*lncommvac



Source: CCMA/LGMA, CSO and PMCA Economic Consulting analysis.

Note: The variables are in natural logarithmic form. Sample size 50 observations (apart from the first two scatterplots, 49 observations). Scatterplot produced using Stata. OLS stands for ordinary least squares – a method for fitting lines to scatterplots like those above.

All of the scatterplots in Figure A34 suggest the presence of heteroscedasticity (there is appreciable variation in data points around the fitted line, whereas ideally the points should be more tightly and uniformly distributed about the fitted line), necessitating estimation of robust standard errors to address the problem.

This means that we are precluded from using the Hausman Test to choose between the FE and RE specifications in the multivariate analysis overleaf. But this is not an issue because we can select between the two specifications on informal grounds as outlined earlier in the case of total commercial rates income.

Fixed Effects (FE) Specification

Table A16 gives the results from estimating the econometric model of commercial rates income due to retailing using the FE specification. The results show a model with very poor explanatory power – the between R^2 and overall R^2 values are very low and none of the coefficients on the explanatory variables is statistically significantly different from zero.

Table A16: Results of Econometric Analysis of Local Authority Commercial Rates Income Due to Retailing – Fixed Effects Specification

```
Fixed-effects (within) regression               Number of obs      =        49
Group variable: laid                            Number of groups   =        28

R-sq:  within  = 0.1462                         Obs per group: min =         1
       between = 0.0016                                        avg =       1.8
       overall = 0.0027                                        max =         5

                                                F(4,27)            =      0.46
corr(u_i, Xb)  = -0.1851                        Prob > F           =    0.7636

                                          (Std. Err. adjusted for 28 clusters in laid)
------------------------------------------------------------------------------
             |               Robust
  lnretrates |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 lnonlinepur5 |  -.0988135   .2008421    -0.49   0.627    -.5109074    .3132804
lnonlinepur10 |  -.0493066   .1799727    -0.27   0.786      -.41858    .3199669
   lndisincpp |   -.114235   .4392169    -0.26   0.797    -1.015434    .7869636
    lncommvac |  -.9493073     .83924    -1.13   0.268    -2.671286     .772671
        _cons |   19.99955   5.393209     3.71   0.001     8.933602    31.0655
-------------+----------------------------------------------------------------
      sigma_u |  1.0144108
      sigma_e |  .09809485
          rho |  .99073549   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: CCMA/LGMA, CSO, GeoDirectory and PMCA Economic Consulting analysis.

Note: Results produced using Stata.

Random Effects (RE) Specification

The RE specification produces much greater explanatory power compared with the FE specification. Table A17 below shows a between R^2 value of 37% and an overall R^2 value of 39% (compared with the correspondingly extremely low values in Table A16). The key explanatory variable is *lndisincpp* (disposable income per person) with a p-value of 0.006, which is highly significant and positive (as expected).

In what follows, we concentrate on the RE specification in testing down towards the 'best model' of local authority commercial rates income due to retailing.

Table A17: Results of Econometric Analysis of Local Authority Commercial Rates Income Due to Retailing – RE Specification

```
Random-effects GLS regression                   Number of obs      =        49
Group variable: laid                            Number of groups   =        28

R-sq:  within  = 0.0455                         Obs per group: min =         1
       between = 0.3718                                        avg =       1.8
       overall = 0.3921                                        max =         5

                                                Wald chi2(4)       =     15.22
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0043

                                  (Std. Err. adjusted for 28 clusters in laid)
------------------------------------------------------------------------------
             |               Robust
  lnretrates |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 lnonlinepur5 |   -.178531   .1825163    -0.98   0.328    -.5362562    .1791943
lnonlinepur10 |  -.1009648   .1961476    -0.51   0.607    -.4854069    .2834774
   lndisincpp |   1.453083   .5307478     2.74   0.006      .412836    2.493329
    lncommvac |  -1.095496   .7176246    -1.53   0.127    -2.502014    .3110223
        _cons |   5.074152    5.86181     0.87   0.387    -6.414784    16.56309
-------------+----------------------------------------------------------------
      sigma_u |  .74971482
      sigma_e |  .09809485
          rho |   .9831683   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: CCMA/LGMA, CSO, GeoDirectory and PMCA Economic Consulting analysis.

Note: Results produced using Stata.

Testing Down

Focusing on the RE specification, we test whether it is justified to eliminate the three explanatory variables found to be individually insignificant in Table A18. The null hypothesis of the test is that the three explanatory variables in question (*lnonlinepur5*, *lnonlinepur10* and *lncommvac*) are jointly equal to zero.

The result of the test is a p-value much greater than 5%, meaning that we cannot reject the null hypothesis that the three explanatory variables together are irrelevant, and therefore we can remove the three explanatory variables from the model.

Table A18: Results of the Joint Significance Test that the Explanatory Variables of the Panel Data Model (Except Disposable Income per Person) are Irrelevant in the Preferred RE Specification of Commercial Rates Income Due to Retailing

```
( 1)  lnonlinepur5 = 0
( 2)  lnonlinepur10 = 0
( 3)  lncommvac = 0

           chi2(  3) =    4.52
         Prob > chi2 =    0.2106
```

Source: CCMA/LGMA, CSO, GeoDirectory and PMCA Economic Consulting analysis.

Best Model for Local Authority Commercial Rates Income Due Specifically to Retailing

Removing the three statistically insignificant explanatory variables from the RE specification of the model leads to the 'best model' estimates in Table A19. Disposable income per person explains 46% of the variation in commercial rates income due to retailing on the basis of the between R^2 value. However, the coefficient on *lndisincpp* is not significant (p-value 0.117 whereas the conventional hurdle for statistical significance is a p-value of 0.10).

It is possible/likely that the absence of a statistically significant relationship between disposable income per head and commercial rates income due to retailing is the result of the sporadic nature of the commercial rates (retailing) data available (over which we have no control).

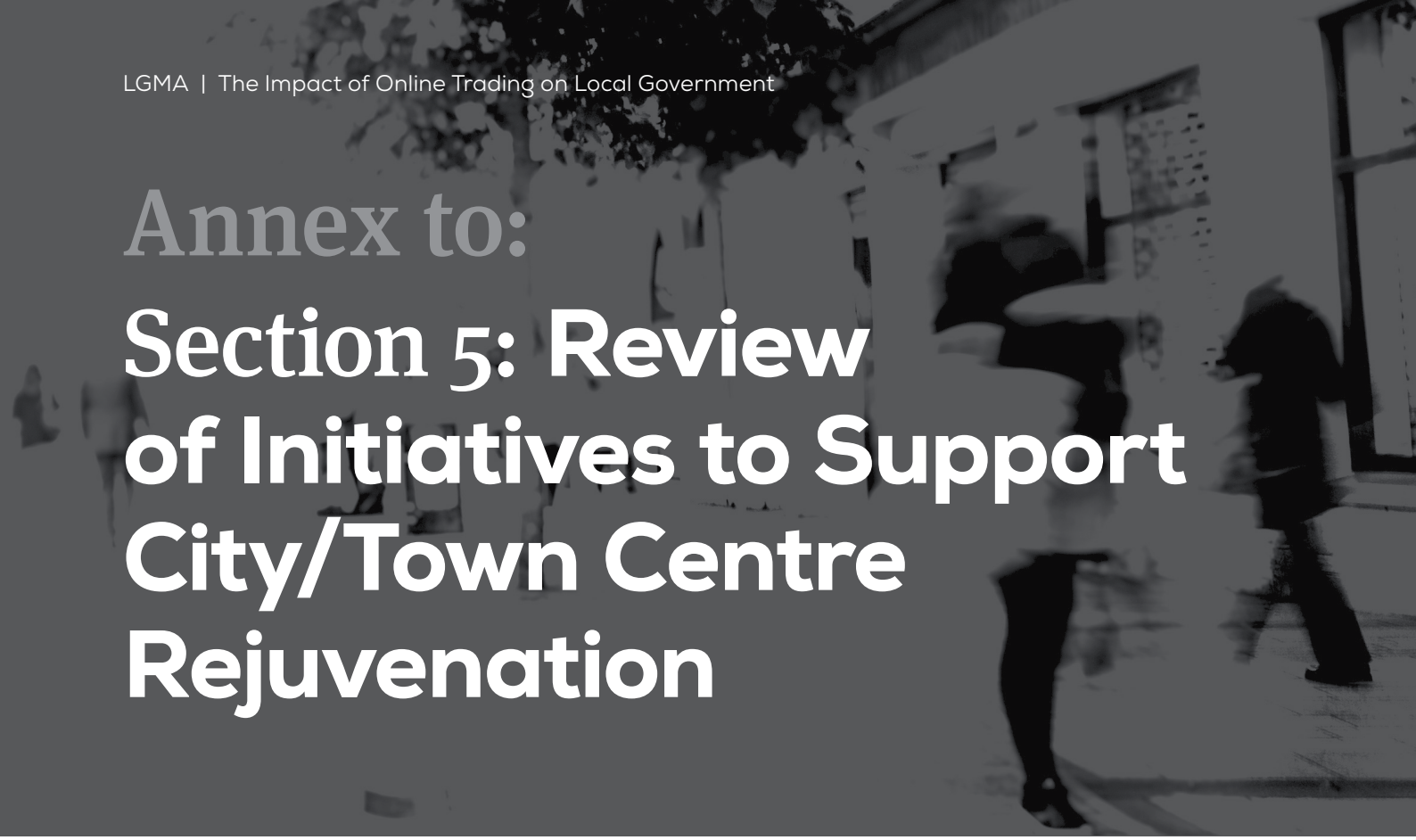
Note: Results produced using Stata.

Table A19: Results of Econometric Analysis of Local Authority Commercial Rates Income Due to Retailing – Best Model (Bivariate Model with RE Specification)

```
Random-effects GLS regression                   Number of obs      =        50
Group variable: laid                            Number of groups   =        28

R-sq:  within  = 0.0118                         Obs per group: min =         1
       between = 0.4613                                        avg =       1.8
       overall = 0.5624                                        max =         6

                                                Wald chi2(1)       =      2.45
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.1172

                                  (Std. Err. adjusted for 28 clusters in laid)
------------------------------------------------------------------------------
             |               Robust
  lnretrates |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  lndisincpp |   .5863013   .3742726     1.57   0.117    -.1472596    1.319862
       _cons |    10.0986   3.737177     2.70   0.007     2.773868    17.42333
-------------+----------------------------------------------------------------
     sigma_u |  .75159624
     sigma_e |   .0949714
         rho |  .98428418   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: CCMA/LGMA, CSO and PMCA Economic Consulting analysis.

Note: Results produced using Stata.



Annex to:

Section 5: Review of Initiatives to Support City/Town Centre Rejuvenation

Minutes of the Retail Consultation Forum Meetings to Date of Relevance to this Study

The Minutes of the Retail Consultation Forum Meetings are publicly available and 16 such meetings have taken place between June 2014 and July 2019 for which records are available.[23] The following are noteworthy from the Minutes:

- Meeting of 9 June 2014
  - Importance of consumer confidence and the need for retailers to continue to be at the forefront of technological advancements, including online retailing.
- Meeting of 11 September 2014
  - Support for trading online in the context of Budget 2015.
  - Support for training and up-skilling in retailing and for town centre renewal, including addressing anti-social behaviour.
- Meeting of 10 November 2014
  - Trading Online Vouchers (TOV) – more funding to increase the number of such vouchers.
  - VAT rate of 23% is too high in the context of online shopping, where the relevant market is international and the Irish rate puts Irish-based retailers at a competitive disadvantage.
- Meeting of 11 March 2015
  - A presentation entitled 'Skills Requirements of the Retail Sector' was given by a member of the Expert Group on Future Skills Needs (EGFSN), which highlighted the following:
    - Poor external perception of retail as a career.
    - Career paths in retail are underdeveloped in Ireland compared to the US.
    - Inconsistent learning activity across retailers.
    - Participation in training programmes, which are good, is limited.
    - Growing demand for ICT skills, including retail.
    - Data analytics in retail is a fast growing skill area.

[23] The Minutes are available at the DBEI website (**here**).

- Meeting of 27 April 2015 (which was held in Drogheda and included local traders from the town)
  - Presentation on the Joint Oireachtas Committee Report, which included:
    - More TOVs countrywide and promotion by LEOs to enhance take-up.
    - Recommendation that LEOs and chambers of commerce work to develop training in online sales and to consider the potential to develop shared e-commerce infrastructure in towns and villages.
    - See Box 5.1 (p. 34 of the main body of the report) for recent experiences in Drogheda.
- Meeting of 15 June 2015
  - There was discussion of a recently published report at that time on building retail in both parts of the island of Ireland, where it was observed that Northern Ireland is facing the same issues as Ireland, including out-of-town development and high levels of vacancies in town centres. Local authorities were mentioned as *"having a leadership role to play in creating a sense of space for tourism in town centres"*.
  - The CCMA report entitled *Local Authority Retail Support, Improving Our Cities and Towns* (June 2015) was mentioned for including some of the best initiatives for enhancing town centres (it is considered in Sub-Section 5.3.1, p. 33 of the main body of the report).
- Meeting of 16 October 2015
  - There was a presentation from Dr. Stephen Brennan (Chief Digital Advisor to the Irish Government which referred to the work planned by the then Department of Communications, Energy and Natural Resources on the impact of the digital economy in Ireland (the study was commissioned from Indecon, and reviewed earlier in Sub-Section 3.3 of this report by PMCA).[24]
  - The presentation highlighted the significant opportunities for retailers in acquiring online selling capability.
  - A new working group within the Forum was established at the meeting, namely the Working Group on Retail and the Digital Economy.
  - There was also discussion on the TOV initiative and its benefits in terms of increased sales.
- Meeting of 4 February 2016
  - While the recovery in retail sales was welcomed, it was felt that there is a rural-urban divide with cities experiencing greater recovery than towns and villages, increasing cost base pressures (insurance premiums, rents and wage pressure).
  - The Working Group on Retail and the Digital Economy (chaired by Dr. Stephen Brennan) drew attention to the need to get greater detail regarding data on online sales (the Indecon study which was being completed at the time estimated that retail online sales are greater than expected).[25]
  - There was further discussion of TOVs and its apparent success, and how it might be extended, enhanced or replicated.
  - The Working Group on Retail and Town Centre Revival discussed learning and dissemination, highlighting the role of 'town teams' or 'town centre management partnerships', emerging from success stories in Ireland and the UK, and how best to support such team working, in terms of funding, training and other supports.

[24] Supra footnote 1.

[25] See Table A10 (p. 54) on the size and growth of online shopping in Ireland.

- Meeting of 11 July 2016
  - This meeting saw the establishment of a fourth working group within the Retail Consultation Forum, namely the Retail and Skills Working Group in addition to the existing Retail and Reducing Energy Costs Group, the Retail and Digital Economy Working Group and the Retail and Town Centre Revival Working Group.
  - There was discussion of the Indecon report (2016) on the impact of the digital economy in Ireland, where the meeting observed that *"The Indecon report shows clear evidence that there is a huge opportunity for Irish retailers to build an online business and benefit from both the domestic and international market that exists"*. The discussion drew attention to the need to promote the potential benefits of online retailing and to facilitate retailers to acquire online selling capability.
- Meeting of 21 November 2016
  - Overriding issues for the Forum continue to be maintenance of the lower VAT rate of 9% and at this time the decision of the UK to leave the EU (Brexit).
  - The Working Group on Retail and Digital Economy updated the meeting on its liaison with the CSO in regard to enhanced data on online shopping (where it was noted that changes to the CSO's surveys must follow a lengthy process and are dictated largely by Eurostat).
  - The TOVs have proven successful in the two years since implementation and the DCCAE have been looking at how the scheme might be extended, including to larger retailers.
  - Concerns were expressed about increased competition from NI retailers following depreciation of sterling in the wake of the Brexit vote.
- Meeting of 27 February 2017
  - Digital skills was again highlighted as a key issue for the retail sector.
  - The meeting heard of the publication of the report *A Framework for Town Centre Renewal* by the Working Group on Town Centre Renewal (the report is considered further in Sub-Section 5.2.2 in the main body of this report by PMCA). The report includes an Action Plan' as a 'blueprint' for towns and villages, guiding them through the three stages of town centre renewal: carrying out a town centre health check; forming a local steering group or Town Team that is representative of key local stakeholders; and preparing a Town Centre Plan. It also includes a number of case-studies which provide practical examples of good/best practices from a number of towns and villages around the country, which demonstrate the significant improvements that can be achieved through the dedication and hard work of people, who are passionate about their town or village.
- Meeting of 12 June 2017
  - The meeting heard that the report entitled *A Framework for Town Centre Renewal* was launched on 25 April 2017 and the implementation of its actions were being considered, including funding sources.
- Meeting of 20 November 2017
  - In regard to the Working Group on Town Centre Renewal, the meeting heard that, since the launch of the report, *A Framework for Town Centre Renewal* in April 2017, *"there have been engagements on an ad-hoc basis with stakeholders such as the Department of Rural and Community Development, to promote the Framework"* and the Minutes record that the Framework *"can be used as a support within the Town and Village Renewal Scheme of the Department of Rural and Community Development"*.

- It appears from the Minutes that a lot of effort was expended in seeking to disseminate the report but that *"there needs to be clarity with regard to driving town centre renewal, and increased visibility of the supports and frameworks that are available. The Local Authorities could assist in co-ordinating and increasing awareness in their areas"*. There is a sense from the Minutes that the influence of the report was losing momentum, even at this early stage (although the wider context of Brexit was taking hold at this time).
- In regard to skills development in retail aimed at digital activities, the Meeting learned that Retail Ireland Skillnet was aiming to extend its suite of courses to include a Retail Digital Marketing course, at Level in the National Framework of Qualifications (Level 5 equates with the Leaving Certificate).
- The impacts of Brexit were coming to the fore, not surprisingly.

- Meeting of 20 September 2018
  - The Meeting heard of the new pilot scheme to support SME retailers to strengthen their online trading ability. The Online Retail Scheme is a competitive call to retailers with 20 employees or more with an existing online presence, to increase their customer base and build a more resilient business in the domestic and global marketplace both online and offline. The €625,000 scheme consists of support of €10,000 - €25,000 to enable retailers to enhance their online presence (administered by Enterprise Ireland).
  - The Meeting also learned of new initiatives and courses aimed at promoting skills and careers in retailing, aimed at ensuring a talent-pipeline to support the sector.[26]

- Meeting of 22 November 2018
  - By this stage, Brexit preparations are becoming centre-stage, understandably enough.
  - The Meeting was given an update on progress with the pilot Online Retail Scheme considered at the previous Meeting (20 September 2018). The fund was now €1.25m (€10,000-€25,000 per project) and 30 applications were received (closing date 5 December 2018).
  - In regard to town centre renewal, the Meeting agreed the action to "refresh" the report of the Retail and Town Centre Renewal Working Group *A Framework for Town Centre Renewal*.

- Meeting of 11 July 2019
  - Brexit was now centre-stage and there was a discussion on Brexit preparedness, involving invited guests at the Minister's invitation, under the Chatham House Rule (and accordingly the Minutes are silent on this part of the Meeting).
  - In regard to the (pilot) EI Online Retail Scheme, there were 11 successful applicants under Call 1, and Call 2 was widened to include applications from Irish-owned retail businesses with (1) 10 or more employees and who have a physical retail presence and (2) 250 or more employees (i.e. large retail businesses) and who have a physical retail presence.
  - It was clarified at the Meeting that the TOV Scheme, funded by the DCCAE and delivered through the LEOs, *"is the first step for Irish retailers to get online"* and that the (pilot) EI Online Retail Scheme *"is the next step up in terms of support available"*.

The above account of the Minutes of the 16 Meetings of the Retail Consultation Forum since its inaugural meeting in June 2014

[26] On 20 November 2019, Retail Ireland Skillnet launched Ireland's first national apprenticeship programme for retailing. Based on an 'earn as you learn' model, inspired from German apprenticeships, the programme includes digital skills and competition.

to date is not meant to be exhaustive of the matters considered by the Forum or its working groups. The Forum has achieved much in a short period of time, including highlighting the importance of Irish retailers gaining online capability and disseminating good/best practices for town centre renewal. However, there is also a sense that much remains to be done, and understandably major events have come to the fore, in the form of Brexit and now the even bigger issue of global climate change. From the analysis of Eurostat data considered in Section 3, Irish retailers have less online selling capability in comparison with enterprises across all sectors. The report of the Retail and Town Centre Renewal Working Group within the Retail Consultation Forum, entitled *A Framework for Town Centre Renewal* (April 2017), appears to have lost momentum in terms of the implementation of its actions. It is important that the government continues to support the work of the Retail Consultation Forum and that the actions contained in the 2017 report are implemented and appraised.

Pilot Online Retail Scheme

Arising from the work of the Retail Consultation Forum, a new pilot Online Retail Scheme administered by Enterprise Ireland was launched in September 2018. The Scheme's purpose is to support online retailers to strategically enhance their online sales capabilities to increase competitiveness and subsequently scale their businesses in international markets. It is open to applications from Irish -owned retail businesses with 10 or more employees, and who have a physical retail outlet and are ready to strategically grow their online capability.

Eligible expenditure under the Scheme includes activities such as research, strategy development, implementation and relevant training. Applicants must also have an existing online presence (e.g. website or social media) and most of their revenue should come from their physical retail outlet(s). The Scheme was launched with a fund of up to €625,000, which was later doubled to €1.25m as part of the Department of Business, Enterprise and Innovation's 2019 Budget. The Scheme is in addition to the TOV scheme available through the LEOs.

Eleven retailers were awarded funding in March 2019 under Call 1 of the Scheme and 29 retailers were awarded funding under Call 2 of the Scheme in July 2019. The pilot initiative has yet to be appraised or evaluated but may be a useful intervention. However, it needs to be seen in the context of the wider marketplace, which provides retailers with clear enough signals of the popularity of online retailing and out-of-town centre shopping, and in turn to the importance of town centre shopping providing an alternative and complementary retail experience and mix.

Chambers Ireland Report Initiatives to Support Local Economic Development (2016)

This report by Chambers Ireland in early 2016 was the result of the overarching body working with twenty-two chambers across the country to identify initiatives and projects being undertaken at the time (2015) by their respective local authorities that they viewed as having a positive impact on the business community. A number of the initiatives identified were being delivered by local authorities in partnership with chambers. The report also gives examples of international best practices.

The specific initiatives adopted by local authorities to facilitate business development are grouped under the four headings of (1) attracting new business, (2) supporting existing business, (3) town centre development and (4) increasing competitiveness, and by showcasing the initiatives it was expected that they would inspire others to *"continue the important work of implementing projects that have a positive impact on the business community and through this strengthen local economic growth"*.[27]

In regard to town centre development initiatives, the report outlines the following (in alphabetical order):

- *Clare County Council, Ennis Chamber and Shannon Chamber* – in 2015, Clare County Council allocated €100,000 towards the Public Area Enhancement Scheme in support of community-based projects in towns and villages across County Clare with a view to enhancing the overall performance of the county's tidy towns in the Supervalu National Tidy Towns Competition.
- *Cork City Council, Cork County Council and Cork Chamber* – Cork County Council's 2015 budget included provision for a €1m Town Development Fund established to support the revitalisation of town centres, through a variety of options including town centre enhancements, local partnerships and tidy towns.
- *Donegal County Council and Letterkenny Chamber* – Letterkenny Chamber in cooperation with local main street retailers formed a Town Team and the Council provided matched funding enabling the employment of a Town Centre Development Manager whose responsibility is to manage the town centre and attract new brands to the main street for a better and more sustainable retail mix.
- *Fingal County Council and Fingal Dublin Chamber* – Fingal County Council allocated €3 million in funding towards developing the Swords Castle Cultural Quarter to provide major new tourism opportunities for the town. In addition, Fingal Dublin Chamber was collaborating with Fingal Council to gain Purple Flag status for evening business to Swords on a pilot scheme.
- *Kilkenny County Council and Kilkenny Chamber* – collaborations between the Council and the Chamber included ensuring the most appropriate development of the former Smithwicks Brewery site in Kilkenny City Centre. The site operated as a brewery until December 2013, when all brewing was moved to St James's Gate in Dublin to centralise Diageo's brewing operations in the State. The site reopened as a visitor attraction in July 2014 and is today promoted as the 'Smithwick's Experience Kilkenny'.

[27] The Chambers Ireland report is available **here**.

- *Limerick City and County Council and Limerick Chamber* – coordinated by the Council with support from local businesses, the Team Limerick Clean-Up initiative brings together volunteers from all communities to clean up the local environment and has benefitted from the involvement of former Munster and Ireland rugby player Paul O'Connell.
- *Longford County Council and Longford Chamber* – during 2015, the Council was in the process of developing a regeneration programme under a dedicated executive to target redevelopment of the lower Main Street and Connolly Barracks area of Longford Town. In mid-2019 it was announced that Longford Town is to get almost €3m in funding under the Urban Regeneration and Development Fund (URDF) as part of the *National Planning Framework* and the *National Development Plan 2018-2027*.
- *Mayo County Council and Westport Chamber* – the Council and the Chamber in association with other bodies were in the process of implementing a CCTV system within the town centre in an effort to increase public safety.
- *Sligo County Council and Sligo Chamber* – the Council was deemed to be central to the Purple Flag Award for Sligo Town in 2015, the internationally accredited award for meeting or surpassing the standards of excellence in managing the evening and night-time economy.
- *South Dublin County Council and South Dublin Chamber* – the Sustainable Business Executive established a Retail Forum to support retailers and identify areas where focused programmes can be in place, including the Shop Front Grant (ranging from €800-€4,000) which is intended to improve the appearance of independently-owned shops fronting public streets, and the rollout of free WiFi.
- *Tipperary County Council and Clonmel Chamber* – a €500,000 retail support programme was announced by Tipperary County Council in February 2015 to support retailers in town centres in Co. Tipperary. County Tipperary Chamber and Clonmel Chamber were both involved in the development of the scheme, and both organisations announced plans to work together to manage the promotional plans for the nine largest towns in the county.
- *Waterford City and County Council and Dungarvan and West Waterford Chamber* – a painting grant scheme of up to €600 was provided for businesses in Dungarvan town centre to paint their premises in order to ensure the town remains fresh, attractive and vibrant.

In regard to examples of international best practice of how local government can support local business development, the Chambers Ireland report (2016) mentions the following:

- Use of *alternative sources of finance* for local authorities to fund local development initiatives such as crowd funding platforms which have been used in the UK.
- *Engaging with the diaspora*, which the report notes has been done *"with success by Donegal County Council in an effort to promote the country and draw inward investment"*.[28]
- *Establishing local supply chains*, where local authorities can play a role in helping upstream and downstream businesses link together to strengthen supply chains or help make them more competitive.

[28] According to data from the DBEI, which are not in the public domain, the number of persons at work on a permanent full-time basis in foreign-owned, agency -assisted enterprises in Donegal doubled from 2,019 in 2010 to 4,035 in 2018, which represents one of the highest rates of growth of any county during that period. What influence, if any, engagement with the diaspora has had on the uplift in FDI is not established, to the best of PMCA's knowledge.

- *Providing free wifi*. This issue has been overtaken by new investment, driven to a large extent by competition among broadband providers. However, the rollout of high-speed broadband has been focused in urban areas and the NBP aims to provide high speed broadband to over 540,000 homes in rural parts of the country.

On 15 November 2019, the European Commission approved the €3 billion NBP on the grounds that it is compliant with EU State aid rules. The plan will take approximately 7 years to complete. In the meantime, a significant development in providing high-speed broadband to rural parts of Ireland are digital hubs (see Box 3.2, p. 15).

Society of Chartered Surveyors Report (2018)

The Society of Chartered Surveyors Ireland (SCSI) 2018 report entitled *Rejuvenating Ireland's small town centres: A Call to Action*, focuses on small Irish towns outside the catchment areas of the five cities, with populations less than 10,000.[29] The report highlights key trends affecting town centres and retailing, barriers to vibrant town centres and critical success factors as follows:

- Key trends affecting town centres;
    - Growth in online retail sales
    - Increasing broadband availability
    - Changing demographics
    - Changing commercial landscape
    - Changing consumer behaviour
    - Increasing vacancy
    - Reform of governance
    - Lack of critical mass
- Barriers to developing vibrant high streets;
    - Increasing costs and overheads
    - Lack of collaboration
    - Reduced funding for local authorities
    - Governance challenges
    - Legacy of out-of-town shopping centres
    - Unattractive urban realm
    - Dominance of the car
    - Lack of connectivity
    - Failure to innovate
    - Demographic change
- Critical success factors;
    - Strong leadership
    - Plan-led change
    - Community support and buy-in
    - High quality broadband provision
    - Public realm enhancement
    - Effective management of parking and public transport
    - Use of incentives and disincentives
    - Simplification of planning
    - Sense of place enhancement
    - Creating vibrancy
    - Marketing and promotion.

In regard to the *legacy of out-of-town shopping centres*, the report observes that, aside from online shopping, retail parks on the edges of larger towns have generally had a detrimental impact on smaller, largely Irish-owned retailers in town centres. However, the study also notes that this expansionist trend vision is now in decline, to address over-capacity issues, due in part to online retailing, resulting in vacancies in retail parks. This is what the report terms *"the legacy of out of town shopping centres"*, where the SCSI finds that (p. 20) (emboldened text reproduced):

[29] The report is accessible **here**.

"Out of town shopping centres and retail parks have decimated town centres. The spread of such facilities across the country has negatively impacted the sustainability and vibrancy of the traditional town centre, where previously retail activity was concentrated."

"Local authorities have been slow to respond to the impacts of these developments, in many cases they have actively pursued them as they offer further opportunities to increase rates revenue. This short-sighted outlook has exacerbated the decline of town centres."

"Town centres cannot compete with the offer of retail parks and shopping centres which can provide customers a high concentration of retailers along with often free parking facilities in an easily accessible location, often beside a major road artery."

In terms of addressing the problems, the report examines the most effective means of realising the critical success factors above, where it highlights the following:

- *Need for strong leadership* – local authorities have a unique role and can have the most effective role where a leader is required to drive change, such as a town manager.
- *Plan-led change* – a coherent vision for development is required and the plan must be informed by quantitative and qualitative data to provide an effective and accurate baseline.
- *Community support and buy-in* – which can be achieved in various ways but it must be sustained.
- *Provision of high quality broadband* – broadband is now an essential service like water, energy and waste collection. Broadband must be reliable or consistent as well as high-speed.
- *Enhancement of public realm* – town centre retailing is about an alternative shopping experience, which is becoming more important for consumers.
- *Managing parking and public transport effectively* – the study remarks that successful towns rationalise parking, only allowing free parking on high streets for short periods with higher charges for stays past the free period, which serves to accommodate shoppers/spenders but limiting longer term 'experience customers'. Attractive high streets tend to have attractive 'street furniture' (such as seating and trees) that limit parking and are pedestrian and cycle-friendly.
- *Incentives and disincentives* – include carrots and sticks for addressing dereliction and grants for enhancement of shop fronts and buildings.
- *Simplification of planning* – where the report mentions simplifying the option to change a vacant commercial property to use as residential or other purpose would make it easier to bring buildings back to life, recognising that town centres needs more mixed uses.
- *Enhance a sense of place* – provides incentives for indigenous retailers, such as craft and artisan food producers/retailers providing an alternative offering to larger grocery retailers.
- *Adding vibrancy* – by stimulating the night-time economy and supporting festivals and events.
- *Marketing and promotion* - coordinated marketing of town centres (which is a feature in local media for many smaller towns in Ireland) and ensuring online capability.

Among the recommendations of the SCSI report is that (p. 28):

"Further development of out-of-town shopping centres in towns with a population of under 10,000, must be restricted to encourage consolidation, and to enhance economic viability and vitality."

In this regard, the report refers to the *National Planning Framework*, which seeks to support consolidation of urban centres and reduce urban sprawl.

The report also recommends consideration of new funding mechanisms, such as the Rural Regeneration Development Fund, which should be targeted by local authorities, and which will mean that they have an additional financing source, meaning that local authorities will become less reliant on commercial rates for funding.

Also emphasised in the recommendations is the use of data and evidence to inform town centre plans and initiatives (quantitative data can make use of local information on footfall, vacancy rates, rental levels, entry and exit of different retail businesses etc., while qualitative data can include consumer/visitor surveys. Data should be used to underpin the plan and to monitor the implementation of the plan over time.

In regard to delivering connectivity, the delivery of high quality broadband must be prioritised by government, where the study proceeds to state (p. 30) (emboldened text reproduced from the SCSI report):

*"**High speed broadband** is an essential service and is necessary to enable the rejuvenation of high streets. There are several reasons for this. **Technology can be used to facilitate new ways of working**, for example hot desks and digital hubs, and serviced offices which offer a major opportunity for creating spaces for people to work in local towns, retaining people through the day. In addition, to compete with the online market high street business must have an online presence and require effective broadband to do so. To encourage increased footfall, dwell time, and online engagement local authorities must provide **free wifi** as a public service. Innovative approaches from elsewhere should be considered, such as a **'dating app' for property owners and startup businesses**. For example, an online tool could be developed to enable the listing of available properties through the Local Enterprise Office and to link this to those seeking space."*

This passage from the SCSI report (2018) highlights a trend towards recognising the role of digital hubs in smaller towns in Ireland as engines of economic development and community development.

The aforementioned study by the IE Domain Registry (2019) (Box 3.2, p. 15) includes comments on the impacts that digital hubs are having in the towns of Gorey and Sligo considered in that study. In regard to the first-named town, the study reports that (p. 4):

"With a digital hub in Gorey, high-growth, high-potential start-ups that would have gone to the capital are now choosing to set up here. It's brought skilled professionals who would have been sitting on buses and trains to Dublin back to the local area."

"Local businesses are coming into the hub [Hatch Lab] in their droves and working with the start-ups on digitalisation. They're starting to see growth. An increasing number of innovation projects are feeding out to local SMEs, as well."

"The hundred people who work here are shopping in Gorey and Wexford, not Dublin. They're living better lives in a social, connected town."

In regard to the second-name town, the same part of the study reports that:

"Sligo is a digital powerhouse in Ireland's North West. The town is well served by co-working spaces, superfast broadband,

and supporting businesses, and that's encouraging innovative Irish and multinational companies to invest and grow in an area that, even a few years ago, would not have seemed as attractive."

"The Landing Space in Sligo Town, which is a joint initiative of IDA Ireland and our partners IT Sligo and Sligo County Council, has been a key contributor in this regard. The quality of the space and the synchronous gigabyte connection it offers is as good as is available anywhere. This tailored facility provides a readymade environment to set up and scale a business where arriving companies can rapidly deploy and become operational in Sligo."

Another recent study (commissioned by Vodafone Ireland) (2019) examines the economic impacts of digital hubs across the country and PMCA is aware of projects underway to develop digital hubs in small towns with populations of less than 5,000, often in conjunction with community and recreational facilities in the same site. The study assesses how 'smart working' – flexible or remote working from home or a digital hub – can help rural communities thrive in a meaningful way. The hubs assessed include The Mill, Drogheda; New Work Junction, Kilkenny; Ludgate, Skibbereen; HQ Tralee; Creative Spark, Dundalk; and Enterprise House, Carlow. Together the six hubs host 176 businesses, employ 462 people, contribute €27.3m to the economy and €18.2m in net wages earned. All of the digital hubs are operating at or close to full capacity and are seeking to expand their physical space further to meet growing demand.

The study suggests that the widespread adoption of smart working could significantly reduce congestion and commute times, ease pressure on housing in cities, provide greater availability of school places and generate more employment of young graduates locally. The study also shows how smart working can help rural communities thrive in a meaningful way and provide people with a better quality of life.[30]

[30] The digital hubs study (2019) is available **here**.

About PMCA Economic Consulting

PMCA Economic Consulting is active in all areas of professional economic consulting, including the formulation and assessment of economic strategies and plans for local authorities, economic impact studies, cost-benefit analysis, multi-criteria analysis, public programme evaluation, competition and regulation, and litigation support. PMCA's Managing Director, Dr. Pat McCloughan, has been named among the world's leading economists by clients in *Global Competition Review* and *Who's Who Legal: Consulting Experts* for the past fifteen years.

PMCA is known and respected for the independence, integrity and robustness of its work.

Clients served by PMCA include central and local government, other public sector bodies, such as enterprise and tourism agencies, third-level education institutions and health organisations. Clients also comprise private sector firms, industry/trade/professional representative bodies, and organisations in the community and voluntary sector, including charities and sports bodies. PMCA also works alongside other professionals in consultancy assignments, such as engineering, environmental and planning consultants in development studies, and law firms in competition and regulation work, and other professionals in litigation support work (such as accountants).

PMCA's consultancy work spans the range of economic sectors – from primary production through manufacturing to services – and assignments have been completed in Ireland, the UK, Europe and internationally, extending to work completed in the Asia-Pacific region.

Noteworthy large-scale assignments completed in recent years include assistance to the Irish Department of Finance in its preparation of the Medium-Term Economic Strategy 2014-2020 (completed in December 2013, in advance of the exit of the Troika from Ireland), and expert economist advisory services to the Joint Oireachtas Inquiry into the Banking Crisis which ran during 2014-2016 (the first inquiry of its type in the State).

PMCA's Managing Director, Dr. Pat McCloughan, has bachelor, master and doctoral degrees in economics and a track record of publications in peer-reviewed economics journals. He has taught undergraduate and postgraduate students in economics and econometrics at the University of Liverpool (1993-2001) and the University of East Anglia (1991-1993) and supervised research postgraduate students at these institutions. Among his original contributions to the field of economics are novel techniques for estimating the Gini coefficient of inequality and the concentration ratio for the case where a researcher's information is limited to pre-grouped data (as encountered in publicly available official data sources).

For more information about PMCA Economic Consulting, please contact:

Dr. Pat McCloughan
PMCA Economic Consulting
30 Pembroke Street Upper
Dublin 2
Ireland

Tel: +353 1 234 2507
Email: pat@pmca.ie
Web: www.pmca.ie

Local Government Management Agency

Local Government House
35-39 Ushers Quay
Dublin 8
D08 XKP7

Phoenix House
27 Conyngham Road
Dublin 8
D08 EV9T