Wales Centre for Public Policy
Canolfan Polisi Cyhoeddus Cymru

Poverty and social exclusion: review of international evidence on transport disadvantage

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Welsh Government is the devolved government of Wales, responsible for key areas of public life, including health, education, local government, and the environment.

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Summary

- Poor or lack of access to transport increases the risk of poverty and social exclusion through limiting access to job opportunities, education and training. It also restricts the ability to balance caring responsibilities with work commitments, enjoy a social life and spend time with wider family. Transport disadvantage has a negative impact on livelihoods, participation, and the overall quality of life of those affected.

- Although community transport is only one small element of the transport system, it can play a key role in reducing transport disadvantage among some groups.

- Shared transport is going through a period of rapid growth and has the potential to reduce travel costs for lower income households.

- Demand-responsive technologies and provision can be coupled with community transport or shared transport as well as public buses to help reduce transport disadvantage.

- There are connections between transport disadvantage and policy areas covered in other reviews, for instance:

  - **In-work progression; Further education and skills; Affordable housing supply; Food insecurity:** Lack of access to good transport links negatively affects a range of other aspects of poverty and social exclusion. For example, it can limit opportunities for in-work progression, access to further education, early childhood education and care provision, youth services, greater choice and cheaper alternatives of food, and affordable housing.

  - **Digital exclusion**: Digital inclusion is important to take advantage of demand-responsive transport provision.

- We conclude the review with some promising actions, namely:

  - Increasing demand-responsive transport provision offers greater flexibility than fixed routes/ timetables.

  - Whole transport systems can help address fragmentation and improve integration of different transport services.

  - The move to estimating the social value of community transport (rather than more narrow output assessments) has the potential to increase investment in line with impact.

Background

The Wales Centre for Public Policy (WCPP) was commissioned by the Welsh Government to conduct a review of international poverty and social exclusion strategies, programmes and interventions. As part of this work, the Centre for Analysis of Social Exclusion (CASE)[1] at the LSE was commissioned to conduct a review of the international evidence on promising policies and programmes designed to reduce poverty and social exclusion across twelve key policy areas. This report focuses on transport disadvantage.

The key questions addressed in each of the twelve policy reviews are:

- What effective international poverty alleviation policies, programmes and interventions exist?

- What are the key or common characteristics/standards and features of these different approaches?

The questions are addressed by providing:

- The Welsh context of each policy area and main initiatives being undertaken by the Welsh Government;

- Detailed information on the relationship between the policy area and poverty and social exclusion;

- A summary of evidence of lived experience, which could help to understand how people may experience and respond to policy interventions;

- An overview of the international evidence of policy effectiveness (including case studies); and

- Challenges and facilitating factors associated with policy implementation.

In addition to the twelve policy reviews, we have produced an overview report which summarises the key evidence from each of the individual reviews, highlights connections between different policy areas and reflects on all the evidence to make a number of policy recommendations, or promising actions, within each of the twelve

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[1] The Centre for Analysis of Social Exclusion (CASE) at the London School of Economics and Political Science (LSE) was established in 1997. It is a multi-disciplinary research centre exploring social disadvantage and the role of social and public policies in preventing, mitigating or exacerbating it. Researchers at CASE have extensive experience in conducting policy reviews covering evidence in the UK and international literature.

areas. Please refer to the Annex for detail on methodology, including how the twelve policy areas of focus were chosen.

This work forms part of a suite of reports produced by WCPP as part of its work on poverty and social exclusion for the Welsh Government. As well as this work by CASE, there are two reports on the nature, scale and trajectory of poverty and social exclusion in Wales – one focusing on quantitative data and evidence, and a second focusing on lived experience evidence (Carter, 2022a; 2022b). WCPP also commissioned the New Policy Institute to conduct a review of international poverty alleviation strategies (Kenway et al., 2022) which examines overarching governmental approaches to tackling poverty.

Introduction

This review focuses on the relationship between transport disadvantage and poverty and social exclusion, and policies designed to reduce transport disadvantage. There exist a broad range of transport policies, and it is beyond the scope of this review to cover all of them. This review therefore looks at the international evidence of policy effectiveness on the following three inter-linked areas:

1. Community transport;
2. Shared transport; and
3. Demand-responsive transport.

Community transport is considered due to its role in reducing transport disadvantage in rural and more deprived areas. Shared transport and demand-responsive public transport were further areas identified where promising lessons could be learnt from the international literature. This is not to say that dominant forms of public transport (buses and trains), and associated policies such as concessionary fares, are not critical for tackling transport disadvantage and poverty and social exclusion more broadly. These types of public transport clearly need to be part of a poverty and social exclusion strategy, but the Welsh Government already has a developed transport strategy policy agenda and less value added was likely to be gained from focusing on these areas.

The UK Community Transport Association defines **community transport** as:

> **"Community transport is about providing flexible and accessible community-led solutions in response to unmet local transport needs, and often represents the only means of transport for many vulnerable**

and isolated people, often older people or people with disabilities. Using everything from minibuses to mopeds, typical services include voluntary car schemes, community bus services, school transport, hospital transport, dial a ride, wheels to work and group hire services. Most are demand responsive, taking people from door to door, but a growing number are scheduled services along fixed routes where conventional bus services aren't available." (UK Community Transport Association, n.d.)[2]

The main categories of community transport identified by Canning, Thomas and Wright (2015) are:

- Voluntary car schemes – with volunteers driving their own cars;

- Group travel services and door to door dial-a-ride services for individuals;

- Wheels to work – involving leased vehicles, which can include mopeds and bicycles;

- Contracted 'assisted travel' services – which can include home to school and non-emergency health appointments, operated on a not-for-profit basis; and

- Demand-responsive or fixed rate transport services – which operate where commercial bus routes, even where subsidised, are not viable.

Shared transport includes private vehicle sharing, taxi ridesharing, carpooling, van pooling, scooter sharing, short-term vehicle rental and bike sharing (Sun et al., 2019). **Demand-responsive transport** services include ridesharing and carpooling.

The dominant form of transport in Wales continues to be private car and there is evidence that people became even more reliant on private cars after the start of the Coronavirus pandemic (Welsh Government, 2020). The dependence on private cars is higher in Wales than in England or Scotland and the proportion of households without access to a car or van has fallen steadily since 2011 (Welsh Government, 2020). At the same time, there has been a downward trend in passenger journeys made by local bus services over the last decade (declining by 22% between 2008/09 and 2018/19, with a slight recovery between 2016/17 and 2018/19) and a fall in bus service availability (a fall of 19% over the same decade) (Welsh Government, 2020).

Income is strongly related to travel behaviour (Titheridge et al., 2014). Compared to individuals in higher income households, individuals in low-income households:

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[2] **https://ctauk.org/about-cta/what-is-community-transport/**

- Make fewer journeys;

- Travel shorter distances;

- Are less likely to own a car;

- Are less likely to travel by train;

- Are more likely to travel by bus or coach; and

- Are more likely to walk than individuals from higher income households (Titheridge et al., 2014).

In contrast, there is not a large difference in bicycle use across income groups (Titheridge et al., 2014).

Policy context

Through devolution, the Welsh Government has responsibility for roads and buses, some aspects of rail, cycling and walking. Other areas such as certain aspects of rail, as well as ports and aviation, are not devolved, and remain the responsibility of the Secretary of State for Transport in the UK Government. Additional transport powers, including in relation to taxis and Private Hire Vehicles (PHVs) were given to Welsh Ministers under the Wales Act 2017.

In March 2021 the Welsh Government published a new transport strategy, *Llwybr Newydd: the Wales Transport Strategy 2021* (Welsh Government, 2021). The strategy aims to put 'people and climate change at the front and centre of [the] transport system'. It will give priority to meeting the demand for travel by walking, cycling and public transport, ahead of private motor vehicles. For those who use motor vehicles it aims to make low-carbon sustainable transport more attractive and more affordable. The strategy sets out the Welsh Government's overall vision and identifies three main priorities:

- **Priority 1** – Bring services to people in order to reduce the need to travel.

- **Priority 2** – Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure.

- **Priority 3** – Encourage people to make the change to more sustainable transport.

From a transport disadvantage perspective there are a number of promising commitments included in the strategy. These include:

- Bringing services such as education, health and leisure facilities closer to where people live;

- Promoting and supporting home and remote working;

- Extending the geographic 'reach' of public transport (especially to rural Wales);

- Involving public transport users in the design of transport services;

- Promoting sharing solutions (car sharing, car clubs, bike sharing, etc);

- Extending concessionary fares to those who most need them;

- Supporting digital innovation;

- Improving personal safety on public transport; and

- Introducing innovative, more flexible bus services.

As mentioned, this review focuses specifically on community transport, shared transport and demand-responsive transport.

Transport disadvantage exists in both rural and urban areas, but in rural areas the risk of becoming 'transport disadvantaged' is much greater, and rural areas pose particular challenges for public transport provision as a result of low population density (CfIT, 2008). Community transport (defined in the 'evidence of policy effectiveness' section below) plays a unique role in filling the accessibility gap which conventional public transport cannot fill (Mulley and Nelson, 2012).

Community transport has grown in importance (in terms of funding and the number of schemes) since the 1980s (Gray, Shaw and Farrington, 2006) and can be key to tackling rural poverty (Powell et al., 2018). Community transport in Wales provides transport services to many socially isolated individuals and 'make[s] a huge difference to the lives of people who are often unable to access other forms of transport and therefore would otherwise be unable to get to where they need to be' (CTA, 2016/17). However, it is important to note that rural areas are largely heterogeneous, and different transport opportunities and constraints characterise different localities, households, and even household members (Gray, Shaw and Farrington, 2006). Furthermore, reliance on community transport schemes will not satisfy the needs of all sectors of the rural population (Powell et al., 2018).

The Welsh Government funds community transport through grants to local authorities. In 2013/14 the minimum threshold that local authorities had to allocate from these grants to community transport was reduced from 10% to 5%, although the Government 'strongly recommends that a figure of 10% is achieved' (Jones, 2016). Though local authorities can also choose to spend funds from their own budgets to

support community transport, in 2019, the Government noted that 'a small but significant number of councils have reduced or removed entirely from their budgets any funding to support bus and community transport services'.[3]

Due to the funding model, it is not possible to estimate how much government funding is used to support community transport in Wales. In response to a Freedom of Information request in 2018 (*How much the Welsh Government spent on Community Transport in the 2016/17 and 2017/18 financial years?*), the Government said that it does not directly financially support community transport operators (Welsh Government, 2018). The Bus Services Support Grant is provided annually to local authorities to support the provision of local bus and community transport services which has remained at £25m from 2016/17 to 2019/20. As noted above, the Welsh Government sets a minimum threshold of 5% which must be spent on supporting good quality community transport services – this means that overall a minimum of £1.25m is spent annually on community transport. Each local authority is then responsible for determining which community transport services it supports, as well as allocating funding. In response to the FOI request, the Government noted that 'The Welsh Government does not hold information on the amounts spent by the respective local authorities on community transport out of this allocated grant funding' (Welsh Government, 2018).

As noted above, the Welsh Government's transport strategy includes commitments in relation to community transport. In particular, the strategy over the next five years aims to ensure that community transport provision is included in travel plans for existing and new transport and plans for health and education services. It also aims to support existing operators and grow the range of services, responding to community needs and overall better integrating third sector services into wider transport policy, planning and provision. Although there is a commitment to better understand the scope, issues and contribution of the third sector and explore the idea of a minimum level of lifeline journey provision in looking at future targets, there is no explicit commitment to increase funding for community transport.[4]

In addition to funding through the Bus Services Support Grant, the Welsh Government has funded a number of innovative trials through the Local Transport Fund to try and reduce transport disadvantage. For example, in 2019 it was announced that up to £1 million would be available to fund four pilot projects to test

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[3] See: **Transport Minister looks to strengthening bus services | GOV.WALES**

[4] In the Welsh Government's supporting evidence on transport data and trends, there are no statistics on community transport: **https://gov.wales/sites/default/files/consultations/2020-11/supporting-information-transport-data-and-trends.pdf**

innovative forms of demand-responsive bus travel across Wales. In the announcement it was noted that:

> **"It's an unacceptable fact that in places such as the Mersey Dee Region, 1 in 5 people cannot get to job interviews because of an absence of affordable public transport. 1 in 5 people locked out of work, because they don't have the luxury of owning a car."** (Welsh Government, 2019)

One example of demand-responsive services in Wales is the fflecsi service[5] which allows local travellers to choose their own pick-up and drop-off points (through an app or telephone service) in regions where it is operating. This currently uses bus services but could be extended to community transport.

Relationship to poverty and social exclusion

Transport is a derived demand whereby the demand for transport arises from the demand for other activities: for example, commuting to work, shopping, socialising, visiting family, going on holiday, etc. (Mattioli, Lucas and Marsden, 2017). It is important for providing essential access to education, employment and training opportunities (Smart and Klein, 2015; Cebollado, 2009; Cervero, Sandoval and Landis, 2002; Kenyon, 2011), all of which are linked to poverty and social exclusion. Transport is necessary for accessing public services, healthcare, childcare, sport and cultural activities and for some types of retail. It is therefore not surprising that lack of access to transport is associated with poverty and social exclusion (Lucas, 2012; Currie, 2011).

Transport is also important for facilitating meetings with family and friends and enjoying a social life which are important aspects of social inclusion (Farber and Páez, 2009). Results from the National Survey for Wales show that in 2019/20, 15% of the adult population reported being lonely, with younger people more likely to be lonely than older people (Welsh Government, 2020b).[6] Loneliness is more common among people living in poverty: 41% of people in material deprivation were lonely in 2019/20, compared with 12% of those not in material deprivation. There is also an

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[5] See: **https://www.fflecsi.wales/**

[6] Loneliness is one of the 46 national indicators used to measure progress against the Well-being of Future Generations (Wales) Act 2015.

interrelationship between poor health and loneliness, with people in Wales in poor health more likely to report being lonely. Over a third (35%) of people who consider their health to be bad or very bad report being lonely, as do 44% of people with a mental illness (Welsh Government, 2020b). Loneliness can also be a driver of poor general health.

A report by the UK Government's Social Exclusion Unit (SEU, 2003) first identified the important links between transport disadvantage and the inability to access jobs, education, training, healthcare, affordable food and leisure opportunities in the UK. Lucas (2012) outlines the dynamic relationships between the drivers of transport disadvantage and social disadvantage, and how they relate to transport poverty and social exclusion, shown in Figure 1. Although there is an interrelationship between the poverty and transport disadvantage (with some experiencing a viscous circle), it is important to note that it is possible to suffer from social exclusion without being in transport poverty and to face transport disadvantage without being socially excluded (Currie and Delbosc, 2010).

Figure 1: Relationship between transport poverty and social exclusion
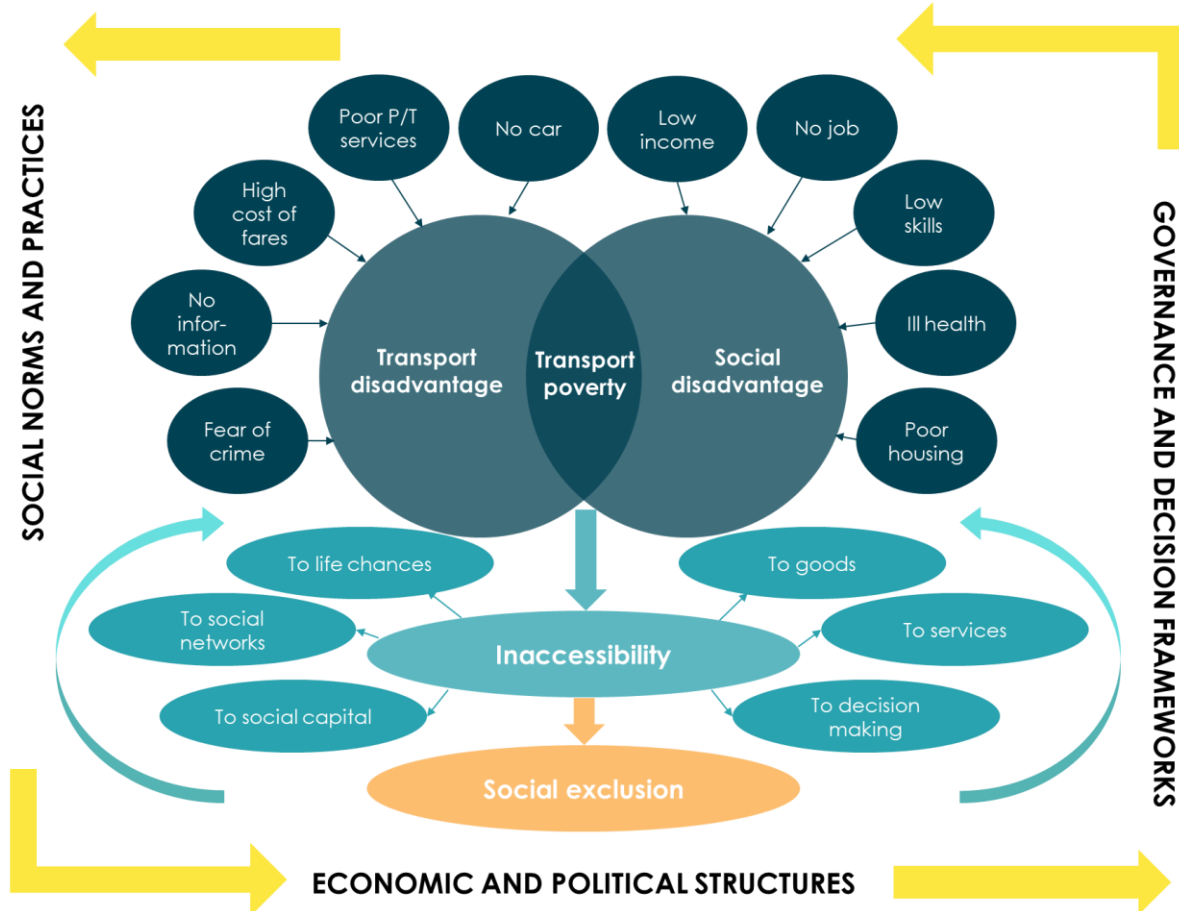
Source: Reproduced from Lucas (2012), Figure 1

There exists both transport poverty and transport inequality. Transport inequality arises because faster forms of transport (car and train) tend to be more expensive than slower modes (bus and cycling) and those who can afford faster forms of transport can reach a wider range of opportunities in a given time (Titheridge et al., 2014). Although constraints and structural factors can affect the speed of different forms of transport, inequalities still exist. For example, buses can be quicker than trains and cycling can be quicker than driving but people with access to cars or who can afford the costs of train travel have more options and greater flexibility. A recent review for the UK Government Office for Science looking at inequalities in mobility and access in the UK transport system found that:

> **"Public transport service limitations, combined with largely unregulated land-use development are driving a mobility culture that most advantages already highly-mobile and well-off sections of the population, while worsening the mobility and accessibility opportunities of the most socially disadvantaged in the UK."** (Lucas et al., 2019, p.4)

Access to public funded forms of transport can be particularly important for older people and people with some forms of disability (especially those on low incomes), facilitating independence and preventing isolation. It can help these groups, especially those who do not drive or own a car:

- Stay physically and socially active;

- Remain independent in terms of shopping (with access to more shops and cheaper prices);

- Attend healthcare appointments;

- Visit (and be visited by) family and friends; and

- For working age people with disabilities, access training and employment opportunities.

Under the 'social model of disability', lack of access to transport can, in and of itself, lead to disability (Maynard, 2009). In contrast to the 'medical model of disability', under the social model 'people with impairments are disabled when society fails to take account of their needs, so disability is contingent upon an inaccessible environment, not an impairment' (Maynard, 2009, p.22). For people with relevant impairments every aspect of a journey needs to be accessible and inaccessibility in even small parts of a journey can break the 'journey chain' (Maynard, 2009). Door-to-door service provided by community transport can help minimise the risk of breaks in the journey chain.

Titheridge et al. (2014) identify three main conceptual approaches in the literature in relation to transport poverty: spatial mismatch and entrapment theory, social exclusion theory and social justice. Spatial mismatch and entrapment theory is concerned mainly with spatial barriers experienced by low-income people, particularly in relation to access to jobs and services. In part, spatial barriers are due to lower cost and more affordable housing tending to be located in areas with poor transport connectivity and poor service provision. The result is a three-way dynamic relationship between jobs, housing and transport networks (Sanchez, 2008). Social exclusion theory focuses more on the consequences of transport poverty than on the processes leading to it.

Transport-related social exclusion prevents participation in the economic, political and social life of the community due to limits in the access to opportunities, services and social networks (Kenyon et al., 2006). This theory looks beyond spatial aspects of transport poverty to consider access more broadly. Barriers to access include physical impairments, affordability, time limitations, fear of crime and regulatory restrictions (Church, Frost and Sullivan, 2000). This approach tends to suggest more holistic responses to transport poverty than purely spatial perspectives (Jones and Lucas, 2012). Social justice approaches examine transport-related disadvantages from the underlying idea of equality of access. This approach gives rise to a policy focus which offers the greatest benefit to the least advantaged.

Relationship to lived experience of poverty and social exclusion

Transport disadvantage can lead to a viscous circle between lack of access to affordable transport, limited access to employment opportunities and increased risk of poverty (Boston, 2017). Transport disadvantage is greater among people living in rural communities where people face dual issues of a lack of (suitable) public transport services and difficulties affording private transport, most commonly car ownership. Lived experience evidence from rural Wales shows that many people in 'poor' households in these areas who do own cars have to make compromises elsewhere in their lives to afford their vehicles and use of these vehicles is often consciously limited to reduce costs. The physical accessibility of public transport services, suitable routes which include stops near to key services (such as shops and medical facilities), and high (and rising) public transport fares in rural areas act as barriers to access for those in or near poverty in Wales, particularly those in rural areas (Boston, 2017).

Transport disadvantage can be associated with social isolation and loneliness, poorer health through missed health appointments, reduced social capital and can have a negative impact on rural sustainability (Milbourne and Doheny, 2012; Boston, 2017). Anecdotal evidence from the Community Transport Association (2020) highlighted how transport disadvantage can be particularly detrimental for people who are already vulnerable, such as older people and those with long-term health conditions. These people reported having to make compromises in their everyday lives, such as missing hospital appointments or visits to family, as a result of transport disadvantage (CTA, 2020).

Evidence of policy effectiveness

Intervention	Strength of evidence	Effectiveness
Community transport	Good	Effective
Shared transport	Weak	Likely to be effective
Demand-responsive transport	Good	Effective

As mentioned, the review of international evidence of policy effectiveness focuses on the (inter-linked) areas of community transport, shared transport and demand-responsive transport.

Community transport

Community transport services play a unique role in filling the accessibility gap which conventional public transport does not fill due to funding, accessibility or spatial constraints (Mulley and Nelson, 2012). Community transport can also provide a crucial link between people's homes and the public bus and rail networks, increasing connectivity overall. For people with particular types of impairment and older people, community transport can be key in providing seamless journeys between home and final destinations that is not available on the public transport network.

In rural areas, lack of public transport leads to greater car dependence, with higher transport costs (Crisp, Gore and McCarthy, 2017; Smith, Hirsch, and Davis, 2012) which can result in low-income households experiencing economic stress (Lucas et al., 2019). US research has found that people living in rural areas have to travel further and for longer to healthcare providers. This can lead to a reduction in

healthcare appointments which can have a negative impact on health outcomes (Syed et al., 2013). Shared mobility schemes, such as car and bike hire, can work well in densely populated areas (see the following section) but in sparsely populated areas and rural areas with longer journey times, these schemes are less effective. Community transport plays an important role in meeting transport needs of disadvantaged groups living in rural communities.

There are examples of community transport in many countries, although the international evidence suggests that community transport is most organised in the UK, US and Australia. The context in which they operate and the funding available can be key factors. For example, in Australia community transport is organised on a state basis and targeted at disabled and frail populations. This is due to funding constraints which limit the ability of community transport groups to meet the wider needs of the community in the context of the lower density land use of Australia (Mulley and Nelson, 2012).

New technologies have helped to improve how flexible and responsive community transport can be. The integration of Information and Communication Technologies (ICTs) has allowed improvements in booking systems, payment, real time communication and real time positioning of vehicles (Mulley and Nelson, 2012). All of these improvements make for a better service, but digital exclusion (covered in a separate policy review) can limit the extent to which consumers benefit.

Five case studies from across Scotland were evaluated as part of research into the social and economic benefits of community transport on behalf of Transport Scotland (Canning, Thomas and Wright, 2015). The results found considerable economic and social benefits including supporting independence; promoting well-being, quality of life and mental health; and helping to reduce missed medical appointments and domiciliary provision. Community transport also contributed to the sustainability of rural communities.

Despite these benefits a number of funding issues were identified. These include lack of funding centralisation; lack of co-ordination between capital and revenue budgets; and time-limited funding packages which made long-term investment planning difficult (Canning, Thomas and Wright, 2015, p.7). Grant funding can both be considered vital for the financial viability of community transport organisations (Ryley et al., 2014) and a threat to their financial stability due to the dependence on funding decisions made by external organisations (Moreton et al., 2006; Canning, Thomas and Wright, 2015).

An assessment of Transport to Employment (T2E), which offers subsidised on-demand community-based transport and shared taxi services in rural Scotland, was

found to move people into employment, with social and economic benefits that outweighed the investment by 3:1 (Wright et al., 2009).

Estimating the value of community transport is complex due to the prevalence of secondary and cross-cutting benefits across a range of policy areas (Canning, Thomas and Wright, 2015; HITRANS, 2011). The overall magnitude of benefits across policy areas can be difficult to identify (Canning, Thomas and Wright, 2015). Core benefits are derived from better health, greater social inclusion, improved access to employment, education and training opportunities and building communities (HITRANS, 2011). It can lead to cost savings for local authorities (for example, through reducing the costs of social care if older people are able to continue to live independently in their own homes), the health service (for example, through reducing the number of missed appointments and the health benefits of reducing social isolation and loneliness) and other public bodies. Community transport can also be important for rural sustainability and tackling a range of inequalities (Canning, Thomas and Wright, 2015). There are also potential benefits for family and friends who might otherwise have to provide assistance.

However, much evaluation evidence concentrates on output data such as the number of journeys which don't reflect the derived social value (such as health or wellbeing outcomes) of community transport. In addition, in transport projects' appraisal, the costs of providing access are monetised, but not the benefits (Maynard, 2009). Distribution effects, equity, and social exclusion are poorly addressed in transport appraisal in general, and cost-benefit analyses in particular (van Wee and Geurs, 2011). This is important because investment decisions based purely on costs without considering the value of benefits will rule out crucial investment, including investment in community transport.

NatCen, working with WPI Economics on behalf of Power to Change, conducted exploratory research examining the factors that have contributed to the development of successful community transport. They identified a number of key success factors (in relation to the business itself, the people involved in running the community transport organisation or the community and external environment) and developed a measurement framework to provide guidance on how success factors might be assessed in an objective way (Kotecha et al., 2017). However, they did not attempt to quantify the economic and social value of community transport.

The ECT Charity, working with Deloitte, have gone a step further by developing a framework for calculating the social value of the benefits community transport organisations provide. This is done by identifying a number of outcomes, a number of measurable units of impact (such as shopping trips) and then estimating a financial value for each unit (such as the value of the time saved by a carer who would

otherwise have done the shopping) (ECT, 2018). The outcome is a tailored social value toolkit that can be applied by community transport providers to demonstrate the value of their services.[7]

Shared transport

Although shared transport has been around for some time, it was the development and harnessing of digital solutions available through ICTs that led to the recent rapid group in many countries (Roukouni and Correia, 2020). The growth is seen as part of a growing trend in the so-called sharing economy (Mont et al., 2020; Hossain, 2020).

Shared transport includes private vehicle sharing, taxi ridesharing, carpooling, van pooling, scooter sharing, short-term vehicle rental and bike sharing (Sun et al., 2019). The main benefit of shared transport is that users do not need to incur the expense of owning and maintaining vehicles, only paying for journeys as and when required and, thereby, reducing travel costs. ICT provides solutions to users and owners through facilitating booking systems, GPS tracking of vehicles and alerts letting owners know when maintenance is required. Shared transport is most common in cities as population density and the demand for short journeys sustains the economic models on which these systems are based. A recent comprehensive review of the international literature on shared transportation, covering 356 peer-reviewed articles published between 2003 and 2017, concludes that it has made a significant, positive impact on the lives of many individuals alongside providing benefits to the economy, environment and wider society (Sun et al., 2019).

One type of shared transport is ridesharing which, on an informal basis (through friends, neighbours and colleagues), has a long history and extends the reach of shared transport beyond cities and into rural areas. Digitalisation has allowed this practice to expand and become more organised through the use of apps which connect private drivers with passengers wanting to make the same journey and share the cost. Successful examples include the French Blablacar[8] which was founded in 2006 and now operates in 22 countries, mainly in Europe and Latin America, and the Green Raiteros rideshare program (see Case Study 1) which operates in California which is a not-for-profit scheme providing transport using green (electric) vehicles for workers living in rural communities; predominately connecting

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[7] https://ectcharity.co.uk/projects/social-value-toolkit

[8] https://www.blablacar.com/

Latino and agricultural families in central California to Fresno. Volunteer drivers are compensated for the number of miles they drive.

Case Study 1. California's Green Raiteros rideshare programme

The Green Raiteros rideshare programme provides a green and innovative solution to increasing mobility in rural, less advantaged communities in California. The programme grew out of a self-organised dial-a-ride scheme which was run by community members. It was expanded through a partnership between EVgo (America's Largest Public Electric Vehicle (EV) Fast Charging Network) and the Environmental Advancement and Policy Institute (LEAP) organisation (a local environmental justice non-profit organisation). It provides rides, at fixed rates, for local residents (mainly workers but also residents attending health appointments etc.) in electric vehicles driven by volunteer drivers (who are compensated for the miles they drive). The programme is accessible to residents through multiple different communication portals (phone, an app, or visiting the Green Raiteros office). While a promising approach, no published robust evaluation of the impact of the programme on transport disadvantage has been published so far.

The Green Raiteros programme also highlights that investment in transport infrastructure could also help the Welsh Government meet its carbon emission reduction targets. One option is to provide grants to community transport providers to purchase energy efficient vehicles and/or a scrappage programme for older, more polluting vehicles. Such an option could draw on the experience of The Green Raiteros rideshare programme. Investing in energy efficient community transport could also have the added advantage of reducing the costs of running services.

Demand-responsive transport

Ridesharing and carpooling are forms of demand-responsive services. Demand-responsive services can also be run for profit by private sector companies or be provided as a form of subsidised public transport (see Case Study 2). This form of transport usually uses smaller vehicles (including taxis) in place of conventional buses (although this isn't always the case in higher population density areas), passengers are charged fares, but the route they take, and the timetable, can vary according to passenger demand (Davison et al., 2014). Demand-responsive transport has a number of advantages over Dial-A-Ride services which have been criticised for their relatively high cost of provision, their lack of flexibility in route

planning (with bookings typically needing to be made days in advance) and their inability to manage high demand (Mageean and Nelson, 2003). The greater flexibility of demand-responsive transport has a number of advantages, but the lack of a fixed timetable can create difficulties for passengers needing to plan and reach a destination by a set time (for example, for work, for health appointments, to catch a scheduled onward journey).

Case Study 2. Demand-responsive transport services in Europe

A European demonstration project on responsive transport services in Europe tested the effectiveness of telematics-based Demand-Responsive Transport (DRT) services in Belgium, Finland and Sweden, with additional feasibility sites in the UK, Ireland and a further site in Finland (Mageean and Nelson, 2003). Under telematics-based systems, Travel Dispatch Centres (TDCs) manage a booking and reservation systems with the capacity to dynamically assign passengers to vehicles and optimise routes. These routes can be organised around a variety of stopping points (for example, fixed intermediate stopping points or non-predefined stopping points) with greater and lesser route flexibility (for example, semi-fixed routes or flexible routes). Automated Vehicle Location (AVL) systems are used to provide real-time information on the status and location of vehicles for the route optimising software.

There was considerable variation in services between countries, services between locations within countries, the type of operators, the vehicles used, the context in which they operated (urban versus rural, for example) and in the groups targeted (for example, older people, youth and people with disabilities).

An evaluation of the project conducted by Mageean and Nelson (2003) considered the success of the project in terms of three dimensions: economic viability (operational efficiency and financial performance), service provision (behavioural evaluation and distributional costs and benefits), and technical performance.[9]

Although direct cost savings were not easy to calculate, due to the restructuring of public transport services accompanying the introduction of DRT services, two main economic benefits were found: (1) the ability to

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[9] Data collection included questionnaires, focus groups and manual and automated observations with an emphasis on common methods of data collection and common evaluation indicators between sites.

support services on low-demand routes that would be too expensive with regular services (Belgium); and (2) the provision of a door-to-door special transport service for the elderly population led to a saving in authority costs (Sweden).[10]

Considerable variation in operating cost per ride and cost per ride kilometre were found. Fare revenue per operating cost was difficult to calculate, particularly where through-ticketing was available (i.e. where a fare included the cost of an onward journey on other forms of transport), but the authors concluded that current evidence suggests that DRT fare revenues do not cover costs. Simplification of booking procedures (online booking) helped to reduce the costs.

Passenger usage was variable but increased overall. The authors concluded that DRT services can offer greater flexibility in time and location than conventional public transport. They found that the nature of the market environment strongly influences the feasibility of establishing DRT services. In more regulated markets (for example, in Belgium and Italy) it was easier to integrate DRT with conventional services. There was, however, a risk associated with introducing subsidised DRT services, as they could lead to the withdrawal of regular services by existing operators (Mageean and Nelson, 2003).

A weakness of the evaluation, as is the case with many evaluations of transport interventions, is that no attempt was made to estimate the social value or social impact of the policy. In addition, the evaluation did not look specifically at the impact of DRT on disadvantaged groups but, in theory at least, it has the potential to serve communities who do not live on regular transport routes. DRT is less likely to be feasible in low density rural communities. However, some of the technologies used in larger scale DRT systems could help to improve the operationalisation of community transport services.

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[10] The authors note that DRT services still require a subsidy, but it is less than that required for conventional services.

Challenges and facilitating factors

A summary of the challenges and facilitating factors relating to policies that aim to address poverty and social exclusion through transport disadvantage interventions is provided in Table 1.

Table 1: Challenges and facilitating factors

Challenges	Facilitating factors
• Community transport is fragmented, reliant on volunteers and insecure funding. • The lack of good estimates of the social value and social impact of transport policies lead to underinvestment. • Community transport faces a number of funding challenges. It works to a different business model from commercial passenger transport services, being run for a social purpose and community benefit, but not for profit. Many services are reliant on short-term grants which make financial resilience and long-term planning difficult. • The Welsh Government does not know how much of its funding to local authorities is used to support community transport in Wales due to the funding model. This potentially hinders further Government-led policy developments.	• The Welsh Government's new transport strategy recognises the value of community transport, which also has the potential to help meet carbon emission reduction targets. • The shift to working remotely during the Coronavirus pandemic and the extent to which this leads to a longer-term change, with a greater ability to work from home at least part of the time, could be beneficial for individuals with more limited access to transport and for whom transport is too expensive. Unfortunately, options to work from home are less likely to be available to many lower paid workers. • Digitalisation is transforming demand-responsive forms of transport and shared transport. They include private ridesharing, public and community transport, bikesharing and scooter sharing schemes. Advances in ICT have the potential to improve efficiency and user experience.

- Demand-responsive transport and many forms of shared transport are less likely to benefit rural communities, despite higher risks of transport disadvantage in rural areas.

- Digital exclusion limits the extent to which some can benefit from technological advances in demand-responsive forms of transport and shared transport services.

Conclusion

Poor or lack of access to transport increases the risk of poverty and social exclusion through limiting access to job opportunities, education and training. It also restricts the ability to balance caring responsibilities with work commitments, enjoy a social life and spend time with wider family. Transport disadvantage has a negative impact on livelihoods, participation, and the overall quality of life of those affected. It is higher among lower income households and in rural communities, and can lead to a viscous cycle of disadvantage. To address transport disadvantage, policies need to focus on public transport provision and integration of different types of provision. Availability, affordability and accessibility of transport all need to be addressed. Although community transport is only one small element of the transport system, it can play a key role in reducing transport disadvantage among some groups. However, community transport is fragmented, and because its true social value is hard to estimate this contributes to underinvestment. Technological advances can improve efficiency (though these improvements are dependent on the digital skills of users), and user experience and investment in fuel efficient vehicles could help meet carbon emission reduction targets.

Shared transport is going through a period of rapid growth and has the potential to reduce travel costs for lower income households as it can negate the need to purchase and maintain vehicles. However, the economic models on which many shared transport schemes are based work better in cities with high population density and high demand for short journeys. Some forms of shared transport, such as ridesharing, can work in more rural communities and the use of energy efficient vehicles could help to reduce carbon emissions.

Demand-responsive technologies and provision can be coupled with community transport or shared transport as well as public buses to help reduce transport disadvantage for those who live off the main transport links. However, evidence suggests that this demand-responsive transport systems can be costly.

Transferability to Wales

Transport policy is largely a devolved matter. The Welsh Government has been very active in this policy area, in line with increased powers over recent years. Recent activity includes the Welsh Government's transport strategy, published in March 2021 (Welsh Government, 2021). Community transport, shared transport and demand-responsive services are policy areas where transferability to Wales is high.

Promising actions

This section concludes with **promising actions** to consider in the Welsh context as emerging from the analysis of the international literature.

1. Increasing **demand-responsive transport provision offers greater flexibility than fixed routes/timetables**. However, digital exclusion can mean that not everyone has access to this type of provision.

2. Use of **green vehicles,** whether for community transport, shared transport or more generally for public transport, can help reduce carbon emissions and pollution.

3. **Whole transport systems** can help address fragmentation and improve integration of community transport, shared transport and demand-responsive transport services.

4. Focusing on estimating the **social value of community transport** rather than more narrow quantitative assessments (e.g. number of journeys or passengers) has the potential to increase investment in line with impact.

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Annex: Methodology

Definition of poverty and social exclusion

For the purposes of this project it was agreed that a multidimensional concept of disadvantage, including social as well as economic dimensions, would be adopted. The Bristol Social Exclusion Matrix (B-SEM) (Levitas et al., 2007) provides the theoretical structure that underpins the selection of policy areas. The B-SEM uses the following working definition of social exclusion:

> **"Social exclusion is a complex and multi-dimensional process. It involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole."** (Levitas et al., 2007, p.9).

It is structured around three main domains and ten sub-domains (see Table A1).

Table A1: B-SEM domains and sub-domains

A. Resources:	
A1: Material/ economic resources	Includes exclusion in relation to income, basic necessities (such as food), assets, debt and financial exclusion.
A2: Access to public and private services	Relates to exclusion from public and private services due to service inadequacy, unavailability or unaffordability. The range of services encompass public services, utilities, transport, and private services (including financial services).
A3: Social resources	Reflects an increasing awareness of the importance of social networks and social support for individual well-being. A key aspect relates to people who are separated from their family and those who are institutionalised.

B. Participation:	
B1: Economic participation	Includes participation in employment – which is not only important for generating resources but is also an aspect of social inclusion in its own right. Whether work is a positive, inclusionary experience depends partly on the financial rewards it brings, and partly on the nature and quality of work. Work is understood broadly and includes caring activities and unpaid work.
B2: Social participation	Comprises participation in common social activities as well as recognising the importance of carrying out meaningful roles (e.g. as parents, grandparents, children).
B3: Culture, education and skills	Covers cultural capital and cultural participation. It includes the acquisition of formal qualifications, skills and access to knowledge more broadly, for instance digital literacy inclusion. It also covers cultural and leisure activities.
B4: Political and civic participation	Includes both participation in formal political processes as well as types of unstructured and informal political activity, including civic engagement and community participation.
C. Quality of life:	
C1: Health and well-being	Covers aspects of health. It also includes other aspects central to individual well-being such as life satisfaction, personal development, self-esteem, and vulnerability to stigma.
C2: Living environment	Focuses on the characteristics of the 'indoor' living environment, with indicators of housing quality, inadequate housing and exclusion in the form of homelessness; and the 'outdoor' living environment, which includes neighbourhood characteristics.
C3: Crime, harm and criminalisation	Covers exposure to harm, objective/ subjective safety and both crime and criminalisation. This reflects the potentially exclusionary nature of being the object of harm, as well as the exclusion, stigmatisation and criminalisation of the perpetrators.

Notes: the descriptions of the sub-domains are the authors' understanding of what each sub-domain includes based on Levitas et al. (2007).
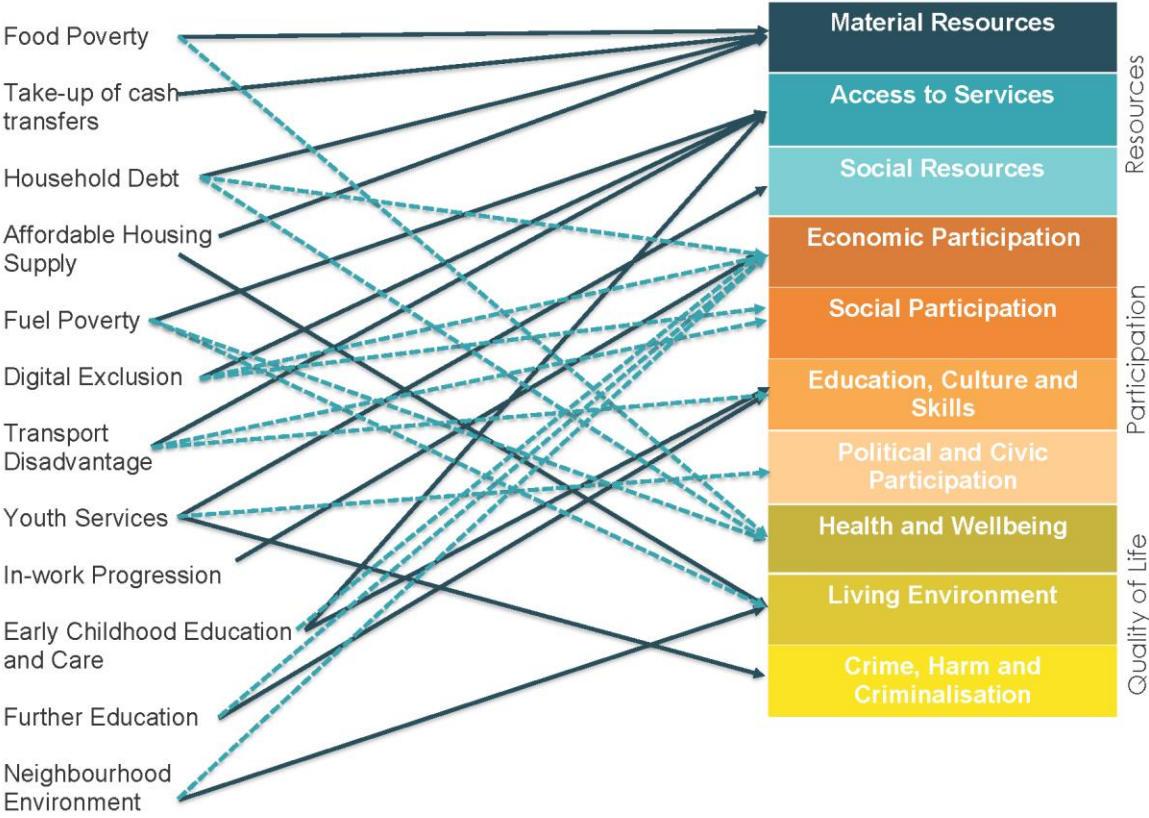
Selection of policy areas

The first step involved the research team identifying a long list of 40 policy areas with reference to the domains and sub-domains of the B-SEM. The long list was, in part, informed by a review of key trends in poverty and social exclusion in Wales, across the ten sub-domains, conducted by WCPP (Carter, 2022a); a consideration of the Welsh Government's devolved powers across policy areas; and meetings with experts. From this long list a shortlist of 12 policy areas was agreed. The shortlisting process took into account advice on priority areas identified by a focus group of experts, but ultimately the final list of 12 policies was selected by the Welsh Government.

The final set of 12 policy areas covers a broad spectrum within the B-SEM, and most are related to more than one sub-domain within the B-SEM (Figure A1). However, the final selection should not be considered exhaustive from a poverty and social exclusion policy perspective. This is because some important policy areas are not devolved to the Welsh Government and, therefore, were not included. For example, while adequacy of social security is a key driver of poverty the Welsh Government currently has no powers to set key elements of social security policy (e.g. rates and eligibility criteria for the main in-work and out of work benefits) and this is the reason why we focus on one aspect of social security, take-up of cash transfers, that the Welsh Government has power to influence.

Another factor was the project's scope and timescales, which limited the selection to 12 policy areas and meant that other important areas had to be excluded (for instance, social care, healthcare and crime). To make the reviews manageable, it was also necessary to identify a focus for each of the 12 policy areas. The research team identified a focus for each of the reviews on the basis of a brief initial scope of the research evidence and consultation with WCPP who, where relevant, consulted sector and policy experts. This means that there are likely to be additional policies which could be included in a poverty and social exclusion strategy by the Welsh Government *within* the 12 policy areas and *in addition to* the 12 policy areas reviewed.

Figure A1. The selected policy areas mapped to relevant B-SEM sub-domains

Source: prepared by the authors

Notes: The figure outlines the mapping of the 12 selected policy areas to the B-SEM matrix: bold lines show the relationship between each policy area and main B-SEM sub-domain(s), light dotted lines identify selected secondary B-SEM sub-domains the policies are related to (a full list of these 'secondary subdomains' is included in the specific reviews).

Review stages

In the 'evidence of policy effectiveness' section, while it was not possible to produce a full systematic review (although evidence from existing systematic reviews and meta-level analyses were included where available), a structured approach was adopted. This first involved an evaluation of the state of the relevant literature, focusing on whether effectiveness was assessed via methods standardly considered better suited to establish causality (e.g. on the basis of hierarchical grading schemes such as the Maryland Scientific Method Scale (Sherman et al., 1997) or the Oxford Centre for Evidence-Based Medicine's (OCEBM) levels of evidence (Howick et al., 2011) such as randomised controlled trials (RCTs), meta-analyses of RCTs and other quasi-experimental studies. While RCTs are particularly powerful in identifying whether a certain intervention has had an impact in a given context, other forms of evidence, such as quasi-experimental and observational studies with appropriate

controls may be better suited, depending on the type of intervention, to establish the range of outcomes achieved as well as providing an understanding of distributional effects and allowing sub-group analysis (i.e. 'for whom' did the intervention work). In the process of assessing evidence, case studies were selected to further elaborate some of the key findings resulting from the review and to identify specific examples of promising policy interventions.

In a few areas, the literature review highlighted a lack of robust evaluations – the reviews underscore this and present the best available evidence found along with an assessment of the strength of the evidence. Where possible, an evaluation of the underlying mechanisms of change was also considered, allowing an explanation of not just whether, but why a certain intervention works, thus also facilitating the identification of challenges and facilitating factors, which is crucial in thinking about not just 'what' should be done but also 'how' it can best be implemented.

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