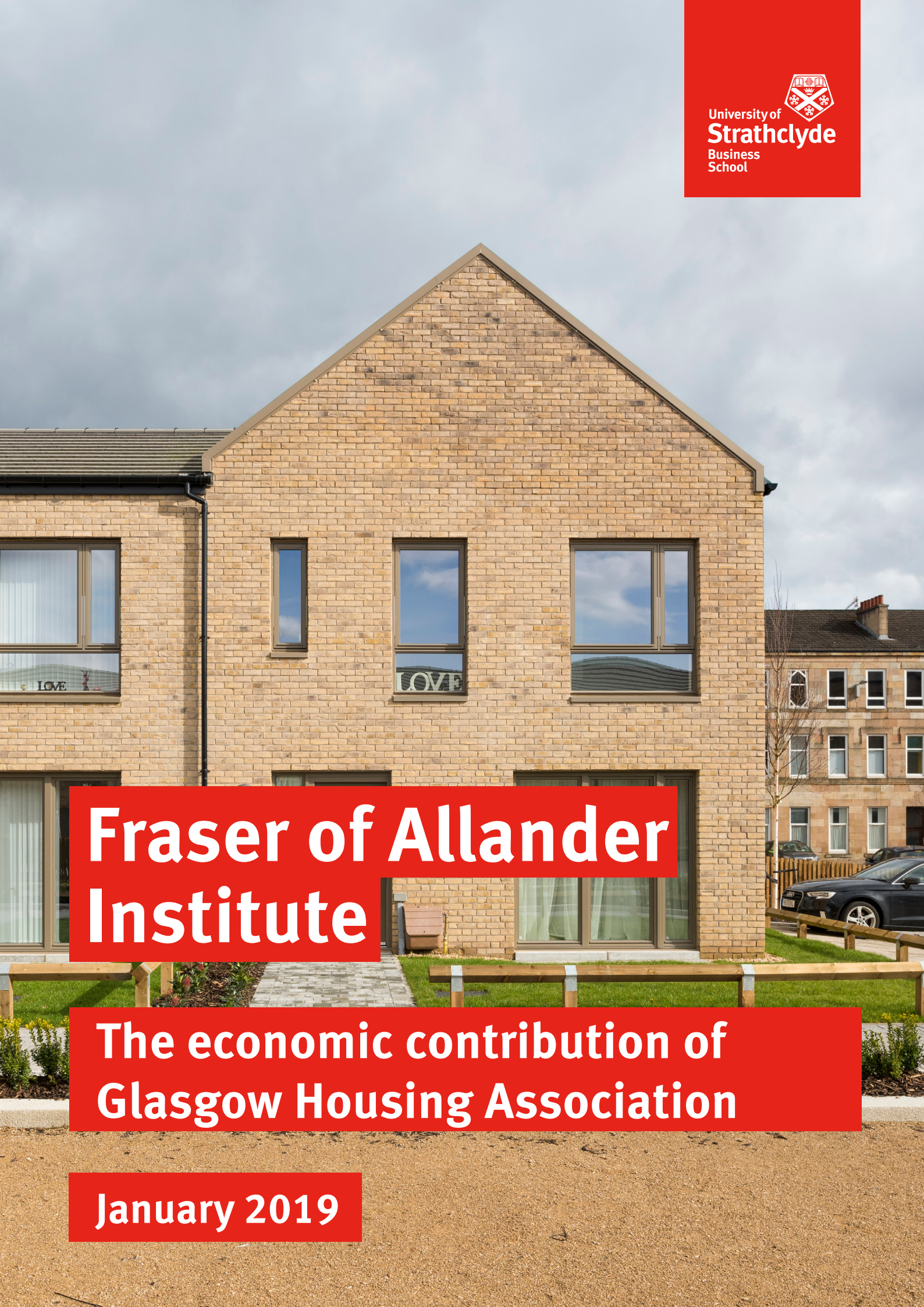




Fraser of Allander Institute

**The economic contribution of
Glasgow Housing Association**

January 2019



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Executive summary

The economic contribution of Glasgow Housing Association

- Glasgow Housing Association (GHA) is the largest social landlord in Scotland – and one of the biggest in the UK – with almost 40,000 homes throughout Glasgow.
- GHA was created in 2003 to manage the social housing stock within Glasgow. Since then, GHA has invested more than £1.5 billion developing tenants' homes.
- The investment has been used to improve and modernise more than 70,000 homes and to build more than 2,000 new properties across the city.
- As at the end of March 2018, GHA's housing stock (including homes under construction) was valued at £1.2 billion.
- GHA is not just involved in building new homes. GHA invests in the community and provides a wide range of support. As of 2017/18, GHA has invested more than £45 million in the community.
- 73% of GHA households are located in Scotland's 15% most deprived datazones.
- This report examines the economic contribution in terms of spend, valued added (i.e. growth) and jobs. Our analysis finds that –
 - For 2016/17, GHA's activities across both its day-to-day and capital spending programmes contributed £153 million in GDP to the Scottish economy helping to support 2,575 full-time equivalent jobs; and,
 - Over the 15 years of GHA's capital expenditure programme – from its inception in 2003/04 – around £2 billion will have been added to Scotland's GDP helping to support an additional 36,500 years of full-time equivalent employment in Scotland, or an average of 2,425 full-time equivalent jobs per year.

Disclaimer

The analysis in this report has been conducted by the Fraser of Allander Institute (FAI) at the University of Strathclyde. The FAI is a leading academic research centre focussed on the Scottish economy.

The report was commissioned in 2018 by Glasgow Housing Association (GHA). GHA asked the FAI to provide an estimate of the economic impact from their expenditure.

The technical analysis, methodology and writing-up of the results was undertaken independently by the FAI. The FAI is committed to informing and encouraging public debate through the provision of the highest quality analytical advice and analysis. We are therefore happy to respond to requests for factual advice and analysis. Any technical errors or omissions are those of the FAI.

Introduction

Setting the scene

An effective and thriving housing infrastructure is vital for any modern, dynamic, successful city.

Glasgow Housing Association (GHA) is the largest social landlord in Scotland with almost 40,000 homes throughout Glasgow. It is part of the Wheatley Group, a housing care and property management group responsible for providing homes and services to more than 200,000 people in 17 local authorities.

Since it was formed in 2003, GHA has invested more than £1.5 billion in tenants' homes. The investment has been used to improve more than 70,000 homes and to build more than 2,000 new properties. A further 2,500 homes are in the pipeline.

GHA's primary goal is to improve the quality of housing for its tenants and to contribute to the sustainability and development of local areas.

But alongside being a positive social landlord, GHA's investments and operations have made a significant contribution to the Glasgow and Scottish economy over its 15 years of existence.

The aim of this report is to estimate this economic contribution. To do this, we undertake two assessments.

Firstly, we look at *all* the economic activities of GHA for the most recent year a detailed breakdown of spending is available. This includes both capital investment programmes *and* GHA's day-to-day operations (including maintenance and housing services).

Secondly, we estimate the economic impact of GHA's 15 year investment programme and the jobs supported from the building of new homes and the improvement and modernisation of many more.

In both studies, we estimate not just the impact of the activities made by GHA directly but – through a detailed model of the Scottish economy – the wider spill-over effects that such activities support.

We find that –

- For 2016/17 GHA's activities across both its day-to-day and capital spending programmes contributed **£153 million in GDP** to the Scottish economy helping to **support 2,575 full-time equivalent jobs**; and,
- Over the 15 years of GHA's capital expenditure programme – from its inception in 2003/04 to the most recent year 2017/18 of planned activities – around **£2 billion will have been added to Scotland's GDP** helping to support **additional 36,500 years of full-time equivalent employment** in Scotland, or an average of 2,425 full-time equivalent jobs per year.

Glasgow

Regional context

Glasgow is Scotland's largest city and the city is estimated to account for just over 15% of Scotland's entire economic output¹.

Glasgow is also a changing city.

In recent years, Glasgow's population has been on the rise following decades of decline. In 2017, the city's population stood at 621,020² and is now the most ethnically diverse population in Scotland.

On current trends, the number of households in Glasgow is set to increase by 16% over the coming 25 years, whilst demographic and social changes will mean that single adult households could account for half of all households in the city by 2040.

Despite its clear economic strengths, Glasgow continues to have a number of challenges as deprivation remains higher than the national average. Nearly 25% of Glasgow's 'datazones' – small unit areas within a local area – are classified as the 'most deprived' category and Glasgow includes 7 of the 10 most deprived datazones in Scotland.

Housing in Glasgow

The quality, conditions and tenure of housing can have widespread impacts on the quality of lives as it affects health, well-being and employment.

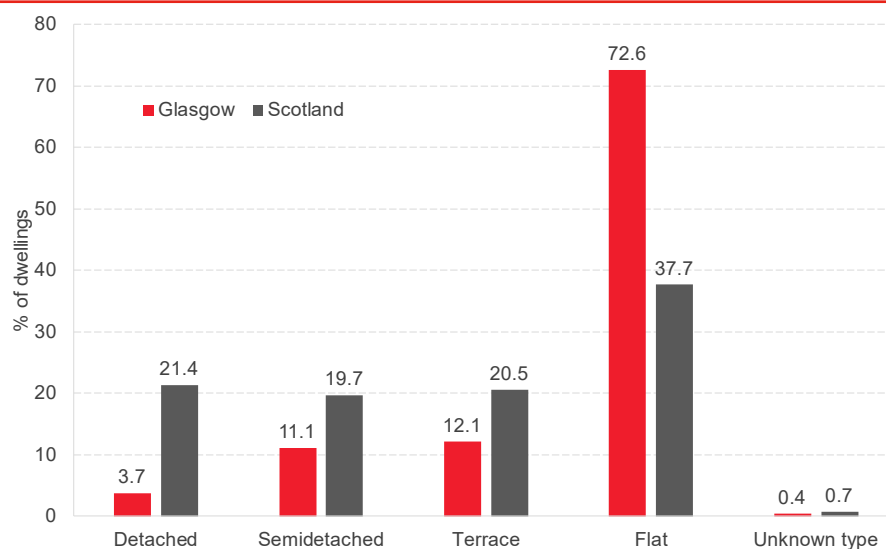
People in Glasgow are more likely to live in flats than in any other part of Scotland – 72.6% of dwellings are flats compared to 37.7% in Scotland as a whole. Detached houses make up only 3.7% of the dwellings in Glasgow compared to 21.4% in Scotland.

In 2017, 70% of dwellings in Glasgow were in council tax bands A-C compared to 60% in Scotland as a whole. If we take the highest three bands, then only 7% of Glasgow dwellings fall into bands F-H compared to 13% in Scotland.

¹ Of course, the wider surrounding area that is closely linked to the city itself is widely seen as the powerhouse of the Scottish economy. Indeed including the seven surrounding local councils – E Dunbartonshire, E Renfrewshire, Inverclyde, N Lanarkshire, Renfrewshire, S Lanarkshire and W Dunbartonshire – the area is estimated to generate a third of Scotland's economic output.

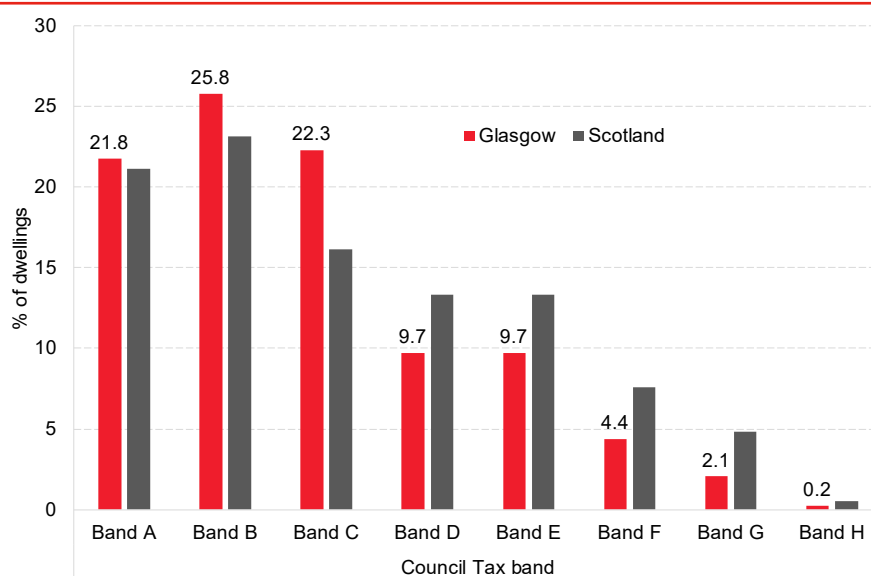
² National Records of Scotland

Chart 1: Dwellings types in Glasgow and Scotland (%), 2016



Source: ONS

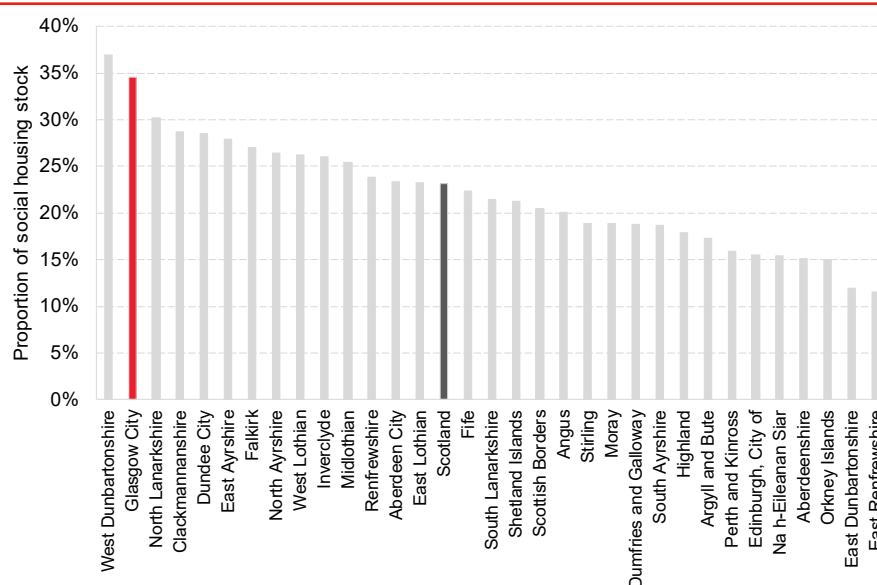
Chart 2: Dwellings in council tax bands in Scotland and Glasgow (%)



Source: National Records of Scotland

After West Dunbartonshire, Glasgow has the 2nd highest proportion of social housing stock by local authority area in Scotland.

Chart 3: Proportion of social housing stock by local authority area 2016



Source: Scottish Government Housing Statistics for Scotland and Scottish Housing Regulator Stock data

Housing standards

Over recent years, there have been considerable efforts to improve the housing stock in Glasgow (and Scotland) and for the most part these improvements have been significant.

Table 1 shows that in 2017 GHA held around 37% of the social rented sector in Glasgow with nearly 40,000 dwellings.

Table 1: Dwelling stock estimates Glasgow City (2017)

	Dwelling stock
Glasgow Housing Association	39,394
Other Housing Associations	66,150
Social rented sector	105,544
Owner occupied	136,236
Private rented	57,651
Private sector	193,887
Total dwellings	299,431

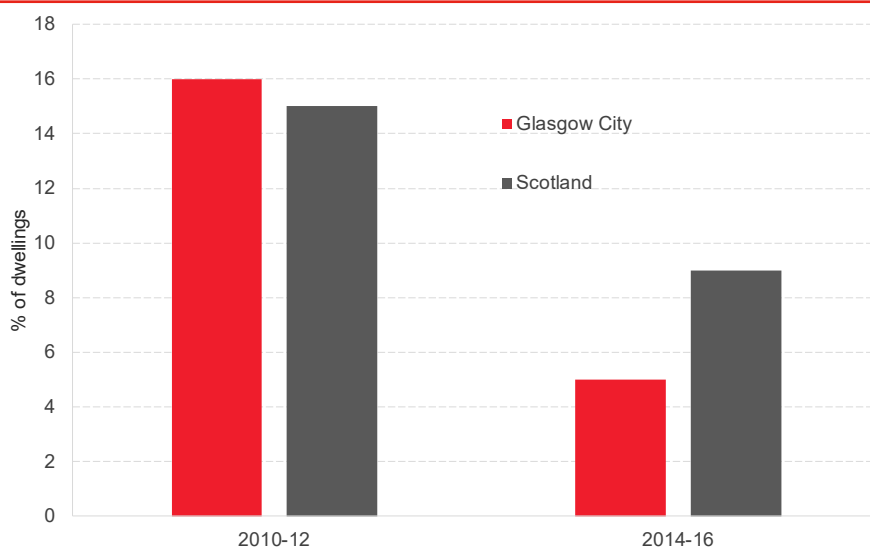
Source: GHA

The Scottish House Condition Survey (SHCS) publishes data by local authority for a number of key indicators covering the condition of the housing stock.

According to the survey for the period 2010-2012 (based upon a 3 year rolling average), 16% of the social housing stock in Glasgow was deemed to be in a state of 'extensive disrepair' compared to a Scottish average of 15%. This was similar to that in other areas with a high proportion of social rented accommodation, such as North Lanarkshire (17%) and West Dunbartonshire (16%)

By the 2016 survey, this had fallen to just 5% in Glasgow – below the Scottish average of 9%.

Chart 4: Social housing dwellings with extensive disrepair (%)



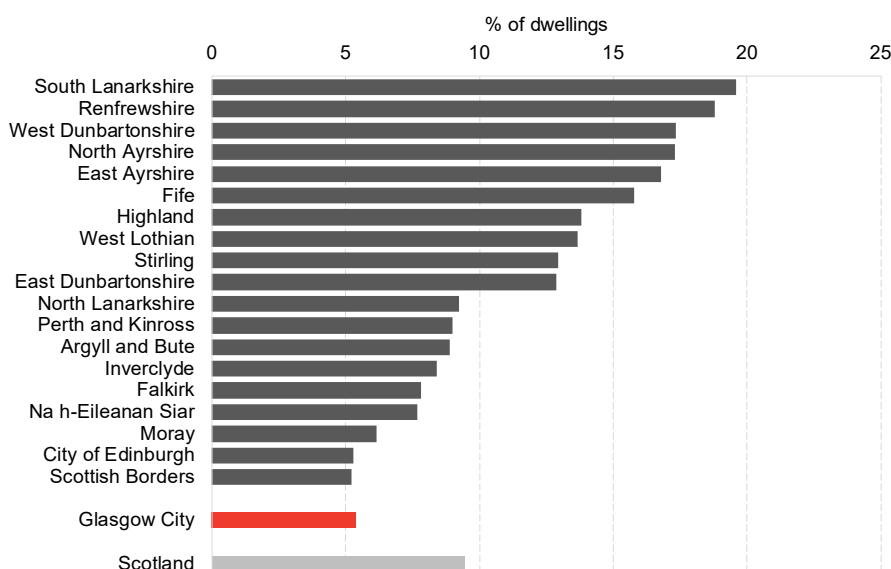
Source: Scottish Government

An alternative indicator is provided by the Scottish Housing Quality Standard (SHQS). Here dwellings are assessed on 55 different elements which are broken into five broader criteria. Failure of one of these criteria results in an outright SHQS fail.

In the period 2010-2012, an average of 55% of social housing dwellings in Scotland failed the SHQS but in the period 2014-2016, this fell to an average of 41%.

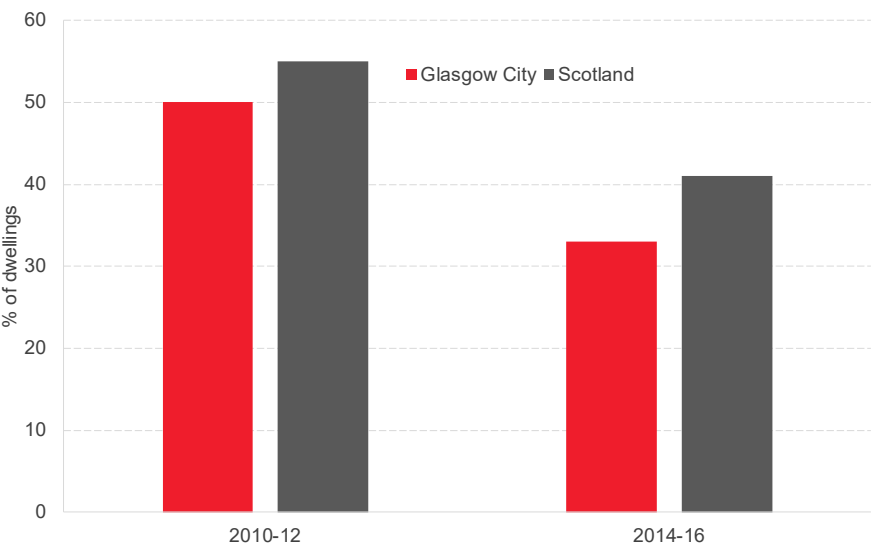
For Glasgow, this percentage fell from 50% for the period 2010-2012 to 33% for 2014-2016.

Chart 5: Social housing dwellings with extensive disrepair by Local Authority 2014 – 2016 (%)



Source: Scottish Government

Chart 6: Social housing dwellings that fail the Scottish Housing Quality Standard (%)



Source: Scottish Government

Glasgow Housing Association

A profile of activities and achievements

As highlighted above, GHA was created in 2003 following a ballot of Glasgow City Council tenants.

The activities of GHA fall into three main categories namely

- Building new homes
- Investment in existing properties
- Community investment

Since the stock transfer from Glasgow City Council in 2003, GHA have invested more than £1.5 billion improving tenants' homes. The investment has been used to improve and modernise more than 70,000 homes and to build more than 2,000 new properties. A further 2,500 new homes are in the pipeline.

During 2016/17 GHA invested £37.1 million in their new build programme and plan to spend a further £152 million on their new build programme over the 5-year period 2017-2022.

At the end of March 2018 the housing stock (including homes under construction) was valued at £1.2 billion.

The profile of the housing stock owned by the GHA in 2017 can be seen in Table 2.

Table 2: Profile of GHA housing stock 2017

	1 Apt	2 Apt	3 Apt	4 Apt	5 Apt	Total
House	0	142	2,636	2,933	1,082	6,793
High rise	258	3,204	4,479	189	0	8,130
Tenement	102	2,948	9,325	2,501	144	15,020
Four-in-a-block	0	266	3,620	2,280	13	6,179
Other flat/maisonette	2,330	513	163	239	27	3,272
Total owned	2,690	7,073	20,223	8,142	1,266	39,394
Number of lettable units	2,678	7,061	19,930	7,996	1,265	38,930

Source: GHA

Almost 40% of the GHA housing stock in 2017 was tenement flats and just over 20% were in high-rise blocks. However the number of high-rise block dwellings has been falling in recent years with the GHA policy of replacing some tower blocks with low rise tenements and houses.

One of the main activities of GHA is in providing new build homes.

Table 3 illustrates the number of new homes in areas of the city from 2003-2017. It shows that during the period GHA completed 2,352 dwellings with a further 853 currently being built.

Table 3: New build homes completed and under construction since 2009

	Completed	Under construction	Total
North East	1,148	327	1,475
North West	304	98	402
South	900	428	1,328
Total	2,352	853	3,205

Source: GHA

As well as building new houses GHA is also responsible for the management and maintenance of housing.

In 2017, Wheatley Group embarked on a £3.7 billion joint venture (JV) with Glasgow City Council. Wheatley Group, became a 50-50 joint owner and partner in City Building Glasgow.

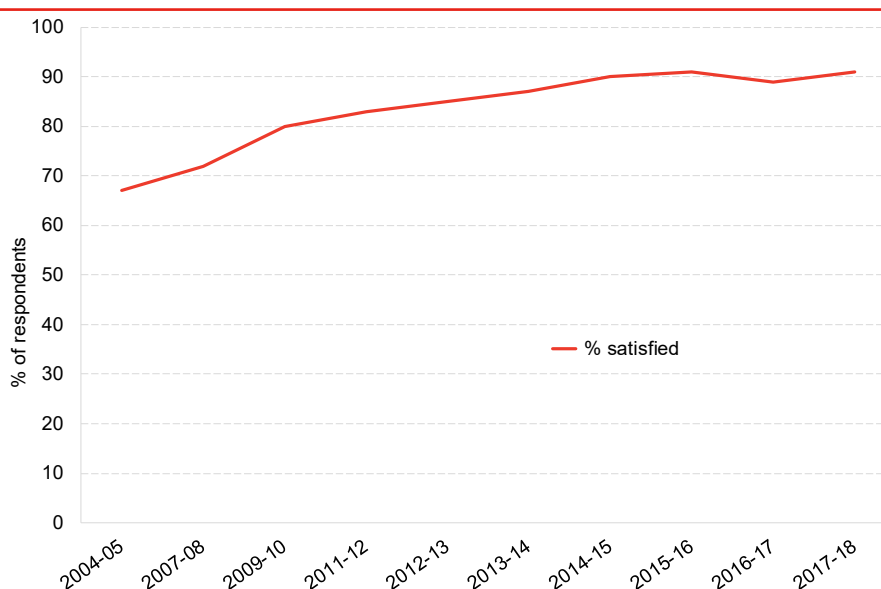
This partnership is responsible for repairs and investment work in Glasgow and in its other areas of operation across central Scotland. The joint-venture employs more than 2,000 staff and is responsible for the Wheatley Group's annual housing repairs budget of £33 million and annual investment budget of £27 million. It also carries out £30 million of repairs annually on behalf of the City Council.

Average rents in GHA properties in 2017 were significantly below similar sized properties from private landlords and were also 1.8% lower than the Scottish average for social landlords.

Data from the latest Scottish Social Housing Charter (SSHC) survey from 2016/17 showed that almost 84% of GHA tenants felt that the rent for their property represented good value for money.

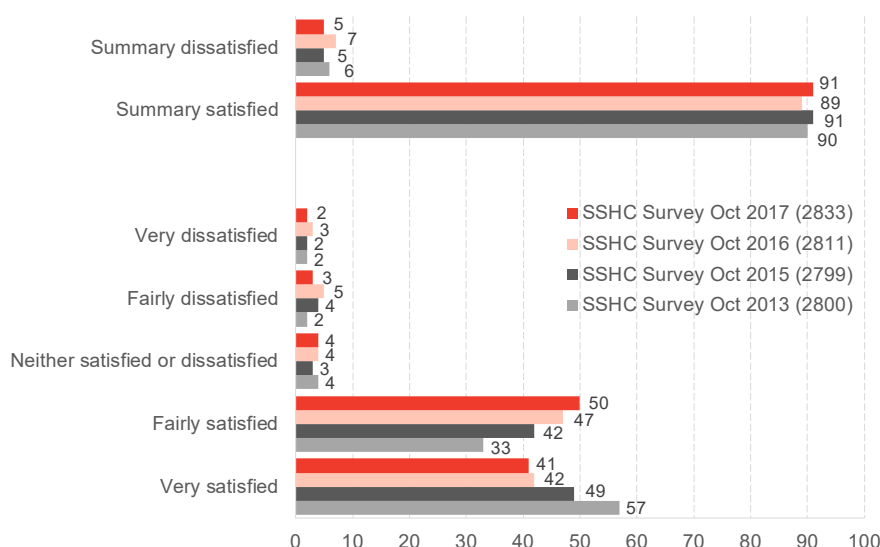
As well as affordable homes GHA also provides quality homes, performing well in meeting the standards set by the Scottish Government's Scottish Social Housing Charter. In 18 of the 26 performance measures, GHA was in the top quartile when benchmarked against similar registered social landlords.

Chart 7: Satisfaction with GHA (%)



Source: BMG Research - SSHC

Chart 8: Taking everything into account, how satisfied or dissatisfied are you with the overall service provided by your landlord? (%)



Source: BMG Research - SSHC

In the latest 2017-18 Tenant Satisfaction Survey carried out by BMG Research, overall satisfaction was 91%. Over the longer term satisfaction rates with GHA as a landlord have risen by 24 percentage points in the period from 2004 to 2017. GHA also performed close to or above the Scottish average on many of the key indicators notably with respect to the quality and maintenance of homes.

Community investment

GHA was established in 2003 as a result of a Glasgow City Council stock transfer. It is Scotland's largest social landlord with almost 40,000 homes.

But GHA is not just involved in building new homes. GHA invests in the community and provides a wide range of support (Box 1). As of 2017/18, GHA has invested more than £45 million in the community.

With the support of the Scottish Government Procurement Directorate, GHA implemented Community Benefit requirements within its investment contracts. As a result, 10% of all investment activities were delivered by 'New Entrants' which include apprentices, those coming straight from unemployment and trainees.

Since 2004/05, GHA's community benefits requirements have supported 1,524 jobs, 1,254 new apprenticeships, and 84 work placements. 'New Entrants' make up around 2,000 of these opportunities and GHA tenants account for 459.



73%

of GHA households are located in Scotland's 15% most deprived datazones.



GHA's Community Benefit requirements have supported

2,862

jobs and training opportunities since 2004/05.

Box 1: GHA community investment programme

The GHA Wider Action team was created in 2003/04 to support its tenants through:

- Jobs, training and apprenticeships;
- Financial advice;
- Fuel advice to lower bills and improve energy efficiency;
- Facilities and environmental improvements;
- Services to older tenants including free handypeople, exercise and arts classes;
- Digital access;
- Community events, youth activities and sports programmes;
- Financial support through a range of Wider Action Fund grants.

GHA became part of Wheatley Group in April 2013. Since 2016, the Wheatley Foundation has led community activities across the Group reflecting five priority themes:

1. **Poverty:** tackling social exclusion and taking people out of poverty;
2. **Employability:** improving the employability of unemployed and disadvantaged tenants;
3. **Education:** supporting access to further and higher education;
4. **Digital Inclusion:** increasing digital capabilities and access;
5. **Sport and Art:** promoting sports, arts and recreational opportunities.

In addition to its community investment programme, GHA supports a range of training programmes targeting long-term unemployed and vulnerable individuals.

The Environmental Employability Programme (EEP) was delivered in partnership with Local Regeneration Agencies and Jobs and Business Glasgow until its final year in 2016. It provided qualifications and a year of paid environmental maintenance work within GHA's neighbourhoods. 2,167 training places were offered to unemployed Glaswegians since 2005/06, of which 74% were GHA tenants. As a result of the programme, 980 people went on to gain employment.

The Group's Modern Apprenticeship programme, created in 2009, provides opportunities in work and training to GHA tenants. So far, over 370 Modern Apprenticeships have been supported, of which 177 are for young people living in GHA households.

In 2015, Wheatley Group's MA Programme was recognised for encouraging and developing young employees through Investors in Young People accreditation.

'Changing Lives' – launched by Wheatley Group in 2016 – provides environmental training to vulnerable and excluded tenants facing barriers to work, such as those with mental health issues, addiction issues, past offenders, the previously homeless and those with no work experience. This has since resulted in 143 individuals being trained, of which 112 are GHA tenants.



GHA's EEP offered

2,167

training places to
unemployed Glaswegians
between 2005 – 2016.

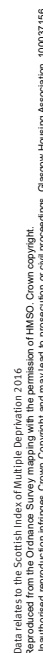


Wheatley Group has
supported over

370

Modern Apprenticeships.

GHA Stock SIMD data in Glasgow



Results



Number of GHA's
employees
2017/18

JOBS 1,621 full-time equivalent
employed by GHA in 2017/18



Economic impact of
activities
2016/17*

GDP £153 million contributed
to the Scottish economy

JOBS 2,575 additional jobs supported
in the Scottish economy

* Most recent year of highly-detailed data available.



Economic impact of
capital expenditure
2003/04 to 2017/18

GDP Around £2 billion contributed to
the Scottish economy since 2003

JOBS On average 2,425 FTE jobs
supported annually since 2003

Economic modelling

Overview

Introduction

Glasgow Housing Association (GHA) plays a major role in Glasgow's economy.

Glasgow Housing Association is a major employer in its own right. In 2017/18, GHA's direct employment was 1,621 full-time equivalent staff but this only captures part of the story. GHA builds and improves houses and also provides many valuable services to the community. These activities make important contributions to the economy.

To measure these economic contributions we need to model the full impacts of such activity.

In this report we quantify the economic impacts of GHA on the Scottish economy in two models.

The first model examines the impact of GHA's total expenditure in 2016/17. This model examines 2016/17 as it is the most recent year that was available at a highly detailed level.

The second model studies the impact of GHA's capital expenditure alone, over the 15 years from GHA's inception in 2003/04 up until the most recent year, 2017/18.

To do this, the FAI were provided with expenditures related to GHA's activities from Wheatley Group's Annual Report and Accounts. The data available has allowed for the most detailed economic analysis of GHA's activities undertaken to date.

The two models

This report examines the following models:

- The impact of GHA's day-to-day operational activities and investment programme in a single year, 2016/17,
- The impact of GHA's capital expenditure between 2003/04 and 2017/18.

Model 1 includes both GHA's spending as well as an apportionment of Wheatley Group expenditure. The apportionment represents the expected GHA direct costs incurred if Wheatley Group did not exist.

Model 2 focuses solely on GHA's own investment programme.



Understanding the results

This report looks at the economic impacts of the activities of Glasgow Housing Association on Gross Domestic Product (GDP) and employment in Scotland.

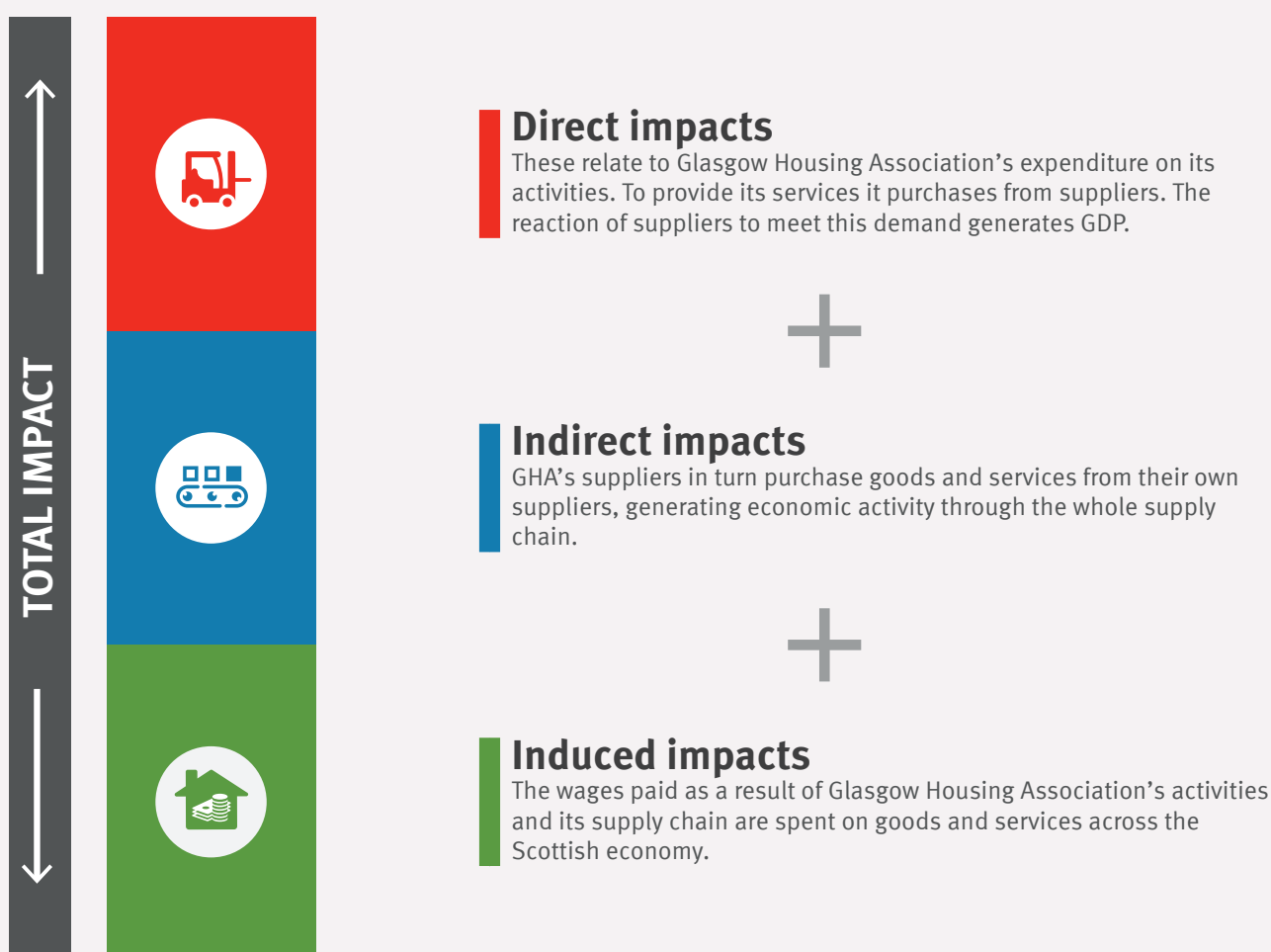
Gross Domestic Product (GDP) is the value of all final goods and services produced within the economy in a given period of time.

Employment in this report refers to full-time equivalent (FTE) employment. One FTE job is equivalent to one person working full-time for one year, two people working half the hours of a full-time worker for one year, and so on.

A study of the impact of Glasgow Housing Association needs to look further than the expenditure on the activities itself. It needs to ask: who is supplying goods and services to GHA? What do these suppliers spend their resulting revenues from GHA's activities on? What is the economic impact of the spending of those employed as a result of GHA activities on the Scottish economy?

An economic impact study aims to answer these questions by examining three channels of activity: direct, indirect and induced impacts.

Diagram 1: Direct, indirect and induced impacts explained



Source: Fraser of Allander Institute

Direct, indirect and induced impacts

An economic impact assessment examines three channels of activity.

The first channel is the direct impact. This measures the contribution from the actual spend which underpins Glasgow Housing Association's own day-to-day activities.

For example, Glasgow Housing Association spends money on materials, administration and other activities. All of this helps to create a stimulus to the economy.

But this only captures part of the story.

The second avenue through which GHA has an impact is from what are referred to as indirect and induced effects.

We know for example, that employees do not just hold on to their wages and salaries but spend them on goods and services.

At the same time, we also know that behind GHA is a complex supply chain of different businesses across Scotland (and beyond) all of whom will benefit in some way or another from its activities.

Therefore, there are two further economic effects which can be captured:

- Indirect – the economic benefits from GHA's suppliers using the revenues from trading with GHA to, in turn, make expenditures on staff and other goods and services; and,
- Induced – the economic benefits from the wages which are paid as a result of these activities being spent on goods and services across the Scottish economy.

To obtain an accurate picture of GHA's total economic impact, it is important to capture the direct, induced and indirect impacts.

To do this, we make use of an economic input-output model for Scotland.

This provides a complete picture of the flows of goods and services in the economy for a given year. It details the relationship between producers and consumers and tracks the interdependencies of industries. By capturing the complex interlinkages that exist in an economy, these tables can help obtain a picture of the 'multiplier' effects of GHA's spend and employment on the wider economy.

GHA expenditure

Summary

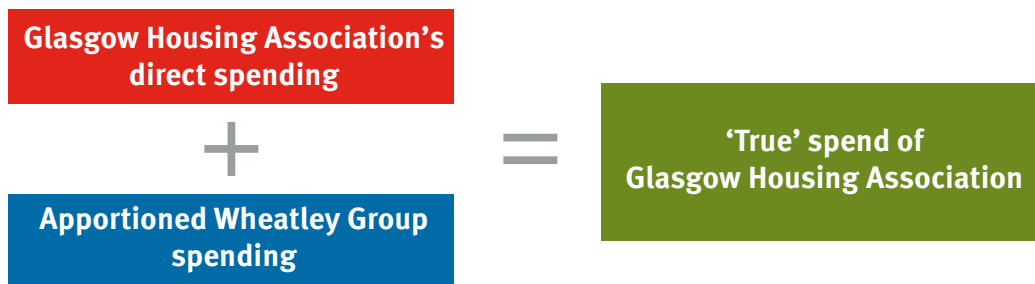
All expenditures and modelling results are reported in 2017/18 prices¹.

Model 1: Activities in 2016/17

We incorporate how much GHA spends on capital and operating expenditure to model GHA's activities in 2016/17. This is complicated by the fact that GHA is part of Wheatley Group and therefore a proportion of Wheatley Group spending is on behalf of GHA.

To give us a reliable picture of the 'true' expenditure of GHA we need to include both the direct expenditures of GHA as well as the costs that GHA would incur if Wheatley Group did not exist (Diagram 2). This was provided to us by Wheatley Group.

Diagram 2: Expenditure methodology for 2016/17 modelling



Source: Fraser of Allander Institute

Using this methodology, we have broken down the 'true' expenditures as follows:

- The expenditure of GHA on its activities in 2016/17 was £156 million,
- Of this, £64 million was operating expenditure and £92 million was capital expenditure,
- Capital expenditure includes £38 million invested in the construction of new homes.

In addition to GHA's activities, it also employed 1,583 full-time equivalent employees in 2016/17. The expenditure on the employment of these staff was over £60 million.

Model 2: Capital expenditure from 2003/04 to 2017/18

In the 2nd model, we look at the economic contribution of GHA over time. To do this, we focus upon a key element of GHA's activities which has a lasting impact – its capital investment programme.

- The capital investment of GHA between 2003/04 and 2017/18 was £1.93 billion in 2017/18 prices,
- Of this, £1.57 billion was in the core investment programme which includes housing improvements, £285 million was invested in the construction of new homes and £69 million was spent on other additions to fixed assets such as community infrastructure, furniture, fittings, computer equipment and refurbishments to commercial properties.

GHA activities in 2016/17

Model 1 results

In this section, we look at the economic impacts of Glasgow Housing Association's activities in 2016/17.

It should be noted that the activities we are modelling here are in addition to the wages paid to GHA employees (who numbered 1,583 full-time equivalent in 2016/17). We are focussing on the value of the activities that GHA's operations and investments supported in 2016/17.

Direct, indirect and induced impacts

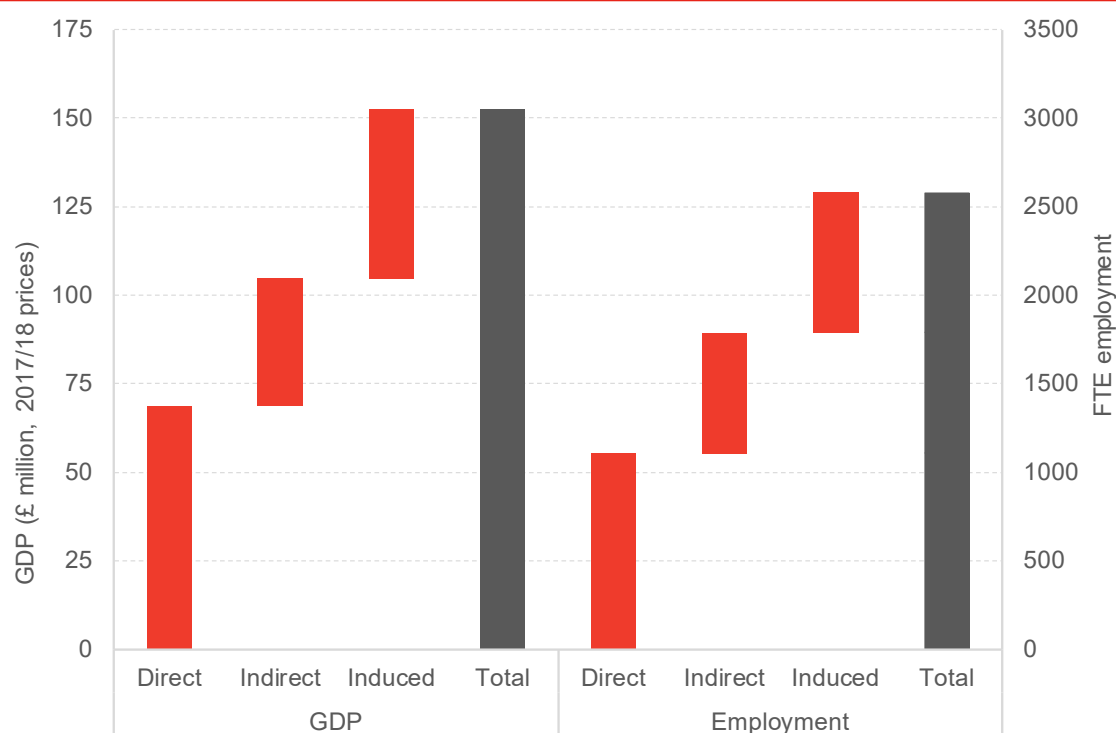
The total economic impact (in 2017/18 prices) of GHA's activities in Scotland in 2016/17 was:

- £153 million in GDP contributed to the Scottish economy,
- An additional 2,575 full-time equivalent employment supported.

Around 45% of GHA's impact on Scotland's GDP comes from the direct expenditure of GHA on its activities. A further 24% was supported by the spill-over effects on GHA's supply chain. The remaining 31% is attributed to employee spending of wages supported by the activities of GHA and its supply chain.

Due to spill-over effects, **for every 100 FTE jobs supported by Glasgow Housing Association's direct activities, an additional 133 jobs are supported elsewhere in the Scottish economy.**

Chart 9: Economic impact of GHA spend in 2016/17 on GDP and FTE employment



Source: Fraser of Allander Institute

In the following sections we look in more detail at these impacts, including:

- The split of the economic impact by GHA capital expenditure and GHA operating expenditure in 2016/17,
- The economic impact of GHA's construction of new housing in 2016/17 alone.

Capital and operating expenditure

In this section we break this down further by looking at the effects of capital and operating expenditure separately.

Capital expenditure (CAPEX) is primarily made up of the construction of new housing, the renovation and repair of homes and environmental capital such as new play parks, etc.

Operating expenditure (OPEX) is primarily composed of home improvements, management and maintenance.

Table 4: Economic impact of total GHA expenditure in 2016/17 (2017/18 prices)*

	CAPEX	OPEX	Total
GDP (£ million)			
Direct	36	33	69
Indirect	22	14	36
Induced	30	18	48
Total	88	65	153
Employment (FTEs)			
Direct	700	400	1,100
Indirect	425	275	675
Induced	500	300	800
Total	1,625	950	2,575

* Rows and columns may not sum due to rounding.

Source: Fraser of Allander Institute

Of the £153 million added to GDP, capital expenditure made up around 57% of GDP and 63% of employment impacts.

New homes construction

New homes construction lies within the capital expenditure budget in 2016/17. Table 5 separates out the economic impact of new home construction from capital expenditure in Table 4.

Table 5: Economic impact of GHA new homes construction in 2016-17*

	GDP (£ million)	Employment (FTEs)
Direct	13	250
Indirect	8	150
Induced	11	175
Total	32	600

* Rows and columns may not sum due to rounding.

Source: Fraser of Allander Institute

Glasgow Housing Association's construction of new homes contributed an additional £32 million to GDP and 600 jobs to Scotland's economy in 2016-17.

Capital investment 2003/04 - 2017/18

Model 2 results

Direct, indirect and induced impacts

The total economic impact (in 2017/18 prices) of GHA's capital expenditure activities in Scotland between 2003/04 and 2017/18 was:

- Around £2 billion in GDP contributed to the Scottish economy,
- An additional 36,500 years of full-time equivalent employment in Scotland, or an average of 2,425 full-time equivalent jobs per year.

Table 6: Economic impact of GHA capital expenditure from 2003/04 to 2017/18 (2017/18 prices)*

	Core investment programme	Construction of new housing	Other additions	Total
GDP (£ million)				
Direct	652	121	30	802
Indirect	407	73	17	497
Induced	553	100	23	677
Total	1,612	294	70	1,976
Average annual FTE employment supported**				
Direct	875	150	25	1,050
Indirect	525	100	25	625
Induced	600	100	25	750
Total	2,000	350	75	2,425

* Employment rounded to the nearest 25. ** Total years of full-time equivalent employment divided by the number of years modelled. Totals may not sum due to rounding.

Source: Fraser of Allander Institute

By activity

There are three major components to GHA's capital expenditure: the core investment programme, the construction of new housing and other additions to fixed assets.

The core investment programme includes improvements on GHA's existing housing stock. Other additions to fixed assets includes expenditures on community infrastructure, furniture, fittings, computer equipment and commercial properties.

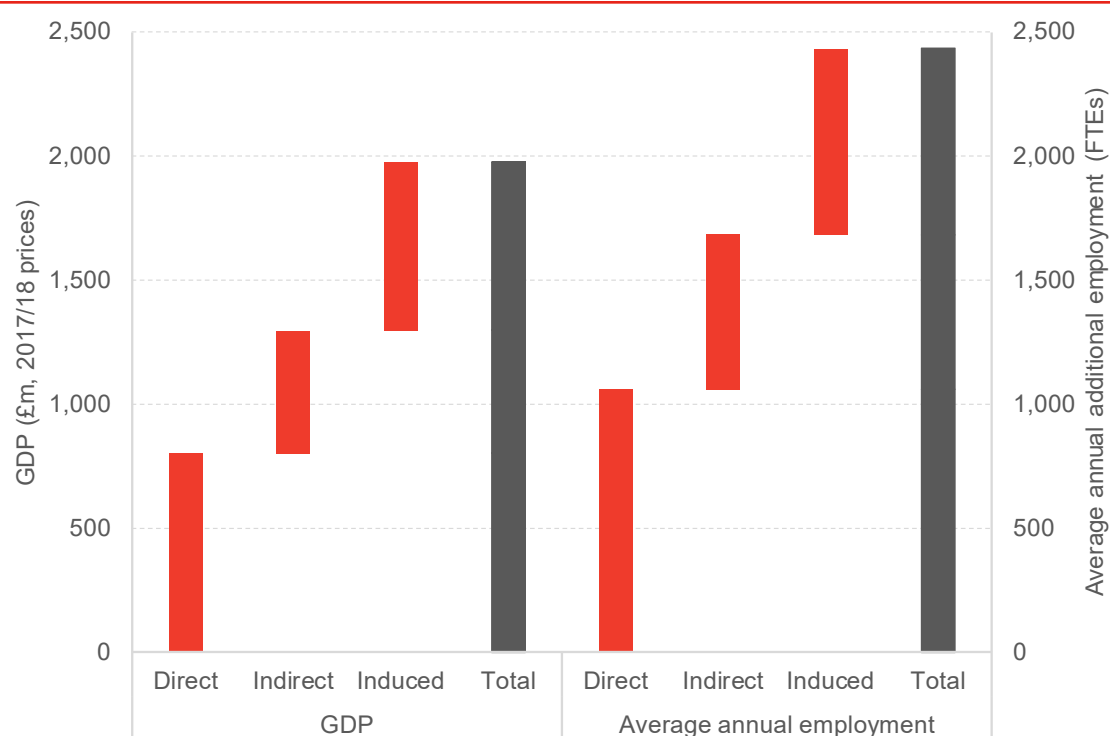
The economic impacts of these components on Scotland's GDP include:

- £1.6 billion added to Scotland's GDP by GHA's core investment programme,
- £294 million added to Scotland's GDP by GHA's construction of new housing,
- £70 million added to Scotland's GDP by GHA's expenditure on other additions to its fixed assets.

The impacts on the average annual full-time equivalent employment include:

- 2,000 additional jobs in the Scottish economy supported through GHA's expenditure on its core investment programme,
- 350 additional jobs in the Scottish economy supported through GHA's expenditure on the construction of new housing,
- 75 additional jobs in the Scottish economy supported through GHA's expenditure on other additions to its fixed assets.

Chart 10: GDP and average annual employment supported by GHA capital expenditure from 2003/04 to 2017/18



Source: Fraser of Allander Institute

Methodology

Economic modelling

Model 1: Activities 2016/17

We first separated the expenditures into operating expenditures and capital expenditures. These were then further split into expenditure on activities and expenditure on employees. This model examines 2016/17 as it is the most recent year that was available at a highly detailed level. This data was provided to us by Wheatley Group.

In order to maintain consistency in the reporting of both models, these data were adjusted to 2017/18 prices. This was done using construction output prices for construction spending, durables CPI for furniture expenditure and audio-visual equipment CPI for computer equipment expenditure.

The expenditures were then mapped to standard industrial classification (SIC) codes. For all activities except housing under construction, expenditures were mapped by the type of activity. For housing under construction, this was broken down by the spend with individual companies.

This information was used alongside input-output tables for Scotland to model the impact of GHA's activities in 2016/17 on Scottish GDP and employment.

Following standard regional modelling practices, our references to GDP are in fact GVA. Additionally our references to employment supported in 2016/17 refer to full-time equivalent (FTE) employment. Ten FTE employment can represent ten people employed full-time for a year, or twenty people employed working half the full-time hours for a year, etc.

Model 2: Capital expenditure 2003/04 to 2017/18

Data for each year was adjusted to 2017/18 prices. For this, we again used construction output prices for construction expenditures, durables CPI for furniture and audio-visual equipment CPI for computer equipment.

We then separated the expenditures into expenditure on activities and expenditure on employees. In the year 2016/17, only the core investment programme included expenditure on GHA employees. The 2016/17 share of expenditure on GHA employees for the core investment programme was applied to the expenditure on the core investment programme for each year.

The core investment programme and the individual activities of the other additions to fixed assets were then mapped to standard industrial classification (SIC) codes. Expenditures on housing under construction were mapped to SIC codes by using the detailed SIC code shares used in model 1.

This information was used, along-side input-output tables from the Scottish Government (2014), to model the impact of GHA's expenditure on its core investment programme, construction of new homes and other additions to fixed assets. Following standard regional modelling practices, our references to GDP are in fact GVA.

We include our estimate for person-years of full-time employment (Table 7). This represents employing a person full-time for one year. In the report we have divided this by the number of years modelled to give an annual average as a more useful representation of employment impacts resulting from GHA's capital expenditure programme throughout the 15 years.

Table 7: Total person-years of employment resulting from GHA's capital expenditure programme

	Core investment programme	Construction of new housing	Other additions	Total
Direct	12,950	2,375	550	15,875
Indirect	7,700	1,375	300	9,400
Induced	9,175	1,675	375	11,250
Total	29,825	5,400	1,250	36,500

* Rounded to the nearest 25. Totals may not sum due to rounding.

Source: Fraser of Allander Institute

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