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Examining the evidence on the effectiveness of India's rural employment guarantee act

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About this working paper

This paper, *Examining the evidence on the effectiveness of India's rural employment guarantee act* presents an overview of the existing evidence on the effectiveness of India's Mahatma Gandhi National Rural Employment Guarantee Act. It also draws from the observations of a workshop conducted by 3ie and the Independent Evaluation Office of the Government of India.

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Summary

Overview

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is the largest employment programme in the world. It aims to provide at least 100 days of guaranteed paid employment per year, in the form of unskilled manual labour, to any household providing interested adult volunteers. This ambitious programme has several objectives in addition to providing economic security, such as creating durable assets (e.g. roads and canals), strengthening natural resource management, empowering rural women, promoting decentralisation, making government processes more transparent, and reinforcing grass-roots procedures for democracy.

MGNREGA has been under intense scrutiny since its inception. Debates about it have been rife with controversies and extreme views, based on everything from single isolated cases to the programme's varying performance in different states. What is often missing from these debates is evidence that could productively inform them and contribute to ensuring that the programme reaches its objectives. 3ie, which specialises in the production, appraisal, analysis and synthesis of high-quality evaluation evidence, has decided to address that evidence gap. We have undertaken a systematic literature search of existing experimental and non-experimental evaluation approaches that have been used to look into the numerous components of MGNREGA.

Because much of the debate around MGNREGA is at the state level, we present our results as a [user-friendly interactive heat map](#) showing what type of evidence is available for each state as well as at the national level. Our main aim is to promote a more evidence-informed debate by providing researchers, policymakers and programme managers working on MGNREGA with this overview of existing evidence about the programme.

In order to find and map the available evidence, we undertook the following activities: (a) searching for relevant research literature in several key databases; (b) screening for studies that matched our inclusion criteria; and (c) coding the included studies with key investigation variables related to aspects of MGNREGA programming, study context, methodology and results.

Key findings

Here is a summary of the main findings from the mapping exercise:

- There is a critical paucity of impact evaluation evidence, in particular randomised controlled trials and credible quasi-experiments, despite wide availability of data;
- Most evidence on MGNREGA is from a few states (Andhra Pradesh, Madhya Pradesh, Rajasthan, Bihar and Karnataka), with beneficiary participation and availability of jobs being a common measure of MGNREGA's effectiveness;
- Despite unemployment allowance being a critical component of the scheme, few studies quantitatively look at unemployment allowance within the programme,

while those that do indicate low awareness and poor implementation of unemployment allowance for MGNREGA participants; and

- There are large evidence gaps when looking at components other than employment provision, including a lack of evidence in governance categories (productivity and corruption), poverty alleviation and indirect economic effects (migration, agriculture and food price inflation).

Conclusion

The evidence base strongly suggests the need for a strategic reorientation of research and evaluation funding towards conducting more theory-based impact evaluations that use a counterfactual, especially when the evidence is readily available and applicable to such methodologies. More studies need to look into how effective MGNREGA is in improving beneficiaries' and communities' lives, in particular contexts and for particular groups of beneficiaries, and into whether and how to adapt the programme to improve these impacts, instead of stagnating on highly frequented variables such as beneficiary participation. If studies do look at the impacts on beneficiaries' lives, we recommend that those studies be designed to disaggregate by key social and structural determinants of inequality and use a suitable gender-relations framework for the overall analysis.

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Abbreviations and acronyms

EAS	Employment Assurance Scheme
EGS	Employment Guarantee Scheme
GDP	gross domestic product
GP	<i>gram panchayat</i>
GS	<i>gram sabha</i>
JRY	Jawahar Rojgar Yojana
MIS	management information system
MoRD	Ministry of Rural Development
RCT	randomised controlled trial
RS	<i>rojgar sahayak</i> or <i>sevak</i>
SGRY	Sampoorna Grameen Rozgar Yojana
TA	technical assistant
ToC	theory of change

1. Introduction

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was enacted into law to promote livelihood security in India in 2005. The act aims to provide 'at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work' (MoRD 2005 p.1). It is the largest employment programme in the world. Between 2008 and 2012, MGNREGA provided employment to an estimated 50 million households per year (Mann and Pande 2012). As such, there is a large and growing empirical research literature on the effectiveness of MGNREGA. However, this evidence is not sufficiently accessible to decision makers. As Drèze and Oldiges (2011 p. 21) note, '[MG]NREGA has been a subject of lively debate during the last few years. Unfortunately, the factual basis of this debate has been, so far, rather thin. This has made it possible for extremist positions to flourish, without being submitted to careful scrutiny.'

By systematically searching for and mapping existing research evidence on MGNREGA, we aim to contribute to promoting a more evidence-informed debate on it. Although it was not possible to use 3ie's rigorous evidence mapping methods, we were able to organise the evidence we found into a heat table (Figure 8) and an [interactive heat map of India](#) (Appendix D).

MGNREGA is a large national programme with numerous components presenting a wide base of heterogeneous evidence. Consequently, mapping the evidence is an essential first step in reporting its current state. The evidence heat table and online heat map provide researchers, policymakers and programme managers with an overview of the existing evidence in user-friendly formats, classified by their accompanying study focus within the MGNREGA programme and organised by geographic scope.

The study team systematically searched for empirical evidence on MGNREGA from published and grey literature, using explicit study inclusion criteria, and coded the studies found. Studies examining impacts are those based on counterfactual evidence (evidence on what would have happened in the absence of MGNREGA) from impact evaluations and simulations. Studies examining other aspects of the causal chain are those based on broader non-experimental qualitative and quantitative evidence. The resulting heat table and heat map thematically summarise empirical evidence on the effectiveness of MGNREGA in the areas of implementation process and economic, empowerment and governance outcomes at state and national levels. The full search and coding methodology is described in Appendix A.

The structure of the report is as follows: Section 2 presents the history of employment guarantee schemes in India and the roll-out of MGNREGA; Section 3 presents the MGNREGA theory of change; Section 4 presents key outcomes of interest; Section 5 characterises studies of interest; Section 6 presents results from the search; Section 7 presents the impacts of MGNREGA based on non-experimental evidence; Section 8 presents impacts based on counterfactual evidence; and section 9 is the conclusion.

The results are presented as a heat table in Figure 8 and online as an interactive evidence heat map of India (Appendix D). The full dataset is available on request from 3ie.

2. History of employment guarantee in India

India has a tradition of employment generation programmes stretching back thousands of years. Historically, such programmes were used to provide relief during periods of famine. The ancient policy doctrine of *arthashastra* advises a good king, among other measures, to ‘institute the building of forts or water-works with the grant of food’ to provide relief in the time of a famine.¹

In the colonial period, labour programmes again became popular as a means of famine relief. Administrators preferred employment guarantee programmes for their self-targeting properties. By the late nineteenth century, most famine codes expressed a preference for the ‘labour test’ over the provision of cooked food for relief.² Another reason for their popularity was that the demand for labour, and therefore the programme budget, could easily be controlled by adjusting the wage level.

The most widely known precursor to MGNREGA in modern India, the Employment Guarantee Scheme (EGS), was initiated in 1972 to stave off deaths and deprivation from the severe famine that hit Maharashtra. The EGS was made an act in 1979. It gave rural dwellers the legal right to demand work from the state, as expressed in the popular slogan *magel tyala kaam* (whoever desires work shall get it). The EGS is reported to have provided jobs on a massive scale, and up to one fifth of the rural population in many districts are said to have received cash for work (Drèze and Sen 1991). ‘Productive’ work eligible under the EGS was mainly road-building, soil conservation and irrigation. The pro-poor targeting of the EGS, while considered highly effective in the early years of the programme, steadily worsened as the government raised the wage rate to meet the minimum wage in 1988 (Gaiha 2000). Given that the minimum wage exceeded the agricultural market wage, the non-poor began to demand EGS jobs. As the budget soared, the poor were disproportionately excluded from the programme.

In 1989, the central government merged two existing programmes to create the largest employment programme in India at that time, the Jawahar Rojgar Yojana (JRY). The JRY was innovative because 80 per cent of funds were released directly to the village *panchayat* (the smallest structure of local self-governance at the village level) and 33 per cent of funds were reserved for women. It aimed to provide employment to the poor, who were paid in cash and food, and also to create assets.

¹ The role of employment guarantee programmes in famine relief is discussed in detail in Drèze and Sen (1991).

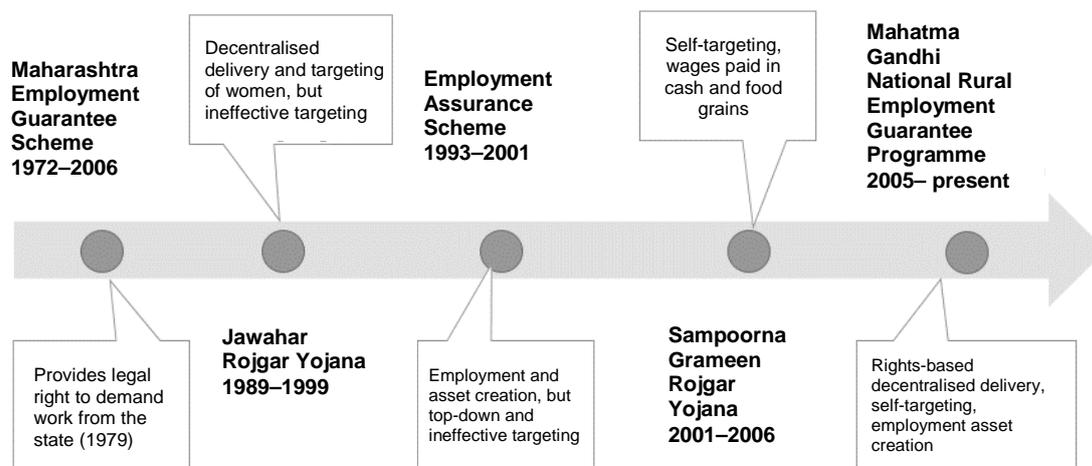
² Famine Commission Reports, 1880, 1898 and 1901, referred to in Drèze and Sen (1991). The other two tests, the ‘distance’ test where food was provided at a long distance from the beneficiary and the ‘residence’ test where beneficiaries were required to reside away from society, were increasingly reviled.

However, the programme was argued to have had little impact on poverty. In 1992, more than half of JRY workers were above the poverty line (Neelakantan 1994). This continued despite modifications introduced in 1993 to focus the JRY on 120 backward districts, and in 1995 to deliver innovative customised projects. The programme was expensive and not well targeted, with only 22 per cent of the funds ever reaching a poor household (Radhakrishna and Subbarao 1997). There was also very little uptake of JRY work; the average participant only worked 5.15 days per month. In its most recent incarnation as the Jawahar Gram Samridhi Yojana, it is now a rural infrastructure development programme.

In 1993 and 1994, another central programme, the Employment Assurance Scheme (EAS), was set up with similar primary objectives to MGNREGA: to provide employment to the poor, specifically during the lean farming season when there is little to no requirement for farm labour, and also to create durable assets. Initially the EAS targeted backward districts, but in 1999, a new formula was introduced to determine the allocation of funds based on agricultural productivity and disadvantaged groups. The EAS, too, suffered from very low uptake and ineffective targeting, with only 5 per cent of the target group receiving work under the scheme every year (OED 2005; PEO 2000). In addition, the top-down administration of the EAS encouraged gross irregularities and a high percentage of fictitious workers, as districts struggled to spend their allocated funds (PEO 2000). By 2001, the EAS was revised to incorporate the National Food for Work programme. The resulting scheme, the Sampoorna Grameen Rozgar Yojana (SGRY), shared the familiar twin objectives of rural employment and rural infrastructure. But it introduced a new element: half of the wages would be paid in food grains.

In 2005, the MGNREGA scheme gave all rural dwellers the legal right to work, and the SGRY was phased out shortly thereafter. MGNREGA, drawing on these earlier experiences with employment programmes, was a decentralised, rights-based approach that aimed to provide employment and create productive assets.

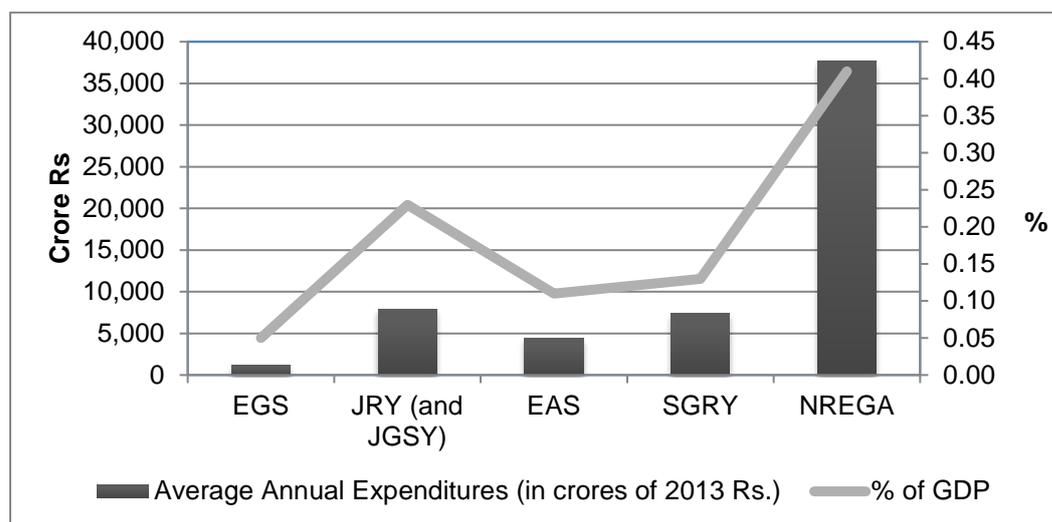
Figure 1: Timeline of employment guarantee schemes in India



Source: Authors.

MGNREGA's roll-out commenced in February 2005 in 200 of the poorest rural districts of India. A further 130 rural districts were added in financial year 2007–2008, and by 1 April 2008, the remaining 285 rural districts had been covered. MGNREGA is the largest public employment scheme in India's history, accounting for nearly 0.5 per cent of gross domestic product (GDP) (Figure 2). As of July 2012, an estimated Rs 1.1 trillion (US\$25 billion) had been spent on the scheme to pay wages to 12 billion people (PTI 2012). In 2013–2014, Rs266 billion (US\$431 million) was spent on wages alone (MoRD 2016).

Figure 2: Annual expenditure and GDP shares of Indian schemes



Note: Average annual expenditures are adjusted to 2013 prices. The percentage of GDP is an average of annual expenditure in nominal terms divided by that year's nominal GDP.

1 billion = 100 crores

Source: Planning Commission, n.d (Five-Year Plans)

One might expect to see the highest participation rates among the poorest states in the country. Available evidence, however, suggests otherwise. Dutta *et al.* (2014) note that the five states with the highest rates of participation in MGNREGA in 2009–2010 were Rajasthan, Chhattisgarh, West Bengal, Madhya Pradesh and Andhra Pradesh. But the five states with the highest percentage of population below the poverty line have much lower participation rates. In the poorest state in India, Bihar, where 56.5 per cent of individuals live below the poverty line, just 10 per cent of rural households worked on MGNREGA in 2009–2010.³ The disconnect between poverty and uptake of MGNREGA has been variously blamed on differing state implementation capacities, state rationing of jobs, lack of public awareness, political allocation of funds, and wage differentials between MGNREGA and casual labour (Liu and Barrett 2012; Dutta *et al.* 2014; Sheahan *et al.* 2014).

3. MGNREGA theory of change

Theories of change (ToCs) can be designed and defined very narrowly around programme logic, or more broadly to capture assumptions and risks (Rogers 2014). 3ie defines them as identifying the programme theory supporting the assumptions being made by the programme designers about how they expect inputs, activities, outputs and outcomes to produce the expected final programme impacts (Brown *et al.* 2014).

MGNREGA is a complex scheme, with programme components on both the labour demand and supply, involving a wide range of institutions and stakeholders and affecting a range of potential (intended and unintended) economic and social outcomes. Evaluation of MGNREGA therefore necessitates the development of ToCs for the different processes encapsulated in the scheme that address the demand for work (or labour supply) and the supply of work (or employment demand). Such ToCs were developed during a stakeholder workshop in May 2014 (see Appendix A) and further elaborated during field visits at state, district and village levels in Chhattisgarh and Rajasthan.⁴

Although the main objective of MGNREGA is to alleviate poverty by providing work in rural areas, MGNREGA has several other stated objectives:

- Expanding earning sources for the rural poor;
- Strengthening natural resources via works that deal with famine and deforestation, and that lead to sustainable growth;
- Strengthening grass-roots democratic procedures;
- Empowering women;

³ 3ie's estimates showed that this had risen to just 12.7 per cent in 2013–2014, taken as a percentage of the 2011 rural household count.

⁴ The workshop was held on 15 May 2014, hosted by the Indian Government's Independent Evaluation Office (IEO) and 3ie. Attending organisations included IFPRI, the Indian Statistical Institute, Ministry of Rural Development, National Planning Commission and World Bank. Meetings were held in the field with district-level CEOs, *gram panchayat* officials, MGNREGA scheme officers and beneficiaries.

- Inserting visibility and responsibility into government; and
- Strengthening decentralisation.

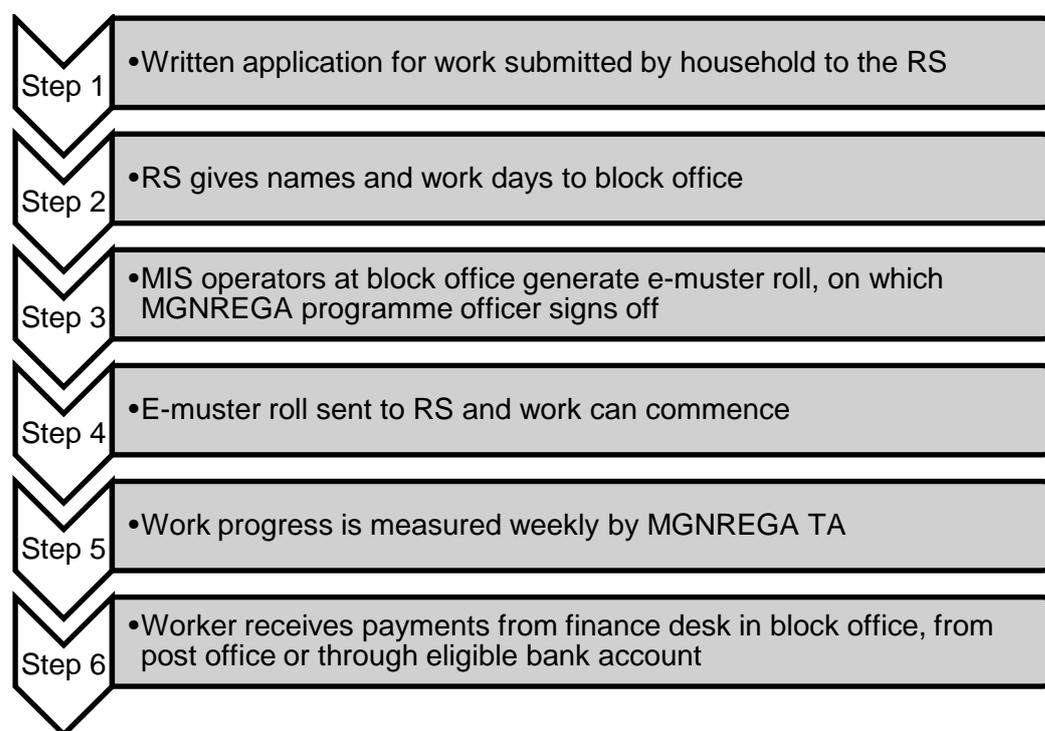
As a rural employment guarantee scheme, MGNREGA is designed to provide a guarantee of work for at least 100 days each financial year to households in rural parts of the country. All adults living in rural areas are eligible for this scheme irrespective of their poverty level. The scheme provides unskilled work that is mainly directed at building and providing public goods and infrastructure for the village or community. Wage levels are set at the statutory minimum wage, although actual daily payments may be lower, depending on factors such as the hours worked and task progress verified. The types of work eligible under MGNREGA are listed in paragraph 1 of schedule 1 of the act (see Appendix C).

Any household that is registered and has a job card is eligible to receive employment under the act. All adult members of the household whose names appear on the job card may demand unskilled manual work under MGNREGA for up to 100 days per financial year per household. To do this, each individual must apply in writing. Workers are entitled to be paid wages weekly, and within a fortnight of the date on which work has been done. It is also mandated that payment to MGNREGA workers can only be made through post offices or banks.

Documents related to the scheme also state that it includes a provision of unemployment insurance. If an applicant is not provided with work within 15 days of receipt of their application (or 15 days from the day that employment is sought, in case of an advance application), then the applicant is entitled to a daily unemployment allowance. The rate of unemployment allowance is one quarter of the wage rate for the first 30 days and half of the wage rate for the remaining period of the financial year. It is intended that state governments should pay these allowances from their own budgets.

The complexity of the scheme can be represented in logic models for the demand and supply sides of the programme. Demand for work in MGNREGA follows a sequential process. The process for Chhattisgarh State is outlined in Figure 3.

Figure 3: Demand for work and payment process under MGNREGA in Chhattisgarh



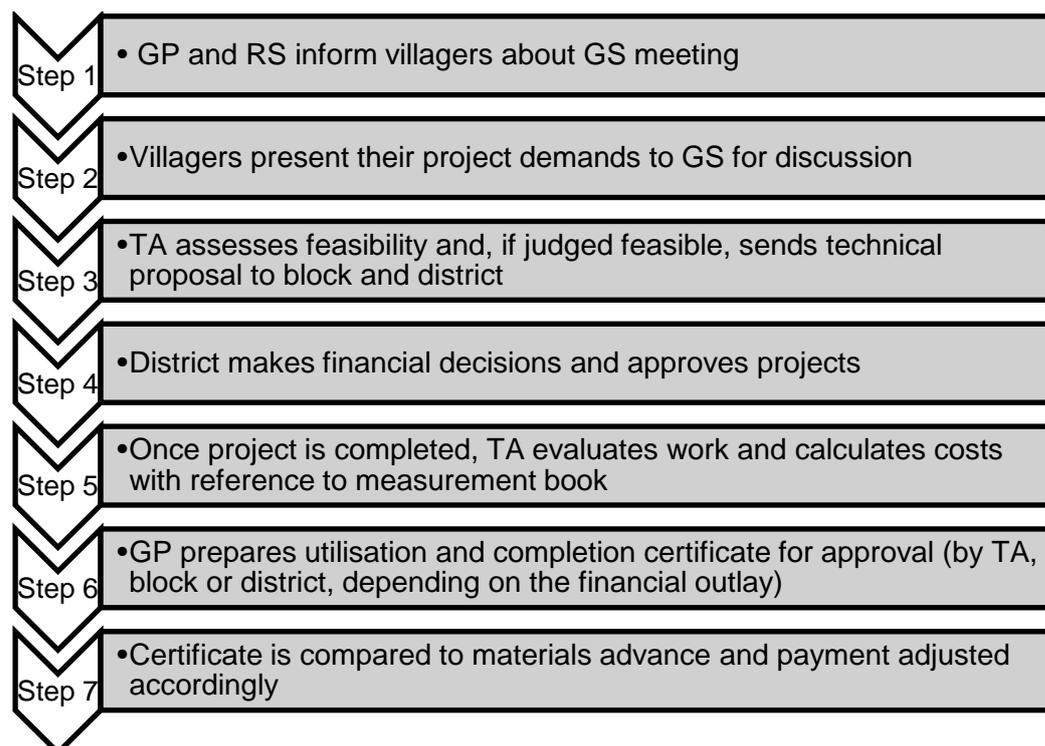
An individual in a village demands work by submitting a written application to the MGNREGA scheme employment helper, called the *rozgar sahayak* or *sevak* (RS). The demand for work is communicated either by the RS or the village council, known as the *gram panchayat* (GP), to the block level (a cluster of villages), where a management information system (MIS) operator transcribes the demand for work into an e-muster roll,⁵ a list of eligible workers that is generated on a weekly basis; the list contains the workers' identification details, number of days they will work, and the task assigned to them. The MGNREGA scheme programme officer must approve the e-muster roll before it is sent back to the *gram panchayat*, where the workers are supervised by a 'mate' who oversees the task. The progress made on a task is verified by an MGNREGA scheme technical assistant (TA), an engineer, who measures the actual output against what should have been achieved given the manpower working on the task. After the TA verifies the work done on a task, the muster roll is sent to the finance desk of the block office, which generates a wage list. This wage list is then sent to the designated bank and its details are entered in the electronic funds management system. The wage slip also goes from the block level to the mate, who takes it to the beneficiary. Once the block office approves this, the money is transferred to the designated bank.

⁵ The e-muster roll may be generated electronically at *panchayat*, block or district level, depending on the availability of information technology.

Conversely, on the employment supply side, the project creation and completion process is illustrated in Figure 4.

The supply of MGNREGA work is carried out in the following way. Village residents are informed about a discussion on MGNREGA work. The RS and the *gram panchayat* meet village residents to discuss village-level projects and demands for infrastructure. These meetings are called *gram sabhas* (GS). These requests are discussed in turn with the TA, who assesses the feasibility of the village-level work and sends these requests as technical proposals to the block or the district. District-level officials assess requests, as well as the availability of funds that have been provided by the national and the state governments for MGNREGA work, and accordingly approve village-level work. The decision is then communicated back to the village along with the approval. Once the project is completed, the TA assesses the work, verifies the costs and communicates this information to the district and block offices. They then approve disbursement of funds to be paid as wages and adjust payments for any advances they had made for material costs (see Figure 4).

Figure 4: Supply of projects under MGNREGA: creation and completion process



4. Outcomes of interest

In this section we discuss three types of outcomes expected from this scheme: governance, economic and social outcomes. Together with evidence on the implementation process, these outcomes are the focus of our evidence mapping exercise.

4.1 Livelihoods and economic outcomes

By providing employment for work, the MGNREGA scheme may enhance livelihoods for rural beneficiary households directly through increased wages, increased consumption (through the income effect), and diversification of income sources (potentially reducing vulnerability to seasonal shocks). Indirect effects may occur where MGNREGA enables health, education and material assets to improve at the household level (including through the substitution effect due to women’s bargaining power in the household), reduces migration, and instigates changes at the community- and economy-wide levels. We divide these hypothesised outcomes into three categories: direct (static) effects on beneficiary household livelihoods and consumption; indirect (dynamic) effects on economic and social outcomes for beneficiary households; and indirect (dynamic) economy-wide and societal effects, including for non-beneficiaries, due to sustainable asset creation (e.g. irrigation, roads) and increased worker bargaining power. These outcomes are summarised in Table 1.

Table 1: Economic outcomes associated with MGNREGA

Direct outcomes for beneficiaries	Indirect outcomes for beneficiaries	Indirect outcomes for economy and society
<ul style="list-style-type: none"> • Wage income • Consumption (increase and smoothing) • Private asset creation • Increased food security due to wage income effect 	<ul style="list-style-type: none"> • Reduced vulnerability due to diversification of income sources, material asset creation and possibilities for financial inclusion • Reduced migration • Long-term labour market outcomes due to human capital investment (income and substitution effects) 	<ul style="list-style-type: none"> • Agriculture and productive sector growth and employment • Bargaining power of agricultural workers due to increased reservation wage and reduced agricultural labour supply

This ToC encompasses a number of assumptions. First, it assumes that people who are eligible for MGNREGA are aware of the programme and their eligibility for it. It also assumes that people who demand MGNREGA-eligible work are aware of how they may enrol and undertake the work. In India, this is one of the main criticisms of the programme: nationally, fewer than expected of the eligible adult rural population have taken up MGNREGA work; and the national average days of employment per household have only been 40 per year (MoRD 2016).

Second, it assumes that people are not relying solely on MGNREGA work but supplementing their regular work with MGNREGA work (i.e., that the income effect is greater than the labour substitution effect). This assumes that overall wage income is increasing (and part of the increase is contributed by MGNREGA wages) at the household level, or at least remaining above the minimum wage rates provided by the MGNREGA scheme. It also assumes that there are no general equilibrium effects that lead to a reduction in overall wage levels (agricultural and non-agricultural).

Given that MGNREGA work is technically available year-round, not just during the lean season when it is most needed, the assumption is also that MGNREGA does not displace or compete with agricultural labour during harvest or sowing periods.

The theory behind reducing beneficiary vulnerability assumes that households are investing in health, education and other human development-related assets that increase their current and future productivity, and that labour markets are competitive so that wages are also higher. This link also presumes that MGNREGA participants will diversify not just their income sources, but also their spending and investment patterns. Moreover, households receiving MGNREGA work are expected to have less need for rural–urban migration or even rural–rural migration.

Positive indirect effects on the village economy assume that assets are created at the village level as well as the household level. Work that is eligible under MGNREGA (Appendix C) is expected to contribute to better drainage, better access to villages and greater productivity in the *gram panchayat*.

4.2 Empowerment outcomes

A second objective of MGNREGA is to empower marginalised groups. Wages received from the work and employment are anticipated to foster financial autonomy of women and disadvantaged groups, financial inclusion and dignity (Table 2).

Table 2: Empowerment outcomes associated with MGNREGA

Women’s control over intra-household decision-making, expenditure on women’s and children’s consumption, and investment; increased burden on women’s time, including due to enforced participation of women by household decision makers.
Participation of disadvantaged groups (women, scheduled castes, scheduled tribes, differently abled), reduced need for child labour, and better education outcomes for children.
Financial inclusion through improved access to formal banking.
Dignity due to the presence of work, and the ability to demand work and overcome economic and financial vicissitudes; stigma due to targeting process.

The most significant assumption for MGNREGA delivering outcomes related to empowerment is that the programme is targeted appropriately. It presumes that sections of rural society that otherwise could not get work are the ones who take advantage of this programme, while others do not. The programme also has special provisions for women, the disabled, scheduled castes and scheduled tribes.⁶ The key assumptions are that these sections of rural communities take up MGNREGA-related work and that their welfare is enhanced by it, and they are not stigmatised or otherwise negatively impacted by taking the work.

⁶ Scheduled castes and scheduled tribes are official designations given to various groups of historically disadvantaged indigenous people in India.

Second, there is also an implicit assumption in the way that wages are delivered and disbursed that this process will increase the use of banking services. MGNREGA requires that all participating adults listed on the household job card either have a bank account for direct wage transfer or receive their wages at a post office. The banking option requires that the bank at which people have an account is eligible to receive MGNREGA payments. The second expectation is that people who use banks will become included in the formal economy and start to use banking services more generally, displacing usurious village-level moneylenders. Thus it is expected, at least in the long run, that people's savings, formal use of credit and remittance transfer and use behaviour will improve.

4.3 Governance

One of the main objectives of the MGNREGA scheme is to foster democratic decision making at the village level, ensuring the building of systems that ensure transparency. Document review and discussions with stakeholders pointed to four main intended and unintended outcomes from MGNREGA implementation that are related to governance (Table 3).

Table 3: Governance outcomes and activities associated with MGNREGA

<p>Improved democratic participation in decision-making through GS and social audits.</p> <p>Decentralisation and improved local government capacity in implementation, monitoring and evaluation.</p> <p>Seamless governance (from centre to state to local governments) including convergence with other government programmes.</p> <p>Less corruption due to reduced leakage and misappropriation (e.g. ghost workers, use of inappropriate contractors and machinery).</p>
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Funds are channelled to *gram panchayats*, which are the grass-roots organisations mandated to pay workers and determine which public infrastructure projects will be undertaken. In theory, it is expected that these payments will also be accompanied by greater scrutiny and systems to facilitate these activities. Indeed, among the features required of public works programmes in India are work creation informed at the *gram panchayat* level by broad-based GS planning meetings, and work completion monitored through social audit. Social audits are supposed to involve community-wide open meetings where oversight officials meet with eligible beneficiaries of the schemes alongside officials from the district, block offices and *panchayat* who are directly responsible for providing the work and payments. These audits are meant to gauge the extent to which the scheme has been working in these communities and also register any grievances, as the case may be. It is thus believed that these, along with the unemployment insurance that the state must provide in case there is unmet demand for MGNREGA employment, lead to better grass-roots administration and participatory planning at the local government level.

This ToC contains many assumptions, and the extent to which they are met affects the degree to which MGNREGA can foster improved governance at the local level. It assumes that local government organisations, such as *gram panchayats*, are aware of their roles and responsibilities with respect to decision making; that they are empowered to request funds; that they are aware of the channels, systems and steps to accept requests for work; and that they have the systems to disburse these funds when they receive them. It assumes that the RS who is present at the village level can work alongside village adults to understand and log requests for work. Moreover, it assumes that people trust the system enough to report insufficient response to demand and leakages in payment, should these occur.

The ToC further assumes that social audits work at the *gram panchayat* level. This means that people are aware of the role of social audits, which are conducted regularly and are attended by people interested in the programme (and not just those who are participating). It assumes that block and district officials present can impartially and correctly assess cases where needs have not been met or where leakages have been detected and take remedial action. It assumes that there are systems at the *gram panchayat* level, and also at the block and district levels, that can register and respond to requests for work and payment. It assumes that eligible adults can make decisions about demand for work in an unbiased way.

Last but not least, since the Government of India also aims to make its various social programmes converge in improving the welfare of rural households, the ToC assumes that MGNREGA as a programme also converges with other rural welfare programmes and is not at cross purposes with them. There may therefore be trade-offs between the desire for bottom-up project selection on the one hand and the desire of top-down implementers to ensure convergence on the other.

5. Studies of interest: the effectiveness debate

The effectiveness of MGNREGA has been a subject of debate since before its implementation. There is a large literature of empirical studies, including evaluations examining implementation processes and impacts. MGNREGA's status as a law guaranteeing rural adults in India the right to work, as the flagship welfare programme of the Congress Government, and as the largest public workfare programme in the world, have resulted in much attention in the Indian media as well as in domestic and international academic and research communities. A Ministry of Rural Development (MoRD) meta-evaluation study provides evidence suggesting positive impacts on rural wages, gendered social empowerment, environment, migration and participation in democratic processes (Mann and Pande 2012). However, the same report also cautions that 'implementation remains patchy across states and districts' (Mann and Pande 2012) and highlights challenges to implementation, including limited uptake of the scheme among labourers, untimely payment, leakages, and lack of information on the quality and functionality of physical assets created by the programme.

5.1 MGNREGA evidence mapping

The MGNREGA heat table shows empirical data along the full causal chain. It shows the evidence on the implementation process, documenting the lower reaches of the causal chain (inputs, activities and outputs), as well as counterfactual evidence on outcomes and impacts attributable to MGNREGA at the upper reaches of the causal chain. The specific outcomes and impacts of interest for us include direct and indirect economic outcomes, empowerment and governance. The evidence on the implementation process covers access, wages, asset creation and performance and governance of the scheme. We also include evidence from studies reporting on beneficiary perceptions. Eligible types of evidence for each causal chain component are presented in Table 4.

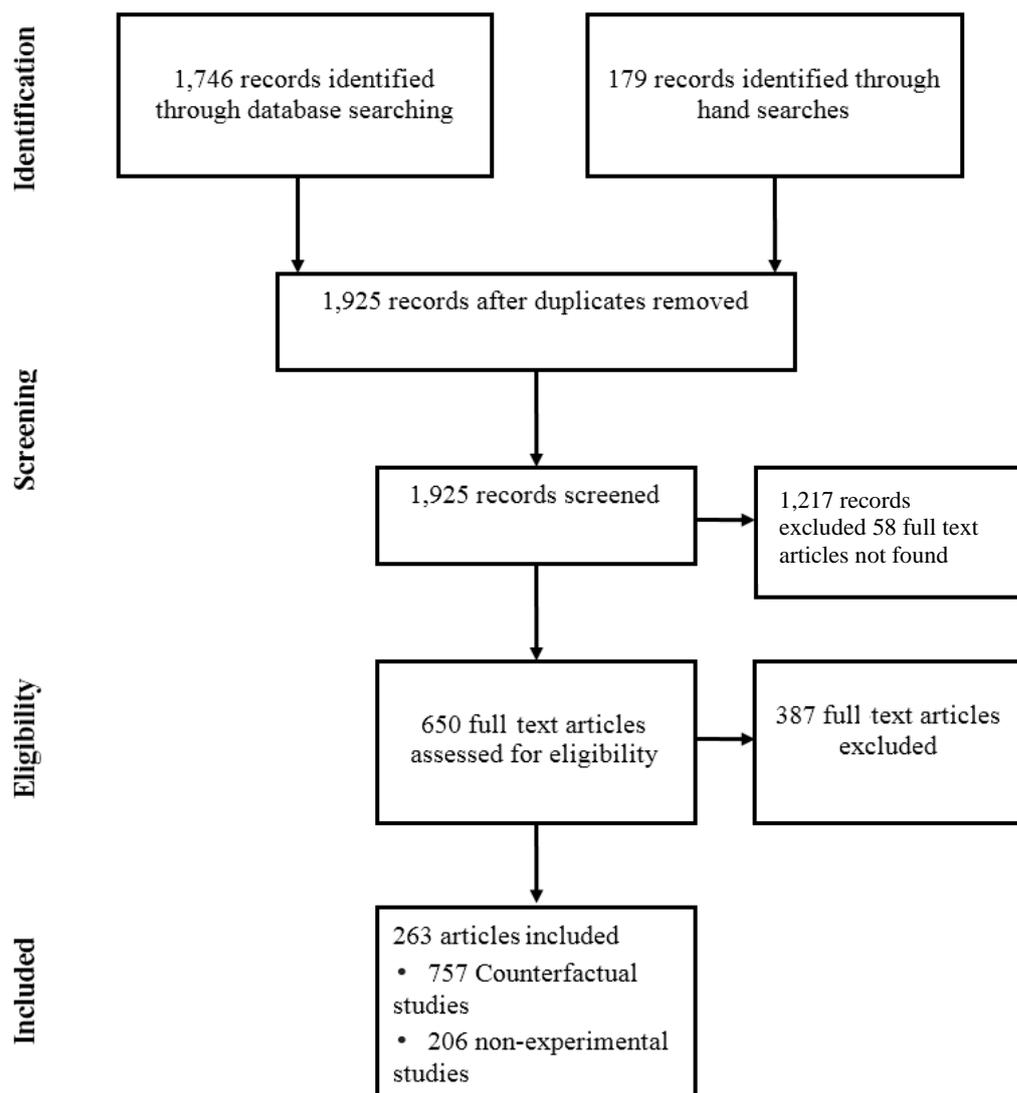
Table 4: Evidence eligible for inclusion

Component of programme causal chain	Type of evidence
Impacts on economic outcomes for beneficiary households	Counterfactual evidence from quantitative impact evaluations
Impacts on economic outcomes for non-beneficiaries	
Impacts on empowerment outcomes	
Impacts on governance outcomes	
Societal and economy-wide impacts	Counterfactual evidence from simulation studies
Cost-benefit, cost-effectiveness and cost-utility evidence	Cost-benefit evidence
Implementation	Non-experimental qualitative and/or quantitative evidence
Beneficiary targeting	
Demand-side uptake (labour supply)	
Supply-side uptake (employment demand)	
Quality of physical assets produced	
Programme design	Project and programme documents
Implementation fidelity	
Beneficiary views	Non-experimental qualitative and/or quantitative evidence

6. Search results

We conducted systematic literature searches between July and September 2014. As the study search flow (Figure 5) shows, 1,925 potentially eligible titles were screened, 1,746 of which were identified through electronic database searches and 179 through manual searches. We also included eligible studies that we came across during manual searches after September 2014. Subsequently, 648 full texts were assessed for eligibility, and 263 studies were eventually included in the heat table and heat map.

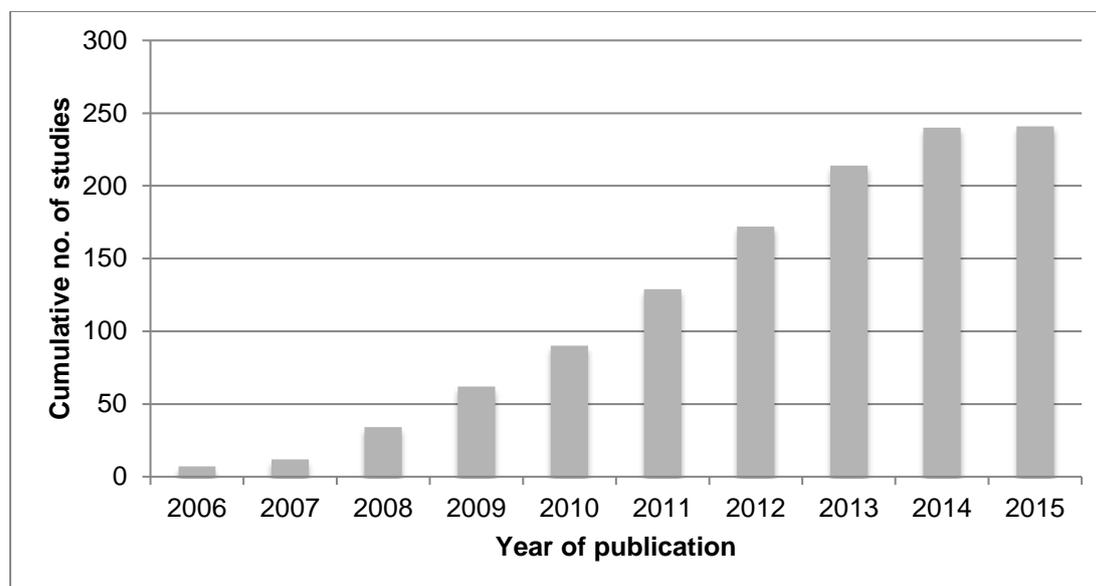
Figure 5: MGNREGA evidence search process



Many studies appear in the grey literature, so a review of published studies would have identified a far smaller body of evidence than exists. The majority of the relevant studies (51 per cent) fall in the category of ‘working paper, unpublished manuscript or evaluation report’. Evaluation reports tended to be comprehensive and reported on numerous empirical aspects.

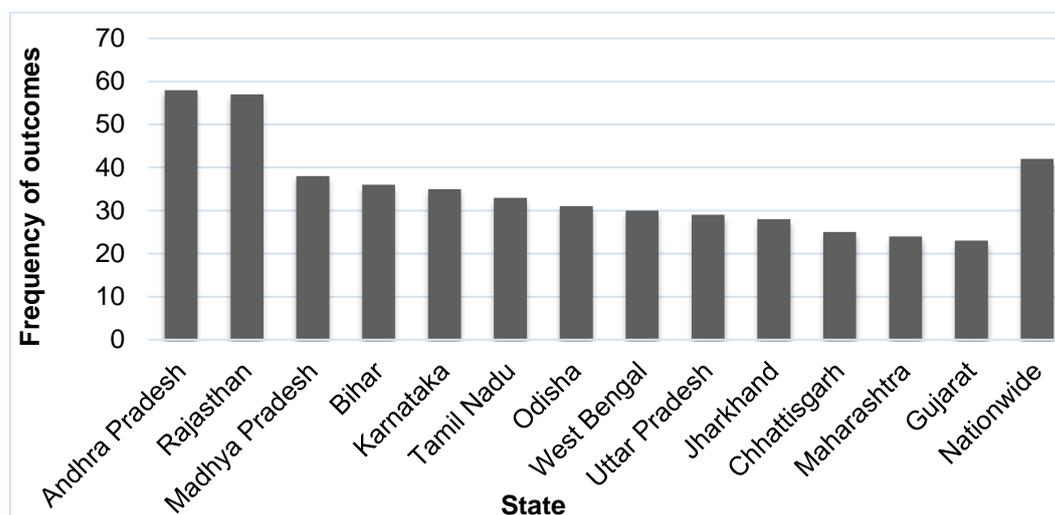
There has been a dramatic rise in empirical studies on MGNREGA since its inception in 2005 (Figure 6). There are some 206 studies which report empirical data on implementation processes and beneficiary views without reference to a counterfactual. In addition, 57 impact evaluations have been conducted which quantify changes in outcomes relative to a counterfactual.

Figure 6: Cumulative number of MGNREGA studies by publication date (non-experimental and counterfactual studies)



It is also noteworthy that 30 studies reported data eligible for inclusion in non-experimental and counterfactual analyses. These studies provide counterfactual estimates of impact alongside analysis focusing mainly on perceptions of beneficiaries, but also on factors such as awareness and availability of jobs.⁷

Figure 7: Frequency of reported outcomes by state and all-India levels from 2006 to 2015



Note: One hundred and eighty studies are not reflected in this figure as they are spread thinly across India's remaining states and union territories.

⁷ This approach, also known as theory-based impact evaluation (White 2009), incorporates analysis of the causal chain (programme theory) from inputs to outputs and impact. It is useful for decision makers because it gives information on 'what works' and also 'why'.

Several things are of note. First, there are relatively few nationwide impact evaluation studies of MGNREGA, so it is difficult to assess whether MGNREGA is a successful programme for India as a whole. Second, it is clear that most studies focus on state-wide analysis because of data requirements and availability. Third, many studies (around 220) undertake state-wide analysis of MGNREGA. Evidence points to a wide dispersion of the effectiveness of MGNREGA and there is currently no agreement or consensus on how effective MGNREGA has been in each state. Furthermore, the concentration of these studies is also quite skewed, so that 70 per cent (more than 140 studies) have been conducted in just 13 states of India, with the highest numbers in Rajasthan and Andhra Pradesh. This is surprising because MGNREGA is (notionally) a nationwide programme. Fourth, although the government has commissioned 36 per cent of MGNREGA studies, these include only six impact evaluations using rigorous counterfactuals to identify effects attributable to MGNREGA. In contrast, most rigorous impact evaluations (22) have been commissioned by external donor agencies and non-governmental organisations and undertaken by universities.

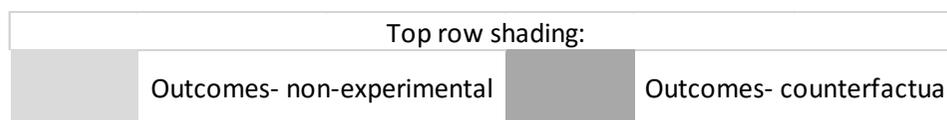
Finally, the evidence is visualised in a heat table (Figure 8) which shows the extent and paucity of evidence at national and state levels along the full causal chain, including the implementation process and counterfactual evidence on impacts.

Figure 8: MGNREGA evidence heat table

	Implementation Process							Effectiveness/ Cost benefit Analysis	Direct Economic Impact					Indirect Economic Impact			Governance	
	Access	Wages	Asset creation	Performance	Governance	Other	Empowerment effects		Employment	Wages, Assets, Welfare	Consumption	Poverty incidence	Food Security	Migration	Agriculture related factors	Food price inflation	Productivity	Corruption
Nation-wide	32	15	27	29	9	5	3	1	5	4	3	1	2	0	3	1	0	
Gujarat	34	19	37	22	9	6	0	0	1	0	0	0	0	1	0	0	1	0
Andhra Pradesh	64	29	40	18	14	11	2	1	6	4	0	2	2	0	7	0	4	3
Karnataka	41	19	42	12	16	11	0	1	3	3	0	0	0	0	3	0	2	1
Madhya Pradesh	45	21	43	23	11	10	0	0	3	2	0	0	0	1	3	0	1	0
Rajasthan	66	33	43	28	16	11	0	0	4	3	0	1	1	2	3	0	0	1
Tripura	6	4	13	3	1	3	0	0	1	1	0	0	0	0	0	0	0	0
Meghalaya	14	8	14	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Himachal Pradesh	28	13	22	14	10	6	1	0	0	0	0	0	0	0	0	0	0	0
Haryana	23	11	34	14	8	9	0	0	0	0	0	0	0	0	0	0	0	0
Bihar	49	27	28	21	10	12	0	0	3	3	1	1	0	1	0	0	2	2
Assam	16	9	25	8	3	5	0	0	0	0	0	0	0	0	0	0	0	0
Jammu & Kashmir	8	4	13	5	1	2	1	0	1	1	0	0	0	0	0	0	0	0
Kerala	27	14	31	13	6	8	0	0	1	1	0	0	0	0	0	0	0	0
Maharashtra	32	19	23	14	6	4	0	0	1	1	0	1	0	0	0	0	0	0
Manipur	7	3	13	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Odisha	46	19	51	28	15	10	0	0	1	1	0	0	0	1	1	0	0	0
Punjab	20	9	26	11	7	5	0	0	0	0	0	0	0	0	0	0	0	0
Tamil Nadu	47	20	23	19	7	12	0	0	0	0	0	0	0	0	0	0	0	0
Uttar Pradesh	31	13	30	16	11	7	0	0	0	0	0	0	0	0	0	0	1	0
West Bengal	40	20	45	22	10	6	0	0	0	0	0	0	0	0	0	0	1	0
Chhattisgarh	38	16	35	24	8	8	0	0	1	1	0	0	0	1	1	0	0	0
Jharkhand	43	16	31	16	9	8	0	1	1	1	0	0	0	1	1	0	0	0
Uttarakhand	11	4	21	8	3	2	0	0	1	0	0	0	0	0	0	0	0	0
Sikkim	9	4	14	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mizoram	4	2	13	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nagaland	2	2	13	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arunachal Pradesh	2	2	13	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goa	2	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Union Territories	1	2	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Frequency of reported outcomes:

0	
1 to 5	
6 to 10	
11 to 20	
21 to 40	
40+	



Note: Numbers represent the frequency of reported outcomes and not the number of studies, so the total sum might be greater than the total number of studies present under a given category.

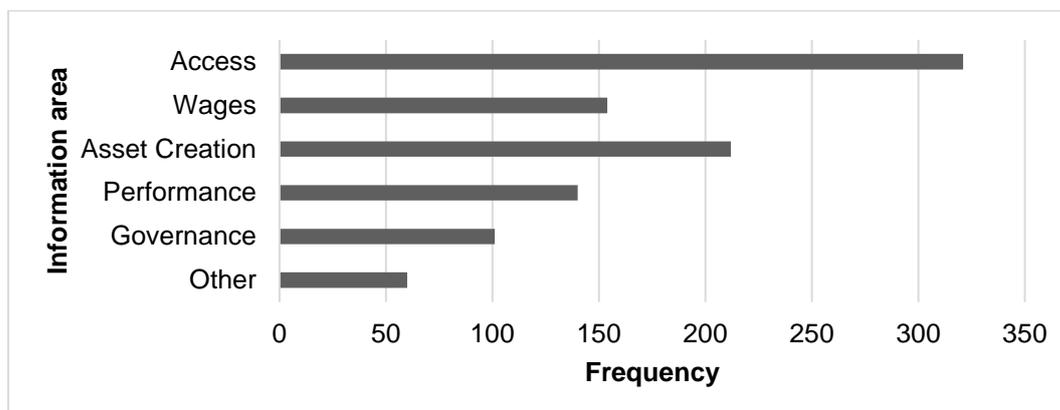
7. Impacts of MGNREGA: non-experimental evidence

7.1 Implementation process

Studies that provide evidence on implementation processes or stakeholder views are by definition non-experimental because there is usually no reference to a baseline or comparison group, nor are statistical methods used to identify causality. However, such evidence is useful in providing relevant information to decision makers, including programme monitoring information on general performance, governance and the process of asset creation, as well as information that may be collected from beneficiaries on access and wages.

Out of the 263 studies included, 206 provided non-experimental evidence in the form of process evaluations (102 studies), correlation studies (30), other qualitative or mixed-method research (144) and audit reports (13 studies). We classified the information on the implementation process provided in the studies into six areas along the causal chain: information on access to the scheme, wage determination, asset creation, implementation performance, governance, and beneficiary views on effectiveness of the scheme (Figure 9).

Figure 9: Frequency of studies reporting non-experimental empirical information



Note: Studies report on multiple sub-categories, so sum totals are greater than total number of studies.

7.1.1 Access

For the first process area, we grouped studies that examined access to MGNREGA as reported through data collection and/or analysis. This in turn could include data on factors such as awareness about the programme and its benefits, availability of jobs and work days, participation aspects, targeting features, procedures regarding job cards, distance to worksites, and worksite facilities. A total of 321 studies reported or analysed evidence relating to access (Table 5) for either the whole programme on a national scale or at the state level, covering 28 states and union territories. Most studies reported data on availability of work (79) and beneficiary participation (84) within the programme.

Table 5: Frequency of studies reporting information relevant to access to MGNREGA

Category	No. of studies
Targeting	32
Awareness	49
Job cards	39
Availability of work	79
Beneficiary participation	84
Distance to worksite	10
Worksite facilities (e.g. childcare, people with disabilities)	28
<i>Total</i>	<i>321</i>

Note: Studies report on multiple sub-categories, so sum totals are greater than total number of studies.

For example, Kamath, Murthy & Sastry (2008) conducted a survey and interviews with local non-governmental organisations and government officials in selected blocks in Karnataka and Andhra Pradesh. The team gathered information on awareness about MGNREGA and its aspects, participation within the programme, real and expressed demand for employment under MGNREGA, and the reasons behind the demand from the MoRD. The results were used to provide feedback so that implementation of the programme could be adjusted to better suit its beneficiaries.

7.1.2 Wages

The category 'wages' includes studies that reported on aspects of bank and post office capacity to distribute wages, by empirical data collection and/or analysis including timely or full payment. 154 studies reported data and outcomes related to wages (Table 6) on a national or state level, covering all 28 states and union territories. A commonly used indicator measured in a large number of studies was the average wage rate in the regions being looked at.

Table 6: Frequency of studies reporting information relevant to MGNREGA wages

Category	No. of studies
Average wage rate	87
Full payment	5
Mode of payment	30
Time of payment	20
Unemployment allowance	12
<i>Total</i>	<i>154</i>

Note: Studies report on multiple sub-categories, so sum totals may be greater than total number of studies.

Pankaj (2008) observed average wages among several other factors related to MGNREGA in nine districts in Bihar and Jharkhand. This study aimed to understand the processes, institutions and mechanisms of implementation, and the impact of MGNREGA in these states. It was sponsored by the United Nations Development Programme and MoRD and surveyed over 6,000 households on the basis of multistage stratified random sampling. It also employed focus group discussions. The surveys covered the actual wage payments made, incidence of the mode of these payments (e.g. bank, post office), and the time it took to process the payments. The authors then compared these to the standards officially laid out for the programme and inferred potential reasons for any differences.

7.1.3 Asset creation

There are a total of 212 studies that empirically examined sustainable asset creation as a consequence of MGNREGA (Table 7), and these provide data on either the national scale or at state level covering 28 states and union territories. This section looks at empirical studies that examined sustainable assets that MGNREGA created, grouped into water security and management, soil conservation and land productivity, rural connectivity (e.g. roads and bridges), and works on specified land. Studies that examined the quantity and/or quality of assets are included here. Overall, studies that examined the different MGNREGA assets seemed to be evenly distributed. A slightly higher focus on water security and management can be attributed to agriculture being the principal means of livelihood in India. Depending on the geographic location, farmers might be dealing with floods, drought or both at the same time. Asset creation also varies depending on the context. Greater focus will be placed on drought- and flood-proofing methods in areas prone to these dangers, and on rural connectivity in hard to access places where connectivity is a major hindrance.

Table 7: Frequency of studies reporting empirical information on asset creation

Category	No. of studies
Water security and management	53
Soil conservation and land productivity	47
Rural connectivity	46
Works on specified lands	47
Other	19

Note: Studies report on multiple sub-categories, so sum totals may be greater than total number of studies.

A comprehensive report on asset creation by the Gujarat Institute of Developmental Research (Shah and Jose 2012) examined the potential impact of wages and assets created under MGNREGA on local economies, and the policy implications for ensuring the realisation of these activities, using data from existing studies in the field. The report looked at assets created as part of MGNREGA at the national level and across multiple states, and points out areas where quality has suffered or types of assets have either received too much or too little attention based on the regional needs.

7.1.4 Performance

MGNREGA performance is a large category referring to factors such as planning and execution of activities, staffing, financial performance, record maintenance and innovations (e.g. implementation of new systems such as smart cards). Performance has also been a major area of empirical work. A total of 143 studies examined implementation performance, at either national or state levels, covering 28 states and union territories (Table 8).

Table 8: Frequency of studies reporting on implementation performance

Category	No. of studies
Planning and execution	45
Staffing	24
Financial performance	43
Record maintenance	24
Innovation	7
<i>Total</i>	<i>143</i>

Note: Studies report on multiple sub-categories, so sum totals may be greater than total number of studies.

Source: Authors.

For example, Biradar *et al.* (2009) conducted a cross-sectional study using the official data available and data from independently conducted surveys, interviews and focus group discussions. The study presented financial and planning information on two districts in Maharashtra and looked at associations between MGNREGA's expenditure with its planned asset creation activities. It also presented case studies depicting the status of record maintenance (e.g. muster roll activities, job registration register and employment records) in selected areas and the availability and qualification of recommended staff under the scheme.

7.1.5 Governance

There are 101 studies that collected and/or analysed process data on governance of the scheme at either national or state levels, covering 23 states (Table 9).

Governance ranges from examining the participatory aspects of the MGNREGA process, such as social audits and *gram panchayat* involvement (e.g. spreading awareness, choosing activities), to information on corruption and grievance redressal.

Table 9: Frequency of studies reporting information on MGNREGA scheme governance

Category	No. of studies
<i>Gram panchayat</i> or <i>GS</i> involvement	32
Social audits	26
Corruption	11
Complaints and issues	30
Convergence	2
<i>Total</i>	<i>101</i>

Note: Studies report on multiple sub-categories, so sum totals may be greater than total number of studies.

For example, Siddharatha and Vanaik (2011) reported the findings of the Comptroller and Auditor General of India's audit report highlighting issues and irregularities in MGNREGA's implementation, ranging from corruption to the inefficient workings of existing social and institutional structures. A study by Bhupal (2011) examined MGNREGA in Haryana and interviewed beneficiaries on the reported activities of their respective *gram panchayats*. Two studies (Satish *et al.* 2013; MoRD n.d) summarised and proposed programmes in the states of Karnataka and Uttarakhand that would be candidates for convergence with MGNREGA. Satish *et al.* (2013) put forth the Integrated Watershed Management Programme as a possible candidate for greater cohesion with MGNREGA by comparing poverty and social impact analysis of MGNREGA with the benefits that might arise if MGNREGA worked closer with the programme. The study by MoRD (n.d) consisted of a district-wide report for Uttarakhand, providing the ministry's observations on convergence initiatives with other programmes in the state.

7.1.6 Other evidence

The final category for evidence refers to empirical data on other aspects of MGNREGA, including beneficiary views about its effectiveness, such as perceptions of changes in terms of food security, saving and debt. These types of non-experimental studies, which collect and analyse data on beneficiary views on programmes, cannot attribute changes to the programme itself as distinct from other factors. These studies have not used statistical methods to identify causality and therefore are not considered rigorous counterfactual studies. However, such studies can provide useful information for programmes and research. Sixty studies examined these topics (Table 10), using a range of data sources including surveys and beneficiary interviews.

Mistry and Jaswal (2009) interviewed respondents in four states to determine whether they saw MGNREGA as effective in preventing urban–rural migration, as well as their preference between either taking work under MGNREGA or migrating. The study focused on MGNREGA's effect in countering the need for distress migration, which is a highly stressful and disruptive process for the families of unskilled and semi-skilled workers.

Several studies collected data on women’s perceptions of how MGNREGA has affected their lives. For example, Illuru and Kondeti (2014) examined women’s participation in decision making in household management, their social participation, and their expenditures as influenced by the availability of independent and monetised earnings from the MGNREGA scheme in Karnataka. The women also reported perceived net effects on their confidence, income and savings. Two studies (Gupta and Mukhopadhyay 2014; Sheahan *et al.* 2014) looked at the influence of local politics in decision making and the implementation of MGNREGA.

Table 10: Frequency of studies reporting information on beneficiary views

Category	No. of studies
Beneficiary perception	36
Empowerment	23
Political affiliation and local politics	2
<i>Total</i>	<i>60</i>

Note: Studies report on multiple sub-categories, so sum totals may be greater than total number of studies.

7.2 Empowerment effects

Empowerment in this section does not just cover gendered social and economic gaps but also takes into account education, political empowerment and minimal levels of well-being (health). Seven studies focused on nationwide effects as well as on Andhra Pradesh, Himachal Pradesh and Jammu and Kashmir (see Figure 8). Four of the studies did not account for a control group with their before and after design. Therefore, there is a high risk of bias in interpreting their findings.

Afridi *et al.* (2012) used data collected during the National Sample Survey and from the Young Lives dataset⁸ in Andhra Pradesh to evaluate the impact of mothers’ participation in MGNREGA on educational outcomes of their children. The authors employed ordinary least squares with fixed effects and two-stage least squares with fixed effects to see the impact of mothers’ participation in MGNREGA on their children’s grade attainment and time spent in school. The study also looked at the gender wage gap over the years of MGNREGA’s implementation and at women’s intra-household bargaining power.

7.3 Cost-effectiveness

Only four studies examined the cost-effectiveness of MGNREGA. These were conducted in Andhra Pradesh, Jharkhand, Karnataka and nationwide (see Figure 8).

Muralidharan, Niehaus & Sukhtankar (2014) conducted a randomised controlled trial (RCT) in Andhra Pradesh using smart cards to handle MGNREGA payments. The large-scale experiment randomised the roll-out of smart cards over 158 sub-districts

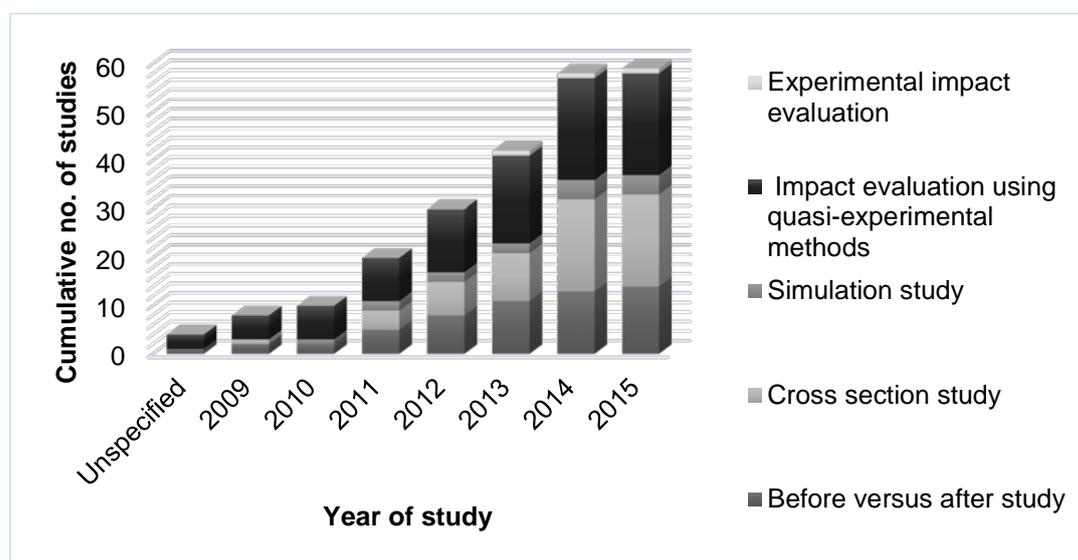
⁸ Young Lives is an international study of childhood poverty following the changing lives of 12,000 children in Ethiopia, India (Andhra Pradesh and Telangana), Peru and Viet Nam over 15 years.

and 19 million people. The findings indicated that using smart cards decreased corruption with regard to payments without adversely affecting programme access. Time savings to MGNREGA beneficiaries were estimated to be worth US\$4.3 million, which exceeded the cost of programme implementation and operation. Additionally, the estimated leakage reduction was estimated to be US\$32.8 million a year.

8. Impacts of MGNREGA: counterfactual evidence

This section summarises the counterfactual evidence on MGNREGA. Included in this section are all of the impact evaluation studies we located using our searches which used a counterfactual methodology to identify changes in outcome variables due to MGNREGA. However, these studies used a rather broad range of methodologies. Only three studies employed RCTs (Munro, Verschoor & Dubey 2013; Muralidharan, Niehaus & Sukhtankar 2014; Banerjee *et al.* 2015), despite randomisation being a very feasible and rigorous approach to test marginal changes in MGNREGA programme operations. A further 24 studies used rigorous experimental or quasi-experimental methods of causal identification (e.g. double differences, propensity score matching and instrumental variables estimation). Four studies examined general equilibrium effects using computer simulation methods (e.g. computable general equilibrium). The remaining impact evaluation studies used rather less rigorous methods, such as standard regression models applied to non-equivalent comparison group data and simple uncontrolled before versus after comparisons (Figure 10).

Figure 10: Counterfactual studies of MGNREGA by publication date



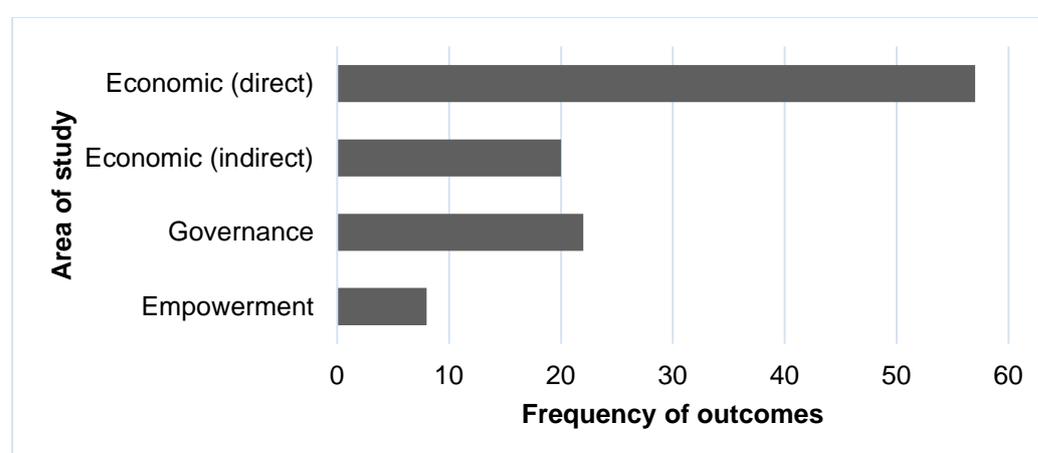
The majority of counterfactual studies examined economic and livelihoods outcomes (Figure 11), mainly direct economic outcomes for beneficiaries such as employment (22 studies) and income, consumption or poverty status (36 studies). In addition, 19 further studies reported on indirect economy-wide or societal impacts, including on agriculture (12 studies), migration (6 studies) and food price inflation (1 study). Nine counterfactual studies also provided subgroup analysis for women beneficiaries.

Counterfactual studies drew on a range of sources including data commissioned as part of the evaluation (as in the RCTs) and data that drew on existing sources such as the National Sample Survey. Figure 8 indicates that these studies were thin on the ground, with the greatest frequency being in Andhra Pradesh, Madhya Pradesh, Rajasthan and Karnataka.

8.1 Direct economic effects

Over 50 counterfactual studies examined direct economic impacts of MGNREGA (Figure 11). We have categorised these into employment, wages, consumption, poverty and food security (Table 11).

Figure 11: Frequency of outcomes reported in counterfactual studies



Note: Studies report on multiple sub-categories, so sum totals may be greater than total number of studies.

8.1.1 Employment

These studies examined household- and individual-level employment provided under MGNREGA, compared with the situation in the absence of the programme. Twenty-two studies looked at employment within MGNREGA at either the nationwide or state level, covering 14 states (Figure 8 and Table 11).

Azam (2012) used a difference-in-differences framework and the data collected by the National Sample Survey to assess the impact of MGNREGA's implementation on labour force participation as a whole and on female labour force participation in particular. The author also performed a falsification exercise to show that the main findings were not confounded by pre-existing differential trends between MGNREGA and non-MGNREGA districts.

8.1.2 Wages, assets and welfare

This category looks at changes in factors such as earnings, savings, household appliances and other assets as a direct result of the MGNREGA scheme. Twenty-two studies looked at this at either the nationwide or state level, covering 14 states (Figure 8 and Table 11).

Kumar and Helaney (2013), in a micro before and after study, examined the effects of MGNREGA in a single *gram panchayat* in Kerala. They used a structured survey schedule to collect primary data and drew on officially published records and *panchayat* reports for their secondary data. The study looked at a range of factors such as the change in employment, number of working members, average monthly income and change in asset position (e.g. bank balance, gold, savings and home appliances) of the families before and after being a part of MGNREGA.

8.1.3 Consumption, poverty incidence and food security

Fourteen studies looked at outcomes such as changes in the consumption patterns of MGNREGA beneficiaries and the programme's impacts on poverty level and food security. These were conducted either at a national level or in one of six states (Figure 8 and Table 11). With regards to monthly expenditure and food security, Ravi and Engler (2013) used panel data from 1,064 households in 198 villages of Andhra Pradesh over two years. Several households were initially denied employment under MGNREGA due to shortage of work; the authors exploited this exogenous variation to calculate triple-difference estimates of MGNREGA's impact. They reported changes in monthly per capita expenditure on food and non-food consumables for beneficiaries and MGNREGA's effect on food security as measured by the number of meals forgone by households per week.

Dutta *et al.* (2014) reported changes in the poverty rate based on two surveys taken over two different time frames in Bihar, spanning around 5,000 individuals. The first survey was implemented between May and July 2009 and the second during the same months one year later. The study reported on the potential of MGNREGA to bring about changes in the poverty level if ideally implemented, along with the actual differences observed. To get the poverty measures, the authors used the median per capita consumption level in the initial survey to delineate the poverty line and then updated it using the consumer price index for agricultural labourers to get the poverty line for the period in which the second survey took place.

They followed a two-stage sampling design using the 2001 census list of villages as the sampling frame. During the first stage, 150 villages were randomly selected from two strata (high and low MGNREGA coverage). In the second stage, 20 households per village were randomly selected from three strata (those with one member employed in public works in the past year; those with a member who had engaged in other casual work; and other households). By asking respondents what they would have done in the absence of the programme, the authors got inputs for an unobserved state, because they got a concurrent counterfactual rather than a future state. This gave them specific data on impacts, in comparison to standard impact evaluations, which would have delivered mean impacts or conditional mean impacts at best.

Table 11: Frequency of counterfactual studies reporting economic outcomes

Economic	Impact evaluations	No. of studies
Employment	11	22
Wages, assets and welfare	7	22
Consumption	5	6
Poverty incidence	1	4
Food security	4	4
<i>Total</i>	<i>28</i>	<i>58</i>

8.2 Indirect economic effects

Nineteen counterfactual studies examined indirect economic impacts of MGNREGA (Figure 11) at super-household levels, such as at the community, state and national level. We categorised these into impacts on migration, agriculture and inflation (Table 12).

Table 12: Frequency of counterfactual studies reporting indirect economic outcomes

Economic (indirect)	Impact evaluations and simulation studies	No. of studies
Migration	2	6
Agriculture	4	12
Food price inflation	1	1
<i>Total</i>	<i>7</i>	<i>19</i>

Source: Authors.

Dutta *et al.* (2014) looked at rates of migration based on the authors' comprehensive survey taken in two rounds in Bihar. They compared responses of members who showed an interest in migration during the first round of survey with the responses inclining towards migration in the second round. There were some households that did not have any migrants due to the availability of work under MGNREGA. In the absence of MGNREGA work, some or all household members would have migrated to earn their livelihood. The study also estimated the proportion of such households. The study also covered impacts on agricultural yield, agricultural costs, climate vulnerability, technology adoption and crop choice as indirect results of MGNREGA's implementation.

Berg *et al.* (2012) reported on MGNREGA's impact on agricultural wages. The paper employed a difference-in-difference strategy and used monthly wage data from the period 2000–2011 for a panel of 249 districts across 19 Indian states (taken from the Agricultural Wages in India series). The study aimed to look at the average impact of MGNREGA on the real daily agricultural wage rates. It also analysed the time it takes for an MGNREGA intensity shock to feed into higher wages, and the wage effect with respect to sex, across states, and across different implementation stages of the

programme. The authors controlled for rainfall, district and time fixed effects, and phase-wise linear, quadratic and cubic time trends when looking at the wage effects.

Bhargava (2013) examined the theoretical short-run effects of MGNREGA on agricultural wages as well as its subsequent impact on technology adoption at the national level. The study hypothesised that a farm owner who initially relied on inexpensive unskilled labour would choose to adopt labour-saving technologies with the implementation of MGNREGA during peak agricultural production periods. Bhargava then developed a theoretical model of labour market effects that incorporated farm owner and labourer optimisation problems over the lean and peak agricultural seasons. The study used the data from the Indian Agricultural Census Input Survey 2007 and National Sample Survey and employed difference-in-difference and regression discontinuity designs to test the theoretical results empirically.

Finally, only one report, by the Commission for Agricultural Costs and Prices (Gulati and Saini 2013), looked into MGNREGA's impact on food price inflation. The report focuses on the challenge of taming food inflation in India, and using a linear regression framework shows that MGNREGA was one factor out of several pushing up farm wages, resulting in cost-push inflation.

8.3 Governance effects

Eighteen studies reported on governance impacts, comprising factors such as corruption, leakages and programme performance (Table 13). These were largely conducted in Andhra Pradesh, Karnataka and Madhya Pradesh. Five of the studies were either experimental or quasi-experimental in their methodologies, while a majority fell in the 'other' category of counterfactual studies (see Table A1 in Appendix A).

Table 13: Frequency of counterfactual studies reporting governance outcomes

Governance	Impact evaluations	No. of studies
Productivity (output changes, asset potential, expenditure)	2	10
Corruption	3	8
<i>Total</i>	<i>5</i>	<i>18</i>

Source: Authors.

Munro *et al.* (2013) conducted an RCT in Uttar Pradesh exploring changes in productivity if spouses were grouped together while performing MGNREGA tasks. The control group consisted of two men and two women, none of whom was married to another; for one man and one woman their spouses were working in a nearby site under the same conditions. The treatment group also consisted of two men and two women; however, two members of the team were spouses and the other two members were not married to one another or anyone else in the experiment. A total of 516 participants were randomly selected, out of which 258 were married couples

(129 men and 129 women) and the remaining half were unaccompanied participants. The participants were randomly assigned to the treatment or control group and given the same task. It was observed that paired couples consistently outperformed teams where spouses were separated from their partners by around 50 per cent. It is hard to generalise these results out of context, but the study sheds light on positive connections between the workplace and social relations.

Banerjee *et al.* (2015) studied the implications of deploying e-governance as a measure to remedy low administrative capacity and corruption. In collaboration with the Rural Development Department of Bihar and a team within the Ministry of Finance, the authors provided infrastructure and training to implement a Central Planning Scheme Monitoring System. This increased accountability and cut out some of the excessive levels of people through which MGNREGA's wages and financials had to pass. The system was implemented in 69 randomly selected blocks and compared with 126 control blocks from 12 districts in Bihar. The seven-month RCT intervention looked at changes in programme expenditure, administrative capacity, assets of officials, employment generated, stagnant funds, access to funds and leakages.

9. Conclusion

We conducted systematic searches and appraisal of all obtainable evidence on the effectiveness of MGNREGA. We used a ToC approach to categorise this evidence. The results presented in this paper are current up to January 2015.

We included 263 studies, of which 206 were non-experimental studies on the implementation process and 57 presented counterfactual evidence of varying quality. Most evidence on MGNREGA is from a few states (Andhra Pradesh, Madhya Pradesh, Rajasthan, Bihar and Karnataka) and covers the implementation process.

The most frequently occurring outcomes on the implementation process fell within our categories of access and asset creation. Beneficiary participation and availability of jobs were common measures of MGNREGA's effectiveness for these studies. Few studies quantitatively look at unemployment allowance within the programme, but interviews indicated low awareness and poor implementation of unemployment allowance for MGNREGA participants.

In contrast, there is a critical paucity of impact evaluative evidence, in particular RCTs and credible quasi-experiments. This is despite the availability of data and methods that are highly relevant for evaluating the impact of MGNREGA. There are large evidence gaps when looking at governance categories (productivity and corruption), poverty alleviation and indirect economic effects (e.g. on migration, agriculture and food price inflation). MGNREGA has faced severe criticism for its potential to divert labour from agriculture and affect local production costs (Kareemulla *et al.* 2010), so evidence on indirect economic effects of the scheme would help to understand these concerns. As it is, most of the counterfactual evidence looks at direct economic effects such as employment generation and changes to wages, assets and welfare.

Gujarat and Odisha have abundant evidence covering implementation processes; other states, including Andhra Pradesh, Madhya Pradesh, Rajasthan and Karnataka, have ample evidence spanning most of the categories along the ToC, backed by factual and counterfactual studies. North-eastern states such as Nagaland, Mizoram, Tripura, Meghalaya and Arunachal Pradesh, which stand to benefit greatly from such a safety net programme, have seen little to no research on the status of MGNREGA.

The evidence base strongly suggests the need for a strategic reorientation of research and evaluation funding towards conducting more rigorous theory-based impact evaluations. These could provide evidence on how effective MGNREGA is in improving beneficiaries' and communities' lives, in particular contexts and for particular groups of beneficiaries, and whether and how to adapt the programme to improve these impacts.

There is also clear scope for undertaking rigorous synthesis of the available evidence on MGNREGA (e.g. systematic reviews, meta-analysis, meta-ethnography). While systematic reviews are frequently undertaken to assess the effectiveness of particular types of interventions (e.g. workfare), it is also possible, and useful, to conduct a systematic review of a particular programme. This would build on the study by Mann and Pande (2012) and use systematic review methods of appraisal and evidence synthesis, drawing out findings for policy and implementation. Our coding sheets and database are available on request for researchers wishing to undertake such an exercise.

Appendix A: Methodology

Systematic searches were conducted for empirical literature on MGNREGA implementation and results. Searches covered published and grey literature from academic and non-academic databases. Electronic databases included Econlit, CAB Abstracts, Web of Science, Academic Search Complete/SocIndex, Scopus and Proquest. We also manually searched IDEAS/RePEc, the online document repositories on nrega.nic.in, and the reference list of the MGNREGA-SAMEEKSHA report (Mann and Pande 2012). Electronic search strategies and search dates are provided below. We used Endnote software to manage references. Titles were screened for relevance by two authors. Full text papers were double-screened for inclusion, with arbitration of disagreements by a third person. Clear criteria for study inclusion were determined (Table 4). The study search flow is presented in Figure 5.

Systematic coding of study information from eligible studies was based on a coding tool developed during the design phase (Table A1). We collected data on study design, study population and location; data on the implementation process; and data on outcomes along the causal chain and sample, as relevant. We based quality assessment studies solely on study design and coded data using Microsoft Excel.

Electronic searches

Econlit (Ovid) – Searched 7 July 2014

1. (nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee').ti,ab.
2. (((job or jobs or employ* or work or labour or labour) adj3 (guarantee* or fare)) or workfare or 'employment creation' or 'public works').ti,ab.
3. (J68 or J23 or K31).cc.
4. ('National Rural Employment Programme' or NREP or 'Rural Landless Employment Guarantee Programme' or RLEGP or 'Jawahar Rojgar Yojana' or JRY or 'Employment Assurance Scheme' or EAS or 'Jawahar Gram Samridhi Yojana' or JGSY or 'National Food for Work Programme' or NFFWP or 'Sampoorna Grameen Rozgar Yojana' or SGRY or 'Rural Manpower Programme' or RMP or 'Crash Scheme for Rural employment' or CRSE or 'Rural work Programme' or RWP or 'Small Farmers Development Agency' or SFDA or ('Marginal Farmers' and 'Agricultural Labour Scheme') or MF&A or 'Food for Work Programme' or FWP or 'National Food for Work' or NFFWP or 'Maharashtra Employment Guarantee').ti,ab.
5. (India* or Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi or Puducherry).ti,ab,ct.

6. 2 or 3 or 4

7. 5 and 6

8. 7 not 1

CAB Abstracts (Ovid) – Searched 7 July 2014

1. (nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee').ti,ab.

2. (((job or jobs or employ* or work or labor or labour) adj3 (guarantee* or fare)) or workfare or 'employment creation' or 'public works').ti,ab.

3. ('National Rural Employment Programme' or NREP or 'Rural Landless Employment Guarantee Programme' or RLEGP or 'Jawahar Rojgar Yojana' or JRY or 'Employment Assurance Scheme' or EAS or 'Jawahar Gram Samridhi Yojana' or JGSY or 'National Food for Work Programme' or NFFWP or 'Sampoorna Grameen Rozgar Yojana' or SGRY or 'Rural Manpower Programme' or RMP or 'Crash Scheme for Rural employment' or CRSE or 'Rural work Programme' or RWP or 'Small Farmers Development Agency' or SFDA or ('Marginal Farmers' and 'Agricultural Labour Scheme') or MF&A or 'Food for Work Programme' or FWP or 'National Food for Work' or NFFWP or 'Maharashtra Employment Guarantee').ti,ab.

4. (India* or Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi or Puducherry).ti,ab,gl.

5. 2 or 3

6. 4 and 5

7. 6 not 1

Web of Science – Searched 7 July 2014

#6 #5 AND #4

#5 TS = ('National Rural Employment Programme' or 'Rural Landless Employment Guarantee Programme' or 'Jawahar Rojgar Yojana' or 'Employment Assurance Scheme' or 'Jawahar Gram Samridhi Yojana' or 'National Food for Work Programme' or 'Sampoorna Grameen Rozgar Yojana' or 'Rural Manpower Programme' or 'Crash Scheme for Rural employment' or 'Rural work Programme' or 'Small Farmers Development Agency' or ('Marginal Farmers' and 'Agricultural Labour Scheme') or 'Food for Work Programme' or 'National Food for Work' or 'Maharashtra Employment Guarantee')

#4 TS = (India* or Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi or Puducherry) OR CU = India OR PS = (Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi or Puducherry)

#3 TS = ('National Rural Employment Programme' or NREP or 'Rural Landless Employment Guarantee Programme' or RLEGP or 'Jawahar Rojgar Yojana' or JRY or 'Employment Assurance Scheme' or EAS or 'Jawahar Gram Samridhi Yojana JGSY' or 'National Food for Work Programme' or NFFWP or 'Sampoorna Grameen Rozgar Yojana' or SGRY or 'Rural Manpower Programme' or RMP or 'Crash Scheme for Rural employment' or CRSE or 'Rural work Programme' or RWP or 'Small Farmers Development Agency' or SFDA or ('Marginal Farmers' and 'Agricultural Labour Scheme') or MF&A or 'Food for Work Programme' or FWP or 'National Food for Work' or NFFWP or 'Maharashtra Employment Guarantee')

#2 TS = (((job or jobs or employ* or work or labor or labour) NEAR/3 (guarantee* or fare)) or workfare or 'employment creation' or 'public works')

#1 TS = (nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee')

Academic Search Complete/SocIndex (Ebsco) – Searched 7th July 2014

7 (S4 AND S5) NOT S1

Database - Academic Search Complete;SocINDEX with Full Text 205

S6 S4 AND S5

Database - Academic Search Complete;SocINDEX with Full Text 250

S5 S2 OR S3

Database - Academic Search Complete;SocINDEX with Full Text 8,291

S4 TI ((India* or Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi

or Puducherry)) OR AB ((India* or Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi or Puducherry)) OR SU ((India* or Pradesh or Assam or Bihar or Chhattisgarh or Goa or Gujrat or Gujarat or Haryana or Jammu or Kashmir or Jharkhand or Karnataka or Kerala or Maharashtra or Manipur or Meghalaya or Mizoram or Nagaland or Odisha or Orissa or Punjab or Rajasthan or Sikkim or 'Tamil Nadu' or Telangana or Tripura or Uttarakhand or 'West Bengal' or 'Andaman Islands' or 'Nicobar Islands' or Chandigarh or Dadra or 'Nagar Haveli' or 'Daman and Diu' or Lakshadweep or Delhi or Puducherry))

Database - Academic Search Complete;SocINDEX with Full Text 299,129

S3 TI (('National Rural Employment Programme' or 'Rural Landless Employment Guarantee Programme' or 'Jawahar Rojgar Yojana' or 'Employment Assurance Scheme' or 'Jawahar Gram Samridhi Yojana' or 'National Food for Work Programme' or 'Sampoorna Grameen Rozgar Yojana' or 'Rural Manpower Programme' or 'Crash Scheme for Rural employment' or 'Rural work Programme' or 'Small Farmers Development Agency' or ('Marginal Farmers' and 'Agricultural Labour Scheme') or 'Food for Work Programme' or 'National Food for Work' or 'Maharashtra Employment Guarantee')) OR AB (('National Rural Employment Programme' or 'Rural Landless Employment Guarantee Programme' or 'Jawahar Rojgar Yojana' or 'Employment Assurance Scheme' or 'Jawahar Gram Samridhi Yojana' or 'National Food for Work Programme' or 'Sampoorna Grameen Rozgar Yojana' or 'Rural Manpower Programme' or 'Crash Scheme for Rural employment' or 'Rural work Programme' or 'Small Farmers Development Agency' or ('Marginal Farmers' and 'Agricultural Labour Scheme') or 'Food for Work Programme' or 'National Food for Work' or 'Maharashtra Employment Guarantee')) OR SU (('National Rural Employment Programme' or 'Rural Landless Employment Guarantee Programme' or 'Jawahar Rojgar Yojana' or 'Employment Assurance Scheme' or 'Jawahar Gram Samridhi Yojana' or 'National Food for Work Programme' or 'Sampoorna Grameen Rozgar Yojana' or 'Rural Manpower Programme' or 'Crash Scheme for Rural employment' or 'Rural work Programme' or 'Small Farmers Development Agency' or ('Marginal Farmers' and 'Agricultural Labour Scheme') or 'Food for Work Programme' or 'National Food for Work' or 'Maharashtra Employment Guarantee'))

Database - Academic Search Complete;SocINDEX with Full Text 21

S2 TI ((((job or jobs or employ* or work or labor or labour) N3 (guarantee* or fare)) or workfare or 'employment creation' or 'public works')) OR AB ((((job or jobs or employ* or work or labor or labour) N3 (guarantee* or fare)) or workfare or 'employment creation' or 'public works')) OR SU ((((job or jobs or employ* or work or labor or labour) N3 (guarantee* or fare)) or workfare or 'employment creation' or 'public works'))

Database - Academic Search Complete;SocINDEX with Full Text 8,273

S1 TI ((nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee')) OR AB ((nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee')) OR SU ((nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee'))

Database - Academic Search Complete;SocINDEX with Full Text 56

Scopus – Searched 7 July 2014

1.TITLE-ABS-KEY((nrega OR mgnrega OR nregs OR mgnregs OR 'national rural employment guarantee'))

Proquest Social Sciences Premium Collection – Searched 7th July 2014

(Applied Social Sciences Index and Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), Linguistics and Language Behavior Abstracts (LLBA), PAIS International, PILOTS: Published International Literature On Traumatic Stress, ProQuest Criminal Justice, ProQuest Education Journals, ProQuest Political Science, ProQuest Social Science Journals, ProQuest Sociology, Social Services Abstracts, Sociological Abstracts, Worldwide Political Science Abstracts)

ti((nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee'))
OR ab((nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee')) OR su((nrega or mgnrega or nregs or mgnregs or 'national rural employment guarantee'))

Table A1: Data collection codes

	No.	ID	Question	Description
1. Publication details	1.1	ID	Unique study identifier	Surname of first author followed by year identifier, e.g. Chahar <i>et al.</i> 2006
	1.2	AUTHORS	Full list of author surnames	e.g. Chahar, Lala, Kaushish, Waddington
	1.3	DATE	Publication date	Year (NS = Not specified)
	1.4	TITLE	Full title and publication information	E.g. 'Impact of MGNREGA on wages', Journal of Public Works 5 (10), 344-433.
	1.5	PUB_TYPE	Publication type	1 = Journal article 2 = Book chapter 3 = Working paper, unpublished manuscript or evaluation report
	1.6	FUNDER	Who is funding the research?	1 = Government of India (e.g. Ministry of Rural Development) 2 = An independent agency (e.g. IEO, World Bank, DFID, 3ie, philanthropic foundation) 3 = Other non-governmental organisation, university NS = Not specified
2. Intervention details	2.1	LOCATION	State or nationwide study	Note state(s) in which evidence is collected. If evidence is presented at national level, indicate 'national'
	2.2	INTERVENTION	Components of MGNREGA being evaluated, listing multiple codes as relevant (e.g. 1 and 2)	1 = Government-supply side (e.g. NREGS works creation, payment schemes) 2 = Participant-demand side (e.g. beneficiary targeting and beneficiary versus non-beneficiary outcomes) 3 = All programme or other aspect(s) (state what these are in comments)

3. Study design	3.1	COUNTERFACTUAL_EVALUATION	Categorise the type of counterfactual evidence collected (if relevant)	<p>1.1 = Experimental impact evaluation using randomised assignment to allocate groups or individuals to a treatment and a control (randomised controlled trial, RCT)</p> <p>1.2 = Impact evaluation using quasi-experimental methods to compare a treatment and control group (e.g. difference-in-differences, propensity score matching, instrumental variables regression analysis, interrupted time series)</p> <p>1.3 = Before vs. after study measuring outcomes before and after MGNREGA implementation without a control group</p> <p>1.4 = Simulation (statistical modelling) study based on MGNREGA data or beneficiaries (e.g. computable general equilibrium or stochastic frontier analysis)</p> <p>1.5 = Other including cross-section regression (specify)</p> <p>NA = Not applicable</p>
	3.2	FACTUAL_EVALUATION Note: factual means non-experimental	Categorise the type of non-experimental evidence collected (if relevant)	<p>2.1 = Process evaluation (collecting data on design and implementation e.g. quality of assets creation)</p> <p>2.2 = Audit report (financial or performance (VfM) audit)</p> <p>2.3 = Correlational study examining factors associated with MGNREGA (e.g. participation regression analysis)</p> <p>2.4 = Other qualitative or mixed-methods empirical research (e.g. ethnographic study collecting data on beneficiary views and experiences)</p> <p>2.5 = Other (specify)</p> <p>NA = Not applicable</p>
	3.3	SAMPLE_SIZE	Data on number of study participants and clusters	<p>Total sample size and, for clustered studies, effective sample size (i.e. number of clusters, villages, districts)</p> <p>NS = Not stated</p>

	3.4	DATA_SOURCE	Data source and sampling information	Information on source of data or data set and year (e.g. NSS 2010/11, MGNREGA MIS), plus any reported information on sampling strategy (e.g. random sample, purposive sample). NS=Not stated
4. Implementation process	4.1	PROCESS_ACCESS	If data related to participant access to MGNREGA are reported, note which aspects here, or code 'NA'. Do not report findings of analysis.	1 = Awareness 2 = Targeting 3 = Job cards 4 = Availability 5 = Beneficiary participation 6 = Distance from work-site 7 = Work facilities NA = Not applicable
	4.2	PROCESS_WAGES	If any data are reported on the wage payment process, note which aspects here, or code 'NA'. Do not report findings of analysis.	1 = Average wage rate 2 = Full payment 3 = Mode of payment 4 = Time of payment 5 = Unemployment allowance NA = Not applicable
	4.3	PROCESS_ASSET_CREATION	If empirical data are presented on sustainable asset creation (quantity and/or quality of assets), note in which areas. Use multiple codes if applicable. Do not report findings of analysis.	1 = Water security or management (e.g. drought proofing, flood management, rain-water harvesting, irrigation) 2 = Soil conservation and land productivity (e.g. tree planting, land levelling) 3 = Rural connectivity (e.g. roads) 4 = Works on specified lands (e.g. private assets) 5 = Other (specify under comments) NA = Not applicable

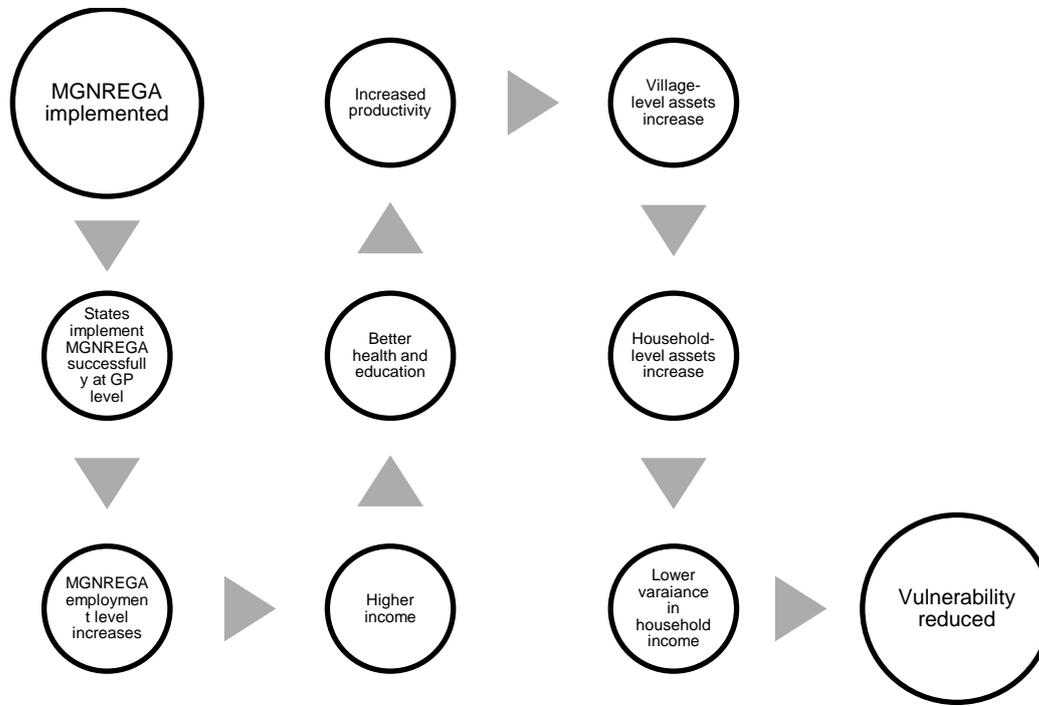
4.4	PROCESS_PERFORMANCE	If data are reported on implementation performance, note which aspects here, or code 'NA'. Do not report findings of analysis.	1 = Planning and execution 2 = Staff 3 = Financial 4 = Record maintenance 5 = Innovation NA = Not applicable
4.5	PROCESS_GVERNANCE	If any data are reported on MGNREGA governance, note which aspects here, or code 'NA'. Do not report findings of analysis.	= GP, GS or Panchayat involvement 2 = Social audit 3 = Corruption 4 = Complaints and issues 5 = Convergence NA = Not applicable
4.6	PROCESS_OTHER	If any data are reported on beneficiary views regarding MGNREGA's effects, note these here (e.g. perceived livelihood changes, savings, private assets, job satisfaction)	Open answer.

5. Final outcomes	5.1	ECONOMIC_BENEFICIARIES	Economic outcomes for beneficiary households (only applicable for counterfactual evaluations)	Note all economic outcomes evaluated for beneficiary individuals or households, positive and negative, intended and unintended (e.g. employment, wage income, consumption, vulnerability), or code 'NA'.
	5.2	ECONOMIC_INDIRECT	Spill-over effects for non-beneficiary households or broader effects on the economy (only applicable for counterfactual evaluations)	Note any indirect economic effects for non-beneficiaries or the wider the economy, positive and negative, intended and unintended (e.g. inflation, migration, agricultural wages), or code 'NA'.

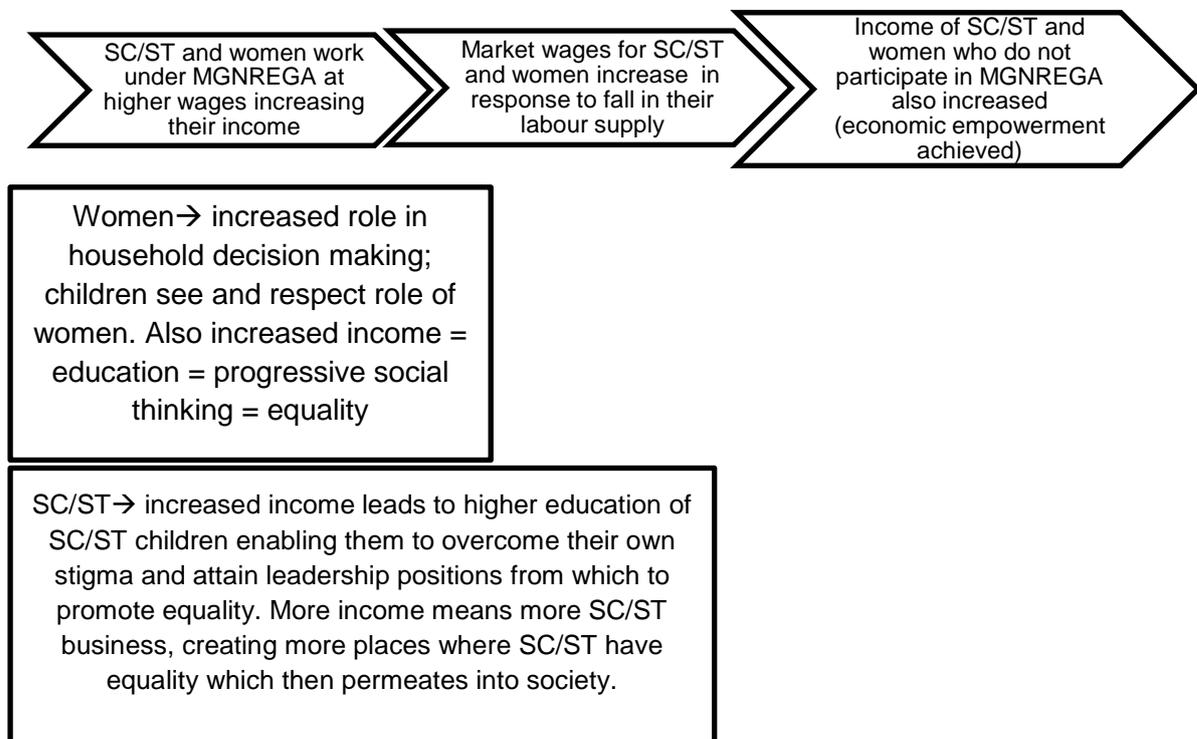
5.3	EMPOWERMENT	Empowerment outcomes beneficiary households (only applicable for counterfactual evaluations)	Note all empowerment outcomes evaluated for beneficiary individuals and households, positive and negative, intended and unintended (e.g. decision making, control over household spending, child labour, education outcomes, dignity, women's burden of work, stigma), or code 'NA'.
5.4	GOVERNANCE	Governance outcomes (only applicable for counterfactual evaluations)	Note all governance outcomes evaluated, positive and negative, intended and unintended (e.g. leakages, misappropriation of funds), or code 'NA'.
5.5	SUB_GROUPS	Sub-population analysis (only applicable for counterfactual evaluations)	For which sub-population(s) did the study disaggregate information and report outcomes? (e.g. men vs women, old vs young, scheduled caste vs scheduled tribe vs other needy group, rich vs poor district), or code 'NA'.
5.6	COST_BENEFIT	CBA, CEA, CUA	Note cost-effectiveness, cost-benefit or cost-utility (e.g. QALY) analysis, or code 'NA'. Do not report findings.

Appendix B: Theories of change developed during inception workshop

Livelihoods



Empowerment



SC/ST = Scheduled castes/Scheduled tribes

Appendix C: Work eligible under MGNREGA

- (i) Water conservation and water harvesting;
- (ii) Drought-proofing (including afforestation and tree plantation);
- (iii) Irrigation canals including micro and minor irrigation works;
- (iv) Provision of irrigation facilities, horticulture plantation and land development facilities to land owned by households that belong to scheduled castes and scheduled tribes, families below the poverty line, beneficiaries of land reforms or to beneficiaries under the land reforms, beneficiaries under the Indira Awas Yojana housing scheme of the government of India, small farmers or marginal farmers defined under the Agriculture Debt Waiver and Debt Relief Scheme, 2008 (work benefits were extended to this community in July 2009);
- (v) Renovation of traditional water bodies, including desilting of tanks;
- (vi) Land development;
- (vii) Flood control and protection work, including drainage in water-logged areas;
- (viii) Rural connectivity to provide all-weather access. Construction of roads may include culverts where necessary and within the village area may be taken up along drains (it does not, however, include the Prime Minister Gram Sadak Yojana network under MGNREGA). No cement concrete work or related work is taken up under MGNREGA. Priority is given to roads that give access to scheduled castes or scheduled tribes; and
- (ix) Any other work as notified by the central government in consultation with the state government.
Construction of Bharat Nirman, Rajiv Gandhi Sewa Kendra as Village Knowledge Resource Centres and Gram Panchayat Bhawans at *gram panchayat* level are also included as permissible activities in paragraph 1 of schedule 1 of the act as of 11 November 2009.

Appendix D: MGNREGA evidence heat map

To see the MGNREGA evidence heat table displayed as an interactive heat map of India, please [click here](#).

Appendix E: Included counterfactual studies

	Experimental impact evaluation	Impact evaluation using quasi-experimental methods	Before vs. after study	Simulation (statistical modelling) study	Other
Nationwide		Datta <i>et al.</i> 2009 Berg <i>et al.</i> 2012 Das 2013 Klonner and Oldiges 2012 Zimmerman 2012 Papp 2010 Bhargava 2013 Azam 2012 Ravi and Engler 2013 Khanna and Zimmermann 2014	Alha and Bijoyata 2011 Afridi <i>et al.</i> 2012 Himanshu 2010	Imbert and Papp 2011	Goyal and Baikar 2014 Papp 2010 Gulati and Saini 2013
Gujarat					Hirway, Saluja & Yadav 2010 Imbert and Papp 2014
Andhra Pradesh	Muralidharan, Niehaus & Sukhtankar 2014	Uppal 2009 Singh and Vutukuru 2009 Afridi, Iversen & Sharan 2013 Johnson 2010 Deiningger and Liu 2013 Ravi and Engler 2013 Varshney, Goel & Meenakshi 2014 Sheahan <i>et al.</i> 2014	Aiyar and Salimah 2009 Esteves <i>et al.</i> 2013 IIS 2013		Jha, Bhattacharyya & Gaiha 2011 Galab and Revathi 2012 Gehrke 2013 Johnson 2009 Jha, Gaiha & Pandey 2011

Karnataka		Singh and Vutukuru, 2009	Esteves <i>et al.</i> 2013 Illuru and Kondeti 2014 IIS 2013		Channaveer <i>et al.</i> 2011 Vanitha and Murthy 2011 Afridi, Iversen & Sharan 2013
Madhya Pradesh		Singh and Vutukuru, 2009 Varshney, Goel & Meenakshi 2014	Esteves <i>et al.</i> 2013 IIS 2013		Imbert and Papp 2014
Rajasthan		Jha, Gaiha & Pandey 2011 Jha <i>et al.</i> 2013 Varshney, Goel & Meenakshi 2014	Esteves <i>et al.</i> 2013 IIS 2013		Nair <i>et al.</i> 2013 Jha, Bhattacharyya & Gaiha 2011 Gupta and Mukhopadhyay 2014 Imbert and Papp 2014 Jha, Gaiha & Pandey 2011
Tripura			Sharma <i>et al.</i> 2011		
Meghalaya			AMC research group 2010		
Himachal Pradesh					
Haryana					
Bihar	Banerjee <i>et al.</i> 2015			Dutta <i>et al.</i> 2014	Dutta <i>et al.</i> 2014
Assam					
Jammu and Kashmir			Ahangar 2014		
Kerala			Kumar and Helaney 2013		

Maharashtra					Jha, Gaiha & Pandey 2011 Jha, Bhattacharyya & Gaiha 2011
Manipur					
Odisha			Banerjee and Saha 2010		Nayak 2012
Punjab					
Tamil Nadu					
Uttar Pradesh	Munro, Verschoor & Dubey 2013				
West Bengal				Jana 2014	
Chhattisgarh			Banerjee and Saha 2010		
Jharkhand			Banerjee and Saha 2010		
Uttarakhand			Kumar and Bourai 2012		

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