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Exploring the differences in broadband access speeds across Glasgow

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ABSTRACT

It is widely argued that broadband is beneficial. Higher rates of broadband penetration and adoption are associated with enhanced economic growth, while for individuals accessing the Internet through a broadband connection opens up a range of opportunities to them. However, to enjoy these opportunities users need access to both an Internet connection as well as the possession of a range of skills. As not everyone has access to one or both of these, a range of digital divides have emerged within and between countries.

This paper explores one aspect of the digital divides that have emerged, namely, speed. Broadband speeds vary considerably, reflecting many factors such as the technology(s) used, the number of users, the distance of the user from the telephone exchange and so forth. Rather than explore the digital divides that exist between countries, we focus on a single city: Glasgow.

Using data from a variety of sources we explore broadband speeds across the city. While broadband speeds have improved across much of Glasgow, this is not true every part of the city. Average speeds vary considerably across the city, with the consequence that the ability to access opportunities online also varies. There is some evidence to suggest that those parts of the city with lower levels of deprivation enjoy higher broadband speeds than areas within Glasgow of higher deprivation levels. Our analysis also found that considerable variations exist between service providers.

1. Introduction

Although increasing levels of Internet adoption are evident in many countries, not everyone has access on the same terms. Several digital divides, where the terms and means of access to the Internet differ, have emerged. The speed that users enjoy varies, as does the skills needed to access and then benefit from this use. As a consequence the positive impact that the Internet can have on users are not available to all (Selouani and Hamam, 2007).

This paper focuses on one of the digital divides that has emerged, namely, on the speed of broadband connections. More often than not, faster connections are seen to be better connections. These faster connections provide an array of benefits – existing tasks can be undertaken more swiftly and the seemingly ever-increasing demands of applications accommodated (Ezell et al., 2009). While many headlines about the speed of connections abound in the media, there is limited discussion

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of the actual speeds that users receive and how these vary within and between cities and countries. The United Kingdom, for instance, enjoys better average broadband download speeds than many countries but is slower than some. Furthermore, within the United Kingdom, some cities enjoy faster average broadband download speeds than others do. Glasgow, the focus of this paper, has slower download speeds than comparable cities like Birmingham or Manchester (Ofcom, 2013b). Taken together these two factors raise a number of questions regarding the speed of connections in Glasgow and whether those enjoying slower broadband download connections are being placed at a disadvantage.

With this in mind, the remainder of the paper is divided into five main sections. In the following main section, relevant literature is recounted. This is then followed in Section 3 by a justification of why this paper focuses on Glasgow and not another UK city. In the fourth section of the paper, data sources and methodology are outlined. The findings are detailed in Section 5, and discussed in Section 6. Conclusions are drawn in the final section of the paper.

2. Literature

This section will begin by highlighting, albeit briefly in Section 2.1, the benefits associated with broadband before focusing on the issue of speed in Section 2.2. Broadband speed in the United Kingdom will be discussed in the final sub-section (Section 2.3). The aim is not to provide an extensive discussion of the issues but instead to highlight relevant issues that are returned to in subsequent sections.

2.1. Benefits of broadband

Broadband has generated considerable interest. Politicians have argued that broadband is crucial to a country's economic future (The Guardian, 2010; Gillard, 2011), with some countries investing considerable sums to achieve their broadband ambitions (Economist Intelligence Unit, 2011; Economist Intelligence Unit, 2012a). The enthusiasm of politicians for broadband is exemplified by the Digital Agenda of the European Union (EU) that has set coverage and speed objectives. By 2020 everyone in the EU will access the Internet through a connection of at least 30 Mbit/s, with at least half of households subscribing through an Internet connection of at least 100 Mbit/s (European Commission, 2013).

A series of studies have highlighted the socio-economic impact of broadband. Katz (2012) summarises the literature to date, finding that there is evidence to support the contention that broadband positively contributes to economic growth. Broadband creates jobs, encourages new ways of working and the development of innovative services and products and gives rise to consumer surplus through reducing prices (Katz, 2012). Broadband also allows individuals and organisations to access information as well (Raines, 2008).

An equally wide array of broadband related benefits are identified by SQW (2013). Not only does broadband adoption create economic benefits, but it also has environmental impacts as well through reduced commuting, fewer business trips and the use of cloud-based services (SQW, 2013). Broadband adoption can also have an impact on productivity. A positive relationship between broadband adoption and productivity has been observed in Germany (Bertschek et al., 2013), New Zealand (Grimes et al., 2011) and Italy (Colombo et al., 2013), while in the United States, Jayakar and Park (2013) found a positive relationship between the availability of broadband and employability. Those US counties with better broadband availability displayed lower rates of unemployment in 2012. Having said this, they found that this effect is 'very small' – that is, improvements in broadband availability resulted in only small improvements in employment (Jayakar and Park, 2013).

The socio-economic benefits of broadband are also observable in a study of Berkshire, an English county with a substantial number of 'white', that is, poorly served, areas. A range of social and economic benefits are identified, with the use of ICT by businesses within the county generating £1.2 billion of gross value added (GVA) over a five to seven year period. Across the county 44,000 households are identified as being 'digitally excluded'. If these were able to access the Internet, it is suggested that GCSE results will improve, unemployment would decline, there would be fewer visits to GP surgeries and the public sector would save £25 million in transaction costs (Adroit Economics, 2011).

More than 80% of homes and businesses within Cornwall are now passed by fibre. An interim analysis of the impact that the availability of fibre based broadband has had on businesses found that a majority of those surveyed stated that it had saved them time and/or money (Superfast Cornwall, 2013). In addition, a majority of respondents found that superfast broadband enabled their business to grow and engage in new and different ways of working (Superfast Cornwall, 2013).

2.2. Speed

With the widespread acceptance of the positive impact associated with broadband, attention has recently turned towards the issue of speed. It has been widely argued that there are many positive benefits associated with faster broadband connections. One study of OECD member states between 2008 and 2010 found that a doubling of broadband speeds contributed 0.3% to growth (Rohman and Bohlin, 2014), while another found that the economic benefits to a household of increasing broadband speeds by 4 Mbps in OECD countries was $2100 (Ericsson, 2013). Interestingly the study also found that the move from 0.5 Mbps to 4 Mbps in OECD countries increased income by $311 per month and by $46 per month in Brazil, India and China.

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