Attempting to Explore Entrenched Inequalities in the UK: Analysing Darlington and Formulating a Research Methodology

Yimeng Li[1,a,*]

[1]*University of Liverpool, Brownlow Hill, Liverpool, L69 7ZX, Merseyside, United Kingdom*
a. lymacademy@hotmail.com
*corresponding author

Abstract: This study examines the critical definitions and debates of geographic inequality by looking at the development of inequality to clarify the pressing geographic inequality challenges facing the UK, taking Darlington as the target area for developing locally applicable research methods. Since the negative impact of the historical process of unequal development in Britain, innovative investigations are called to solve this problem. This paper discusses the deep-rooted inequality in Britain by reviewing the information on geographical inequality and analysing the data from multiple spatial perspectives. The data analysis shows that the UK is one of the unequal countries in the industrialised countries and suffers from increasing domestic inequality challenges. In addition, the economic performance of London is far better than that of other regions. London has an extreme inequality between the bottom and top income levels. In addition, the data research illustrates that Darlington has optimistic trends and low levels of educational qualifications, and average weekly income. Secondly, due to the lack of research on inequality and trends in small regions, the paper utilised the attitudinal survey design as a research method to attempt to explore the correlation between population education and income and to understand further the inequality situation in the area by the relevant authorities.

Keywords: geographic inequality, attitudinal survey design

1.   Introduction

A widespread perception of the significant increase in inequality in the UK has been presented in recent years [1]. In the 1970s, the UK was one of the least unequal countries in the world due to its minimal income and wealth disparities. According to MacLeod and Jones [2], attention was transferred to England's more affluent southern regions in the late 1980s. However, the"Two Nations" state scheme and the growing "North-South divide" under Thatcher's government ledto a widening gap between the South and the rest of England. In spatial terms, the high-productivitycities in the UK are generally concentrated in a few regions in the southern part of the country. In contrast, low-productivity cities tend to cluster in the central and northern parts of the country [3], which seems to lay down regional productivity differences in the north and south spatially. Therefore, this study aims to collect and analyse primary data to understandthe UK's inequality challenges.

Indeed, the research is conducted on Darlington to explore its inequality trends and conditions furtherand to develop a methodology for collecting primary data based on the target city while attempting to examine the implications of the methods for related policy development at a later stage.

2. Literature Review

### 2.1. Key Definitions and Debates on Geographical Inequality

Attempt to explore overall inequality in the UK by comparing various geographical scales. The UK is facing a formidable inequality challenge, of which there is considerable literature on geographical inequality from professional institutions, including the UK 2070 commission, the University of Sheffield, etc. According to McCann [4], putting actual UK statistics into 28 different indicatorsand comparing them with 30 OECD member countries produced the results shown in the figure,e which presents detailed measures of inter-regional inequality, where higher rankings indicate relatively higher levels of inequality in the UK on this measure (Figure 1). McCann states [4] thatthe UK ranks high on 24 of 28 indicators, which means that the UK is one of the most inter-regionalunequal countries among industrialised countries and identifies the UK as the most inter-regionally unequal high-income country. Only Ireland and Slovakia exceed the UK regarding inter-regional inequality [4].

Ratio Top/Bottom OECD TL2 Regions GDP per Capita	Difference Top-Bottom OECD TL2 Area GDP per Capita Divided by national GDP per Capita	Ratio Top/Bottom OECD TL2 Regions GDP per Capita	Difference Top-Bottom OECD TL2 Area GDP per Capita Divided by national GDP per Capita	Ratio Top 10%/Bottom 10% OECD TL2 Regions GDP per Capita
5/27	5/27	1/26	1/26	4/26
Ratio Top 20%/Bottom 20% OECD TL2 Regions GDP per Capita	Ratio Top 10%/Bottom 10% OECD TL3 Regions GDP per Capita	Ratio Top 20%/Bottom 20% OECD TL2 Regions GDP per Capita	Ratio Top 10%/Bottom 10% OECD TL2 Regions GVA per Worker	Ratio Top 20%/Bottom 20% OECD TL2 Regions GVA per Worker
6/26	2/27	4/26	2/25	5/25
Ratio Top 10%/Bottom 10% OECD TL3 Regions GVA per Worker	Ratio Top 20%/Bottom 20% OECD TL3 Regions GVA per Worker	Ratio Top 10%/Bottom 10% OECD TL2 Regions RDI per Person	Ratio Top 20%/Bottom 20% OECD TL2 Regions RDI per Person	Ratio Top 10%/Bottom 10% OECD TL3 Regions RDI per Person
3/27	6/27	4/27	4/27	1/11
Ratio Top 20%/Bottom 20% OECD TL3 Regions RDI per Person	Gini Index Regional GDP per Capita OECD TL2 Regions	Gini Index Regional GDP per Capita OECD TL3 Regions	Gini Index Regional RDI per Capita OECD TL2 Regions	Gini Index Regional RDI per Capita OECD TL3 Regions
1/11	9/26	1/27	5/26	1/11
Difference Top-Bottom OECD Metro Urban Area GDP per Capita Divided by national GDP per Capita	Ratio Top/Bottom OECD Metro Urban Area GDP per Capita	Ratio Top/Bottom GDP per Capita EU NUTS2 Region (including Metro Urban Regions)	Ratio Top/Bottom GDP per Capita EU NUTS3 Region (including Metro Urban Regions)	Ratio Top 10%/Bottom 10% GDP per Capita EU NUTS2 Regions (including Metro Urban Regions)
8/19	5/19	6/20	6/22	4/22
Ratio Top 10%/Bottom 10% GDP per Capita EU NUTS3 Regions (including Metro Urban Regions)	Coefficient of Variation GDP per Capita EU NUTS2 Regions (including Metro Urban Regions)	Coefficient of Variation GDP per Capita EU NUTS3 Regions (including Metro Urban Regions)		
11/22	5/23	11/22		

Figure 1: UK interregional inequality rankings.

Whilst comparing data between countries to explore inequality, it is necessary to delve into region-specific data within the UK to understand inequality. London has long been an essential engine propelling the UK national economy. Agrawal and Phillips stated [5] that London's productivityand earnings are between 30% and 50% higher than the UK average. Nevertheless, Wales has the lowest productivity and profits nationally, around 15% below the UK average and 40% lower than London. Furthermore, the level of GVA per capita in London in 2018 was approximately 1.8 times the UK average, about 2.5 times that of the Northeast of England, which has the lowest GVA per capita in

the UK (about 72% of the UK average). The Southeast, at 106% of the UK average, is the only region other than London above the average (Figure 2) [5]. This undoubtedly represents a much better economic performance of the London region than the rest of the UK and reflects the disparities and inequalities between the UK regions [5].
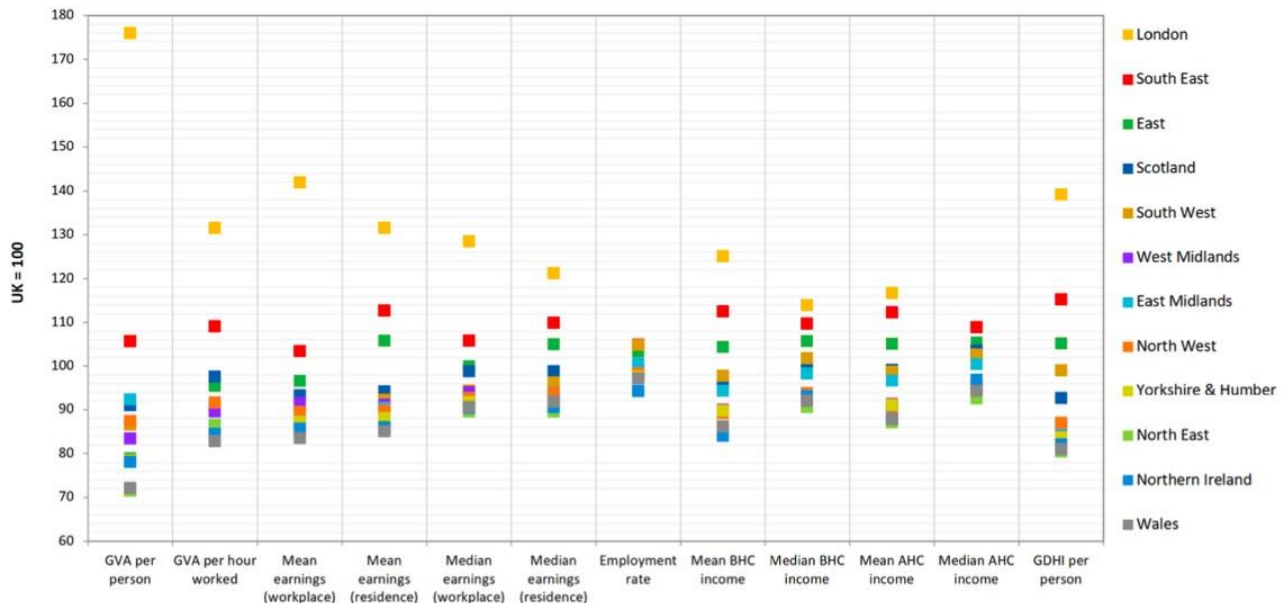
Note: Earnings data are from 2019 and are for full-time workers. GVA per person, GVA per hour worked and GDHI data are from 2018, as are employment rate data, which are for those aged 16–64. AHC and BHC incomes are the average for 2016–17, 2017–18 and 2018–19. The patterns would be the same if shown for the latest year for which all variables are available (i.e. 2018).

Source: Authors' calculations using Office for National Statistics (2019a, 2019b, 2019c, 2020a, 2020b, 2020c) and Department for Work and Pensions (2020).

Figure 2: Map of the Liverpool City Region and its constituent local authorities.

2.2. Exploring the Variables and Measurements Adopted for Data Collection and Analysis

Apart from the findings, it is worth examining the variables and measurements involved in comparing the UK and other countries. McCann noted [4] that the GDP per capita index and Gross Value Added per capita, calculated on a workplace basis, are methodological indicators broadly used to measure economic prosperity in different regions, reflecting wage levels, employment, and investment opportunities. In addition, the Regional Disposable Income per capita (RDI) is an index of prosperity that can assess regional disparities between the rich and poor. It measures the value of residents' wage income based mainly on their place of residence [4].

Compared to GDP or GVA, the RDI index is relevant for understanding living standards, such as people's ability to purchase housing and household consumption. However, it lacks the functionality to understand economic prosperity and dynamism [4]. As the definition of regional cities varies between countries, the OECD has formulated a standardised classification system to develop broadly comparable indicators. These include three levels: the OECD Territorial two, the OECD Territorial three and the OECD Metropolitan Urban Data [4]. Additionally, TheEconomist notes that the UK has the highest level of inequality among industrialised countries whenanalysed on a TL3 scale [4].

Agrawal and Phillips notes [5] that the data analysis introduces gross value added (GVA) per person, namely dividing the value of a region's economic output by the region's population, to measure the concentration of economic activity in the specified region. However, this measure involves the people of the area. As such, it can be affected by the dynamics of inter-regional commuter flows [5], such as the movement impact of people living in areas around London to work in London. Inequality is also substantially more severe within London than in the rest of the UK, as it is disproportionately populated at both the bottom and top of the income scale [5], resembling the

regional polarisation phenomenon. Significant productivity and income disparities cause severe challenges for the government and related authorities.

Apart from analysing developed areas such as London, there are also concerns about 'left behind' rooms that are former industrial areas. Tomaney, Pike & Natarajan notes [6] that diverse and complex forms of educational disadvantage are also concentrated in the spaces left behind. For example, primary schools in the Northeast of England have the best grades in the country but the lowest average adult incomes. Based on Tomaney, Pike & Natarajan [6], the areas with the highesturban decline are mainly in the North of England. Where the net in-migration rate for the economically active age group is low, employment growth rates were at low levels in the decade leading up to 2008, which resulted in persistently elevated poverty rates [6]. Inter-regional inequality is defined as uneven economic productivity between sub-national territorial units [7]. Geographical inequality may be defined as unequal development across multiple spatial units; in other words, geographical inequality can occur betweenand within regions of various scales. Nevertheless, there seems to be a lack of research investigatinginequality trends and conditions in smaller regional units.

The global epidemic is spreading across the UK. As the epidemic increases the financial dependenceof UK regions on the central government, local governments require accelerated systemic reform offunding to address the epidemic's increased inequalities [8]. In addition, strategies such as devolution promote local freedom from central government and generate equitable relations between governments to optimise administrative structures and reduce inequality. Go big noted [8] that levelling up in urban and rural areas requires developing integrated services to harmonise opportunities such as education and employment. Synergistic policies would rely on local capacities to develop place-based approaches. Meanwhile, holistic local strategies can facilitate devolution and the implementation of levelling up [8], strengthening local resilience to increasing inequalities.

3.   Brief Description of the Study Area and a Baseline Analysis

The Northern Powerhouse Partnership is conducting research to stimulate innovative thoughts and approaches to underperforming areas in the North of England. This paragraph attempts to analyse Darlington, located in the south of County Durham in the Northeast of England, with the River Tees flowing through the south of the city, and whose location attributes it to the Tees Valley Combined Authority (Figure 3) [9].
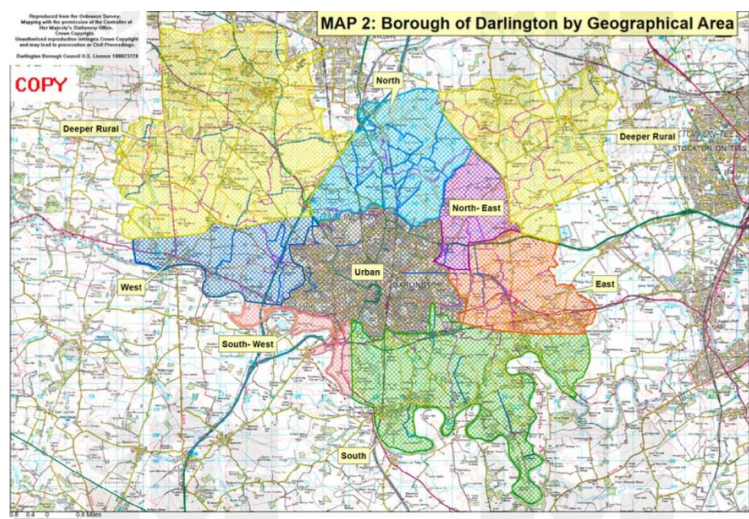

Figure 3: Darlington in England [9].   Figure 4: Borough of Darlington by Geographical Area [12]

.

26

Number of civil parishes

5.3/1 ha

Population density in Darlington

48.7:51.3
Male:Female
Gender Ratio

The Borough of Darlington covers an area of approximately 19,748 hectares, with an average densityof about 5.3 persons per hectare [10]. This includes the town of Darlington anda rural area of 26 civil parishes [11]. The Borough of Darlington consists of the Urban Area, West, Southwest, South, East, Northeast, North and Rural Areas located in the Northwest and Northeast of the Urban Area, respectively (Figure 4) [12]. By 2020, the number of residentswill be 107,400, and the ratio of men to women will be approximately 48.7:51.3 [13]. The size of the population in the region remains relatively stable, with a moderate discrepancy between male and female residents.

Regarding economic activity, the region is slightly above the UK national level between 2020 and 2021 and significantly above the level of the Northeast [14]. The overall tendency is that economic activity in Darlington has fluctuated between 2012 and 2016 but is generally trending upwards and above the Northeast level (Figure 5) [15] [14]. In addition, the region shows a sluggish trend in qualifications for the population aged 16-64. However, the population's NVQ4 (higher level degree) level remains below the national level and iscomparable to that of the Northeast region (Figure 6) [16]. This indicates that although the population's qualifications trend is consistently increasing, the general level is well below the national standard. Thus, inequalities exist regarding the educational attainment of the population.
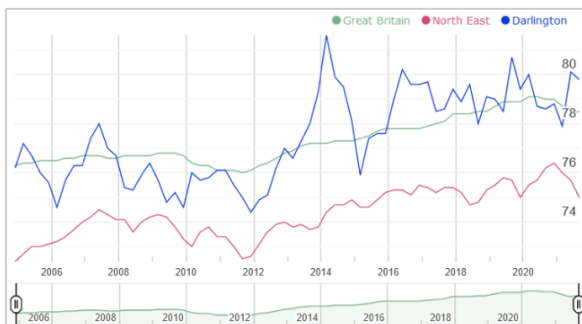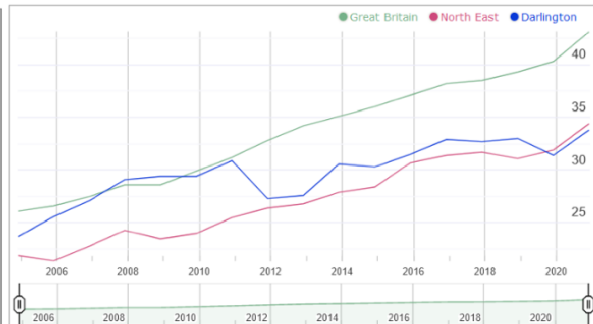
Figure 5: Economically active [15].   Figure 6: NVQ4 and above in Darlington [16].

4. Methodology

4.1. A Proposed Methodology of Primary Research

The purpose of research surveys is to minimise prejudice in the process and to produce replicable results through the methodology. All research investigations are essentially underpinned by several theoretical assumptions [17]. Reviewing Darlington, to further explore the connection between population economic level and educational attainment, the intended stakeholders will be theresidents between the ages of 16-64; the correlated variables explored in this survey are educational attainment and the average weekly salary. Then, proposing the hypothesis that low educational attainment causes low wage incomes. It also reflects the industrial structure and the intensity of the local economy. These research methods will focus on attitudinal surveys. Specifically, attitudinal surveys enable the

exploration of public demands to facilitate the formulation of relevant policies [17]. Furthermore, the data collected involves qualitative and quantitative types, including features of Interpretivism and Positivism. Overall, the attitudinal survey applies to the current situation in Darlington.

This survey method will adhere to the three properties of standardisation, replicability and representativeness. The standardisation of the survey implies that each respondent was asked the same questions in the same tone, with the same meaning, in the same order and in the same setting [17], which essentially guarantees the validity of the survey communication. Secondly, replicabilityrequires the researcher to repeat the survey with different groups at different times and obtain the same results [17]. The test-retest method, in which respondents are asked the same question twice, and the correlation between the two answers is measured to enhance reliability, is applicable in this survey.

The question types in this survey mainly consist of yes or no questions and multiple-choice questionswith a single answer. When designing the survey questions, it is advisable to translate the concepts into clear indicators that will facilitate understanding of the survey questions by both the researcher and the respondent. Besides reviewing the appropriate order of the survey questions (from broad andgradual to specific questions), it is also necessary to consider aspects such as the word count and overall layout of the questionnaire [17]. The survey will also comply with the Nuremberg Principles and the ethical principles of research, avoiding victimisation of participants, respecting their privacy, and avoiding deception.

4.2. Advantages and Disadvantages of Secondary Datasets and Research Designed Approaches

The developed survey will not only facilitate the government and relevant authorities' awareness of the inequality situation in Darlington to address the challenges. However, it will also enhance their knowledge of the similar conditions of local authorities. Additionally, the survey enables efficient data collection, despite the large sample size. It has the advantage of a lower cost of research inputs and a higher accuracy rate in the same context. The survey application will integrate the strengths of both positivism and interpretivism approaches, enabling a more comprehensive understanding of Darlington. However, there are also some disadvantages. For example, there needs to be more continuous follow-up with respondents, and there may be problems with dishonesty in respondents' answers.

The secondary dataset in this paper has the advantage of understanding the local population's specificincome quickly and examining relevant policy issues, enhancing the efficiency of handling the data.Secondly, it is possible to obtain additional variables that can be used for further exploration. However, the drawback is that the sample size for analysing minority groups may be absent when the data size is massive. In addition, it also has high timeliness. For example, previously collected data sets cannot be applied to policy change issues.

5. Conclusions

The paper collects and analyses data to understand the UK's deep-rooted inequalities. Firstly, the paper analyses the historical course of the UK and contextualises the development of inequality concerning the disparity in the spatial distribution of cities with different productivity. Secondly, the paper identifies the finding that the UK is one of the unequal industrialised countries by comparing data between the UK and OECD countries in a wide range of indicators and explores the relevant variables and measures used to collect and analyse the data. The GDP, GVA and IMD are essential methods widely used to study regional inequality. Thirdly, the paper provides insights into the geographical inequalities between regions in the UK, regarding the London region compared to other regions, further illuminating the critical disparities and inequalities between the North and South

regions of the UK.

In addition, the paper also explores the impact of the global epidemic and the pressing necessity for related policies such as devolution. Fourthly, the paper analyses inequality trends and conditions in Darlington and will develop an attitudinal survey combining qualitative and quantitative research on the educational attainment and income of its population to explore the correlation between indicators and to understand stakeholders' aspirations and perceptions of the barriers to regional transformation. The Darlington study complements the awareness of the inequality conditions in the small-scale area.

The research methodology developed for Darlington will assist in developing research on similar areas by the relevant authorities. It may also facilitate the government to optimise the policy system based on regional realities. The limitations of the survey methodology developed in this paper include the inability to track respondents consistently and the potential for respondents to respond dishonestly. In conclusion, a growing effort is being made to address the entrenched inequalities in the UK, though the challenges will remain formidable in the short term.

Reference

[1] Koch, I., Fransham, M., Cant, S., Ebrey, J., Glucksberg, L. and Savage, M. (2021) Social polarisation at the local level: a four-town comparative study on the challenges of politicising inequality in Britain. Sociology, 55(1), pp.3-29. (Accessed: 22 January 2022).

[2] MacLeod, G. and Jones, M. (2018) Explaining 'Brexit capital': uneven development and the austerity state. Space and polity, 22(2), pp.111-136. (Accessed: 23 January 2022).

[3] Carrascal-Incera, A., McCann, P., Ortega-Argilés, R. and Rodríguez-Pose, A. (2020) UK interregional inequality in a historical and international comparative context. National Institute Economic Review, 253, pp.R4-R17. (Accessed: 22 January 2022).

[4] McCann, P. (2020) Perceptions of regional inequality and the geography of discontent: Insights from the UK. Regional Studies, 54(2), pp.256-267. (Accessed: 23 January 2022).

[5] Agrawal, S. and Phillips, D. (2020) Catching up or falling behind? Geographical inequalities in the UK and how they have changed in recent years. The Institute for Fiscal Studies, pp.2-32. (Accessed: 23 January 2022).

[6] Tomaney, J., Pike, A. and Natarajan, L. (2019) Land Use Planning, Inequality and the Problem of 'Left-behind-places'. (Accessed: 22 January 2022).

[7] Lee, D.W. and Rogers, M.Z. (2019) Interregional Inequality and the Dynamics of Government Spending. The Journal of Politics, 81(2), pp.487-504. (Accessed: 22 January 2022)

[8] Go Big – Go Local: The UK2070 Report on a New Deal for Levelling Up the United Kingdom (2020) The UK2070 Commission [Online]. Available from: http://uk2070.org.uk/wp- content/uploads/2020/09/Go-Big-Go-Local.pdf (Accessed: 23 January 2022).

[9] Darlington in England (2011). Wikipedia commons [Online]. Available from: https://upload.wikimedia.org/wikipedia/commons/thumb/e/e8/Darlington_in_England_%28zoom%29.svg/843px-Darlington_in_England_%28zoom%29.svg.png (Accessed: 22 January 2022).

[10] Darlington Local Authority (2011) [Online] Available from: https://www.nomisweb.co.uk/reports/localarea?compare=E06000005 (Accessed: 22 January 2022).

[11] Borough of Darlington (2020) [Online] Available from: https://www.darlington.gov.uk/your-council/maps/borough-of-darlington/ (Accessed: 22 January 2022).

[12] Borough of Darlington by Geographical Area (2020). Darlington Borough Council [Online]. Available from: https://www.darlington.gov.uk/media/2388/map-2-geographical-areas.pdf (Accessed: 22 January 2022).

[13] Labour Market Profile (2020) [Online] Available from: https://www.nomisweb.co.uk/reports/lmp/la/1946157057/report.aspx?#defs (Accessed: 22 January 2022).

[14] Economically Active Darlington (2022) [Online] Available from: https://www.nomisweb.co.uk/reports/lmp/la/1946157057/subreports/ea_time_series/report.aspx (Accessed: 22 January 2022).

[15] Economically Active (2021). Nomis [Online]. Available from: https://www.nomisweb.co.uk/reports/lmp/la/1946157057/subreports/ea_time_series/report.aspx? (Accessed: 22 January 2022).

[16] NVQ4 and above in Darlington (2021). Nomis [Online]. Available from: https://www.nomisweb.co.uk/reports/lmp/la/1946157057/subreports/quals_time_series/report.aspx? (Accessed: 22 January 2022).

[17] May, T 2011, Social Research, McGraw-Hill Education, Berkshire. Available from: ProQuest Ebook Central. (Accessed: 22 January 2022).