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# The Welsh language and the economy: a review of evidence and methods

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# The Welsh language and the economy: a review of evidence and methods

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government.

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## Table of contents

List of figures .....	2
List of tables .....	2
Glossary .....	3
1. Introduction .....	4
2. Methodology .....	11
3. Mapping and Categorisation of Evidence .....	32
4. Synthesis .....	53
5. Conclusions .....	82
6. Potential areas of future research .....	87
Annex A: Data extraction form template (adapted from Welsh Government, 2018 and EPPI-Centre, 2007).....	90
Annex B: Summary of findings from Screening Stage 3.1 .....	96
Annex C. Individual stakeholders interviewed .....	99
Annex D. Bibliography .....	100

**List of figures**

Figure 1. Overview of Review Phases ..... 12  
Figure 2. Flowchart of references included during each Phase of the Review ..... 14  
Figure 3. Key search terms..... 15

**List of tables**

Table 1. Search strings..... 18  
Table 2. Screening Stage 3.2 results..... 23  
Table 3. WoE criteria ..... 25  
Table 4. Screening Stage 3.3 results: Assessment of Quality and WoE ..... 27  
Table 5. Main methods used in references according to economic outcomes or variables being explored ..... 34  
Table 6. Summary of WoE categories for evidence categorised as ‘Medium-high’ 37  
Table 7. Summary of WoE categories for evidence categorised as ‘Medium’ ..... 41  
Table 8. Summary of WoE categories for evidence categorised as ‘Medium-low’.. 45  
Table 9. Summary of topics explored in literature excluded based on Exclusion Criterion 2 in Screening Stage 3.2 ..... 51

**Glossary**

<b>Acronym/Key word</b>	<b>Definition</b>
ABS	'Abstract' used in online literature database searches
APS	Annual Population Survey
EPPI-Centre	Evidence for Policy and Practice Information and Co-ordinating Centre
GVA	Gross Value Added
KEY	'Key word' used in online literature database searches
LFS	Labour Force Survey
REA	Rapid Evidence Assessment
RSP	Regional Skills Partnership
UKRI	UK Research and Innovation
WoE	Weight of Evidence

# **1. Introduction**

1.1 This report presents the findings of a review of the evidence available on the relationship between the Welsh language, and other languages relevant to the linguistic context in Wales, and the economy. In addition to reviewing available evidence, the study explores the methods used to gather this evidence. Arad Research were commissioned by the Welsh Government to undertake this Review.

## **Aims and objectives of the Review**

1.2 The Welsh Government specification noted that the aims of the Review were:

- to gain greater clarity about the areas encompassed under the broad heading of the Welsh language and the economy, and as a subsequent step:
- to establish what approaches and models could provide a basis for further research.

1.3 The Review's objectives were to answer the following questions:

1. What does the evidence currently available tell us about the relationship between the Welsh language and the economy?
2. How has this evidence been collected?
3. What is the quality of the evidence we have about the relationship between the Welsh language and the economy?
4. Are there any areas of investigation that have been developed in the wider context of the 'economics of language' (or related areas) that could be usefully applied to enhance our evidence base for the relationship between the Welsh language and the economy?
5. Are there gaps in the evidence? If so, what are they, and what approaches could be applied to address them?

1.4 The purpose of the research is to improve the Welsh Government's understanding of the robustness of the work that has been carried out to date, explore the feasibility of future research, and establish what methodologies could be applied to undertake further work and address more specific research questions. The primary review question is therefore considered to be:

- What does the evidence currently available tell us about the relationship between the Welsh language, or other languages relevant to the linguistic context in Wales, and the economy?

Secondary research questions are:

- Based on a review of this evidence, which areas of research should be prioritised in order to enrich and strengthen the evidence base on the relationship between the Welsh language and the economy?
- Does the evidence reveal particular methodologies or models that could be employed to improve our understanding of the relationship between the Welsh language and the economy?

1.5 The Review therefore includes evidence relating to relevant languages from outside Wales within its scope. The criteria for deciding whether languages are relevant to the Welsh linguistic context are outlined in 2.16 below.

### **Policy context**

1.6 The *Cymraeg 2050 A million Welsh speakers* Strategy (Welsh Government, 2017a) sets out the Welsh Government's long-term approach to achieving the target of a million Welsh speakers by 2050. The Strategy identifies three strategic themes to achieve this:

- Theme 1: Increasing the number of Welsh speakers:
  - Language transmission in the family;
  - The early years;
  - Statutory education;
  - Post-compulsory education;

- The education workforce, resources and qualifications;
- Theme 2: Increasing the use of Welsh:
  - The workplace;
  - Services;
  - Social use of Welsh;
- Theme 3: Creating favourable conditions – infrastructure and context:
  - Community and economy;
  - Culture and media;
  - Wales and the wider world;
  - Digital technology;
  - Linguistic infrastructure;
  - Language planning;
  - Evaluation and research.

1.7 The relationship between the Welsh language and the economy is identified under each of the above themes. The development of learners' Welsh language skills through post-16 education and skills provision is viewed as a means of supporting a prosperous economy in Wales (Theme 1). Embedding bilingualism in the workplace and recognising the benefits that a bilingual workforce can contribute within the economy is identified as one of the means of increasing Welsh language use (Theme 2). Under the third theme of the Strategy, the Welsh Government's aim of ensuring economic growth for all parts of Wales encompasses the aim of supporting Welsh-speaking communities to benefit from prosperity. In addition, there is a recognition of the contribution of the language industry (including education, translation, consultancy services and language technology) to the economy, and also of the use of the language as a unique selling point by many brands (Welsh Government, 2017a: 62).

- 1.8 The need for a reliable body of evidence on the Welsh language and the economy has already been the focus of some activity. A Task and Finish Group was established by the Minister for Economy, Science and Transport in December 2012 to explore the relationship between the Welsh language and economic development. Recommendation 24 of the Group's report (Welsh Government, 2014a) stated: 'The Group recommends that the Welsh Government provides resources to gather evidence on the impact of, and the links between, the Welsh language and the economy. This evidence is needed to persuade business of the benefits of operating bilingually.' The Welsh Government's response to this report (Welsh Government, 2014b) provided an update on how the recommendations were being progressed. This Review seeks to take forward elements of this work.
- 1.9 Links between the Welsh language and economic policy are also identified in *Prosperity for All: economic action plan* (Welsh Government, 2017b). This plan notes that: 'The future of our Welsh-speaking communities and our regional economy are linked. Thriving local economies will support our target of one million Welsh speakers by 2050. Good quality jobs and regions that are attractive places in which to live, work and invest, will provide people with a reason to remain or return to work and live in communities where the Welsh language thrives. A thriving Welsh language supports business growth and provides tangible opportunities for regional economic development.' (Welsh Government, 2017b: 21). The *Prosperity for All: economic action plan* provides a greater emphasis on the foundation economy and acknowledges its importance in providing essential goods and services. The plan describes how the Welsh Government intend to support the foundation sectors in a more consistent way, in order to better understand the challenges they face and the opportunity for growth and innovation.

- 1.10 The Arfor Innovation Fund was established in west Wales in April 2019 as a two-year pilot to support the local economy. The Welsh Government earmarked a budget of £2 million for the 2019-2021 period, for the four local authorities in west Wales (Gwynedd, Anglesey, Ceredigion and Carmarthenshire) to work in partnership to prepare a Strategic Plan that would seek to ensure economic growth and economic prosperity in the region. The aim of the fund is to develop a long-term strategy for the Arfor concept as well as evaluate interventions developed through the fund to see how the economic development programmes have been of benefit to the Welsh language.
- 1.11 The Welsh Government's regional economic development model includes three Regional Skills Partnerships (RSPs). RSPs have a key role in producing regional intelligence, informed by employers. In 2019, the National Assembly for Wales' Economy, Infrastructure and Skills Committee undertook an inquiry into RSPs. The purpose of the inquiry was to understand how effectively RSPs are reflecting current and future skills demand, the reliability and validity of the evidence used by RSPs to draw their conclusions, and the effectiveness of their engagement activity. The Committee's report (National Assembly for Wales Economy, Infrastructure and Skills Committee, 2019) was published in October 2019.<sup>1</sup> It included two recommendations, with the first comprising ten associated actions. Action 8 addressed specific needs relating to the collection and analysis of Welsh language data. The Welsh Government published its response to the Committee's report in November 2019. In its response, Welsh Government committed to providing strategic direction to explore and develop models that will embed Welsh language data in future research and analysis.<sup>2</sup>
- 1.12 As the UK engages in negotiations following its departure from the European Union on 31st January 2020, the impact of future agreements and partnerships will encompass the economic, social and environmental

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<sup>1</sup> Regional Skills Partnerships report available at: [Economy, Infrastructure and Skills Committee Reports](#) [Accessed 22<sup>nd</sup> January 2020].

<sup>2</sup> Report available at: [Economy, Infrastructure and Skills Committee](#) [Accessed 22<sup>nd</sup> January 2020].

interests of Wales. The extent to which these effects will have a bearing on the Welsh language will need to be taken into account as the findings and conclusions of this Review are taken forward.

### **Scope**

- 1.13 The scope of the Review includes other languages that are relevant to the linguistic context in Wales. To define this, a set of exclusion criteria was established as a basis for deciding whether a language was deemed to be relevant in terms of its status and use. These criteria are set out in Section 2.16.
- 1.14 This Review focuses on available published and grey literature. Many of the references identified draw on administrative data sources and government-funded surveys, which collect data on socio-economic and demographic variables as well as Welsh language skills. Most of these references, however, are not recent. Reviewing the availability of relevant data was outside the scope of the Review. Future research on the relationship between the Welsh language and the economy will, in many cases, be dependent on the availability of suitable and current data sets. In considering potential areas of future research, this Review draws attention to the potential need to review the sources of available data, as a means both of maximising the use of currently available data and also identifying gaps in data collection.
- 1.15 The inclusion and exclusion criteria set out in Section 2.18 exclude certain types of references from the Review, including reports of conference proceedings. This means that some relevant material arising from recent discussions relating to language and economy is not included in the Review. For example, the *Revitalise* research network's workshop report on language revitalisation and economic transformation (Royles, 2019), is not included within the evidence reviewed in Sections 3 and 4 of this report. However, research by several of the authors and stakeholders who participated in those workshop discussions is included in the Review. The final report from the *Revitalise* network was published during the process of

completing this report. The report includes recommendations for governments and other stakeholders to improve their awareness and understanding of the effects of the economy, and economic policy, on language, and vice versa (Lewis *et al.*, 2019).<sup>3</sup>

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<sup>3</sup> Both reports available at: [Revitalise Project Resources: Briefing Reports](#) (Accessed 23<sup>rd</sup> January 2020).

## **2. Methodology**

2.1 This section provides detail on the methodology adopted for the Review, including the Review's protocol. It provides details on each Phase of the study, from the Scoping to the Synthesis Phase.

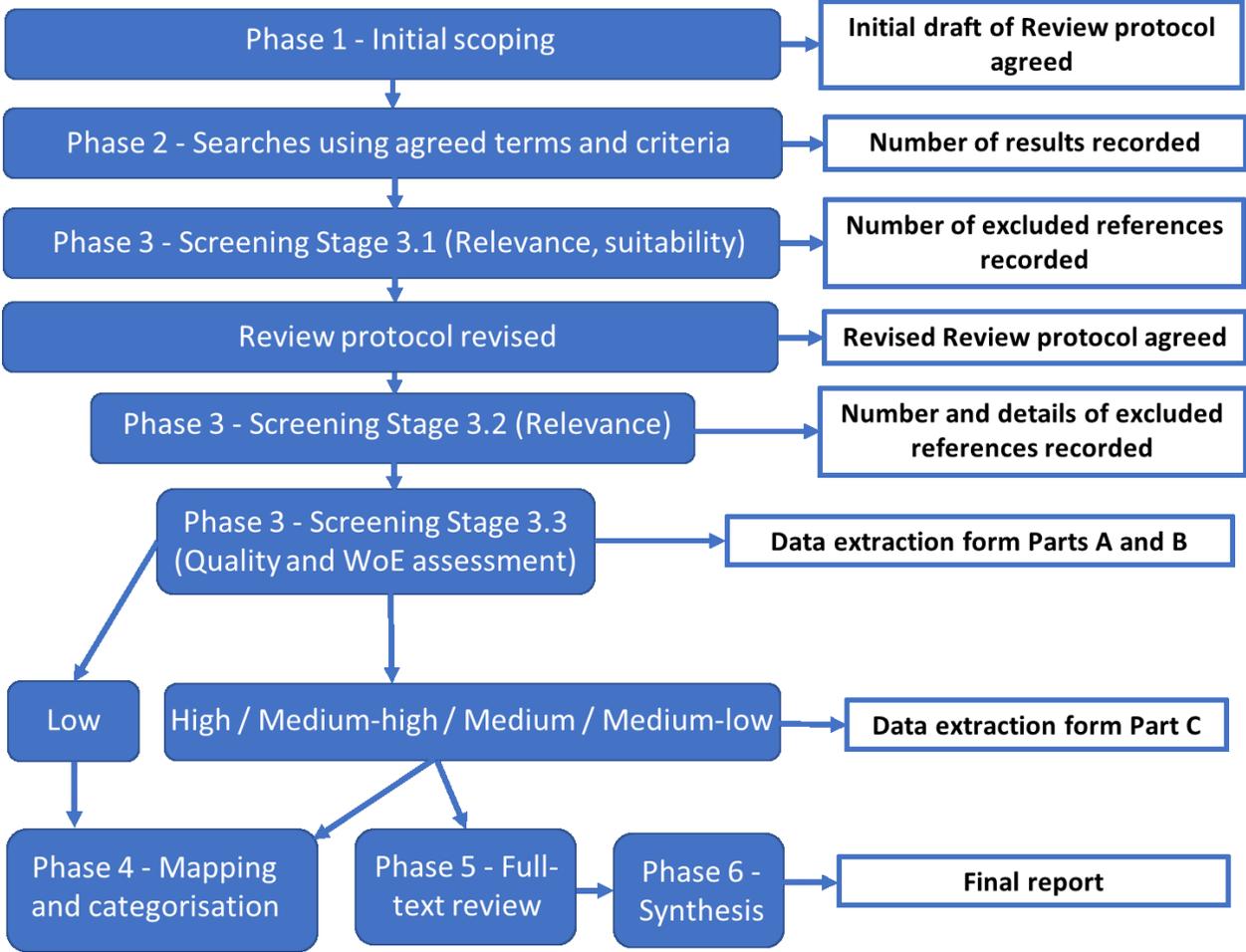
### **Overview of, and rationale for, the Review's methodology**

2.2 The Review's methodology comprised a Rapid Evidence Assessment (REA) approach supplemented by stakeholder interviews. The rationale for using a REA method was to ensure that the Review adopted a structured, replicable and balanced approach to conduct and record the search results, screen the literature and extract data. The Review's objectives required excluded literature to be mapped and categorised, both in terms of topics explored and methods used. The REA methodology that was adopted enabled the Review to map the evidence and to identify gaps in the evidence base, whilst seeking to ensure balance and avoid bias. The stakeholder interviews enabled the Review to identify grey literature, access references that are unpublished, and test some of the findings of the Review.

2.3 The Review's objectives included an assessment of the quality of evidence, which required the development of suitable criteria. A review of different approaches to assessing quality in literature reviews was undertaken during the Scoping Phase. This included quality criteria used in previous REAs and published guidance (Welsh Government, 2018; Alliance for Useful Evidence, 2018; Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), 2007; National Centre for Social Research, 2003; Government Social Research, 2013; Murphy, 2015). The quality and weight of evidence (WoE) criteria used in the Review were informed by these studies and guidance documents.

2.4 Figure 1 below provides an overview of the Phases of the Review, and a description of each Phase is outlined in the sections that follow. The Review was undertaken between December 2018 and October 2019.

**Figure 1. Overview of Review Phases**



2.5 The Review’s protocol was developed through an iterative process. The first draft was developed in Phase 1, and revisions made to it at several points. This enabled the Review team to take account of the amount and nature of the evidence identified and reviewed at various Stages, and amend the protocol in response to issues which emerged during the Review.

2.6 In Phase 1, search terms were developed, tested and revised, before being used to undertake the literature Searches in Phase 2. Inclusion and exclusion criteria were also developed in Phase 1, which were subsequently used in Phase 3 to screen the evidence in terms of its relevance and suitability. Phase 3 included three Screening Stages: Screening Stages 3.1, 3.2 and 3.3. The criteria used to screen and assess the quality of evidence

in Phase 3 were revised between these Stages. The criteria used in each Stage are outlined in Sections 2.15 - 2.33 below.

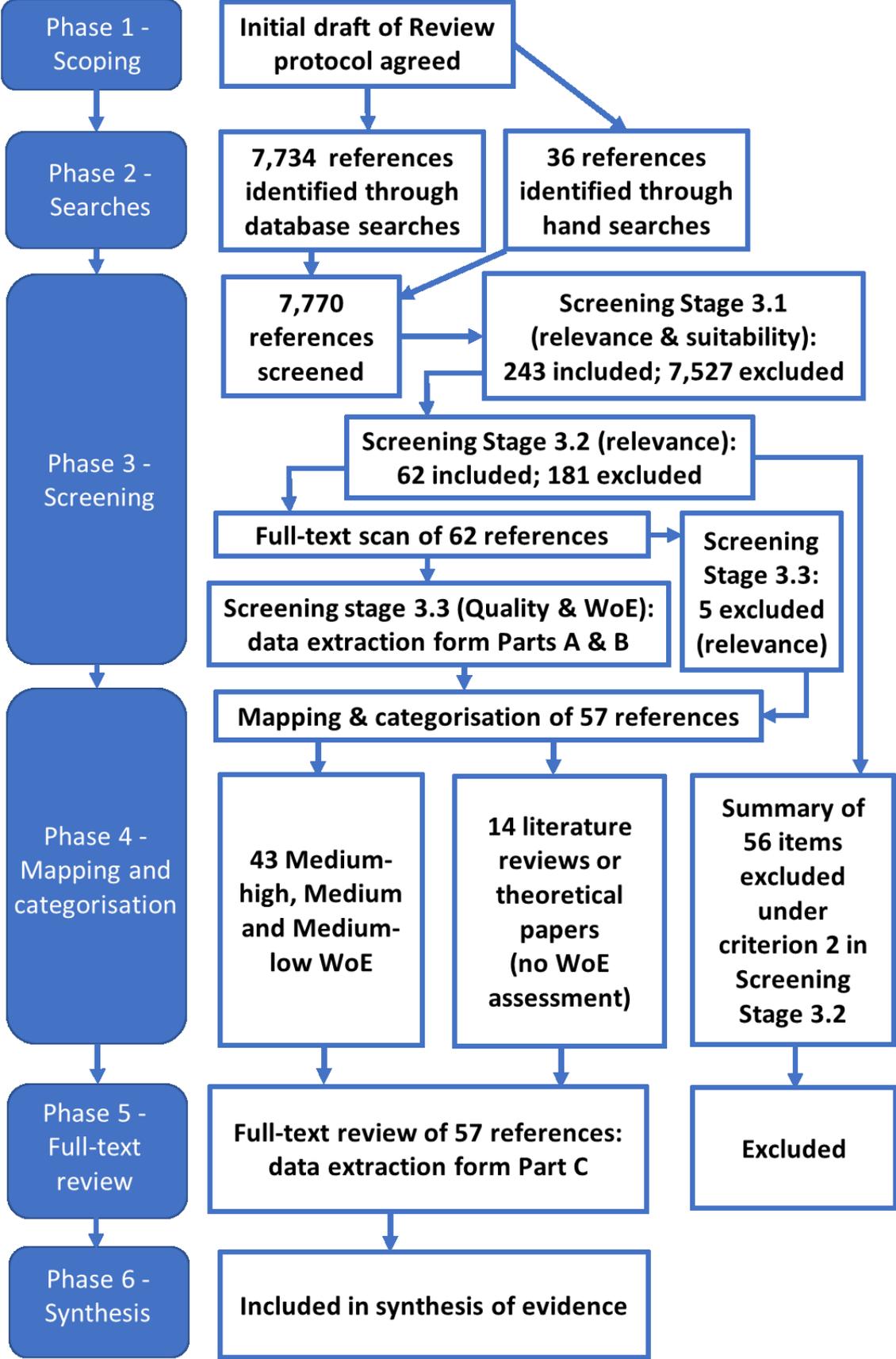
2.7 The data extraction form used (See Annex 1) was developed in Phase 1 and refined during the process of reviewing the protocol. Parts A and B of the data extraction form were completed based on a Full-text scan of each reference reaching Screening Stage 3.3.<sup>4</sup> Findings from these references were then recorded during Phase 4 (Mapping and Categorisation), but references categorised as 'Low' were to be excluded from Phase 5 (Full-text review) and 6 (Synthesis).<sup>5</sup> References categorised as 'Medium-high', 'Medium' and 'Medium-low' in Screening Stage 3.3 (quality and WoE) were reviewed in full during Phase 5, with findings documented in Part C of the data extraction form. Findings from the references reviewed in full during Phase 5 were included in the Synthesis (Phase 6). Figure 2 below provides an overview of the number of references identified, reviewed, included and excluded in each Phase of the Review.

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<sup>4</sup> A 'Full-text scan' is defined as a review focusing on specific sections of a text for the purpose of categorisation and assessing the quality of the methodology during data extraction, but without reviewing its findings in detail.

<sup>5</sup> A 'Full-text review' is defined as a review of whole text for the purpose of summarising its findings during data extraction.

**Figure 2. Flowchart of references included during each Phase of the Review**



### **Phase 1: Initial Scoping – develop and test search terms and criteria**

- 2.8 Phase 1 involved developing draft search terms and testing these by conducting dummy searches. This process led to a focus on three main categories of search terms: language, economy and relationship. Within each of these categories, key variants and sub-categories of search terms in English and Welsh were developed. This process led to a final agreed set of search terms which are shown in Figure 3 below.

**Figure 3. Key search terms**

**Language** – including Welsh OR Welsh language (y Gymraeg/yr iaith Gymraeg) and related terms – bilingual (dwyieithog) OR bilingualism (dwyieithrwydd) OR multilingual (amlieithog) OR multilingualism (amlieithrwydd) OR languages (ieithoedd) OR minority languages (ieithoedd leiafrifol) OR language planning (cynllunio ieithyddol) OR sociolinguistic (sosio-ieithyddol) OR sociology of language (cymdeithaseg iaith) OR language economy (economi-iaith) OR economics of language (economeg iaith).

AND

**Relationship** – to include relationship (cydberthynas) OR link (cyswllt) OR advantages (maintais OR manteision) OR benefit(s) (budd(ion)) OR disbenefit (anfantais) OR value (gwerth) OR outcome(s) (deiliant/deilliannau) OR impact (traweffaith) OR effect (effaith) OR cost(s) (cost(au)) OR increase (cynnydd/cynyddu) OR reduction (gostyngiad).

AND

**Economy** – including economy (economi) OR economic (economaidd) OR economics (economeg) OR catalyst (sbardun) OR driver (gyrrwr) OR business (busnes) OR commerce (masnach) OR commercial (masnachol) OR trade (masnachu) OR innovate (arloesi) OR innovation (arloesedd) OR grow (tyfu) OR growth (twf/tyfiant) OR enterprise (menter) OR entrepreneurship (mentergarwch) OR invest(ment) (buddsoddi(ad)) OR profit (elw) OR loss (colled) OR labour market (marchnad lafur) OR productivity (cynhyrchiant) OR employ (cyflogi) OR employable (cyflogadwy) OR employment (cyflogaeth) OR job (swydd) OR activity (gweithgarwch) OR inactivity (anweithgarwch) OR skill(s) (sgil(iau)) OR profile (proffil) OR profiling (proffilio) OR pay (tâl) OR wages (cyflog) OR sector(s) (sector(au)) OR industry (diwydiant/nau) OR cluster(s) (clwstwr/clystyrau) OR company/ies (cwmni(au)).

2.9 The search terms above were used to create search strings for each literature database used. The final search strings were tailored to meet the functionality of each database (see Table 1). For example, some databases limit the number of Boolean operators (AND/OR) that can be used. The search strings were used across the following databases:

- ProQuest;<sup>6</sup>
- UK Research and Innovation's (UKRI) Gateway to Research;<sup>7</sup>
- Scopus: a global abstract and citation database of peer-reviewed research titles;
- National Library of Wales Catalogue (a legal deposit library with a particular interest in Welsh and Welsh language material).

2.10 It was recognised in the Review protocol that searching databases would not identify all relevant literature, as many publications (including grey literature produced by organisations outside of the traditional academic or commercial publishing and distribution channels) would not be included in databases. Database searches were therefore combined with 'hand searching' of:

- Specific journals:
  - *Journal of Sociolinguistics*;
  - *International Journal of the Sociology of Language*;
- Search engines:
  - Google and Google Scholar;
  - Targeted organisation searches of the Welsh Government and Welsh Language Commissioner's websites and some telephone discussions with individuals and organisations to identify grey literature and access references that are

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<sup>6</sup> ProQuest is a large international multi-disciplinary database which enables access to 47 complete databases across over 175 subjects. It includes databases such as the International Bibliography of the Social Sciences and LLBA (Linguistics and Language Behaviour Abstracts).

<sup>7</sup> Includes data from the following funding organisations: Arts and Humanities Research Council (AHRC); Biotechnology and Biological Sciences Research Council (BBSRC); Economic and Social Research Council (ESRC); Engineering and Physical Sciences Research (EPSRC); Medical Research Council (MRC); Natural Environment Research Council (NERC); Science and Technology Facilities Council (STFC); Innovate UK; National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs).

unpublished. A list of the individuals interviewed is included in Annex C.

### *Data extraction forms*

- 2.11 A data extraction form was developed during Phase 1 and refined during Phase 3. The final data extraction form template is included in Annex 1 of this report and comprises three parts:
- Part A – used to record descriptive information about references (e.g. citation information, description of the methodology used);
  - Part B – used to record the Review team’s quality and WoE assessment;
  - Part C – used to summarise the findings of references and their contribution to the evidence base.
- 2.12 Parts A and B of the data extraction form were completed for all references reaching Screening Stage 3.3, which were assessed in terms of their quality and WoE and included in Phase 4 (Mapping and Categorisation). Part C of the data extraction form was only to be completed for those references categorised as ‘High’, ‘Medium-high’, ‘Medium’ or ‘Medium-low’ in the quality and WoE assessment (Part B of the data extraction form).<sup>8</sup>

### **Phase 2: Searches using agreed terms and criteria**

- 2.13 Phase 2 involved undertaking the searches using the terms and databases above. The number of document results were recorded in a tabular format. The search strings and number of results for each of the databases are set out in Table 1 below.

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<sup>8</sup> As noted in Section 2.33, no references were categorised as ‘Low’ in Screening Stage 3.3, which meant that Part C was completed for all the references subjected to a WoE assessment.

**Table 1. Search strings**

Database	Search strings used. <sup>9</sup>	Number of results
Scopus	( TITLE ( bilingual* ) OR TITLE ( multilingual* ) OR TITLE ( language ) AND TITLE-ABS-KEY ( "minority language" ) OR TITLE-ABS-KEY ( "Welsh language" ) AND TITLE-ABS-KEY ( econom* ) OR TITLE-ABS-KEY ( business ) OR TITLE-ABS-KEY ( commerc* ) OR TITLE-ABS-KEY ( trade ) OR TITLE-ABS-KEY ( innov* ) OR TITLE-ABS-KEY ( enterpris* ) OR TITLE-ABS-KEY ( entrepren* ) OR TITLE-ABS-KEY ( investment ) OR TITLE-ABS-KEY ( profit ) OR TITLE-ABS-KEY ( "labour market" ) OR TITLE-ABS-KEY ( employ* ) OR TITLE-ABS-KEY ( job ) OR TITLE-ABS-KEY ( activity ) OR TITLE-ABS-KEY ( skill* ) OR TITLE-ABS-KEY ( pay ) OR TITLE-ABS-KEY ( wages ) OR TITLE-ABS-KEY ( sector* ) OR TITLE-ABS-KEY ( industr* ) OR TITLE-ABS-KEY ( cluster* ) OR TITLE-ABS-KEY ( compan* ) ) OR TITLE-ABS-KEY ( "language planning" ) OR TITLE-ABS-KEY ( sociolinguistic ) OR TITLE-ABS-KEY ( "sociology of language" ) OR TITLE-ABS-KEY ( "language-economy" ) OR TITLE-ABS-KEY ( "economics of language" ) AND TITLE-ABS-KEY ( relationship ) OR TITLE-ABS-KEY ( link ) OR TITLE-ABS-KEY ( advantage* ) OR TITLE-ABS-KEY ( benefit ) OR TITLE-ABS-KEY ( disbenefit ) OR TITLE-ABS-KEY ( value ) OR TITLE-ABS-KEY ( impact ) OR TITLE-ABS-KEY ( effect ) OR TITLE-ABS-KEY ( cost* ) OR TITLE-ABS-KEY ( increase ) OR TITLE-ABS-KEY ( reduction )	2,520
ProQuest	(ti("Welsh language" OR bilingual* OR multilingual* OR "minority language*") AND ("econom*" OR "language planning" OR sociolinguistic* OR "sociology of language") AND (Relationship OR link OR advantage OR benefit OR disbenefit OR value OR impact OR effect OR cost OR increase OR reduction OR driver OR catalyst) AND (Economy OR business OR commercial OR trade OR innovation OR grow OR enterprise OR profit OR labour OR market OR productivity OR employ OR job OR activity OR skill OR pay OR wages OR sector OR industry OR cluster OR company))	2,146
National Library of Wales (English-language searches)	Title contains language* OR bilingual* OR multilingual* AND Any field contains "econom*" OR "language planning" OR sociolinguistic* OR "sociology of language" OR relationship OR link OR advantage OR benefit OR value OR impact OR effect OR cost OR increase OR reduction AND Any field contains business OR commercial OR trade OR profit OR "labour market" OR productivity OR employ OR job OR activity OR skill OR pay OR wages OR sector OR industry OR company	116
National Library of Wales	Title contains iaith OR ieithoedd OR dwyieith* OR amlieith*	2,649

<sup>9</sup> ABS = Abstract; KEY = Key word.

(Welsh-language searches)	AND Any field contains econom* OR "cynllunio ieithyddol" OR "socio-ieithyddol" OR "cymdeithaseg iaith" OR cydberthynas OR cyswllt OR maintais OR manteision OR gwerth OR effaith OR cost OR cynnydd OR gostyngiad  AND Any field contains  busnes OR masnach OR elw OR "marchnad lafur" OR cynhyrch OR cyflog OR swydd OR weithgarwch OR sgil OR tâl OR sector OR diwydiant OR cwmni	
UKRI	bilingual* OR multilingual* OR "minority language"	303
<b>Total</b> (not including 36 items found through hand searches)		<b>7,734</b>

2.14 Prior to exporting references from the online databases for manual screening, it was possible to exclude some items using online database filters. For example, some databases enable items in languages other than Welsh or English to be excluded, and some enable certain types of documents (e.g. conference papers, newspaper articles) to be excluded. From Phase 2 onwards, details of references that were exported from databases for manual screening were recorded in a spreadsheet. This enabled inclusion and exclusion codes to be recorded against each reference from Phase 3 onwards, and for extracted data to be recorded on those references that reached Screening Stage 3.3.

### **Phase 3: Screening**

2.15 The screening was undertaken in three Stages, as outlined below. At each Stage of the screening process, the research team communicated regularly to reach consensus and ensure consistency of decision-making. As part of this process, at Screening Stage 3.1, two researchers screened 50 of the same references using the same inclusion/exclusion criteria to compare results. At Screening Stage 3.2, two researchers screened 30 of the same references using the same inclusion/exclusion criteria to compare results. At Screening Stage 3.3, two researchers screened 10 of the same references using the WoE criteria to compare results. No changes were

made to the criteria following this process, and consensus was reached on their interpretation at each Screening Stage.

2.16 Throughout the Screening Phase, the following criteria were used to decide whether references which focused on languages other than Welsh should be included. References were included in the Review if:

- the language under discussion co-exists with another language which is spoken by the majority of the population in the state or territory under consideration.

AND

- the language shares at least one of the following characteristics with the Welsh language.
  - Has official (or co-official) status within the territory under consideration;
  - Is taught and / or is used as a medium of teaching in the territory's education system;
  - Is a required or desired competency for at least some jobs in the territory under consideration.

2.17 This definition meant that some references were included which focus on languages which are minority languages in one context, but are majority languages in another, for example, Spanish in the USA and Italian in Switzerland.<sup>10</sup>

### *Screening Stage 3.1: relevance and suitability (based on title and abstract)*

2.18 During Screening Stage 3.1 the titles and abstracts from Searches were assessed for their relevance and suitability to the study. The following exclusion criteria were used to assess and exclude sources:

- Not suitable material:

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<sup>10</sup> It should be noted also that Spanish in the USA encompasses a variety of situations, in terms of the percentages of Spanish speakers in different states and the extent to which the language is used. This needs to be taken into account when examining the relationship between language and the economy in the USA.

- For example, conference papers, media articles or PR items were excluded. Journal articles, research reports, book chapters and other research were included.
- Not relevant material:
  - Not exploring the relationship between the Welsh language (or another relevant language as defined in Section 2.16) and at least one of the economic factors or variables listed in the search terms;
- Not enough abstract information:
  - Insufficient information on which to base judgement. Records with no abstract were queried and if no abstract was manually found, they were excluded.
- Languages other than Welsh or English:
  - The abstract or full reference was not available in Welsh or English.
- Not accessible:
  - Not possible to access the abstract or full reference within a reasonable timescale;
- Not within the right timeframe:
  - A date limit of 1960 onwards was used. The rationale for including research from this year onwards was that the 1960s is generally regarded as a significant period in the development of the field of sociolinguistics.<sup>11</sup>

Duplicate items were also removed during this Screening Stage.

2.19 A total of 7,770 references were screened during Stage 3.1, and 7,527 of them were excluded as a result of one or more of the above criteria. Of those references excluded, 3,463 were excluded based on online database filters (e.g. filtering out references in languages other than Welsh or English), while 4,064 were excluded following manual screening by a researcher.

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<sup>11</sup> See for example Coupland and Jaworski (1997).

- 2.20 The total number of references and number excluded was recorded during Screening Stage 3.1, and a list of the subject categories of excluded literature is included in Annex B. Detailed information on the references excluded at this Stage was not recorded.
- 2.21 A total of 243 references which did not meet any of the above exclusion criteria were carried forward to Screening Stage 3.2.

*Between Screening Stage 3.1 and 3.2: Revision of Review Protocol*

- 2.22 At the end of Screening Stage 3.1, the Review Protocol was revised to include a set of inclusion/exclusion criteria for Screening Stage 3.2. These focused in greater detail on the degree to which each reference was relevant to the Review question. The Screening Stage 3.2 criteria were:
0. No reference to a relationship between language and the economy/economic outcomes or variables - **Exclude**.
  1. Reference is made to the relationship between language and the economy/economic outcomes or variables, but there is no specific discussion or examination of the relationship – **Exclude**.
  2. The relationship between language and economy/economic outcomes or variables is discussed, but is not examined in detail and is not a focus of the study/paper – **exclude from Synthesis but include summary in Mapping**.
  3. A relationship between language and economy/economic outcomes or variables is examined in detail and is a focus of the study/paper – **Proceed to Stage 3.3**.
  4. Not accessible: not possible to access the abstract or full reference within a reasonable timeframe – **Exclude**.
- 2.23 All references reviewed at Screening Stage 3.2 were categorised according to subject and methodological focus, and a summary of the number of references in each category was included in the Mapping Phase (Phase 4).

*Screening Stage 3.2: relevance (based on title and abstract)*

- 2.24 Titles and abstracts progressing from Screening Stage 3.1 were exported for analysis at Screening Stage 3.2. Screening Stage 3.2 identified references that were relevant to the Review question based on the revised review criteria in Section 2.22 above. Two researchers screened a sample of the same 30 references to pilot the revised exclusion criteria and ensure consistency in their application. No changes were made to the criteria following this process, and consensus was reached on the interpretation of the criteria.
- 2.25 Details relating to the references excluded at Screening Stage 3.2 are recorded in Table 2 below. A total of 243 items progressed from Screening Stage 3.1 and these were screened using the revised set of inclusion/exclusion criteria for Screening Stage 3.2. A total of 181 of the 243 references were excluded, with 62 included. The results are shown below.

**Table 2. Screening Stage 3.2 results**

<b>Screening Stage 3.2 criteria</b>	<b>Number of references</b>
0. No reference to a relationship between language and the economy/economic outcomes or variables - <b>exclude</b>	10
1. Reference is made to the relationship between language and the economy/economic outcomes or variables, but there is no specific discussion or examination of the relationship – <b>exclude</b> .	113
2. The relationship between language and economy/economic outcomes or variables is discussed, but is not examined in detail and is not a focus of the study/paper – <b>exclude from Synthesis but include summary in Mapping</b> .	56
3. A relationship between language and economy/economic outcomes or variables is examined in detail and is a focus of the study/paper – <b>proceed to Stage 3.3</b> .	62
4. Not accessible: not possible to access the abstract or full reference within a reasonable timeframe – <b>exclude</b> .	2
<b>Total screened during Screening Stage 3.2</b>	<b>243</b>

2.26 The 62 references (Criterion 3 in Table 2 above) that were not excluded during Screening Stage 3.2 progressed to a Full-text scan during Screening Stage 3.3 and were included in Phase 4 (Mapping and Categorisation). Additionally, a summary of the 56 items excluded based on Criterion 2 above were included in Phase 4 (Mapping and Categorisation). A data extraction form was completed for all references that progressed to Screening Stage 3.3.

### *Screening Stage 3.3: Assessment of Quality and WoE (Full-text scan)*

2.27 A Full-text scan of 62 items progressing from Screening Stage 3.2 was undertaken during Screening Stage 3.3. This involved assessing the **quality** and **WoE** of each reference. This focused on Questions 2 and 3 of the Review objectives (see Section 1.4), namely *How has this evidence been collected?* and *What is the quality of the evidence we have about the relationship between the Welsh language and the economy?*

2.28 Screening Stage 3.3. involved recording information on the quality of each reference in Part B of the data extraction form. The quality questions examine the clarity of each study's aims as well as the clarity, justification and replicability of the methodology and research tools. They also enable any concerns or issues relating to the quality of the methodology or findings to be recorded.

2.29 Screening Stage 3.3 also involved a WoE assessment which categorised and scored each reference according to three criteria: the reference's contribution to answering the Review question; the reference's appropriateness in relation to the Review question, and the overall validity of each reference's methodology. The contribution and appropriateness criteria can therefore be considered 'review specific criteria', as described by Gough (2007). On the other hand, the validity criterion can be considered 'generic', defined as assessing whether a study '...is well executed, whether or not it is useful in answering the review question'

(Gough, 2007). The WoE criteria are shown in Table 3 below, with the full data extraction form included in Annex A.

**Table 3. WoE criteria**

WoE question	WoE category
<p><b>B1: Contribution.</b></p> <p><b>Extent to which the research contributes to existing evidence relating to this Review’s primary research question</b></p>	<p><b>High</b> - Findings make a substantial contribution to existing evidence. <b>Score 3.</b></p> <p><b>Medium</b> - Findings make a reasonable contribution to existing evidence. <b>Score 2.</b></p> <p><b>Low</b> - Findings add little to the existing evidence. <b>Score 1.</b></p>
<p><b>B2. Appropriateness.</b></p> <p><b>Extent to which the methodology is appropriate for drawing robust conclusions relating to this Review’s primary research question</b></p>	<p><b>High</b> – Fair and clear experimental design, well designed Randomised Controlled Trial. <b>Score 3.</b></p> <p><b>Medium</b> – Well-matched comparison group, quasi-experimental approach. <b>Score 2.</b></p> <p><b>Low</b> – Comparison group with poor or no matching; or no comparison group; or mainly descriptive or qualitative evidence. <b>Score 1.</b></p>
<p><b>B3: Validity.</b></p> <p><b>The extent to which the study findings are valid and reliable.</b></p>	<p><b>High</b> - Robust, valid outcomes, standardised or widely acceptable. No leakage or bias. <b>Score 3.</b></p> <p><b>Medium</b> - Robust, valid outcomes. Some threats to validity and reliability. <b>Score 2.</b></p> <p><b>Low</b> - Concerns about validity and reliability. <b>Score 1.</b></p>
<p><b>B4. Overall rating and WoE.</b></p> <p><b>Taking into account all the questions above, what is the strength of the study in providing an insight into the relationship between the Welsh language (or other relevant language) and economic outcomes or economic variables?</b></p>	<p>Overall rating to be calculated based on responses to B1, B2 and B3 above using following method:</p> <p>Total score 9 = <b>High</b></p> <p>Total score 7-8 = <b>Medium-high</b></p> <p>Total score 6 = <b>Medium</b></p> <p>Total score 4-5 = <b>Medium-low</b></p> <p>Total score 3 = <b>Low</b></p>

- 2.30 Two researchers screened 10 references using the quality and WoE criteria to compare results and ensure consistency of decision making. No changes were made to the criteria following this process, and consensus was reached on the interpretation of the criteria.
- 2.31 Following Screening Stage 3.3, references that were categorised as 'Low' in terms of our WoE criteria (defined in the data extraction form in Annex A as contribution, appropriateness, validity) were to be excluded from Phase 5 (Full-text review) and Phase 6 (Synthesis). However, all references reviewed during Screening Stage 3.3 (including those excluded from Phases 5 and 6) were to be included in Phase 4 (Mapping and Categorisation) to ensure that the Review provided an overview of the topics covered and methods used in studies, regardless of their WoE category.
- 2.32 Five items, which had progressed from Screening Stage 3.2 (based on a review of the title and abstract), were excluded following this Full-text scan, on the basis of their relevance. Of the 57 remaining, a Full-text scan, quality and WoE assessment and data extraction form were completed for 43 items during Screening Stage 3.3.
- 2.33 None of the 43 references was categorised as 'High' or 'Low' in terms of the overall WoE. Therefore, all of the 43 references were included in Phases 4-6 of the Review. Eleven of these were categorised as 'Medium-high', seven as 'Medium' and 25 as 'Medium-low'. A summary of these items, including their WoE categories, is included in Table 4 below.

**Table 4. Screening Stage 3.3 results: Assessment of Quality and WoE**

Overall WoE category	Number of references	Summary of study types and methods based on Full-text scan
High	0	No references were categorised as 'High' in terms of their WoE. See Section 3 for a detailed breakdown of the WoE categories.
Medium-high	11	10 data analysis studies (labour market studies examining earnings, employment etc), 1 mixed methods study
Medium	7	2 literature and/or data analysis studies, 2 mixed methods studies (survey and qualitative research), 2 surveys, 1 qualitative research study
Medium-low	25	8 economic assessments, 6 mixed methods studies, 6 data/literature analysis studies, 4 qualitative studies, 1 survey
Low	0	No references were categorised as 'Low' in terms of their WoE. See Section 3 for a detailed breakdown of the WoE categories.
<b>Total</b>	<b>43</b>	18 literature and/or data analysis, 9 mixed methods studies, 8 economic assessments, 5 qualitative research, 3 surveys.

2.34 A Full-text scan and data extraction form were also completed for the remaining 14 items. These comprised 12 literature reviews and two theoretical papers. However, these were not screened using the quality and WoE criteria outlined in the Review protocol because some of the quality and WoE criteria were not fully suitable for these types of studies. These items were included in the Synthesis and report, but their findings are reported separately from the other items.

#### **Phase 4: Mapping and Categorisation of evidence**

2.35 Some Mapping and Categorisation of evidence took place on an ongoing basis during Phase 3 of the research. In Screening Stages 3.1 and 3.2, the excluded literature was categorised by sub-group (e.g. education and language, linguistic history and heritage). A table showing the number of references in each of these sub-categories is included in Annex B. Additionally, a summary of items excluded under Criterion 2 in Screening Stage 3.2 (See Table 2) was included in Phase 4. These are references where the relationship between language and the economy/economic outcomes or variables is discussed, but is not examined in detail and is not

a focus of the study/paper. However, the main Mapping and Categorisation (Phase 4) took place following the completion of Screening Stage 3.3 using data recorded in Parts A and B of the data extraction form. This information was used to map the coverage of the evidence, to understand the amount, type and quality of evidence in various topic areas. This enabled the Review to identify what gaps there are in the evidence base. The findings of the Mapping and Categorisation Phase are set out in Section 3 of this report.

### **Phase 5: Full-text review**

- 2.36 A full review of each reference categorised as ‘Medium-high’, ‘Medium’ or ‘Medium-low’ in Screening Stage 3.3 (Assessment of Quality and WoE) was undertaken in Phase 5.<sup>12</sup> This Full-text review was more detailed than the Full-text scan undertaken during Screening Stage 3.3 for the quality and WoE assessment and Phase 4 for the Mapping and Categorisation of evidence. The Full-text review included a greater focus on the findings of each reference, rather than focusing solely on describing and assessing the methods used. The key findings of each reference were recorded in Part C of the data extraction form.

### **Phase 6: Synthesis**

- 2.37 Phase 6 involved a Synthesis of the findings of references which were categorised as ‘Medium-high’, ‘Medium’ or ‘Medium-low’ in Screening Stage 3.3 (Assessment of Quality and WoE).<sup>13</sup> The Synthesis was developed based on the findings recorded for each reference in Part C of the data extraction form. The Synthesis summarised how comprehensive the evidence is, methods employed, and how valid and appropriate the evidence and methods are by topic.

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<sup>12</sup> As noted in Section 2.33, no references were categorised as ‘High’ or ‘Low’ in Screening Stage 3.3.

<sup>13</sup> See footnote 12.

2.38 This final report includes descriptive Mapping of the evidence mapped and categorised in Phase 4 (See Section 3), and a Synthesis of the references which underwent a Full-text review during Phase 5 (See Section 4). The report examines the coverage and summarises the volume and WoE by topic. The report also summarises the main messages emerging from the evidence by topic and identifies gaps in the current evidence base (in terms of the amount and quality of the evidence). It also includes proposals for strengthening the evidence base in order to fill these gaps.

### **Methodological challenges and limitations**

- 2.39 Undertaking the Review involved a number of methodological considerations and challenges. One of the risks associated with the REA methodology adopted for this study is that, compared with a systematic literature review, it reduces the amount of time available for identifying, screening and reviewing literature, with this increasing the risk of bias being introduced. Systematic reviews are considered more robust mainly because they reduce the likelihood of bias in the way studies are found, included and synthesised. They also provide more opportunities to revisit and reformulate the research question or inclusion criteria, if required (Government Social Research, 2013).
- 2.40 One of the methodological considerations for the Review was the wide-ranging nature of the topics under consideration: both *language* and *economy* include a very broad range of sub-categories. This meant that the initial searches yielded a large volume of references to be screened. To address this, the inclusion and exclusion criteria were revised during the Screening Phase to focus on the references deemed to be most relevant to the Review's question. However, it should be acknowledged that this involved a degree of judgement by the Review team. Two researchers tested the inclusion and exclusion criteria in each Screening Phase in an attempt to control this and ensure consistency of decision-making.

- 2.41 During Screening Stages 3.1 and 3.2, the large volume of references to be screened manually led to the Review team including and excluding relevant items based on their title and abstract only. This presented some challenges in interpreting whether the references were relevant or not based on fairly limited information. In some cases, titles and abstracts suggested a greater focus on the relationship between language and economy than proved to be the case. This meant some references were deemed relevant in Screening Stages 3.1 and 3.2, but were not considered relevant in later Screening Stages, when subjected to a Full-text scan. Similarly, some relevant references may not have been identified during the Searches or included during the Screening Phase if their titles and abstracts did not include key search terms or enough information of relevance to the Review question.
- 2.42 The process of making decisions on whether the linguistic context of each study was relevant to the Review also presented some challenges. The criteria in Section 2.16 of this report were used to consider whether the language(s) under consideration in each reference should be considered relevant to the Welsh linguistic context. These criteria did not exclude languages that are minority languages in one context, but majority languages in another (e.g. Italian in Switzerland, Russian in Estonia, Spanish in the USA). This means that some references are included which are less comparable than others to the Welsh linguistic context. However, some of the findings and methods in these provide insights deemed to be relevant to the Review. More generally, caution needs to be exercised when studies relating to languages other than Welsh are considered, owing to the specific sociocultural and / or socioeconomic characteristics of the linguistic contexts in question.
- 2.43 Combining a review of both evidence and methods presented some challenges for the study. Developing inclusion, exclusion and WoE criteria that could be applied to a wide range both of different types of methodological approaches (e.g. qualitative, quantitative, mixed methods)

and also of topic areas was challenging. The WoE criteria were adapted based on a review of previous REAs and other literature (Welsh Government, 2018; Alliance for Useful Evidence, 2018; Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), 2007; National Centre for Social Research, 2003; Government Social Research, 2013; Murphy, 2015). Some of the WoE criteria were more suitable for assessing quantitative studies than mixed methods studies. In addition, the criteria were not considered suitable for assessing the literature reviews and theoretical studies that were reviewed.

### **3. Mapping and Categorisation of Evidence**

- 3.1 This section outlines the findings of Phase 4 of the Review: the Mapping and Categorisation of evidence. The Mapping and Categorisation Phase focused on the 57 references that were subjected to a Full-text scan during Screening Stage 3.3. These were references that had progressed from Screening Stage 3.2, where it was considered that a relationship between language and the economy, economic outcomes or variables is examined in detail and is a focus of the study/paper.
- 3.2 In addition, a summary of 56 references which were excluded at Screening Stage 3.2 is included in Phase 4. These were references where the relationship between language and economy/economic outcomes or variables is discussed, but is not examined in detail and is not a focus of the study/paper (See Criterion 2 in Table 2).

#### **Overview of linguistic, economic and methodological focus of the evidence**

- 3.3 This section summarises the evidence reviewed in terms of the languages under consideration and the economic outcomes or variables being examined. It also summarises the main methods used in the studies reviewed.

#### *Languages considered*

- 3.4 Of the 57 references reviewed in Screening Stage 3.3, 31 were focused on the Welsh language; 17 focused on one or more other languages, and nine focused on bilingualism or multilingualism more generally (e.g. literature reviews drawing on findings from several sources). The number of references focusing on languages other than Welsh were as follows:
- Gaelic in Scotland – 4;
  - Irish – 3;
  - Spanish in the USA – 3;

- Basque – 1;
- Catalan – 1;
- Italian in Switzerland – 1;
- Italian, Slovene and Hungarian in Slovenia – 1;
- Russian in Estonia – 1;
- Frisian in the Netherlands – 1
- Several languages including Welsh, Gaelic, Catalan, Basque, Frisian, Slovene and Breton - 1.

### *Economic outcomes or variables considered*

3.5 Labour market outcomes or variables are those most commonly examined in the literature, with 23 out of the 57 references exploring the relationship between language and earnings, employment, economic activity or inactivity, skills needs or occupational outcomes. Eight of the 57 references focus on the relationship between language and expenditure or economic output. These include economic assessments of the relationship between activities relating to language, such as the expenditure of linguistic organisations or TV channels, and business turnover or Gross Value Added (GVA). Twelve references (mainly literature reviews) explore the relationship between language and economy in more general terms, including theoretical modelling of these links, the effects of the economy on language, and issues such as language and economic integration. Eleven references explore issues relating to language and business, including language use, attitudes to entrepreneurship, perceived benefits and potential value to businesses. Three references examine other areas such as consumer attitudes and behaviour, marketing and business advertising choices.

## Methods used

3.6 The most commonly employed methods within the reviewed documents were literature reviews and/or secondary data analysis. These were the main methods employed in 32 out of the 57 references. Other studies included some element of literature review and/or data analysis, but this was not the main methodological approach. Eight references were economic assessments, typically involving a mix of data analysis and primary research. Nine were mixed methods studies, five were qualitative research studies and three were surveys. Table 5 provides a brief summary of the main methods employed according to the economic outcome or variable examined.

**Table 5. Main methods used in references according to economic outcomes or variables being explored**

Economic outcome or variable		Number of studies and main method(s) used
Labour market	Employment, participation, activity/inactivity, skills needs, occupational outcomes	<b>16:</b> 11 literature and/or data analysis, 3 mixed methods, 1 survey, 1 qualitative study
	Earnings, wages, income	<b>7:</b> 6 literature and/or data analysis, 1 theoretical study
Expenditure and economic output (e.g. turnover, GVA)		<b>8:</b> all assessments of economic value or impact – data analysis and some primary research
Economy – general (including theoretical modelling, economic integration, studies examining many aspects of the economy)		<b>12:</b> 11 literature reviews and/or data analysis; 1 mixed methods
Business (including use, perceived benefits and potential value to businesses)		<b>11:</b> 4 qualitative studies, 4 mixed methods studies, 2 literature review and/or desk-based analysis, 1 survey
Consumer attitudes, business marketing and behaviour		<b>3:</b> 2 surveys, 1 data analysis

## **Overview of linguistic, economic and methodological focus of the evidence by WoE category**

- 3.7 As noted in Section 2.33, 11 of the 57 references reviewed were categorised as ‘Medium-high’, seven as ‘Medium’ and 25 as ‘Medium-low’.<sup>14</sup> This sub-section examines the evidence within each of these categories, in turn, and provides an overview of the languages, economic outcomes or variables examined and the methods used in these studies.

### *References categorised as ‘Medium-high’ in terms of their WoE*

- 3.8 Table 6 provides a summary of the WoE assessment for references categorised as ‘Medium-high’. None of these studies were categorised overall as ‘High’ because of their ‘Appropriateness’ weighting. This was because none scored the maximum three in terms of the extent to which the methodology is appropriate for drawing robust conclusions relating to this Review’s primary research question. To be categorised as ‘High’ in terms of ‘Appropriateness’, references would have been required to meet the following criterion: ‘Fair and clear experimental design, well designed Randomised Controlled Trial’. All of the references in this category adopted a quasi-experimental design, with a matched comparison group, and were therefore categorised as ‘Medium’ in terms of their ‘Appropriateness’ for answering this Review’s question. This does not mean that these studies adopted an inappropriate design for answering their own research questions. The categorisation reflects each reference’s contribution and appropriateness in terms of answering this Review’s primary research question only. It also assesses the overall validity of each reference (See Section 2.29 for further detail on the WoE categories).
- 3.9 In terms of economic outcomes or variables, all 11 studies categorised as ‘Medium-high’ explore the relationship between language and labour market outcomes. Seven of these focus on employment, occupational status and/or

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<sup>14</sup> 14 literature reviews or theoretical papers were not assigned a weight of evidence category.

economic inactivity; two focus specifically on earnings, and two examine both earnings and employment status.<sup>15</sup> Ten of the studies primarily involved the use of data analysis methods, whilst one mixed methods study included a survey, literature review and data analysis.

- 3.10 Six of the studies focus on the Welsh language, with the others examining Irish, Italian in Switzerland, Spanish in the USA, Russian in Estonia and French in Canada.

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<sup>15</sup> Employment status including employment/unemployment rates, economic inactivity and occupational outcomes.

**Table 6. Summary of WoE categories for evidence categorised as ‘Medium-high’**

Reference	WoE category (see Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
<b>References focusing on the Welsh language</b>				
Blackaby, D.H. and Drinkwater, S.J. (1997). ' <a href="#">Welsh speakers and the Labour Market</a> ', <i>Contemporary Wales</i> , Vol. 9 pp. 158-70 [Online] (Accessed 23rd January 2020).	High	Medium	High	Medium-high
Blackaby, D.H., Latreille, D., Murphy, P., O'Leary, N. and Sloane, P. (2006). <a href="#">The Welsh Language and Labour Market Inactivity. Report for the Economic Research Unit</a> , <i>Welsh Assembly Government</i> [Online] (Accessed 23rd January 2020).	High	Medium	High	Medium-high
Drinkwater, S.J. and O'Leary, N. C. (1997). ' <a href="#">Unemployment in Wales: Does Language Matter?</a> ', <i>Regional Studies</i> , 31:6 pp. 583-591 [Online] (Accessed 23rd January 2020).	High	Medium	High	Medium-high
Henley, A. and Jones, R.E. (2005). ' <a href="#">Earnings and Linguistic Proficiency in a Bilingual Economy</a> ', <i>Social Science Research Network</i> , Vol. 73, No. 3, pp. 300-320 [Online] (Accessed 23rd January 2020).	High	Medium	High	Medium-high
Hughes, G. and Sherwood, A. (1995). <i>Economic Activity and Linguistic Characteristics in Wales: analysis of Census of Population Results</i> ,	High	Medium	High	Medium-high

1981-1991. <i>A report to Menter a Busnes</i> . Welsh Institute of Rural Studies, University of Wales, Aberystwyth				
Hughes, G., Midmore, P. and Sherwood A. (2000). 'The Welsh Language and Agricultural Communities in the Twentieth Century', in Jenkins, G.H. and Williams, M.A. (eds) (2000). <i>Let's Do Our Best for the Ancient Tongue - The Welsh Language in the Twentieth Century</i> , Reprint, Wiltshire: CPI Anthony Rowe, 2015 pp. 551-576.	Medium	Medium	High	Medium-high
<b>References focusing on other languages</b>				
Borooh, V.K., Dineen, D.A. and Lynch, N. (2009). ' <a href="#">Language and occupational status: linguistic elitism in the Irish labour market</a> ', <i>Economic &amp; Social Review</i> , Vol. 40, no. 4, Winter, 2009, pp. 435-460 [Online] (Accessed 23rd January 2020).	High	Medium	High	Medium-high
Grin, F. and Sfreddo, C. (1998). ' <a href="#">Language-based earnings differentials on the Swiss labour market: is Italian a liability?</a> ', <i>International Journal of Manpower</i> , Vol. 19, No. 7 pp. 520-532 [Online] (Accessed 23rd January 2020).	High	Medium	High	Medium-high
Grin, F., Sfreddo, C. and Vaillancourt, F. (2011). <i>The Economics of the Multilingual Workplace</i> , pp. 1-227. Routledge, New York.	High	Medium	High	Medium-high

<p>Lindemann, K. (2014). <a href="#">‘The Effects of Ethnicity, Language Skills, and Spatial Segregation on Labour Market Entry Success in Estonia’</a>, <i>European Sociological Review</i>, 30 pp. 35-48 [Online] (Accessed 23rd January 2020).</p>	<p>Medium</p>	<p>Medium</p>	<p>High</p>	<p>Medium-high</p>
<p>Robinson-Cimpian, J.P. (2014). <a href="#">‘Labor Market Differences Between Bilingual and Monolingual Hispanics’</a>, in Callahan, R.M. and Gándara, P.C. (eds) (2014). <i>The bilingual advantage: Language, literacy and the US labor market</i> pp. 79-109 [Online] (Accessed 23rd January 2020).</p>	<p>Medium</p>	<p>Medium</p>	<p>High</p>	<p>Medium-high</p>

*References categorised as 'Medium' in terms of their WoE*

- 3.11 Table 7 provides a summary of the WoE assessment for the seven references categorised as 'Medium'. As noted in Section 3.8, the WoE Categorisation below reflects each reference's contribution and appropriateness in terms of answering this Review's primary research question, while the validity category reflects a generic assessment of the WoE given to each reference. The contribution and appropriateness WoE categories do not therefore represent a judgement on the quality of the references in terms of answering their own research questions (See Section 2.29 for further detail on the WoE categories).
- 3.12 In terms of economic outcomes or variables, five of the studies examine labour market outcomes or variables; two of these focus specifically on earnings, two on the skills needs of businesses and one on attitudes to entrepreneurship and business. One of the studies focuses on the use of the language in business, and one on consumer attitudes to language.
- 3.13 In terms of the methods used, two of the studies primarily involve data analysis methods, two adopt a mixed methods approach (both included a survey and qualitative research), two are surveys and one is a qualitative study.
- 3.14 Five of the studies focus on the Welsh language, with one examining Spanish in the USA and one examining French and several other languages in Canada.

**Table 7. Summary of WoE categories for evidence categorised as ‘Medium’**

Reference	WoE category (see Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
<b>References focusing on the Welsh language</b>				
Beaufort Research (1999). <i>Attitudes to business: 1999. Research report. A report to Menter a Busnes</i> . Unpublished.	High	Low	Medium	Medium
Beaufort Research and Menter a Busnes (2005). <i>Future Skills Wales Survey – Welsh Language Skills in Seven Sectors. A report to the Future Skills Wales Partnership</i> . Unpublished.	High	Low	Medium	Medium
Welsh Assembly Government Economic Research Unit (2008). <a href="#">Use of the Welsh Language in the Private Sector: Case Studies</a> [Online] (Accessed 23rd January 2020).	High	Low	Medium	Medium
Welsh Government (2014c). <a href="#">Welsh language skills needs in eight sectors</a> [Online] (Accessed 23rd January 2020).	High	Low	Medium	Medium
Welsh Language Commissioner (2017). <a href="#">Welsh in the shopping basket: customer attitudes to the use of Welsh by supermarkets</a> [Online] (Accessed 23rd January 2020).	High	Low	Medium	Medium

References focusing on other languages				
Pendakur, K. and Pendakur, R. (2002). ' <a href="#">Language as both human capital and ethnicity</a> ', <i>International Migration Review</i> , 36 pp. 147-177 [Online] (Accessed 23rd January 2020).	Medium	Medium	Medium	Medium
Subtirelu, N. (2017). ' <a href="#">Raciolinguistic ideology and Spanish-English bilingualism on the US labor market: An analysis of online job advertisements</a> ', <i>Language in Society</i> , Vol. 46 pp. 477–505 [Online] (Accessed 23rd January 2020).	Medium	Medium	Medium	Medium

### *References categorised as 'Medium-low' in terms of their WoE*

- 3.15 Table 8 provides a summary of the WoE assessment for the 25 references categorised as 'Medium-low'. As noted in section 3.8, the Categorisation below reflects each reference's contribution and appropriateness in terms of answering this Review's primary research question, as well as an overall assessment of the validity of each reference's methodology. The contribution and appropriateness categories do not therefore represent a judgement on the quality of the references in terms of answering their own research questions.
- 3.16 In terms of their economic focus, eight of the studies are economic assessments exploring variables such as expenditure, turnover, output and employment. Five of the references are labour market studies examining variables such as occupational status, employment and/or earnings. Three examine the value of language skills in businesses or organisations. Three of the references examine business managers' attitudes to the Welsh language and two examine various aspects of the relationship between language and the economy. One reference analyses businesses' advertising choices and one explores consumer preferences in terms of marketing in a minority language. One reference examines perceptions of Irish language business initiatives and one considers the potential use of the Welsh language in future European-funded economic development projects.
- 3.17 In terms of methods employed, the eight economic assessments all employ a mixed methods approach, which typically includes data analysis and some primary research. Six of the remaining references (not economic assessments) use a mixed methods approach. Six of the references primarily draw on secondary data analysis. Four of the references are qualitative studies, and one is a survey.
- 3.18 Over half (14 out of 25) of the references focus on the Welsh language, three on Gaelic in Scotland and two on the Irish language. One study includes findings relating to a number of languages including Welsh, Gaelic,

Catalan, Basque, Frisian, Slovene and Breton. One of each of the remaining five studies includes findings on the relationship between the economy and the following languages: Catalan, Basque, Frisian in the Netherlands, Spanish in the USA and three languages (Italian, Slovene and Hungarian) in Slovenia.

**Table 8. Summary of WoE categories for evidence categorised as ‘Medium-low’**

Reference	WoE category (See Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
<b>References focusing on the Welsh language</b>				
Arad Research (2015). <a href="#">Evaluation of the economic and cultural impact of Canolfan Soar, Merthyr Tydfil</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Arad Research (2016). <a href="#">An assessment of Menter Caerdydd’s economic value to Cardiff</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-Low
Arad Research (2018). <a href="#">An assessment of the economic value of Urdd Gobaith Cymru</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Cardiff Business School (2005). <i>Capitalising on language and culture, Scoping Study: Language-Culture-Economy</i> . Menter a Busnes.	Medium	Low	Medium	Medium-Low
DTZ (2007). <a href="#">The Economic Impact of S4C on the Welsh Economy 2002-06</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Menter a Busnes (1993). <i>Characteristics of Welsh speakers in business</i> . Unpublished.	Medium	Low	Medium	Medium-low
Menter a Busnes (2014). <i>Y cwmni datblygu (The development company): a case study</i> . Unpublished.	Low	Low	Medium	Medium-low

Reference	WoE category (See Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
Morris, D. (1995). <a href="#">‘Language and class fractioning in a peripheral economy’</a> , <i>Journal of Multilingual &amp; Multicultural Development</i> , 16:5 pp. 373-387 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Newidiem (2001). <i>The Economic and Cultural Impact of the National Eisteddfod - Llanelli 2000</i> . Commissioned by Carmarthenshire County Council and the National Eisteddfod. Unpublished.	Medium	Low	Low	Medium-Low
Price, A., Ó Torna, C. and Jones, A.W. (1997). <i>The Diversity Dividend: Language Culture and Economy in an Integrated Europe</i> . Brussels: European Bureau for Lesser Used Languages.	Medium	Low	Medium	Medium-low
Rees, C. (1992). <i>Welsh speakers and their careers, and the Welsh language at work: report in initial research</i> . Menter a Busnes. Unpublished.	Medium	Low	Medium	Medium-low
Welsh Language Commissioner (2013). <a href="#">The Potential of the Welsh Language to Contribute to realising the aims of the European Funding Programmes 2014–2020</a> [Online] (Accessed 23rd January 2020).	Low	Low	Medium	Medium-low
Welsh Language Commissioner (2014a). <a href="#">The Benefits of Bilingual Marketing by Charities in Wales</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-Low

Reference	WoE category (See Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
Welsh Language Commissioner (2014b). <a href="#">The value of the Welsh language to the food and drink sector in Wales Research report</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-Low
Welsh Language Commissioner (2018). <a href="#">Using the Welsh language – the business case report on consumer demand and the opinions of business leaders</a> [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
<b>References focusing on other languages</b>				
Atkinson, D. and Kelly-Holmes, H. (2006). ' <a href="#">Linguistic normalisation and the market: Advertising and linguistic choice in <i>El Periódico de Catalunya</i></a> ', <i>Language Problems &amp; Language Planning</i> , Vol. 30 pp. 239-260 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Basque Government (2015). <a href="#">Value &amp; economic impact of Basque: Summary of results</a> . Department of Education, Language Policy and Culture [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-Low

Reference	WoE category (See Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
Brennan, S. and O'Rourke, B. (2019). 'Commercialising the cúpla focal: New speakers, language ownership, and the promotion of Irish as a business resource', <i>Language in Society</i> , 48(1) pp. 125-145.	Low	Low	Medium	Medium-low
Chalmers, D. (2014). <a href="#">Ar Stòras Gàidhlig: Economic and Social Value of Gaelic as an Asset (Final Report May 2014)</a> , Inverness: HIE [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-Low
Fradd, S.H. and Boswell, T.D. (1996). 'Spanish as an Economic Resource in Metropolitan Miami', <i>Bilingual Research Journal</i> , 20 pp. 283-337.	Medium	Low	Medium	Medium-low
Limon, D. and Lukanovič, S.N. (2017). ' <a href="#">Does bilingualism have an economic value in the ethnically mixed regions of Slovenia?</a> ', <i>Journal of Multilingual and Multicultural Development</i> , 38:8 pp. 659-670 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Sproull, A. (1996). ' <a href="#">Regional economic development and minority language use: The case of Gaelic Scotland</a> ', <i>International Journal of The Sociology of Language</i> , Vol. 121 pp.93-118 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low

Reference	WoE category (See Section 2.29 for details)			
	Contribution	Appropriateness	Validity	Overall
Van Langevelde, A.B. (1994). ' <a href="#">Language and economy in Friesland: a first step towards development of a theory</a> ', <i>Magazine for economic and social geography</i> , 85 pp. 67-77 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low
Watson, I. and Phádraig, M.N.G. (2011). ' <a href="#">Linguistic Elitism: The Advantage of Speaking Irish Rather than the Irish-speaker Advantage</a> ', <i>The Economic and social review</i> , Vol. 42 No. 4, Winter, 2011, pp. 437-454 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-Low
Zendoia, J. (2011). ' <a href="#">Gaelic and the Economy: Socio-economic status of Gaelic speakers and the Cost-effectiveness of Language Policies</a> ', <i>Working Papers</i> pp. 1-20 [Online] (Accessed 23rd January 2020).	Medium	Low	Medium	Medium-low

*References not categorised: literature reviews and theoretical papers*

- 3.19 This section provides a summary of the 14 references not categorised in terms of their WoE. These were twelve literature reviews and two theoretical studies.
- 3.20 Two of the twelve literature reviews examine labour market outcomes (Mentrau Iaith Cymru, 2014; Milligan *et al.*, 2011), one explores the effects of the economy on language (Phillips, 2000) and nine examine various aspects of the economy more generally (Menter a Busnes, 2003; Welsh Assembly Government, 2005; Casson *et al.*, 1994; Carr, 1992; Grin, 1994 and 2016; Gazzola and Wickström, 2016; Djité, 2014; John, 2016). The two theoretical studies focus on developing economic models of language use and potential change (Grin, 1990 and 1993).

**References excluded from Phase 5 in Screening Stage 3.2 but included in the Mapping**

- 3.21 In addition to the 57 references that are mapped and categorised above, a further 56 references were excluded from Phase 5 (Full-text review) based on Criterion 2 in Screening Stage 3.2 (see Table 2 for a list of the criteria). These are references in which the relationship between language and economy/economic outcomes or variables is discussed, but is not examined in detail and is not a focus of the study/paper. Table 9 below provides a summary of the topics explored in these excluded references.

**Table 9. Summary of topics explored in literature excluded based on Exclusion Criterion 2 in Screening Stage 3.2**

<b>Topic</b>	<b>Number of references</b>
Bilingualism and multilingualism in the workplace or business	15
Economics in language planning	8
Influence of economic factors (e.g. migration, globalisation) on language change	7
Advertising in minority language	6
Value of language skills, bilingualism or multilingualism	6
Bilingualism, multilingualism, minority languages and service delivery	3
Perceived economic benefits of bilingualism or multilingualism	3
Commodification of minority language	2
Role of language in tourism	2
Economic benefit or value of bilingualism or multilingualism minority language	1
Costs of bilingualism or multilingualism	1
Economic impact of language	1
Work-based learning and minority language	1
<b>Total</b>	<b>56</b>

Note: Criterion 2 (see Table 2) is 'The relationship between language and economy/economic outcomes or variables is discussed, but is not examined in detail and is not a focus of the study/paper.'

### **Summary of Mapping and Categorisation**

- 3.22 A total of 57 references are included in the Mapping and Categorisation Phase, with 43 of these categorised in terms of their WoE (14 literature reviews and theoretical studies are not categorised).
- 3.23 None of the studies are categorised 'High' overall in terms of WoE, because none is categorised as 'High' in terms of its appropriateness for drawing robust conclusions relating to this Review's primary research question.

- 3.24 Eleven of the 43 references reviewed are categorised as ‘Medium-high’, with six of these focused on the Welsh language. Seven of the studies are categorised as ‘Medium’, five of which focus on Welsh. Finally, 25 are categorised as ‘Medium-low’, 14 of which focus on Welsh. At least half the references in each category therefore focus on the Welsh language.
- 3.25 Most of the 18 studies categorised as ‘Medium-high’ or ‘Medium’ in terms of their WoE involve data analysis methods to examine labour market outcomes or variables. Eleven labour market studies – ten employing primarily data analysis methods, and one a mixed methods approach - are categorised as ‘Medium-high’. These studies include matched comparison groups and tend to draw on national census or official labour market surveys. Other labour market studies not including comparison groups are categorised as ‘Medium’, with two mixed methods studies (which included surveys and qualitative research with businesses or consumers), and one survey also categorised as ‘Medium’.
- 3.26 Over half the references (25) are categorised as ‘Medium-low’ in terms of their overall WoE and these include mixed methods studies, secondary data analysis, surveys and qualitative research with businesses and consumers. Eight of these 25 studies are economic assessments examining various measures of economic output (turnover, GVA, expenditure). Five are labour market studies examining variables such as occupational status, employment and/or earnings. Six studies consider attitudes to the Welsh language among businesses, and the remaining six examine various aspects of the relationship between language and the economy.

## 4. Synthesis

- 4.1 A Synthesis of the evidence reviewed during Phase 5 is presented in this section. The findings are presented according to the WoE categories assigned to the references during Screening Stage 3.3: 'Medium-high', 'Medium' and 'Medium-low'. The findings of literature reviews and theoretical studies included in the Review are also included in this section.

### References categorised as 'Medium-high' in terms of their WoE

- 4.2 All the references categorised as 'Medium-high' explore the relationship between language and labour market outcomes. Four of these studies (Blackaby and Drinkwater, 1997; Drinkwater and O'Leary, 1997; Henley and Jones, 2005; Blackaby *et al.*, 2006) identify that Welsh speakers have better labour market outcomes than those who cannot speak Welsh. However, they also find that these outcomes cannot be fully explained by linguistic or other labour market characteristics. This section explores the findings of these studies, beginning with studies that explore the relationship between earnings and linguistic ability.

#### *Earnings outcomes: Welsh language*

- 4.3 Henley and Jones (2005) examine differences in the earnings of Welsh speakers and those who do not speak Welsh using econometric analysis of data from the 1999 British Household Panel Survey. They find that the earnings of Welsh speakers are around 8 to 10 per cent higher than those who do not speak Welsh, noting that this differential is substantially smaller for those who report the use of Welsh in the workplace compared to those whose workplace is monolingual. In seeking to explain these differences, the authors find that higher levels of education and occupational attainment account for between one third and half of the differential (3 to 4 per cent), and that some of the differential can be explained by a lower proportion of ethnic minority individuals among the bilingual group. However, they also find that bilinguals earn less than those who do not speak Welsh, when

controlling for individuals' characteristics. The authors conclude that those who speak Welsh are rewarded for the possession of 'unobservable human capital' which they note is correlated with, but is distinct from, the ability to speak Welsh.

- 4.4 These findings are consistent with those of Blackaby *et al.* (2006), who use decomposition analysis of earnings differentials based on the 2001 Labour Force Survey. Although the authors' main focus is economic inactivity (see also paragraph 4.10), Blackaby *et al.* find that Welsh speakers earn more, and that this is driven by the socio-economic characteristics of Welsh speakers, such as higher educational achievement, which are more in demand within the labour market. Among women, the authors find that Welsh speakers enjoy an earnings advantage of 14 percentage points over those who do not speak Welsh.<sup>16</sup> The authors find that the majority of this difference (10.8 percentage points) can be explained by 'composition effects', such as qualification levels and working in the public sector. The remaining 3.2 percentage point difference is explained by 'treatment effects', which are described by the authors as a labour market advantage or 'premium' enjoyed by proficient Welsh speakers as a result of their ability to use the Welsh language. The differences in earnings are lower among males; proficient Welsh-speaking males are found to earn on average 3 per cent more than those who do not speak Welsh. However, the differences for males are not found to be significant, with qualification levels found to be the main driver of these differences among males.
- 4.5 Reference to analysis of data on the earnings of Welsh speakers is also included within one of the literature reviews identified during this Review (Welsh Assembly Government, 2005).<sup>17</sup> This reference notes that Welsh speakers earn a small pay premium that cannot be wholly explained by their skills profile, which is consistent with the findings of Henley and Jones (2005) and Blackaby *et al.* (2006) described above.

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<sup>16</sup> The authors define proficient Welsh 'users' as those who can understand spoken Welsh, speak Welsh, read Welsh and write Welsh. This is used as a definition of fluency in their analysis. They exclude those who have certain Welsh language skills but not others (e.g. who can only understand or speak Welsh) from their analysis in an attempt to create 'a clear distinction between those who can genuinely use Welsh as an everyday working language and those who cannot' (Blackaby *et al.*, 2006)

<sup>17</sup> Literature reviews were not assessed and assigned a WoE score during this Review (See Section 3.19).

### *Earnings outcomes: other languages*

- 4.6 Similar studies to the above have been undertaken outside Wales. A similar approach to those employed by Henley and Jones (2005) and Blackaby *et al.* (2006) was previously adopted by Grin and Sfreddo (1998), who employ regression analysis to examine earnings differentials between Italian speakers and French or German speakers in Switzerland (where around seven per cent of the population speak Italian). In contrast to the studies in Wales, Grin and Sfreddo highlight an earnings disadvantage for Italian speakers, particularly in the primarily French and German-speaking regions. However, while the findings of Grin and Sfreddo's study are not wholly consistent with the above studies, the techniques used are similar and illustrate that econometric methods can be used to examine earnings differentials between language groups. It should also be acknowledged that, although Italian in Switzerland meets the linguistic inclusion criteria set out in Section 2.16, the linguistic context is not as relevant to Wales as some of the other studies reviewed. For example, the situation of Italian as a majority language in an immediately neighbouring country is significantly different from that of Welsh in Wales.
- 4.7 More recent research by Grin *et al.* (2011) examines differences in the net earnings of bilingual and monolingual workers in Québec, comparing data from 1970 with data from 2000. The research uses multivariate regression analysis to control for factors such as education and experience. Findings based on data from the year 2000 are consistent with the studies in Wales, with bilingual francophones and anglophones earning more than their monolingual counterparts (12 per cent for men and 17 per cent for women). The authors report that the returns for francophones changed significantly between 1970 and 2000. In 1970, data for monolingual anglophone men showed they earned a 10 per cent net wage premium compared with bilingual francophones. However, this pattern had been reversed in 2000, with monolingual anglophone men earning 18 per cent less than their bilingual counterparts. The authors also report that rates of return on language skills can vary quite substantially between industrial sectors. As in the case of Grin and Sfreddo (1998) above, the difference in the national and international status of French and

Welsh should be acknowledged, which consequently may render these findings less relevant in the Welsh context.

*Employment and occupational outcomes: Welsh language*

- 4.8 Several studies examine employment outcomes, including labour market participation or economic activity, economic inactivity, employment, unemployment and occupational status. Two of the studies examined (Drinkwater and O’Leary, 1997 and Blackaby and Drinkwater, 1997) use data analysis of the 1991 census to examine reasons for differences in unemployment between Welsh speakers and those who do not speak Welsh. Drinkwater and O’Leary use regression analysis to examine the differences, while Blackaby and Drinkwater undertake decomposition analysis of the differences. Both studies find that Welsh speakers experience lower unemployment levels, and that labour market characteristics (e.g. qualification levels) contribute to this gap, particularly in east Wales. However, both studies also find that characteristic differences do not explain all the differences in unemployment between Welsh and non-Welsh speakers.
- 4.9 Drinkwater and O’Leary (1997) suggest possible reasons for the identified differences, including assimilation and positive discrimination (particularly in west Wales) and differences in characteristics between Welsh and non-Welsh speakers (particularly in east Wales). The authors also identify that there may be omitted variables in their analysis which might explain the differences in outcomes. Drinkwater and O’Leary also raise some issues around inward and outward migration, and the critical mass of speakers needed to sustain the Welsh language which are not fully explored in their analysis. However, these issues provide important considerations for future research in this topic area. The authors also find that highly qualified Welsh speakers are more likely to move from west to east Wales than highly qualified non-Welsh speakers. They find that this explains some of the differences in the unemployment rates of Welsh speakers, compared with those who do not speak Welsh in east Wales (i.e. the Welsh-speaking population is more likely to hold higher-level qualifications).

- 4.10 Blackaby *et al.* (2006) analyse differences between Welsh speakers and those who do not speak Welsh in terms of economic inactivity (based on a survey of over 1,000 individuals) and other labour market outcomes (based on analysis of Labour Force Survey data). The authors find that men and women who speak Welsh are more likely to be employed and less likely to be economically inactive than those who do not, with the differences greater among women than among men. Among men, Welsh speakers have an activity rate that is 4.1 percentage points higher than that of non-Welsh speakers. Of this, 2.3 percentage points can be attributed to 'composition effects', primarily lower levels of ill health, and the remaining 1.8 percentage points represent a labour market premium related to the Welsh language. Among women, Welsh speakers have activity rates 10.4 percentage points above those of non-Welsh speakers. Of this, 7.2 percentage points can be attributed to 'composition effects', primarily lower levels of ill health and higher qualifications, while 3.3 percentage points can be attributed to the Welsh language. The authors conclude that employability and earnings are higher among Welsh speakers than non-Welsh speakers, but that this is, in part, a result of the socio-economic characteristics of Welsh speakers (e.g. higher levels of education), which are in greater demand among employers. They also conclude that the survey data analysed revealed little difference in the labour market aspirations of Welsh speakers compared with non-Welsh speakers, noting that economically inactive Welsh speakers do not behave any differently to those not possessing such skills.
- 4.11 A study by the Welsh Institute of Rural Studies (Hughes and Sherwood, 1995) includes analysis of 1991 census data and examines the type of economic activities undertaken by Welsh speakers compared to those who do not speak Welsh. The authors find that the relationship between economic activity and the linguistic characteristics of the workforce is significantly affected by the geographic distribution of Welsh speakers. For example, those who do not speak Welsh were over-represented in manufacturing, which is predominantly located in areas with lower percentages of Welsh speakers. On the other hand, Welsh speakers were found to be over-represented in agriculture, energy and other services such as

education. Those who did not speak Welsh were also over-represented in tourism, catering and retail.

- 4.12 Hughes *et al.* (2000) examine changes in the agriculture sector and the rural economy in Wales, and focus on the impact of these trends on the Welsh language. The authors analyse UK agricultural and population census data from 1851 to 1991, and use descriptive and inferential statistics to compare the characteristics of Welsh speakers with those who do not speak Welsh. The study finds that agriculture accounted for 10 per cent of all Welsh speakers in employment in 1991, compared with 2 per cent of those who do not speak Welsh. The authors conclude that a strong association exists between agricultural employment and the use of the Welsh language across all age groups. They also find that the agricultural labour market among Welsh speakers is dominated by farmers and their family members (rather than non-family employees) and that owner occupation is more prevalent than tenancy. These findings may reflect more traditional attitudes to business and a lower propensity for risk among Welsh speakers in general, as suggested by other studies categorised 'Medium-low' (Rees, 1992; Menter a Busnes, 1993). Hughes *et al.* (2000) conclude that any decline in agriculture would be likely to adversely affect the Welsh language and culture as there would be negative effects on rural economies and areas where a high number of Welsh speakers live. The authors conclude that agricultural and rural development policies should give greater consideration to their social and cultural consequences.
- 4.13 A summary of analysis of 2001 census data is included within one of the references examined during this Review (Welsh Assembly Government, 2005).<sup>18</sup> This analysis finds that Welsh speakers are relatively less likely than those who do not speak Welsh to be inactive, unemployed or unskilled, while they are more likely to be graduates and in employment. The data shows that the retail sector employed the largest number of Welsh speakers in 2001, and that Welsh speakers are more likely to work in the public sector than those who do not speak Welsh. The analysis of the

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<sup>18</sup> The summary analysis is based on a report entitled *Socio-economic characteristics of Welsh speakers – an initial analysis* (Economic Research Unit, Welsh Assembly Government, year not known). This report was not accessible within the timeframe of this Review.

2001 census shows that the sector with the highest concentration of Welsh speakers is agriculture, with 40 per cent of workers able to speak Welsh (Welsh Assembly Government, 2005). This is consistent with the findings of Hughes and Sherwood (1995) and Hughes *et al.* (2000). The data also shows that Welsh speakers are over-represented among small employers, and those who are self-employed, across all age groups. The authors suggest this reflects a pattern which may be linked to the over-representation of Welsh speakers in agriculture.

*Employment and occupational outcomes: other languages*

- 4.14 Similar findings to the above are found by Borooah *et al.* (2009) for Irish language speakers in terms of employment and occupational outcomes. The authors use decomposition analysis to examine data from the 2006 Irish Census and find that Irish speakers are more likely to be employed in professional, managerial, or technical occupations than those who do not speak Irish, even after controlling for factors such as workers' education levels. They also find that those who speak Irish most frequently are more likely to be employed in these occupations than those who speak Irish less frequently. The authors then explore the reasons for these differences further, and find that while much of the difference can be explained by attributes such as qualifications, there remain unexplained differences. These are described by the authors as 'structural advantages' to speaking Irish, which they note may be the result of the quality of Irish-medium schools, Irish-speakers' social networks and positive discrimination in favour of Irish speakers.
- 4.15 A similar approach, using probability analysis of census data from the USA, is taken by Robinson-Cimpian (2014) to explore whether labour market participation (economic activity), employment rates and earnings differ between bilingual and monolingual Hispanic individuals. Robinson-Cimpian finds that bilingual (Spanish and English) and monolingual (English-speaking) Hispanic individuals have very similar labour market participation rates and that bilingual males (though not females) have slightly lower earnings once other factors are controlled. However, the author finds that labour market participation was higher among bilingual individuals than monolingual English speakers in areas where the concentration of

Spanish speakers was higher. The author also finds that bilingual females have higher participation rates than monolingual females.

- 4.16 Lindemann (2014) examines the effects of knowledge of Russian on employment outcomes of young people in Estonia, using regression analysis of data from Estonian Labour Force Surveys. Lindemann finds that proficiency in the minority language does not generally help young labour market entrants but that the effect of knowledge of the Russian language varies by region, with positive labour market effects in eastern Estonia (where around 80 per cent speak Russian) but not elsewhere in Estonia. However, the authors also find that young Estonians who speak Russian have the most positive labour market outcomes in Tallinn, where 40 per cent of the population speak Russian, while young Russian speakers who have good Estonian language skills achieve much higher occupational status than the other groups in eastern Estonia. It should also be acknowledged that although Russian in Estonia meets the linguistic inclusion criteria in Section 2.16, the linguistic context is not as relevant to Wales as some of the other studies reviewed. The situation of Russian as a majority language in an immediately neighbouring country, and internationally, is significantly different to Wales.

#### **References categorised as ‘Medium’ in terms of their WoE**

- 4.17 Four of the seven studies categorised as ‘Medium’ in terms of WoE examine labour market outcomes or variables, while the other three focus on language use in business, attitudes to entrepreneurship and business and consumer attitudes to the Welsh language.

#### *Labour market studies: Welsh language*

- 4.18 Two large surveys of employers, focusing on labour market needs, were categorised as ‘Medium’ because of their highly relevant content (contribution) and robust methodologies. The Future Skills Wales Partnership (Beaufort Research and Menter a Busnes, 2005) commissioned a survey of almost 2,000 businesses in

seven sectors to identify the scale and types of Welsh language skills gaps and shortages within the private sector in Wales. The research focused on those sectors found to have an average or higher need for Welsh language skills. Nine per cent of businesses interviewed reported a need for Welsh language skills amongst employees, ranging from 18 per cent in the media sector to five per cent in retail, wholesale and other services. The research found that a third of businesses in north west Wales have a need for Welsh language skills compared with 3 per cent in the south east, 8 per cent in the south west and 10 per cent in mid-Wales. Among businesses who reported that they did not need Welsh language skills, 15 per cent said that 'having staff with the right Welsh language skills was important to their business', while 11 per cent anticipated that the situation would change within the next 5 years (Beaufort Research and Menter a Busnes, 2005). The authors note that this may indicate, 'a small potential increase in demand for Welsh language skills' among these employers. A fifth (20 per cent) of businesses interviewed agreed that 'having staff with the right Welsh language skills' was important to the success of their business while just under a third of respondents (29 per cent) indicated that their customers like to be offered the choice of either English or Welsh.

- 4.19 The Welsh Government (2014c) published mixed methods research based on a survey of over 4,000 employers in Wales operating in eight sectors (Childcare, Social Care, Hospitality, Creative, Finance and Professional Services, Retail, Agri-food, and Construction) supplemented by detailed, qualitative case studies. The study examined the current and future Welsh language skills needs of employers on a sector, occupation and region basis. It also examined employer perceptions about the impact of use of the Welsh language on the business's 'bottom line', and assessed employer views on the support available to maximise the benefits from the Welsh language and bilingualism. The authors find that around a third of employers consider Welsh language capacity (i.e. having staff with Welsh language skills) to be important (35 per cent), consider it to be of some financial benefit to their establishment's 'bottom line' (32 per cent), and report that Welsh is used in their workplace (31 per cent, with Welsh language use reported to be higher in the

agri-food, creative and childcare sectors). Employers estimate that almost a quarter of all their staff (24 per cent) had some level of Welsh language skills and over a quarter of establishments (28 per cent) believed that it would benefit them to have more staff able to communicate in Welsh, or more staff with a higher level of Welsh language skills. However, only four per cent reported arranging training to develop Welsh language skills, and four per cent had sought information or advice on the Welsh language (almost half of those who had not reported they would not know where to go for this). Seven per cent of establishments reported they expected their need for Welsh language skills to increase in the next 2-3 years. This figure was higher among childcare providers (28 per cent), with the authors noting that changes in legislation and in the education system were the main reasons for this expectation (Welsh Government, 2014c).

#### *Labour market studies: other languages*

- 4.20 Two of the studies categorised as 'Medium' (Pendakur and Pendakur, 2002 and Subtirelu, 2017) examine the relationship between language and earnings. Pendakur and Pendakur estimate earnings differentials of speakers of French and thirteen other minority languages in Canada using regression analysis of census data, while controlling for variables such as ethnicity. The authors review previous research relating to earnings differentials between French-speaking and English-speaking individuals, noting the same trends observed by Grin *et al.* (2011). Pendakur and Pendakur's (2002) empirical findings are mainly focused on comparing those who speak non-official languages with those who only speak French and/or English. However, while the authors conclude that minority language speakers earn less than those with knowledge of French and English, they also find that individuals who speak languages with many local speakers earn more than those who speak languages with fewer local speakers. This may suggest a need to investigate the effect of language speaker density on earnings.

- 4.21 Subtirelu (2017) uses regression analysis of online job advertisements in the USA to estimate earnings differentials between jobs requiring Spanish-English bilingualism and similar jobs with no such language requirement. The findings show that jobs requiring Spanish-English bilingualism offer lower earnings, even when controlling for differences by industrial sector, state, required educational level, and required experience.
- 4.22 The findings of both Subtirelu (2017) and Pendakur and Pendakur (2002) identify a negative relationship between minority language ability and earnings, in contrast with most of the above studies which focused on earnings. It is important to consider that these studies are based on languages (Spanish in the USA and minority languages other than French and English in Canada respectively) that are less comparable to the Welsh linguistic context than others (e.g. Irish). Nevertheless, the findings and methods do offer some valuable considerations for potential future research in Wales.

#### *Attitudes to entrepreneurship and business*

- 4.23 The findings of a survey undertaken by Beaufort Research (1999) compare attitudes to business, self-employment, investment and entrepreneurship among Welsh speakers and those who do not speak Welsh.<sup>19</sup> The survey also examines employment status and the use of Welsh in business, and makes comparisons with a previous survey undertaken in 1991.<sup>20</sup> The report notes that:
- more Welsh speakers (15 per cent) than those who do not speak Welsh (8 per cent) are self-employed or run their own business.
  - compared with 1991, Welsh speakers in 1999 were more positive about working for a small business, less likely to consider it difficult to succeed

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<sup>19</sup> Findings were based on an omnibus survey which was based on a weighted sample of 717 Welsh speakers and 568 people who did not speak Welsh. Both samples were quota samples of individuals aged 16-60 drawn from 61 locations, representative by age, social class, local authority and language skills. Fieldwork was undertaken in September 1999.

<sup>20</sup> The report notes that a series of surveys were undertaken in 1991, 1993, 1996 and 1999, although only the results of 1999 and 1991 are reported.

running a small business in Wales, and more likely to encourage their child to think about running their own business.

- there was no change in the percentage of Welsh speakers or those who do not speak Welsh agreeing with the statement: 'Welsh speakers are more reluctant to become self-employed or to set up and run their own business'.
- Welsh speakers and those who did not speak Welsh had similar views about business and self-employment in 1999. In 1991, those who did not speak Welsh were more positive than Welsh speakers.
- younger respondents (16-24) were most positive about self-employment. Attitudes became more positive among young Welsh speakers between 1991 and 1999 but became less positive among those who do not speak Welsh.
- there was an increase in the percentage of respondents agreeing that the use of Welsh in business was an advantage (from 66 per cent in 1991 to 76 per cent in 1999). The number disagreeing fell from 28 to 18 per cent.

#### *Use of language in business*

- 4.24 The only study categorised as 'Medium' which explored the use of language in business was based on the Welsh language. In 2008, the (then) Welsh Assembly Government commissioned research into the use of the Welsh language within a range of private sector businesses and organisations. The study explored the factors influencing how and why private sector companies use the Welsh language when dealing with the public. The authors report a wide variation in businesses' perceptions of the value of the Welsh language to their organisation, their capacity to provide services in Welsh and the extent to which their customers demand it. Factors influencing these perceptions include geography, sector and size. The findings show that just over one fifth of respondents reported a positive attitude towards the use of the Welsh language, with almost half of the respondents (46 per cent) reported to be open-minded (neutral) in terms of using Welsh. A quarter (26 per cent) of businesses had no Welsh-speaking staff and just over a fifth (21 per

cent) had 81-100 per cent Welsh-speaking staff. Two-fifths (41 per cent) of businesses had no employees that actively engaged with customers in Welsh while 11 per cent of the businesses had 81-100 per cent of employees actively engaging with customers in Welsh. Twelve per cent of respondents had a complete Welsh language customer service compared to 23 per cent who had no Welsh language provision at all. Three-fifths (61 per cent) of businesses claimed they could provide some Welsh language provision. Among respondents providing some Welsh language services, almost two-fifths (38 per cent) felt they gained an economic advantage, whilst only 10 per cent believed it to be cost-effective to provide a service in Welsh. Findings show that businesses had not formally assessed how much of their business was held in Welsh, thus they relied on estimates only. The authors conclude that legislation and government requirements influence businesses' perceptions of the need to provide a Welsh language service and that further empirical research is required into the size and nature of the market for different types of services through the medium of Welsh. It is important to acknowledge the limitations of any study that relies on self-reported data from consumer or businesses, including this example where businesses provided estimates relating to the use of the Welsh language and provided information on its perceived value to them.

### *Consumer attitudes*

- 4.25 The only study categorised as 'Medium' which explored consumer attitudes was based on the Welsh language. The Welsh Language Commissioner (2017) commissioned a mixed methods study to explore customer attitudes to the use of Welsh by supermarkets. The findings are based on a survey with a representative quota sample of 1,000 adults, supplemented by qualitative research. The authors report that over two-thirds (68 per cent) of respondents agree with the statement 'I like seeing the Welsh language being used by supermarkets in Wales', rising to 93 per cent among Welsh speakers. Just over a fifth of respondents (21 per cent) agree that they were more likely to shop at a supermarket if it uses the Welsh language, rising to almost half (49 per cent) among fluent Welsh speakers. A

majority of respondents (59 per cent) agree with the statement ‘I think the Welsh language should be used in supermarkets in Wales as standard practice’ while around three-quarters (74 per cent) agreed that ‘Using the Welsh language shows that the supermarket is supporting the local community’ (20 per cent disagreed). Over three-quarters (78 per cent) agreed that ‘Using some Welsh on product packaging helps supermarkets demonstrate support for local producers.’ The findings indicate that most respondents report that they value the use of the Welsh language in supermarkets, and that some report that they would be more likely to shop in a supermarket that uses the Welsh language. As noted above in paragraph 4.24, studies that are based on consumers’ or business perceptions of the value of the Welsh language are subject to limitations. The references examined as part of this Review suggest there may be a need for further research to address the gap in empirical data on consumer behaviours in response to the use of the Welsh language on goods and products.

#### **References categorised as ‘Medium-low’ in terms of their WoE**

- 4.26 A total of 25 references were categorised as ‘Medium-low’. The findings of these studies are synthesised by study type below.

##### *Economic assessments (Welsh language and other languages)*

- 4.27 The findings of the eight economic assessments (five from Wales, two from Scotland and one from the Basque Autonomous Community) illustrate that economic activity such as expenditure and job creation by language institutions and through language-related activities can stimulate direct, indirect and induced economic outcomes. The Scottish and Basque studies (Sproull, 1996; Chalmers, 2014; Basque Government, 2015) focus on the economic impact of Gaelic and Basque-related activity in general, including activities, institutions and sectors linked to the language. In contrast, the studies in Wales (Newidiem, 2001; DTZ, 2007; Arad Research 2015, 2016, 2018) focus on specific Welsh language institutions and/or cultural events and activities. All the economic assessments identify direct impacts in terms of expenditure and employment relating to language institutions,

and estimate additional multiplier effects which are stimulated by this direct impact. Whilst these studies provide valuable and valid findings in terms of outcomes, they are assigned a 'Medium-low' weighting as they do not include any counterfactual analysis. That is, they do not involve an examination of alternative expenditure scenarios or what would have happened in the absence of the intervention or activity undertaken by the institution. It is important to acknowledge that this type of counterfactual analysis is not always practicable.

#### *Labour market studies*

- 4.28 Five labour market studies were categorised as 'Medium-low' in terms of WoE. These studies explore a variety of issues: earnings, social relationships between managers and workers, labour market and sector profiling, employment outcomes and social status. The studies use descriptive analysis or qualitative methods and are categorised as 'Medium-low' mainly because of the absence of comparison groups.

#### *Labour market studies: Welsh language*

- 4.29 Cardiff Business School (2005) use secondary labour market data and the authors' own analysis of industrial sectors to identify sectors which are most strongly linked to language and culture, both in terms of the number of Welsh speakers employed within them, and the nature of the goods and services produced in those sectors. The study is based on descriptive analysis and identifies creative industries, agri-food and hospitality as key sectors providing greater opportunities for Welsh language use.
- 4.30 Morris (1995) uses a qualitative approach, based on interviews with 130 business managers in public and private sector organisations in Gwynedd, to explore differences in the social relationships of Welsh-speaking and non-Welsh speaking managers with individuals in non-management roles. The author finds that Welsh-speaking managers were more likely than monolingual English-speaking managers

to have social relationships with workers in non-managerial roles and concludes that language was therefore a stronger factor than social class in determining their social relationships.

#### *Labour market studies: other languages*

- 4.31 Limon and Lukanovič (2017) use a mixed methods approach to examine whether bilingualism (Slovene and either Italian or Hungarian) influences earnings and recruitment in ethnically mixed regions of Slovenia. The study includes mainly descriptive analysis of surveys of 50 employers and 291 individuals as well as data analysis of job advertisements, and is categorised as ‘Medium-low’ because of the absence of a matched comparison group. The findings include a discussion of the impact of a government-funded ‘pay supplement for bilingual functioning’ (3 to 6 per cent of basic salary) which is paid to an individual filling a particular post and represents a financial incentive to learn and use two local official languages at work. The authors conclude that, in Slovenia’s ethnically mixed regions, knowledge of the minority language (Italian or Hungarian) does lead to financial benefits for individuals, enabling employment in public institutions and bringing a financial reward (via the pay supplement). However, the authors find that the situation is different in the private sector, where knowledge of a minority language is valued considerably less than knowledge of a major foreign language such as English, even in public-facing posts. As with other studies in this report (for example Grin *et al.*, 2011) it is important to consider that differences in the status of these languages and Welsh may make them less relevant than others to the linguistic context in Wales.
- 4.32 Watson and Phádraig (2011) undertake a critique of Borooah *et al.*’s (2009) research on the ‘Irish speaker advantage’ in the labour market (see Section 4.14). While Watson and Phádraig do not dispute Borooah *et al.*’s empirical findings that Irish speakers have better employment outcomes, the authors come to different conclusions when seeking to explain these differences. Watson and Phádraig consider that individuals with advantageous characteristics in the labour market are

more likely to be Irish speakers. They therefore disagree with Borooah *et al.*'s conclusion that there are 'structural advantages' to speaking Irish such as the quality of Irish-medium schools, Irish-speakers' social networks and positive discrimination in favour of Irish speakers.

- 4.33 Zendoia (2011) examines the socio-economic status of Gaelic speakers in Scotland in terms of employment, occupation and education levels. The author finds that Gaelic speakers have on average lower socio-economic status than English monolinguals in the peripheral Scottish areas but higher socio-economic status than the non-Gaelic speakers in the big cities. This is considered to reflect out-migration of Gaelic speakers with higher qualifications from rural areas. The author also undertakes a cost-effectiveness analysis of three Gaelic-related activities: book publishing, radio broadcasting and television broadcasting. The author concludes that this cost-benefit analysis justifies support from Scottish authorities for these activities.

#### *Use in business: Welsh language*

- 4.34 Four of the studies categorised as 'Medium-low' focus on the use of the Welsh language in business. These references are categorised as 'Medium-low' primarily because they do not include comparison groups. The studies employ descriptive analysis and/or qualitative methods and provide examples of how and why certain languages are used in business settings. However, they do not provide evidence enabling us to quantify the relationship between language and business.
- 4.35 The Welsh Language Commissioner (2014b) commissioned qualitative research with a small number of directors and managers of companies within the food and drink sector in Wales. The authors report that companies feel a Welsh and Welsh-language brand is of commercial advantage to them in making their product stand out and offering them opportunities to sell in new markets. The authors also report that companies perceive that a Welsh-speaking workforce offers advantages for communicating with customers and colleagues, reinforcing the company's brand image and giving customers the opportunity to communicate in their chosen

language. The findings also indicate that some companies believe that having a Welsh and Welsh-language brand image increases awareness of their product, reinforces the local origin of the product and can be a sign of distinction. Whilst these findings are based on individuals' perceptions, rather than empirical evidence, they provide potential areas of enquiry for future research.

- 4.36 More recently, the Welsh Language Commissioner (2018) commissioned research to gather views from 82 business leaders based across Wales on a variety of topics relating to the use of language in business.<sup>21</sup> Between half and two-thirds of those interviewed noted that they had bilingual branding (60 per cent), bilingual signage (65 per cent) or had engaged in some bilingual or Welsh language marketing (63 per cent). Over three-quarters (79 per cent) said that they had staff who can speak Welsh and were able to deliver some services in Welsh, while just under three-quarters (72 per cent) said that using the Welsh language with customers and clients was a key service that works well for them. Over three-quarters agreed that using Welsh attracts customers (76 per cent), adds value to a product or service (82 per cent) and enhances the business brand (84 per cent), while 16 per cent agreed that the Welsh language had hindered their business.
- 4.37 A qualitative case study examining the work of Menter a Busnes (2014) is included in research examining best practice in entrepreneurship, innovation and business development in Europe. The research is descriptive in nature but presents a number of examples of outcomes generated through the organisation's activities (e.g. companies and jobs created directly and through support provided).
- 4.38 An earlier mixed methods study by Menter a Busnes (1993) examined the characteristics and attitudes of 40 Welsh-speaking managers of companies with 2-24 employees, and compared them with 40 managers who did not speak Welsh. The authors found that there were several differences in the characteristics of Welsh speakers and those who did not speak Welsh. Those who did not speak Welsh were more likely than Welsh speakers to borrow money, consider various types of marketing, advertise more often, were more competitive in nature and more

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<sup>21</sup> Around a quarter of the businesses (24 per cent) had received support from the Welsh Language Commissioner.

open to innovative methods of business management. Few Welsh-speaking respondents (two out of 40, or five per cent) came from families without a history in business, compared to just under a third (13 out of 40, 32 per cent) of those who did not speak Welsh. The study found a lack of self-confidence among Welsh speakers, and more traditional attitudes compared with those who did not speak Welsh, who were more innovative - manifested in their attitudes to risk, offering new products and advertising. The study concludes that the characteristics of Welsh speakers need to be considered in developing business support programmes.

- 4.39 Similar attitudes to self-employment and enterprise are found in a mixed methods study by Rees (1992) which examined Welsh speakers' attitudes to careers and employment. The author found that influence of family was stronger among Welsh-speaking respondents than those who do not speak Welsh, with Welsh speakers exhibiting a greater desire to stay in, or return to, their local area to work. Interviews with employers in the study demonstrated that they considered Welsh speakers to be an asset to their business. However, this view did not appear to influence employers' recruitment policies. Among business owners, the author found that many Welsh-speaking employers used the language in their business activity but that this was done in an *ad hoc*, reactive way. Welsh-speaking employers saw family, upbringing and friends as the key influences on their decisions about using Welsh in the business, while those who did not speak Welsh saw customer preferences as the main influence.

*Use in business: other languages*

- 4.40 Fradd and Boswell (1996) use a mixed methods approach (based on census data analysis and a survey of 245 businesses) to examine the frequency of Spanish and English language use in conducting business in Miami and to gain insight into the prevalence of Spanish/English bilingualism in the Miami workforce. The authors find that three-quarters (75 per cent) of companies report Spanish was used 50 per cent of the time or less. In a quarter of the companies, Spanish was used more than half the time, with 10 per cent using it most of the time or exclusively. They also find that

almost 30 per cent of Miami's businesses have less than 10 per cent of their workforce using Spanish. However, more than half have workforces that conduct more than a quarter of their businesses in Spanish. The authors conclude that their findings illustrate the growing importance of a bilingual workforce to meet Miami's anticipated economic growth.

#### *Advertising choices (other languages only)*

- 4.41 Atkinson and Kelly-Holmes (2006) use descriptive data analysis to examine businesses' linguistic choices when purchasing adverts in a newspaper which publishes a Catalan and Castilian version in Catalunya. The authors analyse a sample of advertisements published in the Catalan and Castilian versions of the newspaper and find that there are links between the characteristics of the companies, products and services on offer and the advertisers' linguistic choices. The authors report that around two-fifths of the advertisers choose to advertise in the language of the newspaper (i.e. Catalan in the Catalan version and Castilian in the Castilian version), while two-fifths advertise in Castilian in both versions and one fifth advertise in Catalan in both versions. The authors identify a tendency for advertisements which appear only in Catalan to be for locally or regionally based Catalan products and services, while adverts appearing only in Castilian tend to be for products which have 'modern' and/or 'universal' characteristics, such as international travel and sophisticated consumer goods.

#### *Consumer attitudes (Welsh language only)*

- 4.42 The Welsh Language Commissioner (2014a) commissioned a survey to assess the value of using the Welsh language in marketing, primarily focused on the work of charities. The authors report that 70 per cent of the 655 respondents agreed that charities operating in Wales should market bilingually. Just under a third (30 per cent) of the respondents agree they would be more likely to support a charity that produces bilingual marketing material. A fifth (18 per cent) noted that bilingual marketing was likely to have a positive effect on how much they would give to a

charity, while a fifth (20 per cent) felt that bilingual marketing was an important factor in considering a charity they might wish to volunteer for. The authors conclude that charities can benefit from bilingual marketing. It is important to recognise that these findings are based on respondents' intended behaviour, rather than observed changes in respondents' behaviour.

#### *Language and economy: Welsh and other languages*

- 4.43 Price *et al.* (1997) examine the relationship between socio-economic cohesion and cultural-linguistic diversity across Europe. The authors discuss the historical development of language-economy links and draw on case studies and literature from Wales, Ireland, the Basque Autonomous Community, Brittany, Slovenia, Valencia, Catalunya, Fryslân, Scotland and Galicia. The study concludes that further research into the language-economy relationship should be facilitated by governments, public bodies and universities.
- 4.44 Van Langevelde (1994) examines the relationship between language and economy in Fryslân through a review of literature and analysis of data. The author considers how economic development affects the Frisian language and how the linguistic situation and language policy pursued in Fryslân influences the regional economy. The author finds that some companies use the Frisian language to stress their distinctive features through advertisements and marketing and that these are mainly companies that conduct their business on the local and regional market in Fryslân. The analysis shows that a small proportion of commercial broadcasts in 1992 have completely Frisian texts (6 per cent). The findings discuss the impact of the out-migration of Frisian speakers from rural areas to urban areas, and refers to a previous study by Smith (1980), which found that tourism had a negative impact on the Frisian language.<sup>22</sup> The study examines the effect of migration and urbanisation on language and business perceptions and attitudes towards the Frisian language. The study provides a mainly discursive account, and identifies a series of further

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<sup>22</sup> See: Smith, J.F. (1980). *Language and Language Attitudes in a Bilingual Community: Tmherne (Friedand)*. Fryske Akademy, Leeuwarden, Netherlands. Not accessed by this Review.

questions that could be considered in future research. These questions include topics such as: the use of minority languages in businesses' communication, advertising and promotional activity; the nature of the market for minority language products; how language policies can be implemented, and what effect they may have on businesses' choices; how business growth and internationalisation can affect a minority language; how language can be used to promote tourism; whether different types of work affect attitudes to language transmission.

### **References not categorised in terms of WoE: literature reviews and theoretical papers**

- 4.45 Twelve literature reviews and two theoretical studies were included in the Synthesis. Each of these references is summarised below.

#### *Effect of economy on language: Welsh language*

- 4.46 Phillips (2000) reviews evidence of the effects of the tourism industry on the Welsh language in north west Wales. The author analyses the benefits and adverse effects of the sector on the Welsh language in terms of employment, expenditure, housing and demography. The economic benefits of tourism are identified in terms of employment and expenditure, with the author noting that around £1.3 billion was spent in Wales by tourists in 1998, and that the sector employs 100,000 either directly or indirectly. The author presents evidence of a link between tourism and immigration, referring to previous studies which found that half of those who had moved to Llandudno had visited the area as tourists,<sup>23</sup> and that 59 per cent of holiday home owners intended to retire to the area.<sup>24</sup> The study gathered the views of residents in north-west Wales and found that many had concerns about the effects of tourism on house prices and the Welsh language. The author refers to concerns about the nature of the 'inappropriate and unsuitable' nature of some types of tourism and refers to data on the tourism workforce which suggests that Welsh speakers are under-represented within the sector. The author also notes that

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<sup>23</sup> Law, C.M. and Warnes A.M. (1973). 'The movement of retired people to seaside resorts: A Study of Morecambe and Llandudno', *The Town Planning Review*, Vol. 44, No. 4 (Oct. 1973), pp. 373-390. Not accessed by this Review.

<sup>24</sup> Pyne, C.B. (1973). *Second homes*. Caernarfon County Planning Department. Not accessed by this Review.

many residents saw opportunities for the development of cultural tourism and that three-quarters of the interviewees thought that the use of Welsh should be expanded in tourism. The study concludes that the tourism industry has a 'contradictory and paradoxical' effect on the Welsh language, noting that while tourism could generate a positive economic and cultural effect for the language, it mainly had a negative effect.

#### *Multiple aspects of the economy: Welsh language*

- 4.47 Of the studies identified in this Review, the most comprehensive literature review of the relationship between the Welsh language and the economy is by Menter a Busnes (2003). This report provides an overview of the literature published by theme, including many of the references included in this Review.<sup>25</sup> Menter a Busnes (2003) find evidence in the literature that Welsh speakers generally have better economic outcomes than those who do not speak Welsh, but note that the characteristics of the economically inactive population are more uniform, regardless of whether they speak Welsh or not. Menter a Busnes also report that there is some evidence in the literature of a lack of entrepreneurial confidence among Welsh speakers, and conclude that the language-economy relationship is complex and wide-ranging, covering a number of sectors and activities at the micro and macro levels. Menter a Busnes find that there are very few studies examining the influence of the economy on language, and identify other gaps in the evidence base. These gaps include research to examine: census data relating to language and economy; the value of language-related activity to the economy at national and local level; the potential to develop some language-related sectors; awareness and understanding of Welsh language and culture among people from outside Wales and how the language could be marketed to improve its commercial use; Welsh speakers'

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<sup>25</sup> The main research themes covered in the review (Menter a Busnes, 2003) are: historical context, attitudes to entrepreneurship, bilingualism and the economy (Welsh language as a skill and marketing tool), influence of the economy on language, geography and the language-economy, the economic activity of Welsh speakers (including in business), migration and the Welsh language, commercial activity (language-related sectors) and the image of Wales and the Welsh language.

mobility within and outside Wales and its effects on the language; the use of Welsh in different sectors; its value to business and implications in terms of training.

- 4.48 The (then) Welsh Assembly Government formed a Language-Economy Discussion Group as part of the process of implementing its (then) Welsh Language Action Plan *Iaith Pawb* (Welsh Assembly Government, 2003). One of the chapters of the First Annual Review of the Language-Economy Discussion Group (Welsh Assembly Government, 2005) provides an overview of four pieces of commissioned research. Three of these studies are included in this Review (Menter a Busnes, 2003; Cardiff Business School, 2005; and Blackaby *et al.*, 2006), while another was not accessible during the Review's timeframe.<sup>26</sup>
- 4.49 Carr (1992) investigates the significance of cultural and linguistic factors on enterprise among Welsh speakers. The study reviews a variety of literature and includes findings from content analysis of Welsh-language media articles from a variety of publications. The author discusses the influence of structural factors on attitudes to enterprise, hypothesising that the historical dominance of the coal, slate, iron and steel industries, alongside the prevalence of entrepreneurs from outside Wales, led to negative attitudes to enterprise among Welsh speakers. The author also discusses the negative impact of in-migration on the Welsh language during this period. The author reports that there is a lack of entrepreneurial confidence among Welsh speakers (consistent with Rees, 1992 and Menter a Busnes, 1993) which limits their propensity to pursue self-employment. Carr notes that successful Welsh-speaking entrepreneurs in Wales emphasise their role in serving the community and employment generation. The author's analysis of articles reveals that enterprise and business are peripheral subjects in Welsh language newspapers and periodicals, compared with English-language media. The analysis shows that greater emphasis is placed on cooperation, community, enthusiasm and spiritual matters in Welsh-language publications, with evidence of negative attitudes to capitalism and emphasis on the importance of labour as a wealth creator. The author concludes that that there is likely to be a combination of reasons for these

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<sup>26</sup> This was: *Socio-economic characteristics of Welsh speakers – an initial analysis* (Economic Research Unit, Welsh Assembly Government, Year not known).

attitudes and that there may be psychological, structural and attitudinal factors underlying them.

- 4.50 Casson *et al.* (1994) review and discuss a range of evidence relating to the Welsh language and the economy, and seek to identify typologies of Welsh entrepreneurship in an international context. The authors note that, in their view, cultural factors have a clear influence on enterprise in Wales, but that the evidence of this is largely anecdotal. Additionally, the authors conclude that structural economic factors (e.g. attitudes to landlordism, dominance of extractive industries) have influenced attitudes to enterprise and business among Welsh people and Welsh speakers. The authors conclude that Welsh speakers are more conservative than those who do not speak Welsh in terms of their attitudes to enterprise. These findings reinforce those of Carr (1992) and Menter a Busnes (1993).

*Multiple aspects of the economy: other languages*

- 4.51 Five of the literature reviews focus on evidence of the relationship between languages and the economy more generally. John (2016) reviews the literature examining how models of economic forces can provide insight into linguistic phenomena such as language shift, use, decline, survival and extinction. The author reports that most economic models of language find that scale is an important factor influencing the value placed on language; that is, more-widely spoken languages are valued more highly. However, the author also refers to evidence that a minority language is able to survive if its use is considered to have inherent value. The author concludes that the evidence demonstrates that linguistic factors affect economic decisions, and vice versa.
- 4.52 Grin (1994) reviews the literature examining the links between language and employment and earnings, noting that most of this evidence examines the situation of French and English in Canada, and Spanish in the USA. The author reviews literature relating to the costs and benefits of retaining and acquiring language skills and communication costs in economic transactions. The author also reviews theoretical studies examining economic concepts, such as rational choice theory, in

a linguistic context. Grin (1994) also provides an overview of literature examining the influence of languages on the production of goods and services and the supply and demand of labour.

- 4.53 Another study by Grin (2016) reviews the literature on the economics of minority languages, outlining some of the challenges in defining a minority language. In categorising the literature, the author highlights three groups: firstly literature focusing on individuals' decisions to use a minority language; secondly analyses of minority language spread and decline; and finally analyses of the effectiveness and cost-effectiveness of minority language policies in terms of their impact on language use. Grin (2016) also mentions two other groups of literature which are not reviewed by the author, namely: studies of the determinants of language use and learning, and studies examining language as an independent variable (e.g. the effect of language skills on income).
- 4.54 Gazzola and Wickström (2016) provide an introductory overview of literature which explores connections between economics and language policy. The authors examine the literature on the design of language policies as well as their economic and social costs and benefits. The authors also explore literature which examines the effects of language on variables such as societal welfare, income and trade.
- 4.55 Djité (2014) reviews literature examining the relationship between multilingualism and economic growth, examining different concepts of the value of language as well as some secondary data on multilingualism and economic development. Much of the data in Djité's review is drawn from studies that examine the relationship between languages and the strength of currencies as an economic variable. The author finds that the literature challenges the assumptions in some previous studies that there is a relationship between linguistic uniformity and economic development. The author indicates that the evidence shows that there may not be a negative causal relationship between multilingualism and economic development.

### *Labour market outcomes: Welsh language*

- 4.56 Two of the literature reviews focus primarily on labour market outcomes, with both drawing on a number of sources of evidence. *Mentrau Iaith Cymru (2014)* review secondary evidence and literature as part of a discussion paper making the case for establishing a Welsh language labour market scheme. The authors identify a number of challenges affecting the economic status of the Welsh language. These are: limited recognition of Welsh language skills among employers; out-migration of Welsh speakers in search of employment; a lack of opportunities to use Welsh in the workplace. The authors express the view that there are examples of linguistic contexts, specifically Caernarfon and Cardiff, where the Welsh language is valued in economic terms, and make the case that 2011 census data supports this.
- 4.57 Milligan *et al.* (2011) examine the economic contribution of BBC ALBA in Scotland based on a review of secondary evidence. The authors find that the television channel's activity makes a positive economic contribution in terms of job creation, and that it generates expenditure that supports the creative industries in Scotland.

### *Theoretical studies (other languages only)*

- 4.58 Two theoretical studies focus on developing economic models of language use and potential change. Grin (1993) examines the consequences of European integration for 'lesser-used languages', including Welsh. The author uses data on anticipated changes in economic variables, such as international trade, that are considered likely to affect language use, and uses this data to make predictions about the future status of these languages. The author concludes that European integration would be likely to negatively affect languages in close proximity to English, including Welsh, Irish and Scottish-Gaelic, due to the importance of English as a language for international trade. In contrast, the author predicts that languages such as Basque and Catalan, that are in close proximity to a majority language of secondary importance to trade (Spanish) are more likely to benefit.

- 4.59 Another study by Grin (1990) develops a theoretical model which seeks to examine the anticipated effects and causal relationships between minority language policies and language use. The author models the effects of subsidising goods, increasing incomes and increasing exposure to the minority language. Grin concludes that a language must have a sufficiently positive image for any of these policies to be effective.

### **Summary of Synthesis**

- 4.60 Almost all the references assigned a **'Medium-high'** WoE, including four which examine data from Wales, identify positive labour market effects associated with linguistic skills. These studies employ inferential statistics such as regression analysis, probability analysis or decomposition analysis to ascertain the net effects of language attributes. Positive effects on earnings, employment and occupational outcomes are identified, even after controlling for labour market variables such as qualification levels and experience. Some of the studies hypothesise that unexplained differences are the result of factors such as enhanced social networks, 'insider' effects and positive discrimination resulting from linguistic characteristics. However, these differences could equally reflect the value that employers place on language skills.
- 4.61 In terms of those references categorised as **'Medium'**, the findings from the three Wales-based business surveys (Beaufort Research and Menter a Busnes, 2005; Welsh Assembly Government Economic Research Unit, 2008; and Welsh Government, 2014c) and one consumer survey (Welsh Language Commissioner, 2017) provide valuable descriptive evidence of the labour market needs of businesses, use of language in business and consumer preferences. The findings suggest it is a minority of businesses who employ Welsh-speaking staff, provide services through the medium of Welsh and consider that this makes a financial impact on them. However, each study identifies geographic and sectoral variations, with some areas and types of business more likely to consider Welsh language skills, capacity and service delivery to be important to them. The findings also suggest that many businesses anticipate that Welsh language skills will be more

important to them in future and suggest a desire for training, advice and information among some businesses. The labour market studies categorised as ‘Medium’ from other countries (Slovenia, USA and Canada) provide some valuable lessons in terms of methods, but do not contribute as much in answering this Review’s primary question.

- 4.62 The references categorised as ‘**Medium-low**’ typically make a reasonable contribution to the evidence-base but do not tend to use matched comparison groups, and are usually based on descriptive statistics or qualitative methods. This means that, while they provide valuable insights into many of the issues, and identify examples of direct and indirect links between language and the economy, they do not attempt to isolate language as a contributory factor to the outcomes they identify. As such, these studies are given less weight in terms of drawing conclusions in relation to this Review’s primary question. As noted in Section 3.8, this does not mean their methods are considered inappropriate or invalid for meeting their own aims and objectives.<sup>27</sup>

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<sup>27</sup> Further detail on the WoE categories is included in Section 2.29.

## 5. Conclusions

- 5.1 This Review identified a large volume of evidence relating to language and economy, which reflects the breadth of the Review's primary research question. A wide range of topic areas and study types were included among the 57 references identified and categorised during the Screening and Mapping Phases (See Section 3 and Annex B).
- 5.2 It is important to acknowledge some of the limitations of the Review methodology when considering the nature of the studies identified (See also Section 2.39). The nature of the evidence found and included is a consequence of the Review's search strategy and screening process. The REA approach and the search strategy adopted may not have enabled the Review to identify all relevant studies through examining their title and abstract during the Searches or Screening Phase. For example, items whose primary focus was language status, growth or decline may not have been found or included, based on their title and abstract, unless they also included reference to economic variables.
- 5.3 Most of the evidence that was included in the Mapping and Synthesis Phases is focused on understanding or assessing the effect of linguistic factors on various economic variables, as opposed to the effect of economic variables on language. Among the studies examining the effect of language on the economy were those assessing the influence of linguistic characteristics on individuals' labour market outcomes, and the effect on individuals' attitudes to enterprise and business. Several studies were also identified which examine perceptions of whether Welsh language skills are valued by businesses and the effects of language-related activity on economic variables such as expenditure and employment.
- 5.4 There appears to be less empirical evidence of the impact of the economy (or economic factors or conditions) on language. Few studies examining or modelling the effects of major economic developments, sectors, economic policies and trends (e.g. migration, demographic change) on linguistic variables were identified in the Review. The main exceptions to this were Phillips (2000), Grin (1993) and Mentrau Iaith Cymru (2014).

- 5.5 The lack of evidence identified in this Review on the effects of economic policies, activities and trends on the Welsh language represents a potential gap in the evidence base. This would appear to be particularly relevant, given that the link between economic factors and the Welsh language is identified in *Prosperity for All: economic action plan* (Welsh Government, 2017b).<sup>28</sup> Furthermore, *Cymraeg 2050* identifies ‘community and economy’ as ‘favourable conditions’ required to meet its goal of achieving a million Welsh speakers. Future research could usefully explore this area, both in terms of understanding the effects of current economic policy, and assessing the potential future economic policies that could help achieve *Cymraeg 2050*’s overarching goal. For example, future research could focus on how *Cymraeg 2050*’s aim to ‘support the socioeconomic infrastructure of Welsh-speaking communities’ could be best achieved.
- 5.6 Several of the labour market studies included in this Review provide robust evidence of a positive relationship between knowledge of Welsh, or other language relevant to the Welsh linguistic context, and earnings, employment or occupational status. These studies include matched comparison groups and tend to draw on national census data or government-administered surveys (e.g. Annual Population Survey (APS) and Labour Force Survey (LFS)), although much of this evidence is now based on older data. The positive relationship, identified by several authors, between language ability and economic outcomes cannot fully be explained by observable characteristics (e.g. education level), which leads authors to reach a variety of conclusions and possible explanations for this (e.g. structural advantages, positive discrimination). Future research could be undertaken to examine possible explanations for any findings observed, and to verify the findings of studies identified in this Review with current data.
- 5.7 A few Wales-based studies provide robust survey evidence of the perceived value of Welsh language skills among business managers and levels of use in some businesses, as well as evidence of some consumers’ preferences for Welsh language services. The findings of these surveys suggest that some business

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<sup>28</sup> See Section 1.9.

owners, particularly in some geographical areas and sectors, consider staff with Welsh language skills to be an asset to their business as it enables them to meet some of their customers' linguistic preferences. It could therefore be inferred from this that some employers may be choosing to recruit Welsh speakers because of the advantage they perceive this offers to their business. This may potentially offer a partial explanation of why Welsh speakers have better labour market outcomes than those who do not speak Welsh. This hypothesis could be tested in future research with employers (i.e. what weight, if any, do employers give to Welsh language skills when recruiting candidates).

- 5.8 Economic assessments and other studies examined in this Review provide a wealth of descriptive evidence and examples of direct and indirect links between language-related activities and economic outcomes (e.g. job creation, expenditure, turnover, GVA). However, there appears to be a lack of evidence examining the wider, cumulative economic outcomes resulting from activities relating to the Welsh language. In Scotland and the Basque Autonomous Community, economic assessments have focused on outcomes related to language-related activity at a macro level (e.g. aggregate contributions to employment or turnover), while in Wales the focus has tended to be at institution-level (e.g. economic value of S4C) or linked to a specific activity (e.g. economic benefits of the National Eisteddfod). Future research in Wales could explore economic outcomes at an all-Wales level.
- 5.9 A few studies (mainly from the 1990s) compare attitudes to entrepreneurship, self-employment and business among Welsh speakers and those who do not speak Welsh. Findings from these studies suggest that Welsh speakers may have more 'traditional', risk-averse attitudes to certain aspects of business and enterprise. A few authors suggest possible structural, historical and cultural reasons for these differences, which they consider may indicate a need to tailor or target business support differently for Welsh speakers. However, the quantitative findings from some studies suggest that Welsh speakers are over-represented among the self-employed, while one reference (Beaufort Research, 1999) suggests the attitudes of Welsh speakers may have changed during the 1990s, and become more similar to those who do not speak Welsh. Further research would be required to provide up-

to-date findings in relation to this issue, and explore the possible reasons for any differences in more detail.

- 5.10 Another potential future area of research could be to explore whether the concentration of Welsh speakers in an area affects individuals' labour market outcomes, as is suggested by some of the studies in this Review. Some of the Wales-based labour market studies examine geographic areas with varying concentrations of Welsh speakers, but this factor has not been explored in detail in Wales compared with languages elsewhere.
- 5.11 The Review has found little quantitative evidence of the commercial value of bilingual products and services. Some studies have gathered the views of companies (Welsh Government, 2014c; Welsh Language Commissioner, 2014b) about the perceived impact of the use of the Welsh language on business turnover and growth. However, the Review has not found evidence of research into the existence of price premia for bilingual goods and services, or the costs and benefits associated with producing and providing bilingual services. This could be an area for future research.
- 5.12 As noted in Section 1.14, reviewing administrative data sources and government-funded surveys, which collect data on socio-economic and demographic variables as well as Welsh language skills, was outside the scope of this Review. Nevertheless, many of the references identified in this Review are reliant on data from these sources, particularly the studies categorised as 'Medium-high'. Future research on the Welsh language and the economy will continue to depend heavily on this type of data. Key sources, that collect data from the perspectives of individuals and of employers, include: UK census data; APS and LFS; Understanding Society; the UK agricultural census, and the Employer Skills Survey (ESS). This data is very valuable owing to the range of information collected from individuals and employers alongside data on Welsh language, allowing for nuanced analysis to be carried out. Furthermore, as they are collected on a regular basis, they enable analysis over time. There is, therefore, potentially a need for a separate review of data from these types of sources, to identify the data that is published and

unpublished, as well as gaps in the evidence collected that could be addressed through adapting collection processes and surveys in future.

## 6. Potential areas of future research

- 6.1 The following areas of potential future research have been identified based on the conclusions and the gaps in the evidence base that have been noted above.
- 6.2 **Future research could be undertaken to examine evidence of the effects of current economic policies, activities and trends on the Welsh language.** This could include consideration of the effects of UK, Welsh and regional policies as well as major developments, demographic trends (see also Section 6.3). It could also consider changes in economic circumstances, such as the UK leaving the European Union, and any associated changes in policies such as the Common Agricultural Policy, which could affect a sector employing significant numbers of Welsh speakers. This type of research could provide valuable baseline information to understand the potential effects of current economic trends on the Welsh Government's goal of reaching a million Welsh speakers by 2050. It could also examine the resilience of the Welsh economy and language, identify any risks arising from current policies and trends, and potential mitigating steps to address these (See also Section 6.4).
- 6.3 **The potential effects of inward and outward migration trends on the profile and concentration of Welsh speakers in different geographic areas could be explored in future research.** This could include exploring the effects of these demographic trends (e.g. rural-urban migration) on the socio-economic profile of the workforce in different geographic areas. This type of research could draw on data sources such as the UK census and other official statistics, such as NHS patient data and the HESA Student Record.
- 6.4 Alongside the above, **consideration could be given to examining the potential contribution of future national and regional economic policy in supporting the Welsh Government's goal of reaching a million Welsh speakers by 2050.** This could include examining the potential effects of: Welsh language workforce training; public procurement policies; interventions targeted at geographic areas or industrial sectors with different proportions of Welsh speakers.

- 6.5 **Future research could be undertaken, using the most recent labour market data, to examine the relationship between Welsh language skills and labour market outcomes.** This could include census data and large-scale surveys of the population (e.g. APS, LFS, National Survey for Wales, Understanding Society) and could include comparisons with previous research. It could investigate the reasons behind any variations in employment, economic activity and earnings of Welsh speakers and those who do not speak Welsh. It could also include an exploration of the influence of the concentration of Welsh speakers in different geographic areas.
- 6.6 **Primary research could be undertaken with employers to examine whether they consider Welsh language skills when recruiting staff.** This could build on research with employers that has been identified in this Review, which relies on data on their perceptions of the value of Welsh language skills in business. Such research could consider employers' recruitment practices and the influence, or lack of influence, of linguistic skills and characteristics on their recruitment decisions. In addition to examining employers' practices when recruiting staff, it could be useful to consider whether a detailed picture is available about the numbers and types of currently filled posts for which Welsh has been deemed essential or desirable.
- 6.7 **Examining the costs and benefits of expenditure on activities associated with the Welsh language at an all-Wales level** could be considered, to better understand the direct and indirect value of expenditure on Welsh language goods and services at macro level. This could build upon the evidence collected by individual organisations that has been included in this Review.
- 6.8 **Investigating whether consumer behaviours, such as expenditure decisions, are influenced by the availability of Welsh language goods and services** could help build on some of the findings from studies of consumer attitudes and perceptions identified in this Review. This could involve exploring whether there are price premia associated with Welsh language products and services, and examining consumers' willingness to pay for these.

- 6.9 **Exploring attitudes to entrepreneurship, self-employment and business among Welsh speakers and those who do not speak Welsh could be considered in future research.** This research could consider whether any differences identified can be explained by linguistic or other observable socio-economic or demographic factors. It could also compare findings with previous research on the topic that has been identified in this Review.
- 6.10 **A review of the availability of data to support future research on the Welsh language and the economy could be considered.** This would provide a means of assessing whether available data is being analysed to its full potential, and whether there are gaps in the evidence base.

## Annex A: Data extraction form template (adapted from Welsh Government, 2018 and EPPI-Centre, 2007)

Parts A and B to be completed for all references reaching Screening Stage 3.3

Part C to be completed for references categorised as 'High', 'Medium-high', 'Medium' or 'Medium-low' at Screening Stage 3.3 and progressing to Phase 5 (Synthesis).

<b>PART A: description</b>	
<b>Identifier number</b>	Number
<b>Date of full-text scan</b>	Date
<b>Date of full-text review</b>	Date
<b>Citation details (list all authors, year published, publisher)</b>	Citation
<b>Status</b>	<p>Published - Please use this keyword if the report has an ISBN or ISSN number.</p> <p>Published as a report or conference paper - Please use this code for reports which do not have an ISBN or ISSN number (e.g. 'internal' reports; conference papers)</p> <p>Unpublished - e.g. e.g. thesis or author manuscript</p>
<b>Language of publication</b>	English or Welsh
<b>Funder</b>	Name of funder (if available)
<b>Study aim(s) and objective(s). Note if these are quoted or if reviewer's interpretation.</b>	Note aim(s) and objectives
<b>How the study is relevant to the research question. Note which search terms are the focus of the study in relation to <i>language, economic outcome and relationship</i>.</b>	Note key terms or why relevant e.g. relationship between linguistic ability and pay.
<b>Type of study</b>	e.g. evaluation, qualitative research, household survey, cross-sectional survey, impact study,

	labour market profiling.
<b>What are the research questions/hypotheses?</b>	As described/presented in the literature
<b>Overview of methodology</b>	Summary of methodology (e.g. data analysis, survey, qualitative research, mixed methods, longitudinal, cross-sectional)
<b>How were the study samples identified/recruited?</b>	
<b>Which variable does the study aim to examine?</b>	Explicitly stated (please specify) Implicit (please specify) Not stated/ unclear
<b>How was the data collected?</b>	Secondary data (please specify e.g. administrative data, survey)  Interviews  Focus groups  Other qualitative method  Questionnaire (please specify whether online, telephone, paper-based)  Other – please specify
<b>Are assessments of reliability/replicability reported?</b>	Yes (please specify) No (please specify)
<b>Are assessments of validity reported?</b>	Yes (please specify) No (please specify)
<b>Where were the data collected?</b>	Please specify
<b>When were the data collected?</b>	Specify time period(s)

<b>What data analysis methods were used?</b>	Explicitly stated (please specify) Implicit (please specify) Not stated/unclear (please specify) Please specify any important analytic or statistical issues
<b>What rationale is given for data analysis methods?</b>	Details
<b>What statistical methods (if any) were used?</b>	Details
<b>For qualitative methods, have complexity and diversity been addressed?</b>	Yes (please specify)
<b>PART B: Quality assessment (contribution, appropriateness, validity)</b>	
Are the aims of the study clear?	Yes/No
Is the methodology adequately reported?	Yes/No
Is the study replicable?	Yes/No
Are the data traceable?	Yes/No
Is there selective reporting? Do the authors report all variables as noted in their aims?	Yes/No
Are there ethical concerns?	Yes/No
Is the methodology justified by the authors?	Yes/No

Is the validity of the research tools established?	Yes/No
To what extent can research error/bias be ruled out?	Almost fully/A little/Not at all
How justifiable are the conclusions? Take the above into consideration and note to what extent the Review agrees with the author about the conclusions.	Almost fully/A little/Not at all
How generalisable are the findings?	Add details
<b>WoE</b>	
<b>B1: Contribution.</b> <b>Extent to which the research contributes to existing evidence relating to this Review's primary research question</b>	<b>High</b> - Findings make a substantial contribution to existing evidence. <b>Score 3.</b> <b>Medium</b> - Findings make a reasonable contribution to existing evidence. <b>Score 2.</b> <b>Low</b> - Findings add little to the existing evidence. <b>Score 1.</b>
<b>B2. Appropriateness.</b> <b>Extent to which the methodology is appropriate for drawing robust conclusions relating to this Review's primary research question</b>	<b>High</b> – Fair and clear experimental design, well designed Randomised Controlled Trial. <b>Score 3.</b> <b>Medium</b> – Well-matched comparison group, quasi-experimental approach. <b>Score 2.</b> <b>Low</b> – Comparison group with poor or no matching; <i>or</i> no comparison group; <i>or</i> mainly descriptive or qualitative evidence. <b>Score 1.</b>
<b>B3: Validity.</b> <b>Validity of findings</b>	<b>High</b> - Robust, valid outcomes, standardised or widely acceptable. No leakage or bias. <b>Score 3.</b> <b>Medium</b> - Robust, valid outcomes. Some threats to validity and reliability. <b>Score 2.</b> <b>Low</b> - Concerns about validity and reliability. <b>Score 1.</b>

<p><b>B4. Overall rating and WoE.</b></p> <p><b>Taking into account all the questions above, what is the strength of the study in providing an insight into the relationship between the Welsh language (or other relevant language) and economic outcomes or economic variables?</b></p>	<p>Overall score and rating to be calculated based on responses to B1, B2 and B3 above using following method:</p> <p>Total score 9 = <b>High</b></p> <p>Total score 7-8 = <b>Medium-high</b></p> <p>Total score 6 = <b>Medium</b></p> <p>Total score 4-5 = <b>Medium-low</b></p> <p>Total score 3 = <b>Low</b></p>
<p align="center"><b>PART C: Summary of findings and contribution to the evidence base (To be completed only for references progressing from Screening Stage 3.3)</b></p>	
<p>What results do the authors report?</p>	<p>Details</p>
<p>What population do the authors aim to extrapolate to?</p>	<p>Not specified</p> <p>Details</p>
<p>What do the authors conclude about the study findings?</p>	
<p>What does the reference tell us about the relationship between the Welsh language, or other language relevant to the Welsh context, and the economy?</p>	
<p>Does the reference identify gaps in the evidence? If so, what are they, and what approaches could be applied to address them?</p>	
<p>How relevant is the evidence to the current context of the Welsh language?</p>	

**Approach and lessons for future research**

How could the approach be applied or adapted in future research to enhance the evidence base for the relationship between the Welsh language and the economy?

**Authors' overall conclusions**

**Link (URL):**

## Annex B: Summary of findings from Screening Stage 3.1

A summary of the results from the Searches and Screening Stage 3.1 is included below.

### Analysis of Screening Stage 3.1

Total number of records	7,770
Total excluded	7,527
Of which:	
<i>Excluded by database filtering</i>	3,463
<i>Excluded based on manual screening (not relevant material)</i>	4,064
Total manually screened for relevance	4,307
Included – proceeding to Stage 3.2	243

A total of 243 items proceeded to Screening Stage 3.2. The 243 items are summarised by category below.

### Summary of included literature in Screening Stage 3.1

Category	Number of references
Bilingualism and multilingualism in the workplace or business	52
Value of language skills, bilingualism or multilingualism	48
Influence of economic factors (e.g. migration, globalisation) on language	39
Economics in language planning	21
Perceived economic benefits of bilingualism or multilingualism	20
Advertising, branding or marketing in minority language	18
Bilingualism, multilingualism, minority languages and service delivery	11
Commodification of minority language	7
Use of minority language in the media and public spaces	5
Work-based learning and minority language	5
Economic benefit, impact or value of bilingualism, multilingualism or minority language	4
Impact of language policy on the economy	4
Role of language in tourism	4
Costs of bilingualism or multilingualism	2
Economic arguments for linguistic human rights	1
Economic value of minority language institutions	1
Use of minority language online	1
<b>Total</b>	<b>243</b>

A total of 4,064 items were excluded on the basis of their relevance following manual screening during Screening Stage 3.1. These items are summarised by category below.

### Summary of excluded literature in Screening Stage 3.1

Category	Number of references
Education and language	796
Language use	434
Policy document (e.g. language plans)	331
Language status and use	236
Acquisition and development of language	204
Linguistic history and heritage	117
Language and ethnicity, identity and equality	93
Use and value of English	79
Language policy analysis	70
Sign language and deafness	60
Language and literature	58
Attitudes and perceptions of language	46
Cognition	46
Learning outcomes of bilinguals/multilinguals	44
Language, arts and culture	39
Learning and teaching	38
Language planning - general	37
Language and health	35
Language learning and teaching	28
Language and religion	24
Language change and trends	19
Referencing (e.g. terminology)	16
Economy and business - general	12
Justice system and legislation	12
Language and literacy	12
ICT and digital	11
Research methods	10
Additional Learning Needs	10
Majority language (except English)	8
Translation	8
Language rights	6
Language and psychology	5
Language and natural environment	4

Politics	2
Other*	292
<b>Total of the above items excluded and categorised (i)</b>	<b>3,242</b>
<b>Total number of other items excluded but not categorised above (ii)</b>	<b>822</b>
<b>Total items excluded based on manual screening (Sum of (i) and (ii) above)</b>	<b>4,064</b>
<b>Total excluded through online database filters (iii)</b>	<b>3,463</b>
<b>Total excluded during Screening Stage 3.1 (Sum of (i) + (ii) + (iii) above)</b>	<b>7,527</b>

\*'Other' includes references which focus on the following: combinations of more than one of the above categories; language, bilingualism, multilingualism in general; and other topic areas e.g. science, social inclusion, ideology, colonialism.

## **Annex C. Individual stakeholders interviewed**

Interviews were undertaken with the following stakeholders during the Review.

- Officer from the Welsh Language Commissioner
- Wynfford James, Director, Sgema
- Professor David Blackaby, Swansea University
- Professor Andrew Henley, Cardiff University
- Hywel Evans, Independent Consultant and one of the founders of Menter a Busnes
- Gerallt Llewelyn Jones, Managing Director, Morlais Energy
- Alun Jones, Chief Executive, Menter a Busnes
- Dr Elin Royles, Aberystwyth University
- Dr Huw Lewis, Aberystwyth University

## Annex D. Bibliography

This Bibliography is set out in three sub-categories: Background and Contextual References, Methodology References, and Main Review References.

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