Title: The health and health inequalities impact of a place-based community wealth initiative

RESEARCH REFERENCE NUMBER: NIHR130808

PROTOCOL VERSION NUMBER AND DATE. Version 1: 12/12/2021

FUNDERS Number: NIHR130808

This study/project is funded by the National Institute for Health Research (NIHR) PHR programme (**NIHR130808**). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

SIGNATURE PAGE

The undersigned confirm that the following protocol has been agreed and accepted and that the Chief Investigator agrees to conduct the study in compliance with the approved protocol and will adhere to the principles outlined in the Declaration of Helsinki, the Sponsor's SOPs, and other regulatory requirement.

I agree to ensure that the confidential information contained in this document will not be used for any other purpose other than the evaluation or conduct of the investigation without the prior written consent of the Sponsor

I also confirm that I will make the findings of the study publicly available through publication or other dissemination tools without any unnecessary delay and that an honest accurate and transparent account of the study will be given; and that any discrepancies from the study as planned in this protocol will be explained.

Chief Investigator:

Date: **12/12/2021**

Signature:

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Name: (please print): Professor Ben Barr

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1 KEY STUDY CONTACTS

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Funder: National Institute of Health Research (NIHR)

2 STUDY SUMMARY

Study Title	The health and health inequalities impact of a place-based community wealth initiative'

Study Design	Mixed Methods study
Study Participants	Population data from across England and qualitative interviews.
Research Question/Aim(s)	1. Investigate the impact of the Preston CWI on social, economic and health outcomes, and assess whether the Preston CWI has mitigated the impact of the COVID19 pandemic on these outcomes. 2. Assess additional costs associated with implementing the CWI though changes in procurement practices and whether these costs outweigh the benefits. 3. Increase our understanding of the process of change within Preston initiated by the CWI and the pathways to changes in outcomes. 4. To draw out policy, practice and research implications for future CWIs so that they maximise their health and wellbeing benefits.

3 Study Steering Group:

The Study Steering group includes:

- Mr Michael Wood, Head of Health Economic Partnerships, NHS Confederation
- Professor, Jane South Professor of Healthy Communities Leeds Beckett University
- Dr Luke Mumford, Senior Lecturer in Health Economics, University of Manchester
- Ms Hina Qureshi , Public Advisor

The role of the steering committee will be to:

- Provide advice to the funder, Chief Investigator, the Host Institution and the Contractor on all appropriate aspects of the project
- To concentrate on progress of the project, adherence to the protocol and the consideration of new information of relevance to the research question
- To advise on appropriate ethical and information governance processes are in place.
- To agree proposals for substantial protocol amendments and provide advice to the funder regarding approvals of such amendments
- To provide advice to the investigators on all aspects of the project.

4 Plain English Summary.

The UK experiences some of the largest differences in health between places in Europe with people living in poorer areas dying on average 9 years younger and living for 19 more years in poor health than more affluent areas. These differences are largely due to economic differences between places, such as high unemployment and low wages in some places. Many initiatives have been carried out in the past to try and address the economic difficulties faced by disadvantaged places, however they have had limited success. A new approach, called a Community Wealth Initiative has been tried in Preston, a city in the North West of England that has historically been relatively disadvantaged. Rather than involving new government funding, this new approach involved all the large public and third sector organisations in Preston, known as anchor institutions (e.g. the local authority, university, NHS, police, the social housing provider etc). These organisations looked at how they spent their budgets, to see if they could buy more services from local suppliers. Where they could not find local suppliers they helped establish new charities and cooperatives. They also improved the conditions of their employees, increasing their wages and encouraged their suppliers to do the same. They looked at their investments, property and land to see how these could be used in ways that increased benefits for the local population for example renovating empty properties for social housing. All of these actions aimed to boost the local economy and ensure that the most disadvantaged groups were benefiting from these improvements. There are some indications that this approach may be improving the local economy and several other places are now implementing a similar approach. As being out of work, on low income or in poor housing are major causes of poor health, these changes could lead to improvements in health, however, at the moment we do not know if they have done, or which of these changes had the biggest effect. Our research aims to investigate the impact of the Preston Community Wealth Initiative on peoples' mental health so that other areas can learn from this approach when developing their economic strategies. We will calculate the effect of the Community Wealth Initiative on mental health by comparing changes mental health in Preston with changes in comparison areas that have similar characteristics but have not implemented a Community Wealth Initiative. We will then work with all the organisations and people involved in the Community Wealth Initiative to understand what has helped or hindered this change in Preston. We will use the findings from this research to help other areas across the UK to influence their local economy so that it promotes health and reduces health inequalities.

5 Summary of Research (abstract)

Background: The large regional economic disparities in the UK lead to some of the largest regional differences in health of any country in Europe. It is likely that the current COVID19 pandemic will exacerbate these economic and health inequalities. Previous attempts to address this issue have had limited success. Intervention: The Community Wealth Initiative (CWI) aims to address this problem in Preston. It involves a coalition of large employers coordinating action to improve the local economy and reduce inequalities by: (1) changing procurement to support local supply chains; (2) supporting local small enterprises (cooperatives, social enterprises, charities, small businesses); (3) investing pension funds in affordable housing; (4) improving working conditions and (5) renovating empty properties for social housing. This strategy has the potential to improve health, reduce health inequalities and make Preston more resilient to the adverse consequences of the COVID19 pandemic.

Objectives: 1) Investigate the impact of the Preston CWI on social, economic and health outcomes, and assess whether the Preston CWI has mitigated the impact of the COVID19 pandemic on these outcomes. 2) Assess additional costs associated with implementing the CWI though changes in procurement practices and whether these costs outweigh the benefits. 3) Increase our understanding of the process of change within Preston initiated by the CWI and the pathways to changes in outcomes. 4) To draw out policy, practice and research implications for future CWIs so that they maximise their health and wellbeing benefits.

Methods: We combine two approaches to achieve these objectives. Firstly we estimate the impact of the CWI on our primary outcome the Small Area Mental Health Index, by using propensity scores to match areas in Preston with a set of comparison areas that have similar characteristics but have not implemented a CWI. We will then apply difference-in-differences analysis to compare changes in this outcome in Preston before and after the intervention with changes in the outcome in comparison areas. We will use similar methods to assess the impact of the CWI on investment, employment, wages and life satisfaction. We will assess whether the intervention mitigated some of the adverse effects of the COVID19 crisis and evaluate additional financial costs from changes in procurement practice. Secondly we use a combination of participatory network analysis, interview, observation and documentary analysis to understand the process of change that has taken place in Preston and what has helped or hindered this. Timeline for Delivery: The research will be delivered between April 2021 and Sept 2023. Anticipated impact: The research will indicate the critical components needed for implementing CWI and the likely costs and benefits of these approaches. We will work with local governments across the UK through the Community Wealth Building Centre of Excellence, to implement these findings in developing local economic strategies that are likely to improve health and reduce health inequalities.

6 Background and Rationale.

The UK experiences some of the largest spatial health inequalities of any country in Europe, with people living in poorer areas dying on average 9 years younger and living for 19 more years in poor health than more affluent areas.[1] Although there have been multiple place-based initiatives over decades that have sought to address these inequalities – they have met with limited success.[2–4]

Community Wealth Initiatives (CWI) represent an innovative place-based approach to addressing inequalities. They are multi-component programmes led by coalitions of Anchor Institutions - large public or not-for profit organisations, such as the NHS, Local Authorities (LA) and universities. These institutions aim to promote economic inclusion and wellbeing within a place through:

1) Changing procurement policies to support the development of local supply chains.
2) Supporting the development of local enterprises (cooperatives, social enterprises, charities, small businesses) that are more accountable and responsive to the local population.
3) Investing local wealth, such as local government pension funds, into the local economy.
4) Improving recruitment and employment conditions within anchor institutions and their suppliers.
5) Maximising socially productive use of land and property owned by anchor institutions.

The city of Preston has led the way in developing this approach and there is considerable interest from policy makers in utilising it to address the underlying economic differences between places that drive health inequalities.[1,5,6] Whilst there is some evidence that socioeconomic deprivation has improved more in Preston, since the CWI started in 2016, than in other similar areas,[7] we do not know whether these improvements are causally related to the CWI or the impact of the CWI on health or health inequalities. As with the rest of the country, Preston is experiencing severe economic and health consequences from the COVID19 pandemic. More deprived areas are likely to be particularly vulnerable to these effects. A crucial question for places such as Preston is whether their community wealth building economic strategy will enable them to be more resilient to these adverse shocks compared to other similarly deprived areas.

Whilst the relationship between health and the economy has long been recognised there is very little evidence indicating the public health benefits of alternative place-based economic strategies.[8] Decisions made by Anchor Institutions on investment, procurement, recruitment and employment policies, support for local enterprises and land use, could interact across multiple pathways to influence social and economic conditions which are known to benefit health.

Firstly by procuring more services from the local economy and promoting better recruitment and employment policies throughout the supply chain, Anchor Institutions could both increase the jobs in the local economy and improve working conditions. These are both important determinants of health.[9–11] The promotion of social enterprises such as cooperatives may also improve working conditions[12,13]

Secondly the CWI aims to promote local enterprises (cooperatives, social enterprises, charities, small businesses) that are more accountable and responsive to their employees, service users and communities, and there is some evidence these organisations are more effective and better at responding to local needs. [14]Thirdly by increasing democratic engagement in the economy and enhancing wider civic engagement CWIs may also increase peoples' sense of control, which is associated with improved health outcomes.[9–11] Finally CWIs may promote a positive narrative of place, counteracting the stigma often associated with disadvantaged places such as Preston. This may have positive population mental health benefits.[15,16]

Whilst there is evidence for each of these pathways, we do not know whether the magnitude and nature of the changes in Preston are sufficient to bring about population health impacts. We do not know which groups benefit most (or least) and what effect this may have on economic or health inequalities. The CWI in Preston is an example of a complex multisectoral intervention which has involved the mobilisations of multiple actors across various sectors (health, local government, education etc) and across multiple levels (e.g. local government, community activists). We do not know what the critical elements are in initiating this process of social change.[17] This is essential knowledge to enable learning to be translated to other contexts.

7 Conceptual model.

Our study will address these research gaps, by applying a systems approach to evaluation[18–21]. A systems perspective aims to use a combination of qualitative and quantitative approaches to understand the complexities of local systems into which interventions are introduced, as well as the multiple pathways to impacts on health and social determinants.[21] We see the CWI as an event introduced into the local system that potentially transforms the use of locally accessible material and psychosocial resources for health [22] (see attached logic model). We distinguish two type of organisations that are critical to the CWI. Firstly, Anchor Institutions, which are large public or not-for-profit organisations, such as the NHS, Local Authorities (LA) and universities. Secondly, enterprises, which are small organisations such as cooperatives, social enterprises, charities and small businesses that benefit from the support of anchors.

Initially the CWI started with some anchor institutions and enterprises within Preston adopting a community wealth building approach (the red arrows in Figure 1). We view these changes as being maintained and amplified though a networking process,[23] connecting actors in anchor institutions (politicians, practitioners) with those in multiple local enterprises (community activists, cooperative developers, small business owners). These networks are developed and maintained though the creation of new policies, practices and roles and the elevation of particular symbols and values (Path A in figure1). They increase opportunities for interaction and exchange, enhancing the sharing of

knowledge, resources and expertise (B). These networks connect to wider members of the public, for example, employees, service users, democratically engaged citizens, who influence and are influenced by their relationships with anchors and enterprises (path C in Figure 1).

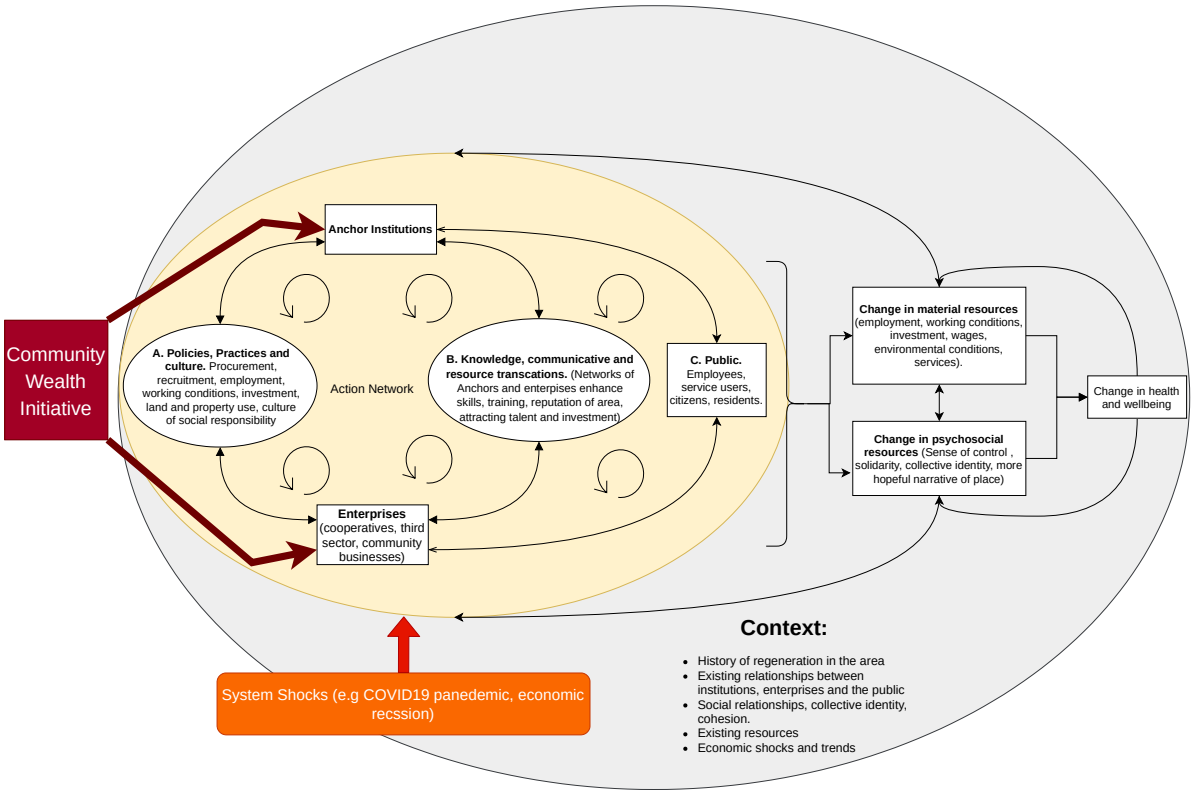
These dynamic processes involve feedback loops that could amplify or dampen changes. For example, as anchors change policies to encourage more democratic local enterprises (e.g. cooperatives) this leads to more engaged citizens who advocate for more democratic local enterprises. Similarly, as initial activities enhance the reputation of the town this potentially leads to greater public demand for community wealth building activities. Alternatively procurement policies that aim to increase wages could reduce the viability of some enterprises, increasing unemployment and reducing service provision (e.g. home care services). Favouring local employers in procurement, may lead to less efficient and poorer quality local enterprises, than would have been the case through more open competition.

It is these dynamics that lead to change which potentially influence health outcomes. These are hypothesised to primarily act through two main pathways. Firstly through changing the material resources for health, for example through employment, working conditions, wages, investment, environmental conditions and services. Secondly through improving psychosocial resources, for example, increasing people's subjective sense of control, collective identity and generating a more hopeful narrative of place. There are feedback loops from this change in resources and health status. For example improved health can lead to improvements in employment and income as well as psychosocial resources and increased wages leads to greater spending power in the local economy leading to the expansion of local enterprises.

The action network that has been developed through the CWI will influence how the system reacts to the shock of the COVID19 pandemic. This could be by ensuring better initial distribution of resources, spreading risks across the network and mobilising resources and knowledge between organisations to support more effective system wide response. In these circumstances it may be that the CWI mitigates some of the adverse effects of the crisis enabling faster recovery.

The dynamics of the community wealth initiative outlined above are embedded in the existing social relationships, networks and values that make up the context of the place. This context modifies the networks, relationships and roles that can be created and the meaning that different actors draw from the introduction of community wealth building. Understanding these contextual factors that enable or dampen the effects of the initiative will be crucial in understanding how learning from this intervention can be applied in other contexts.

Figure 1. Logic model indicating how the CWI action network could lead to changes in the resource for health and health outcomes.



1. **Research aims and objectives.**

The aims of this study are to evaluate the health, social and economic impact of the CWI in Preston and to draw out learning for the development and implementation of future of CWIs. The objectives are to:

1) Investigate the impact of the Preston CWI on social, economic and health outcomes, and assess whether the Preston CWI has mitigated the impact of the COVID19 pandemic on these outcomes.
2) Assess additional costs associated with implementing the CWI though changes in procurement practices and whether these costs outweigh the benefits.
3) Increase our understanding of the process of change within Preston initiated by the CWI and the pathways to changes in outcomes.
4) To draw out policy, practice and research implications for future CWIs so that they maximise their health and wellbeing benefits.

8 Research plan

8.1 Setting and intervention

Preston (population 140,000) is a relatively disadvantaged city in the North West of England. It is in the 20% most deprived local authorities in England, and life expectancy is well below the national average, in the bottom 15% of local authorities. The CWI initiative in Preston started in 2016, following a baseline assessment of the spend of Anchor Institutions carried out by the Centre for Local Economic Strategies (CLES). The programme of work since then has included actions across the 5 areas of community wealth building highlighted above. Examples of these actions are outlined below:

1) **Progressive procurement:** Changes in procurement policies of Anchor Institutions increased spend on local suppliers from £38 million in 2013 to £112 million in 2017

2) **Growth of cooperatives and social enterprises:** Preston Cooperative Development Network has supported the development of new cooperatives and social enterprises leading to a 20% increase since 2013
3) **Investment of local wealth:** Lancashire County Council in partnership with Preston City Council has redirected £200 million from the Lancashire Local Government Pension Fund, to invest in local affordable housing schemes
4) **Improving recruitment and employment conditions:** Living wage policies have been introduced across Anchor Institutions and their contractors and major construction projects required to provide training and employment opportunities for local people.
5) **Socially productive use of land and property:** Community Gateway has worked with the City Council to buy and renovate empty properties so they can be rented out to people in need of social housing.

8.2 Study design.

The Preston CWI is a 'natural experiment'. By 'natural experiment', we mean "Events, interventions and policies that are not under the control of the researchers, but which are amenable to research using the variation in exposure that they generate to analyse their impact."[24] The CWI is a complex intervention involving the mobilisation of multiple actors across various sectors and no aspect of the CWI is under the control of the researchers. This presents two challenges for deriving evidence from evaluating the Preston CWI. Firstly, assessing the causal impact on economic, social and health outcomes of an initiative that has not been implemented as a controlled trial and secondly understanding the critical components of change and their relation to context in order to indicate how lessons learnt in Preston could be applied in other contexts. We address these challenges through two work packages. The first uses quasi-experimental methods to identify impacts across a series of outcomes relating to the likely pathways of impacts, whilst the second aims to "unpack the complexity" analysing the dynamics of change that have given rise to these impacts.

8.3 Work Package 1: Assessing population level impact on health, social and economic outcomes (Objectives 1 & 2)

Work Package 2 will apply quasi-experimental methods to investigate the impact of the CWI on changes in resources and health outcomes, reflecting the pathways highlighted in our logic model. Our outcomes are designed to reflect the likely causal pathways to impact from increased investment through progressive procurement, to improvements in economic conditions (wages, employment) through to impacts of wellbeing (life satisfaction) and finally on mental and physical health outcomes.

8.3.1 Outcomes.

Health outcomes.

As population mental health is relatively sensitive to economic change[25] our primary outcome will be a place-based measure of population mental health – the Small Area Mental Health Index (SAMHI) (Outcome 1). The SAMHI is a composite annual measure of population mental health that we have developed for each Lower Super Output Area (LSOA) in England. The data and methods used to compile the index are available through our open data portal - the Place-based Longitudinal Data Resource(https://pldr.org/dataset/2noyv/small-area-mental-health-index-samhi). The SAMHI combines data on mental health from multiple routine sources into a single index. The existing evidence indicates that improved working conditions and a sense of control may also reduce risk of cardiovascular disease, therefore to investigate the impact on physical health more widely we will also investigate as a secondary health outcome the impact of the CWI on cardiovascular emergency hospital attendance rates for LSOAs using Hospital Episode Statistics provided by NHS Digital (A&E attendances and admitted patient care) (Outcome 2).

Material resource outcomes.

We will assess changes in local economic resources, that are likely mediators of health outcomes, at a number of levels. Firstly assessing increases in investment due to changes in procurement practices by anchor Institutions, secondly assessing changes in the size of the social economy and thirdly assessing overall changes in employment and wages.

To assess increased investment due to changes in procurement we will conduct a *data survey* of Anchor institutions in Preston and seven comparison LAs (see below), identifying the suppliers of each Anchor Institution for each year 2011-2021, the contract value, number of employees, the location and

the type of enterprises contracted. This contract survey will be supplemented with data from published contract registers that public bodies are required to publish.[26] This will be used to estimate the % spend by anchor institutions in the local economy each year in Preston and in the comparator LAs (outcome 3) using methods developed by the centre for Local Economic Strategies (CLES).[27] CLES has extensive experience of conducting such contract surveys with Anchor Institutions in several local authority areas. They have previously conducted a contract survey at 2 time points with Anchor institutions in Preston – including Preston City Council, Lancashire County Council, Lancashire Constabulary, Lancashire Teaching Hospitals NHS Foundation Trust, University of Central Lancashire (UCLAN), Preston College and the Community Gateway Association. All 7 of these institutions participated in both waves (i.e 100%). We will be repeating this process with the same institutions in Preston incorporating additional years of data.

We will aim to identify 7 similar institutions in each of the comparison areas (i.e local government, police, NHS, university, college and housing associations). Previous work by CLES conducting such surveys with several other local authorities led to response rates of between 70 and 100%. The engagement with the Anchor Institutions in these places will be presented as an opportunity for co-learning. Each will be invited to join the Community Wealth Building Centre of Excellence as well as providing data for the contract survey enabling the sharing of learning from the research. The contract survey will also provide a baseline to support any future work they plan in developing CWIs following our research. We anticipate therefore high levels of engagement from these institutions in a process that will have considerable local value as well as providing essential information for this research. The majority of the Anchor Institutions are also public bodies that are subject to freedom of information legal obligations and if necessary, data will be sought through freedom of information requests. We therefore anticipate high levels of engagement with over 80% of invited anchor institutions engaging in the contract survey.

To measure the expansion of the social economy, we will utilise data on business counts available for local authorities from the Office for National Statistics (ONS) to estimate the annual level of employment in non-profit or mutual organisations as a share of all employment (outcome 4).[28] Finally to indicate economic changes across the population we will use the employment rate (outcome 5) and median wages derived from the Annual Population Survey and Annual Survey of Hours and Earnings.[29] We will also investigate impact on wages at the 10th percentile as CWI related policies particularly target low wages – for example Living Wage policies that have been introduced across anchor institutions.

Psychosocial outcomes.
To capture some elements of changes in subjective psychosocial resources at the population level we will utilise the subjective wellbeing measures developed by the ONS and included in the Annual Population Survey (APS). The APS includes four measures that aim to reflect four components of subjective wellbeing (happiness, life satisfaction, feeling worthwhile and anxiety).[30] We propose using the life satisfaction measure as this reflects a measure of global wellbeing that has most commonly been associated with place-based social identity[31] (outcome 7)

8.3.2 Analysis and sample sizes.

We will use an approach that we have applied in several previous evaluations [28,29] that combines matching and differences-in-differences analysis.[30] The approach for selecting matched control groups will vary depending on the data sources.

Analysis of health outcomes: The health outcomes identified above are available for each Lower Super Output Area in England. Firstly we match the 86 LSOA areas that cover the entire population of Preston on a 5:1 basis with 430 comparator LSOAs from other areas in Northern England that have not implemented CWIs. We will use propensity scores to match intervention LSOAs with comparison LSOAs based on level of deprivation, ethnicity, age profile and historical trends in mental health and socioeconomic indicators prior to 2016 (see Flow chart – appendix 1).

We then estimate the effect of the Preston CWI as the difference between the change in the outcomes outlined above and the change in the outcomes in the comparator areas. This differences-in-differences [30] approach uses a comparison both within and between areas - accounting for secular trends in our outcomes and unobserved time invariant differences between areas that could confound findings. The primary assumption is that trends in outcomes would have been parallel in the Preston CWI and comparator areas in the absence of the Preston CWI programme. To investigate the distributional impact of the intervention on health inequalities we will investigate whether there was a differential

impact across three groups of areas within Preston defined by their level of deprivation (IMD 2015). As a sensitivity analysis we will conduct the analysis using an alternative comparison group that includes all LSOAs in a comparison group of seven LAs (see below). We will also investigate the timing of impacts using lags for the six years after the intervention start date and we will also check if impacts happen before implementation of the programme using leads for the three years before the intervention start date. This will enable the effects of the CWI to be decomposed into those that occurred before the COVID19 pandemic, as well as assessing whether effects after the pandemic on mental health. This will indicate whether Preston was more resilient to the mental health effects of the pandemic compared to areas without CWIs.

Sample size: Our primary outcome is the SAMHI available for each LSOA and each year from 2011 to 2022 in our intervention and comparison areas. This provides a total sample size of 5160 LSOA-years for analysis. This will allow us to exploit, 5 pre-intervention time periods (2011-2015), 4 post intervention pre-COVID19 years (2016- 2019) and 3 post intervention and post/during COVID19 years (2020-2022). We have conducted additional power calculations which indicate that this extended sample would provide sufficient power to detect an improvement / lower deterioration in the SAMHI of 0.19 points with a power of 80% (at $\alpha = 0.05$) relative to the comparison group. This is equivalent to a relative 15% improvement / lower deterioration in the SAMHI in Preston compared to the comparison group.

Analysis of material and psychosocial resource outcomes:
For the analysis of our *material and psychosocial resource outcomes,* outlined above, we will utilise comparison with a group of similar local authorities that have not implemented CWIs. We propose using, as the comparison group, all local authorities in the North or Midlands that have a population between 90,000 to 250,000, that are within the 25% most deprived local authorities in England and are not already developing a CWI. This gives 17 local authorities. For our measures of material and psychosocial resources (outcomes 3 -7), we will use aggregate annual data for Preston and our 17 comparison LAs. For these analysis we only have one intervention unit i.e Preston. This presents estimation complications in deriving a relevant comparison group and for calculating standard errors. We therefore use the synthetic control approach developed by Brodersen at al[32] which has previously been used to evaluate local authority level policies with single intervention units.[33] The synthetic controls are calculated using Bayesian structural timeseries based on weighted combinations of the control areas. The approach uses Bayesian model averaging of the time series in all control areas to create a synthetic time series which is similar to the measured time series in Preston before 2016 and a post-intervention synthetic time series predicting what would have happened in the absence of community wealth building (ie, the counterfactual). Bayesian priors are placed on the regression coefficients of all control areas included in the preintervention model. The semiparametric Bayesian posterior distribution for the effect of community wealth building is obtained as the difference between the measured outcomes in Preston and the counterfactual time series post intervention. The results are presented as point estimates and Bayesian 95% credible intervals (CIs).

Additionally for our analysis of wages, employment and wellbeing measures (outcomes 5-7) will use microdata form the Annual Population Survey (APS). We currently have access to a secure version of the APS that includes the local authority of residence of respondents. This provides a sample population from the APS of 200 each year within Preston and 6200 from the comparison LAs from 2011 to 2021, 70,400 person years in total. We will use these data to estimate the change in each of the secondary outcomes within Preston, compared to change in the comparison LAs using difference-in-differences analysis as outlined above. We will investigate differential impacts on these outcomes across educational groups, people in and out of work, ethnic groups and by disability status. This analysis will be supplemented with descriptive analysis of the uptake, in Preston and the comparator local authorities, of schemes that the government has put in place in response to the COVID19 crisis such as the furlough scheme.

8.3.3 Economic evaluation.

The CWI does not primarily involve investment of new funds, but rather maximising the social and economic value of existing resources. Traditional health economic evaluation is therefore not relevant. There are however potential costs to changes in procurement through the CWI. One of the principles of the CWI is progressive procurement, whereby **a**nchor Institutions aim to increase spend on local suppliers, for example in Preston an additional £74 millions of procurement contracts went to local suppliers in 2017 compared to 2012. It is possible that procuring locally or procuring for social value increases costs and reduces the value for money to the Anchor Institutions compared to more openly

competitive procurement. To assess the potential additional costs of the CWI we will use the *contracts survey* outlined above to identify comparable procurement contracts by anchor institutions in Preston and in the seven comparisons LAs. For each of these contracts we will conduct a Value For Money (VFM) audit using methods developed by the National Audit office.[34] Comparing the VFM for similar procurement exercises between councils will indicate potential opportunity costs associated with prioritising local businesses and social outcomes in procurement exercises. Whilst this analysis will necessarily be exploratory, it will provide an estimate of the potential additional cost of procuring for social value. Factoring this across the total procurement contract value in Preston will give an upper bound of potential costs that will be compared to potential benefits estimated through the difference-in-difference analysis above. To present these finding in terms of potential costs per QALY we will estimate the equivalent QALYs gained from any change in SAMHI resulting from the intervention derived from the analysis above. This will be achieved by mapping the SAMHI to a time series of EQ-5D data available for the same small areas from the GP patient survey between 2010-2019. The analysis will be limited to a quantification of costs from changing procurement practices assuming no increased efficiency as supply chains become more efficient and established. These costs will be used to give an indicative range of costs per QALY based on a number of sensitivity analyses.

8.4 Work Package 2: Understanding the mechanisms of change (Objective 3)

WP2 aims to understand the process of change within Preston initiated by the CWI and the pathways through which these impact on material and psychosocial resources and health outcomes including dampening and amplifying processes. This will be achieved through a combination of participatory network analysis (60 people), key informant interviews (35 people), observation (50 days), documentary analysis, interviews with employees of anchor institutions and enterprises (40 people) and focus groups with the wider public (n=32 people). The investigation follows a series of steps to understand the dynamics of change outlined in our conceptual model, starting with mapping the networks linking anchor institutions with enterprises, understanding how those relationships bring about changes in policy and practice, exploring the direct impact of this on employees of these organisations as well as the wider impact of the CWI on perceptions in the general population. In particular we will investigate how these relationships change, adapt and respond in relation to the COVID19 crisis.

We will draw out the key components of the intervention and the contexts that are likely to enable programme success. This will inform the application of similar approaches in other localities. This approach has previously been used to understand complex systems from the perspective of multiple stakeholders[35–37] The investigation is structured around and will be used to refine our logic model.

8.4.1 Data collection and analysis

Work Package 2 (WP2) involves the development of an understanding of the mechanisms of change. In more detail, it aims to understand the process of change within Preston initiated by the CWI and the pathways through which these impact on material and psychosocial resources and health outcomes including dampening and amplifying processes. This will be achieved through a combination of participatory network analysis (60 people), key informant interviews (35 people), observation (50 days), documentary analysis, interviews with employees of anchor institutions and enterprises (40 people) and focus groups with the wider public (n=32 people). More specifically:

Initially we will use Participatory Network Analysis (PNA), to elucidate key roles and relationships between and within anchor institutions and enterprises that have enabled or constrained action. This will involve three participatory workshops each involving approximately 20 people (n=60). Initially this will include people identified in the seven key Anchor institutions in Preston (Preston City Council, Lancashire County Council, Lancashire Constabulary, Lancashire Teaching Hospitals NHS Foundation Trust, University of Central Lancashire (UCLan), Preston's College and the Community Gateway Association) and a list of key enterprises provided by Preston City Council who have benefited from the CWI. Our public advisory panel of residents in Preston will also be involved to provide insight from their lived experience. In each workshop additional organisations, groups and individuals will be identified within these networks, who will then be invited to future workshops to extend and challenge the network mapping. The first two PNA workshops will inform the selection of participants for the key informant interviews (see below). Initial network maps will be refined and expanded upon in further participatory workshops and through the key informant interviews.

The participatory network analysis will be used to identify key informants in anchor institutions and a selection of approximately 10 enterprises (n=35). Qualitative, semi-structured interviews with these key informants will explore relationships between and within anchor institutions and enterprises and between social actors, policy instruments and resources. We will seek to understand how relationships, knowledge and resources have been transformed within the network, the consequences of this and how the actors themselves define what is going on. This will include the identification of the critical events in the progression towards effects, as well as conflicts and contradictions in the policy making and implementation process. It will investigate how these relationships influenced responses to the COVID19 crisis. Initial analysis of the key informant interviews will also inform the network mapping and the final participatory network analysis. If face to face fieldwork is not feasible, we will arrange interviews remotely using online video calls / phone.

A researcher will spend at least 3 days of non-participant observation in each of the seven anchor organisations and 10 enterprises observing key decision-making processes, meetings and workplace interactions (50 days in total). They will use psychosocial and ethnographic approaches including Spradley's framework for organising data collection. This ethnographic approach will seek to understand how the CWI principles are enacted in practice; the extent to which they are routinised within these organisations.

Content analysis of key policy documents will also be employed. For each of the seven anchor institutions and 10 enterprises, we will conduct a review of key policy documents related to the CWI. Documents will be identified through initial scoping and then supplemented following informant interviews. This will include documents related to the establishment of enterprises, changes in governance, procurement policies, constitution, contracting, service provision, minutes of meetings and employment practices. The documentary analysis will be used to develop a chronological ordering of key policy changes and the key steps in the policy making process. It will inform the development of the network map and explore the extent to which community wealth principles have become embedded in organisational contexts and the extent to which they have changed the use of resources.

To gain a greater understanding of potential changes in the psychosocial experience of employees and volunteers directly affected by the CWI, we will conduct a further 20 semi-structured narrative interviews with employees of anchor institutions whose working conditions have changed as a result of CWI policies (e.g. introduction of a Living Wage) and 20 semi-structured narrative interviews with employees and volunteers in enterprises who have received support from the CWI. Interviews will be purposively sampled to include a range of employees and volunteers ensuring representation from groups who are often disadvantaged / excluded (e.g. low wage employees, people with disabilities and people from Black and Ethnic Minority groups.) The interviews will explore people's experience of the workplace, financial security, involvement in decision making and how this has changed over time, during the period the CWI was implemented and during the COVID19 crisis.

Finally, we will conduct four focus groups each with approximately eight residents of Preston, who are not directly connected to the anchor institutions or enterprises involved in the CWI (n=32). These will explore how the CWI has permeated beyond these networks, in particular focusing on how the CWI has changed the narrative of the place in the context of peoples' experience of wider social and economic change. The focus groups will explore how this influenced their experience of the COVID19 crisis.

The semi-structured qualitative interviews will be open, allowing new ideas to be brought up during the interview according to interviewee response; nevertheless, the researcher(s) will have a framework of specific themes to be explored. Narrative interviews will consist of the researcher asking one or two open-ended questions that invite the interviewee to respond in a narrative form (i.e. by voicing their understanding, perceptions and opinions in-depth, retelling their experiences of events as they happened). Focus groups will be interactive discussions done in a group setting, where a diverse selection of participants will talk about their opinions, beliefs and experiences between themselves and with the interviewer. These focus groups will be created in such a way as to facilitate a wide variety of opinions and a high degree of representation and inclusivity.

To gain insight into complex or hidden relationships at work, the Visual Matrix method will be used to explore how changes in Preston in recent years, relate to people's connections to social value,

community, identity and their narrative of place. The visual matrix consists of three parts: Stimulus, Matrix, and Discussion.

Stimulus (to create a frame for the visual thinking of the matrix). Participants are provided with a brief visual stimulus, often a series of slides that are relevant to the research area and are visually engaging enough to encourage the beginnings of a process of visual thinking (10 minutes).

The Visual Matrix (a space for associative thinking). Participants sit in a 'snowflake' formation that constitutes the 'matrix'. The snowflake arrangement is designed to discourage people from speaking directly to each other. Instead they offer their mental images and feelings 'to the space' of the matrix. Participants are encouraged to contribute mental images, feelings and associations as they emerge. These might be images that seem to arise spontaneously within an individual or emerge as a result of others' contributions. Images or associations are offered whenever anyone feels the need to contribute. The whole matrix is transcribed in real time by one of the facilitators. People are asked not to make overt interpretations of the possible meanings of the images in the course of the visual matrix itself. Instead, the experience is one of images and feelings beginning to (e)merge in a collage-like way (40-60 minutes).

The post-matrix Discussion, is an opportunity for participants to begin to make sense of the visual matrix. This may take different forms depending on the facilitator and the context. Typically, the participants form a horseshoe around a flipchart and the images are given sense and meaning through discussion. These meanings and the interconnections between the various images and sense-making are noted on the flipchart in the course of the discussion.

8.5 Synthesis across work package findings (Objective 4).

In the final stage, a process of synthesis across work package findings will aim to develop the logic model identifying the critical events likely to promote successful implementation, important policy components and the core pathways and feedback loops that have influenced impact. This synthesis will utilise narrative synthesis methods[38] such as concept mapping and charting to synthesise qualitative and quantitative findings.

From WP1, as well as estimates of the overall effect on our primary outcomes, the research will produce an understanding of the heterogeneity of effects across several dimensions: (1) across outcomes related to possible causal pathways (e.g. investment➔ employment ➔ mental health; living wage policies ➔ wages ➔ mental health; reputational change of the area ➔ life satisfaction), (2) differential outcomes related to sub-groups (area deprivation, education, employment status , disability status), (3) differences in the timing of effects from the lagged analysis.

From WP2, we will have an understanding of the key relationships, events and resources that enabled the CWI and how this led to particular policy approaches, the intensity and distribution of their implementation. We will also have insight into the potential mechanism of action in relation to the workplace psychosocial environment and public perceptions of place.

Synthesis of these elements will involve a narrative process of coherent pattern matching[39] in developing our logic model into an explanatory framework of what worked, what did not and the likely mechanisms of action. Pathways and mechanisms where evidence is confirmatory will be given greater weight in the logic model. For example if qualitative and quantitative data support similar conclusions or the timing and type of outcomes affected suggests likely pathways. Triangulation between different data sources and methods will offer insights into how the CWI intervention unfolds within a complex system and the mechanisms involved.
we will utilise techniques such as translation, found in narrative synthesis methods, in order to interpret similarities and differences between different data sources related to concepts of interest, and to surface where findings 'translate into' or refute each other, or offer alternative insights into an outcome of interest.[38] Following initial synthesis within the study team this will be further developed through two stakeholder and public synthesis workshops refining the logic model and drawing out the key lessons for policy, practice and research from the findings.

8.6 Dissemination, Outputs and anticipated Impact.

Our implementation strategy will take the findings from each work package through to changes in policy and practice. Three key target groups have been identified in this strategy. Elected representatives and

officers in local government who are aiming to develop economic strategies that have the potential to reduce economic inequalities and promote health, NHS organisations and other anchor institutions that are seeking to fulfil the ambitions of the NHS long term plan to enhance the role of the NHS in developing health promoting local economies and researchers aiming to understand the implementation of complex interventions such as CWI.

Practical research outputs from our research will include:

(a) Elaboration of what community wealth building is and the critical components needed for building coalitions for change in implementing CWI.
(b) Estimates of the potential costs and health benefits of implementing a CWI
(c) Possible methods for applying a systems approach to the evaluation of complex place-based economic strategies.

These will be disseminated through:

A toolkit for community wealth building. Working with the Centre for Local Economic Strategies (CLES) we will develop a toolkit translating the findings from the research into practical advice and methods for implementing effective CWIs. This will include recommendations on design and implementation, and tools for demonstrating and monitoring the health impacts of CWIs. The toolkit will be implemented through CLES's Community Wealth Building Centre of Excellence (CWBCE), this currently includes 37 local authorities as members from across the UK and this will be expanded to include an additional 13 local authorities who are partners in the NIHR NWC ARC (Barr - theme lead).

Learning exchange events. The toolkit will be refined and disseminated with these 50 local authorities through 3 learning exchange events, with champions identified to implement the toolkit within their respective organisations.

Publication of metrics for CWI monitoring and evaluation through our Open data Portal, along with example statistical code and guidance for applying quasi-experimental methods in evaluating area based initiatives.

Policy and practice focused briefings for the NHS and Local Government working closely with key national and local stakeholders including, the Local Government Association and the NHS confederation's Head of Economic Partnerships.

Public facing blogs, interactive web visualisations and public events. Working closely with our Public advisor Panel we will develop interactive web visualisations of our results enabling the public to investigate the changes that have taken place in Preston. These will be presented alongside public facing blogs explaining the findings to a wide public audience. These will be used to disseminate the findings through facilitated open public meetings with residents of Preston and with our extensive network of community groups in the North West and well as through engagement with mainstream and social media.

At least three academic papers in high impact journals presenting the key findings of the research and methodological advancements in the evaluation of complex natural experiments.

Presentation of results at two national conferences (Local Government Association, Public Health England).

Public outputs will be written in a way that is accessible to a wide range of audiences and appropriately targeted to different audiences. Our research will be supported by an extensive programme of knowledge translation led by our research partner - The Centre for Local Economic Strategies (CLES). This will utilise CLES's recently established, Community Wealth Building Centre of Excellence (CWBCE), which brings together learning from the 37 local authorities who are working with CLES to develop CWIs. Through the CWBCE we will develop and promote the resources and training materials outlined above to share learning and practice from our findings. These will be showcased at three learning events hosted by CLES using their extensive networks across local government, the NHS and third sector.

CWIs are potentially important approaches for addressing the underlying social determinants of health and health inequalities. They do not require additional public investment, but rather maximise the social value of existing public investment and utilise the leadership of Anchor Institutions to build resilience in the wider economy to address inequalities and promote inclusion. There are therefore no major financial barriers to the spread of this approach across the UK. CLES is currently supporting 37 local authorities in implementing CWIs, enabling knowledge exchange. Places such as Preston will be struggling in the aftermath of the COVID19 pandemic. CWI initiatives could help them minimise the adverse health effects of the recession precipitated by the pandemic and support rapid recovery. Our research will enhance our understanding of what components of CWI are effective at promoting health and wellbeing and which components are less effective enabling this learning to be rapidly taken up across the UK, leading to large potential public health benefits.

The research will use data sourced from NHS Digital, the UK Data Service and the Office for National Statistics. These data in their existing form are the property of their originating organisations but will not form part of any arising IP. We have 'unrestricted and free right to use' this Background IP for the purposes of the research.

8.7 Ethics / Regulatory Approvals

Ethical approval will be sought from UCLAN's Research Ethics Committee. Ethical protocols will be developed and refined in early stages of the research with clear processes for informed consent for fieldwork.

Appendix 1. Flow Chart