Economic Impact of Social Protection Programmes in India: An Illustrative Exercise in the SAM Framework

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Abstract

Social protection consists of government policies and programmes designed to reduce poverty and vulnerability by promoting efficient labour markets, diminishing people's exposure to risks, and enhancing people's capacity to manage economic and social risks. Recently, many governments have put social protection programmes on their agenda. The fiscal implications of social protection measures are widely discussed, but not the economic impacts in terms of output, employment, income, and revenue effects. This study attempts to evaluate the economic impact of a few major social protection programmes in India. Using the Social Accounting Matrix (SAM) framework, this study computes the output, employment, income, and revenue impacts of government expenditure on three social security measures— the Mahatma Gandhi National Rural Employment Guarantee Act, the Indira Awas Yojana, and the National Social Assistance Programmes—in 2011-12. The study has constructed a 32-sector SAM for India for the year 2007-08. The household categories are based on expenditure classes. The exercise shows that these programmes have a significant impact on output across different sectors of the economy, on incomes of different household classes in urban and rural areas, employment across different sectors of the economy, and even on revenue generation to the government.

I. INTRODUCTION

Social protection consists of government policies and programmes designed to reduce poverty and vulnerability by promoting efficient labour markets, diminishing people's exposure to risks, and enhancing their capacity to manage economic and social risks, such as unemployment, exclusion, sickness, disability, and old age. In recent years, social protection programmes have found a place in the agenda of many governments. Many studies show that measures such as cash transfer programmes and rural employment guarantee schemes have a positive impact on reducing poverty and improving the living standards of people. There are many methods for assessing the impact of social protection programmes, but few consider the more important macroeconomic effects, and therefore have limited significance for policy analysis. Hence, the best alternative may be to conduct an impact analysis through the Social Accounting Matrix (SAM) multiplier.

A SAM framework is a matrix representation of the circular flow of income in an economy.[1] It is a single entry accounting system that represents all transactions and transfers between different sectors of production, factors of production, and institutions of the economy in a single-matrix format. To the best of our knowledge, no study has analysed the impact of these programmes through the SAM multiplier, especially in the Indian context. It is this fact that has motivated us to undertake this study.

This study aims to analyse the impact of various social protection programmes in India through a SAM multiplier analysis. The main data sources are an input-output (I-O) table for 2007-08, the 66th Round Consumer Expenditure Survey by the National Sample Survey Office (NSSO), the Income-Expenditure Survey by the National Council for Applied Economic Research (NCAER) for 2004-05, and the National Accounting Statistics (NAS) by the Central Statistical Office (CSO). The expenditure incurred by the government on social protection programmes during the year 2011-12 has been considered for the study.

II. SOCIAL PROTECTION: THE CONCEPT

Social protectio[2] ni is an approach that focuses on reducing risks and vulnerabilities in a society. The poor face multidimensional and numerous risks, and despite their best efforts to reduce these risks, the resultant constraints make them vulnerable. The origin of the social protection approach may be traced in the concept of the "welfare state", which can be defined as "one wherein the state plays a significant role in the protection and promotion of the economic and social well-being of its citizens". The failure of the market to take care of the poor and weaker sections of society also makes it imperative for the government to intervene and initiate various welfare measures and social protection policies. Moreover, this intervention may also come from informal networks and public, private, and voluntary organisations to prevent, manage, and assist the poor in overcoming risks and vulnerabilities.

The organisations involved in providing social protection have their own definition and areas of emphasis. The United Nations Research Institute for Social Development (2010)

has defined social protection as a combination of measures concerned with preventing, managing, and overcoming situations that adversely affect people's well-being. It entails the implementation of policies and programmes designed to reduce poverty and vulnerability by promoting efficient labour markets, diminishing people's exposure to risks, and enhancing their capacity to manage economic and social risks such as unemployment, exclusion, sickness, disability, and old age.

Social protection may be provided in many forms, such as labour market interventions, social insurance, and social assistance. The prevalence of inequality and poverty in a society affects its social and political stability which, in turn, impacts economic growth. Therefore, social protection contributes both directly as well as indirectly towards the well-being of society as a whole.

III. SOCIAL PROTECTION MEASURES IN INDIA

Social protection measures are not new to India and have been implemented in different forms since the advent of the concept in ancient times. However, India had started providing social protection through legislation since the third decade of the twentieth century (ILO, 2014). During the last few decades, the central and state governments have put in place a number of social protection and welfare schemes for fulfilling various objectives. The major social protection programmes initiated by the Government of India are detailed in Table 1.

Table 1: **Major Social Protection Programmes in India**

S. No.	Name of the Programme	Objective
1.	Sarva Shiksha Abhiyan (SSA)	Supporting universal enrolment and retention of children in elementary schooling and the provision of quality education
2.	Integrated Child Development Scheme (ICDS)	Effecting improvement in the nutritional and health status of children aged 0-6 years through a package of services providing nutritional and health support to children, and pregnant and lactating mothers
3.	Mid-Day Meals	Conduction of a national programme of mid-day meals in schools
4.	National Rural Health Mission (NRHM) (now National Health Mission)	Provision of accessible, affordable and account-able health services, in coordination with the states, through a decentralised and convergent approach

S. No.	Name of the Programme	Objective
5.	Rashtriya Swasthya Bima Yojana (RSBY)	Offering protection to poor families from major health shocks that involve hospitalisation, through insurance, for which beneficiaries only pay a nominal registration fee
6.	Total Sanitation Campaign (TSC)	Acceleration of sanitation coverage in rural areas and development of community-managed environmental sanitation systems
7.	National Rural Drinking Water Programme (NRDWP)	Identification of provide solutions for safe drinking water to all rural households
8.	Targeted Public Distribution System (TPDS)	Stabilisation of food prices and provision of subsidised foodgrains to poor households
9.	Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)	Provision of up to 100 days of employment in public works to rural households demanding manual employment, and the consequent creation of public assets
10.	National Rural Livelihood Mission (Ajeevika) (from June 2011) (reformed Swarna Jayanti Gram Swarozgar Yojana or SGSY)	Reduction of poverty by enabling poor households to access gainful self-employment and skilled wage employment through strong grassroots institutions [such as self-managed Self-help Groups (SHGs) and federated institutions]
11.	Swarna Jayanti Shahri Rozgar Yojana (SJS-RY)/National Urban Livelihood Mission (NULM)	Creation of employment through specified public work activity and through assistance to women's self-help groups and individual female and male micro- entrepreneurs
12	Prime Minister's Employment Guarantee Programme (PMEGP)	Generation of employment through assistance in the form of margin money subsidy in setting up of micro enterprises
13.	National Old Age Pension Scheme (NOAPS)	Provision of pensions
14.	Indira Gandhi National Widows' Pension Scheme (IGNWPS)	Provision of pensions

S. No.	Name of the Programme	Objective
15.	Indira Gandhi National Disability Pension Scheme (IGNDPS)	Provision of pensions
16.	Indira Awas Yojana (IAY)	Construction of dwelling units and upgradation of existing unserviceable kutcha houses by providing grant-in-aid
17.	BSUP/IHSDP Rajiv Awas Yojana (RAY)	Urban Housing/Basic Services/Slum Upgradation
18.	Aam Aadmi Bima Yojana (AABY)	Life, accident and disability insurance cover to the main bread-winner

Source: Srivastava (2013)

IV. RATIONALE FOR THE STUDY

Social protection programmes run by the government or any other agency have particular objectives. Performance assessments show the achievement of their goals. In general, many studies have adopted econometric tools to assess the impact of social protection programmes (for example, Galasso and Ravallion, 2004; Scheil-Adlung, et al., 2006). However, this may be a limited assessment because the economy consists of many interdependent and interconnected production sectors, households, and institutions. Any exogenous change in any part of the economy has a direct impact on specific production sectors, households, or institutions as well as an indirect impact on the other interdependent and interconnected production sectors, households, and institutions. Therefore, the final impact is many times larger than generally understood. Since most of the studies do not take into account the entire economy, they have a limited significance for policy analysis. Therefore, an impact analysis through the SAM multiplier may be a more appropriate alternative.

V. OBJECTIVES

The main objective of this study is to analyse the impact of social protection programmes in India through the SAM multiplier analysis. Given the limitations of data availability, three social protection programmes—Mahatma Gandhi National Rural Employment Guarantee Act(MGNREGA), Indira Awas Yojana(IAY), and the National Social Assistance Programmes(NSAP)—have been selected for the study. The economic impacts have been measured in terms of output, income, employment, and revenue effects. Therefore, this study seeks to answer the following questions:

- What are the economic impacts of select social protection programmes "taken together"?
- What are the economic impacts of MGNREGA?
- What are the economic impacts of IAY?
- What are the economic impacts of NSAP?
- What are the policy recommendations, given the findings?

VI. METHODOLOGY

6.1 SAM for India

The construction of a SAM for India was initiated in the early 1980s. As per our knowledge, Sarkar and Subbarao (1981) constructed the first SAM for India. Since then, a number of researchers have constructed a SAM for India. The latest available SAM for India is for the year 2007-08, which was constructed by Pradhan, et al. (2013). It consists of seventy-eight production sectors, five factors of production, nine categories of households, private corporations, public enterprises, government, indirect taxes, capital account, and the rest of the world. The nine categories of households—five for rural areas and four for urban areas—are based on the occupation as defined in the 66th Round consumer expenditure survey by the NSSO. The five factors of production include unskilled labourers, semi-skilled labourers, skilled labourers, capital, and land. Capital account comprises gross fixed capital formation and change in stocks.

The present study aims to analyse the impact of social protection programmes on poor people as well as on different sectors of the economy. For this purpose, households must be categorised by expenditure. The SAM for India for 2007-08 categorises households by occupation and is therefore of limited use for our purpose. Keeping these limitations in view, we have constructed a 32-sector SAM for India for 2007-08, which explicitly incorporates household categories based on expenditure levels. In addition, the category of milk and milk products has been taken as a separate sector because it has acquired a significant place in the consumption basket.

6.2 Sector Classification

For the construction of SAM, the production economy has been divided into 32 sectors (Table 1), keeping in mind the following considerations. It is expected that with an increase in the income of the lower class, following the implementation of social security schemes, there would be some shift in expenditure from cereals to fruits and vegetables. Also, the households of these classes are expected to increase the share of their expenditure on milk and milk products. For manufacturing industries, we have taken 14 sectors. Electronic equipment is a separate sector. It is expected that with an increase in income, people would spend some money on the purchase of consumer goods like television sets, etc. Among

services, healthcare and education—as also financial services—have been considered separate sectors, as an increase in expenditure is expected in these sectors because of the importance of these sectors in the social life of people.

6.3 Construction of a 32-Sector SAM for India for 2007-08[3]

The Central Statistical Organisation (CSO) has constructed an I-O table for the year 2007-08 for 130 sectors. The C X C matrix for 130 sectors has been aggregated into a matrix of 32 sectors. Also, vectors of private final consumption expenditure (PFCE), government final consumption expenditure (GFCE), gross fixed capital formation (GFCF), exports, imports, change in inventories, and gross value added (GVA) have been obtained by aggregating the values based on the 130-sector I-O table for 2007-08. The method used for extending the I-O table to SAM has been given in the following sections.

The production account has been disaggregated into 32 sectors (Table 2). The factors account has been classified into labour and capital. Institutions have been classified into households, private corporations, and government sectors. An attempt has been made to divide households into ten categories based on the quintile of monthly per capita expenditure (MPCE) for both rural as well as urban areas. The 66th Round data on household consumption expenditure for the year 2009-10 by the National Sample Survey Organisation (NSSO) has been used for dividing the households into these categories.

Table 2: List of 32 Sectors in the SAM

S. No.	Sectors	S. No.	Sectors
1.	Cereals	17.	Plastic Products
2.	Pulses	18.	Petroleum and coal-tar products
3.	Fruits and vegetables	19.	Chemicals and fertilisers
4.	Other crops	20.	Non-metallic mineral products, metals, and metal products
5.	Milk and milk products	21.	Non-electric Equipment
6.	Other animal husbandry	22.	Electronic equipment
7.	Forestry and logging	23.	Other manufacturing products
8.	Fisheries	24.	Construction
9.	Mining	25.	Electricity
10.	Food products	26.	Water supply
11.	Beverages	27.	Trade
12.	Tobacco products	28.	Hotels and restaurants
13.	Textiles and textile Products	29.	Financial services

S. No.	Sectors	S. No.	Sectors
14.	Furniture and wood Products	30.	Educational services
15.	Paper and paper products	31.	Medical services
16.	Leather and rubber Products	32.	Other services

6.4 Division of Gross Value Added (GVA) into Wage and Non-wage Income

i. Agriculture, Allied Activities, and Mining

The National Account Statistics NAS divides the net value added (NVA) into compensation to employees (CE) and operating surplus/mixed income separately for the organised and unorganised components of agriculture and animal husbandry. From 1980-81 to 1989-90, the NAS divided mixed income into the income of family labour and operating surplus (CSO, 1994). By using the proportions of 1989-90, the mixed income has been divided into wage and non-wage incomes. Wage income due to family labour has been added to the actual wage income from the organised and unorganised components to obtain the total income due to labour. The remainder of the net domestic product is the operating surplus.

The same proportions have been used for the six sectors under agriculture and agriculture allied. The NVAs for these sectors have been obtained from the corresponding GVAs by using the depreciation-to-GVA ratio for the agriculture and agriculture allied sector, as available from the NAS, 2011. For the forestry, fishing, and mining sectors, the mixed income in the unorganised part has been divided into wage income and operating surplus by using the same ratio as in agriculture. The total value added in each of these sectors is divided into its components by applying the same method used for agriculture. For mining, the NVA from the unorganised part is only about 7 per cent.

ii. Manufacturing Industries

Manufacturing industries consist of organised and unorganised enterprises. These have been grouped into 14 sectors. Each sector represents both types of industries. The ratio of wages and non-wages income for the organised manufacturing industries has been taken from the Annual Survey of Industries (ASI), 2007–08. The wage income includes wages and other benefits from firms to employees. The ratio of wage and non-wage income for unorganised manufacturing industries has been taken from the NSSO 62nd Round Survey for the year 2005-06.

iii. Construction

The wage and non-wage incomes for the organised construction sector are separately available from the NAS. The whole of mixed income except the interest and rent charges under the unorganised construction sector is assumed as wage income.

iv. Electricity and Water Supply

The Net Domestic Product (NDP) from the electricity sector has been divided between compensation to employees and operating surplus based on their ratios for the organised part of the combined sector (that is, electricity, gas, and water supply) available from the NAS. The components for the unorganised sector of gas and water supply have been obtained by deducting the wage and non-wage components of the electricity sector from the corresponding components of the combined sector. Besides it, the entire mixed income under the unorganised sector of gas and water supply has been assumed as wages, because mixed income is obtained mainly from gobar gas, in which not much capital is involved. Thus, 'gobar gas' has been shifted to the animal husbandry sector.

v. Transport and Other Sectors

The value added of wage and non-wage for railways has been taken from the Railways Year Book 2009. In the case of other transport (i.e. other than railways) and other sectors, for organised parts, the estimates of wage and non-wage income are available from the NAS; for the unorganised part, the division has been made by using follow-up surveys of the service sectors conducted by the NSSO. For trade, the ratio is based on the SAM for the year 2003-04, constructed by Saluja and Yadav (2006).

6.5 Division of Households Based on Expenditure Classes

The present study aims to analyse the impact of social protection programmes on both poor people as well as on different sectors of the economy. As has already been mentioned, the household categories have been defined on the basis of the MPCE given in the 66th Round consumer expenditure survey for 2009-10 conducted by the NSSO. The households have been divided into ten categories based on the quintile of MPCE for both rural and urban areas (Table 3). The total PFCE for each sector has been divided into the PFCE by household categories in proportion to the sector-wise expenditure of different household categories obtained from the NSSO survey results.

Table 3: Categories of Households

Rural Areas		Urban Areas	
MPCE Quintiles	Rural Households	MPCE Quintiles	Urban Households
Q1	RH1	Q1	UH1
Q2	RH2	Q2	UH2
Q3	RH3	Q3	UH3
Q4	RH4	Q4	UH4
Q5	RH5	Q5	UH5

Source: Authors' calculation

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6.6 Estimation of Personal Income

The personal income of each category of households has been estimated by applying the income-expenditure ratios obtained from the Income-Expenditure Survey conducted by the National Council for Applied Economic Research (NCAER) for 2004-05.[4] The total consumption expenditure has been obtained by adding expenditure on products from 32 sectors by each category of households and their respective indirect taxes.

In the present SAM framework, the major sources of personal income are wage and non-wage income. The non-wage income includes rent, profit, transfer payments from the government, and remittances from the rest of the world(ROW). For each category of household, transfer payments from the government and remittances from the ROW have been divided in the same proportion as in the case of SAM 2003-04 by Saluja and Yadav (2006).[5] Again, the remainder of personal income has been divided into wage and rent for each category of household in the same proportion as in the case of SAM 2003-04 by Saluja and Yadav (2006). The wage and non-wage income (rent and profit only) of different categories of household have been proportionally adjusted to balance these with wage and non-wage GVA. Moreover, the incomes and expenditures of different categories of household have been balanced by the savings of the respective category.

6.7 Taxes (Direct and Indirect)

The indirect taxes reported in the SAM constitute the net of indirect taxes (i.e. indirect taxes - subsidies). The net indirect taxes on households and government consumption are inclusive of sales taxes and excise duties for domestic production and custom duties on imported commodities used for consumption. These taxes on expenditures are based on the I-O table for 2007-08. Production activities pay similar indirect taxes because of the inputs consumed. The net indirect taxes paid by households have been disaggregated among different categories of households in the same proportion as has been disaggregated in SAM 2003-04 (Pradhan, et al., 2006).

The total direct taxes as obtained from the NAS 2011 are distributed among different categories of household in the following manner. It has been assumed that the first two categories of household from rural and urban areas do not pay direct taxes. For the other categories of household from both areas, direct taxes have been divided in proportion to the personal income of the respective category of household. It has also been assumed that the indirect taxes paid by each category of households are in proportion to their expenditure on products from the manufacturing and services sectors. Therefore, the indirect taxes paid by each household have been calculated by dividing the indirect taxes in proportion to the ratio of expenditure by each household and the total expenditure on products from the manufacturing and services sectors.

6.8 Capital Account

The capital account corresponds to the overall balancing of savings and investment. Net savings include savings by households, the private corporate sector, public non-departmental

enterprises, the government, and the ROW. Net saving plus depreciation equals gross domestic capital formation. The savings of different categories of household have been derived by subtracting their consumption and direct taxes from their total personal income. The retained earnings of the private corporate sector and the non-departmental public enterprises have been treated as their savings. For the government, the difference between its revenue and current expenditure has been taken as its saving. Foreign savings meet the difference between gross domestic capital formation and gross domestic savings.

6.9 SAM Multiplier

Symbolically, a SAM may be represented as

X = Z + E... (1)

Where, X is total output, Z is endogenous demand and E is exogenous demand. Since, endogenous demand is proportionally related to total output,

Z = MX … (2)

Therefore, equation (1) may be written as

X = MX + E... (3)

Where, M represents coefficient matrix. The equation (2) may be rewritten as

X-MX = E

(I-M)X = E

X = (I-M)-1E … (4)

In equation (4), (I-M)-1 represents the SAM multiplier. The size of the multiplier depends upon the number of accounts in the SAM considered as the exogenous vector. The lesser the number of accounts considered as the exogenous vector, the higher is the value of the SAM multiplier, and vice versa. This also implies that higher the number of accounts considered as the endogenous vector, higher the value of the SAM multiplier. In this study, the government, indirect taxes, capital account, and the ROWhave been considered exogenous vectors.

The impact of an exogenous demand is both direct and indirect. Direct effects pertain to those sectors affected by exogenous demand. Indirect effects stem from linkages of the directly affected sectors with the other sectors and other parts of the economy. These linkages may be divided into production and consumption linkages. The direct and indirect effects together measure the multiplier effect.

6.10 Measurement of the SAM Multiplier Effect

In an economy, any change due to exogenous sectors has an impact on the interlinked production sectors, factors, and institutions. The impact may be direct, indirect, or induced. The SAM multiplier effect measures the increment in the output vector X due to the change in the exogenous demand. The increment in the production account is termed the output effect, and the increment in households and corporate accounts is termed the income effect. Thus, the income effect comprises the households' income effect and the corporate income

effect. The employment effect is obtained by multiplying the sector-wise output effect and the respective employment coefficients.

The total output effect may be disaggregated into direct and indirect output effects. The direct output effect is defined as an increase in the demand due to the direct expenditure pattern resulting from the expenditure on the schemes. The indirect output effect is defined as an increase in demand which is generated through linkages between different sectors. The direct output effect has been measured as expenditure incurred by households on different commodities, expenditure on construction materials, and government expenditure on different commodities as administration cost due to the direct income effect. The indirect output effect has been measured as the difference of the total output effect and the direct output effect. The direct, indirect, and total employment effects have been measured as multiplications of the employment coefficient with the direct, indirect, and total output effects, respectively.

The amount determined by the government for spending on wages and transfer payments to households has been considered as the direct income effect. The indirect income effect has been estimated as the difference of the total income effect and the direct income effect.

6.11 Distribution of Expenditure on Selected Social Protection Programmes[6] in 2011-12 in the SAM Framework

For a multiplier analysis, these expenditures have been distributed in the SAM framework. The details of the expenditure incurred on these programmes in 2011-12 are shown in Table 4. The expenditure on construction materials in the MGNREGA has been distributed according to the technical coefficients of the materials used in the construction sector. Most studies on India claim that almost 30 per cent of the population live below poverty line. Since people from low-income groups in rural areas only find employment under the MGNREGA, the expenditure on wages has been divided on the following assumption: the first quintile (RH1) is given 66.7 per cent of the wage expenditure under MGNREGA and the second quintile (RH2) is allotted the remaining 33.3 per cent. The expenditure on administration has been distributed according to the proportional expenditure incurred by the government on different sectors. The objective of the IAY is to construct houses for poor people. Therefore, the expenditure on this programme has been distributed according to the technical coefficients of the construction sector.

Table 4: Expenditure on Social Protection Programmes in 2011-12 (Values in Rs. Crore)

Expenditure Items	MGNREGA	IAY	NSAP	Select 'SPPs Taken Together'[7]
Construction/materials	11,065.16	12,926.33		23,991.49
Wage	24,860.91			24,860.91
Administration	21,08.63			2,108.63
Transfer payment			6,188.67	6,188.67
Total	*38,034.70*	*12,926.33*	*6,188.67*	*57,149.70*

As the aim of the NSAP is to raise the income of poor people through directtransfer payments, the expenditure on it has been divided as the income of RH1 and RH2 on the same basis as adopted for wage distribution under MGNREGA (as described above). The distributed expenditure is added to obtain the total expenditure on the different sectors, factors, and households under the SAM framework. It creates a column vector of exogenous demand. The multiplication of this vector with the SAM multiplier gives the multiplier effect of expenditure on social protection programmes.

VII. FINDINGS AND ANALYSIS

Any expenditure through social protection programmes has multidimensional effects on the economy. The present paper attempts to study the total impact comprising both direct and indirect output, income, and employment effects of expenditure by the government in 2011-12 under three select social protection programmes—MGNREGA, IAY, and NSAP.

7.1 The Output Effect

The total output of the economy increased 2.90 times through the MGNREGA, 2.43 times through the IAY, 3 times through the NSAP, and 2.81 times through "select SPPs taken together" due to the initial expenditure incurred in 2011-12 (Table 5). It indicates that these programmes had a significant impact on output. The total effect has been disaggregated into direct and indirect output effects. The direct output effects are 0.96 times, 0.62 times, 0.96 times and 0.88 times, of the initial expenditure in 2011-12 through MGNREGA, IAY, NSAP and "select SPPs taken together", respectively, while the indirect output effects are 1.95 times, 1.81 times, 2.04 times and 1.93 times of the initial expenditure in 2011-12 through MGNREGA, IAY, NSAP, and 'select SPPs taken together', respectively (Table 5). It shows that the indirect output effects are higher than the direct output effects. The higher value of the indirect output effects has resulted from the linkages of the sectors directly affected by these programmes with the other sectors and parts of the economy. Consequently, the multiplier effect has led to a manifold increase in the initial expenditure through these programmes. The output impacts of these programmes by sector have been discussed below.

Table 5: The Output Effect of Social Protection Programmes in 2011-12 (In Rs. Crore)

Social Protection Programmes	Direct Output Effect	Indirect Output Effect	Total Output Effect
MGNREGA	36,341 (0.96)	74,068 (1.95)	110,409 (2.90)
IAY	7,963 (0.62)	23,402 (1.81)	31,365 (2.43)
NSAP	5,935 (0.96)	12,623 (2.04)	18,558 (3.00)
Select "SPPs taken together"	50,239 (0.88)	110,093 (1.93)	160,332 (2.81)

Source: Author's calculation
Note: The values in the parentheses show the ratio of the output effect with the total expenditure under the respective programmes.

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i. Sector-wise Output Effect of "Select SPPs Taken Together"

The total output effect due to "select SPPs taken together" is the highest for the tertiary sector (42.44 per cent) followed by the secondary sector (32.21 per cent) and the primary sector (25.35 per cent) (Table 6). A similar pattern has been observed for both direct output effects and indirect output effects. This may be because households give more weight to items from the tertiary and secondary sectors.[8] Moreover, "other services" and trade have major shares in the total output effects (and also in the direct output effects and indirect output effects). Both sectors fall in the tertiary sector. "Other services" comprise many sectors—transport, communications, storage, and warehousing, ownership of dwellings, business services, real estate activities, public administration, and other services. This consolidated sector claims a high share in the output effects, which may be due to the high trade margins.

It has been observed that "other services", trade, cereals, non-metallic mineral products, metals and metal products, and food products have shown high total output effects. This may be due to the weights assigned by households to commodities and services from these sectors in their consumption basket and their high production linkages.

Among the primary sectors, the total output effect of the "select SPPs taken together" is the highest for cereals (6.82 per cent) followed by mining (3.97 per cent), other crops (3.73 per cent), fruits and vegetables (2.70 per cent), and milk and milk products (2.31 per cent) (Table 6). It is noteworthy that the direct output effect of forestry and logging is higher than its indirect output effect while for the other sectors, the direct output effects are smaller than their indirect output effects. For the sectors having a higher indirect output effect, the production and consumption linkages are high, while for the forestry and logging sector, which has a low indirect effect, the linkages with the other sectors and other parts of the economy are low.

In the case of the secondary sector, the total output effect is the largest for non-metallic mineral products, metals, and metal products (that is, 6.78 per cent), followed by food products (that is, 4.76 per cent) and petroleum and coal-tar products (that is, 4.07 per cent) (Table 6). For all sectors that comprise the secondary sector, direct output effects are lower than indirect output effects. This indicates that all secondary sectors have higher linkages with other sectors and parts of the economy. The direct output effect is small (less than 20 per cent of the total) for some sectors—like paper and paper products, leather and rubber products, plastic products, petroleum and coal-tar products, chemicals and fertilisers, non-electric and electronic equipment—but the indirect output effect is very high. This implies that products from these sectors probably have a low weight in the consumption basket of households, but their production linkages with other sectors are very high.

Among the tertiary sectors, the total output effect of the "select SPPs taken together" is the highest for "other services" (16.46 per cent), followed by trade (10.82 per cent) (Table 6). The reasons for the high output effect share of "other services" and trade have been discussed above.[9] This indicates that among tertiary sectors, these sectors have high production linkages. However, the direct output effect of construction is one-and-a-half times higher than its indirect output effect. This may be due to exclusive expenditure on construction materials under the MGNREGA and IAY. The direct output

effect for electricity is low (that is, 14.08 per cent of its total output effect) while its indirect output effect is very high, possibly because of the higher production linkages of electricity sector with most sectors and high consumption linkages with households and institutions. Also, "other sectors" have higher indirect output effects than direct output effects, possibly because of higher linkages with other sectors and parts of the economy.

Table 6: **Output Effect of "Select SPPs Taken Together" in 2011-12 (Values in Rs. Crore)**

Sector	Sector Description	Direct	Indirect	Total
S1	Cereals	4,299 (8.56; 39.32)	6,633 (6.02; 60.68)	10,931 (6.82; 100.00)
S2	Pulses	680 (1.35; 31.10)	1,507 (1.37; 68.90)	2,187 (1.36; 100.00)
S3	Fruits and vegetables	1,625 (3.23; 37.58)	2,699 (2.45; 62.42)	4,324 (2.70; 100.00)
S4	Other crops	791 (1.57; 13.22)	5,191 (4.71; 86.78)	5,981 (3.73; 100.00)
S5	Milk and milk products	997 (1.99; 26.96)	2,702 (2.45; 73.04)	3,700 (2.31; 100.00)
S6	Other animal husbandry	604 (1.20; 21.58)	2,197 (2.00; 78.42)	2,801 (1.75; 100.00)
S7	Forestry and logging	1989 (3.96; 61.82)	1,228 (1.12; 38.18)	3,217 (2.01; 100.00)
S8	Fisheries	442 (0.88; 38.51)	705 (0.64; 61.49)	1,147 (0.72; 100.00)
S9	Mining	423 (0.84; 6.65)	5,935 (5.39; 93.35)	6,358 (3.97; 100.00)
	Primary sectors	11,850 (23.59; 29.15)	28,796 (26.16; 70.85)	40,647 (25.35; 100.00)
S10	Food products	2,668 (5.31; 34.95)	4,967 (4.51; 65.05)	7,635 (4.76; 100.00)
S11	Beverages	284 (0.57; 35.69)	512 (0.47; 64.31)	797 (0.50; 100.00)
S12	Tobacco products	300 (0.60; 44.32)	377 (0.34; 55.68)	677 (0.42; 100.00)
S13	Textiles and textile products	1,696 (3.38; 28.92)	4,168 (3.79; 71.08)	5,865 (3.66; 100.00)
S14	Furniture and wood products	414 (0.82; 38.10)	672 (0.61; 61.90)	1,085 (0.68; 100.00)
S15	Paper and paper products	194 (0.39; 13.40)	1,251 (1.14; 86.60)	1,444 (0.90; 100.00)
S16	Leather and rubber products	144 (0.29; 15.81)	768 (0.70; 84.19)	912 (0.57; 100.00)

Sector	Sector Description	Direct	Indirect	Total
S17	Plastic products	152 (0.30; 14.70)	881 (0.80; 85.30)	1,032 (0.64; 100.00)
S18	Petroleum and coal-tar products	1,162 (2.31; 17.82)	5,357 (4.87; 82.18)	6,519 (4.07; 100.00)
S19	Chemicals and fertilisers	740 (1.47; 11.84)	5,505 (5.00; 88.16)	6,245 (3.89; 100.00)
S20	Non-metallic mineral products, metals, and metal products	5,493 (10.93; 50.52)	5,379 (4.89; 49.48)	10,871 (6.78; 100.00)
S21	Non-electric equip-ment	112 (0.22; 7.65)	1,354 (1.23; 92.35)	1,466 (0.91; 100.00)
S22	Electronic equipment	373 (0.74; 19.27)	1,563 (1.42; 80.73)	1936 (1.21; 100.00)
S23	Other manufacturing products	1,998 (3.98; 38.80)	3,152 (2.86; 61.20)	5,151 (3.21; 100.00)
	Secondary sectors	15,730 (31.31; 30.46)	35,906 (32.61; 69.54)	51,636 (32.21; 100.00)
S24	Construction	3,596 (7.16; 63.26)	2,088 (1.90; 36.74)	5,684 (3.55; 100.00)
S25	Electricity	406 (0.81; 14.08)	2,479 (2.25; 85.92)	2,885 (1.80; 100.00)
S26	Water supply	91 (0.18; 49.61)	92 (0.08; 50.39)	183 (0.11; 100.00)
S27	Trade	5,849 (11.64; 33.72)	11,495 (10.44; 66.28)	17,344 (10.82; 100.00)
S28	Hotels and restau-rants	1,650 (3.29; 31.52)	3,586 (3.26; 68.48)	5,237 (3.27; 100.00)
S29	Financial services	1,351 (2.69; 24.10)	4,255 (3.86; 75.90)	5,606 (3.50; 100.00)
S30	Educational services	688 (1.37; 25.59)	2002 (1.82; 74.41)	2,690 (1.68; 100.00)
S31	Medical services	515 (1.02; 25.27)	1,522 (1.38; 74.73)	2037 (1.27; 100.00)
S32	Other services	8,513 (16.94; 32.26)	17,871 (16.23; 67.74)	26,384 (16.46; 100.00)
	Tertiary Sectors	22,659 (45.10; 33.30)	45,391 (41.23; 66.70)	6,850 (42.44; 100.00)
	Total	50,239 (100.00; 31.33)	110,093 (100.00; 68.67)	160,332 (100.00; 100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

ii. Sector-wise Output Effect of MGNREGA

The total output effect due to MGNREGA is the highest for the tertiary sectors (42.45 per cent), followed by the secondary sectors (31.34 per cent) and primary sectors (26.21 per cent) (Table 7). A similar pattern has been observed for direct and indirect output effects.

As has been discussed above, the total output effect of the secondary sector is higher than that of the primary sector. The indirect output effect caused by higher linkages of secondary sectors makes the total output effect of secondary sectors higher than that of primary sectors, because of the higher linkages of secondary sectors. The reasons for the higher share of the tertiary sector in the total output effect due to the MGNREGA are the same as for the aggregate SPPs. The total output effect of the primary sector consists of a 31.88 per cent direct output effect and a 68.12 per cent indirect output effect. The higher indirect output effect of the primary sector implies that it has high production linkages with other sectors. Among the primary sectors, the total output effect due to the MGNREGA is the highest for cereals (7.31 per cent), followed by other crops (3.88 per cent) and mining (3.77 per cent) (Table 7). Similar to the direct output effect for forestry and logging due to the total SPPs, the direct output effect of forestry and logging due to the MGNREGA is higher than its indirect output effect. This indicates that the forestry and logging sector has little or no linkage with other sectors and parts of the economy. In other primary sectors, the indirect output effect is higher than their direct output effect. These sectors have high linkages with other sectors and parts of the economy.

The indirect output effect (69.32 per cent of the total) of the secondary sector—similar to the primary sector—is higher than that of the direct output effect (30.68 per cent of the total). The higher indirect output effect of the secondary sector implies that it has high production linkages with the other sectors, while in comparison to the primary sectors too their production linkages are high. Moreover, the direct output effects for all sectors under the secondary sector are lower than their indirect output effects. This finding is similar to the findings relating to the "select SPPs taken together". It suggests that all the secondary sectors have higher linkages with the other sectors and parts of the economy. The total output effect for non-metallic mineral products, metals, and metal products is the highest (5.88 per cent), followed by food products (4.98 per cent) and petroleum and coal-tar products (3.98 per cent) (see Table 7). Sectors like tobacco products and beverages have a small total output effect among the secondary sectors (0.44 per cent and 0.51 per cent, respectively). However, their share in the total direct output effect (0.66 per cent and 0.63 per cent for tobacco products and beverages, respectively) and the indirect output effect (0.34 per cent and 0.46 per cent for tobacco products and beverages, respectively) are also small. This may be due to the small production linkages of these sectors. Therefore, it may be inferred that sectors having small direct and indirect output effects may have small total output effects.

Among the tertiary sectors, the total output effect for "other services" is the highest (16.77 per cent), followed by trade (10.81 per cent) (Table 7). The reasons for the high total output effect share of "other services" and trade are the same as discussed

above[10] for the "select SPPs taken together". This indicates that these sectors among the tertiary sectors have high production linkages. The direct output effect of the construction sector is slightly higher than its indirect output effect, which may be due to the type of construction materials used under the MGNREGA. The direct output effect for the electricity sector is low (13.67 per cent of its total output effect), while its indirect output effect is very high (86.33 per cent of the total). Possibly, this is due to its higher production linkages with most of the sectors and high consumption linkages. The other sectors in the tertiary sector also have higher indirect output effects than their direct output effects. The possible reason for this could be the higher linkages with other sectors of the economy. The findings for the tertiary sectors due to MGNREGA are similar to those relating to the "select SPPs taken together", which may be due to the high share of MGNREGA in the "select SPPs taken together".

Table 7: **Output Effect of MGNREGA in 2011-12 (Values in Rs. Crore)**

Sector	Sector Description	Direct	Indirect	Total
S1	Cereals	3,445(9.48;42.66)	4,629(6.25;57.34)	8,074(7.31;100.00)
S2	Pulses	545(1.50;34.27)	1,045(1.41;65.73)	1,590(1.44; 100.00)
S3	Fruits and vegetables	1,301(3.58;41.62)	1,825(2.46;58.38)	3,127(2.83;100.00)
S4	Other crops	619(1.70;14.46)	3,663(4.94;85.54)	4,282(3.88;100.00)
S5	Milk and milk products	799(2.20;30.70)	1,805(2.44;69.30)	2,604(2.36;100.00)
S6	Other animal husbandry	483(1.33;23.78)	1,548(2.09;76.22)	2031(1.84;100.00)
S7	Forestry and logging	1,435(3.95;64.18)	801(1.08;35.82)	2,235(2.02;100.00)
S8	Fisheries	354(0.97;42.71)	475(0.64;57.29)	828(0.75;100.00)
S9	Mining	243(0.67;5.83)	3,919(5.29;94.17)	4,162(3.77;100.00)
	Primary Sectors	9,224(25.38;31.88)	19,710(26.61;68.12)	28,933(26.21;100.00)
S10	Food products	2,139(5.89;38.88)	3,363(4.54;61.12)	5,502(4.98;100.00)
S11	Beverages	228(0.63;40.10)	340(0.46;59.90)	568(0.51;100.00)
S12	Tobacco products	240(0.66;48.94)	251(0.34;51.06)	491(0.44;100.00)

Sector	Sector Description	Direct	Indirect	Total
S13	Textiles and textile products	1,341(3.69;32.29)	2,813(3.80;67.71)	4,155(3.76;100.00)
S14	Furniture and wood products	251(0.69;36.06)	446(0.60;63.94)	697(0.63;100.00)
S15	Paper and paper products	150(0.41;14.91)	856(1.16;85.09)	1,006(0.91;100.00)
S16	Leather and rubber products	115(0.32;18.12)	520(0.70;81.88)	635(0.57;100.00)
S17	Plastic products	120(0.33;16.83)	594(0.80;83.17)	714(0.65;100.00)
S18	Petroleum and coal-tar products	771(2.12;17.56)	3,620(4.89;82.44)	4,391(3.98;100.00)
S19	Chemicals and fertilisers	531(1.46;12.20)	3,819(5.16;87.80)	4,350(3.94;100.00)
S20	Non-metallic mineral products, metals, and metal products	3,147(8.66;48.49)	3,342(4.51;51.51)	6,489(5.88;100.00)
S21	Non-electric equipment	75 (0.21; 7.70)	903 (1.22; 92.30)	979 (0.89; 100.00)
S22	Electronic equipment	248 (0.68; 19.21)	1,043 (1.41; 80.79)	1,291 (1.17;100.00)
S23	Other manufacturing products	1,260(3.47;37.78)	2,075(2.80;62.22)	3,335(3.02;100.00)
	Secondary Sectors	10,617(29.22;30.68)	23,985(32.38;69.32)	34,602(31.34;100.00)
S24	Construction	2,068(5.69;59.78)	1,391(1.88;40.22)	3,460(3.13;100.00)
S25	Electricity	268(0.74;13.67	1,692(2.28;86.33)	1,960(1.78;100.00)
S26	Water supply	68(0.19;52.47)	62(0.08;47.53)	130(0.12;100.00)
S27	Trade	4,172(11.48;34.97)	7,759(10.47;65.03)	11,931(10.81;100.00)
S28	Hotels and restaurants	1,322(3.64;35.39)	2,414(3.26;64.61)	3,736(3.38;100.00)

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Sector	Sector Description	Direct	Indirect	Total
S29	Financial services	928(2.55;24.41)	2,875(3.88;75.59)	3,804(3.44;100.00)
S30	Educational services	607(1.67;31.72)	1,306(1.76;68.28)	1912(1.73;100.00)
S31	Medical services	427(1.18;30.04)	995(1.34;69.96)	1,422(1.29;100.00)
S32	Other services	6,639(18.27;35.85)	11,879(16.04;64.15)	18,518(16.77;100.00)
	Tertiary sectors	16,500(45.40;35.20)	30,373(41.01;64.80)	46,873(42.45;100.00)
	Total	36,341(100.00;32.91)	74,068(100.00;67.09)	110,409(100.00;100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

iii. Sector-wise Output Effect of Indira Awas Yojana

The total output effect due to the IAY is the highest for tertiary sectors (43.26 per cent), followed by that for secondary sectors (37.69 per cent) and primary sectors (19.05 per cent) (Table 8). A similar pattern has been observed for the indirect output effect due to this programme. The direct output effect due to the IAY is the highest for secondary sectors (47.06 per cent), which is slightly higher than that for tertiary sectors (46.60 per cent) (Table 8). The objective of the IAY is the construction of buildings in rural areas. It would have high demand for non-metallic mineral products and metals and metal products. This may be the reason for the high direct output effect of non-metallic mineral products and metals and metal products (29.13 per cent of the total direct output effect). Its share is extremely high among sectors comprising secondary sectors, which may be considered a reason for their high direct output effect. The share of tertiary sectors in the total output effect is higher than that of secondary sectors. This indicates that the indirect output effect of tertiary sectors makes their total output effect higher than that of secondary sectors. Possibly, the high linkages of tertiary sectors with other sectors of the economy make their total output effect the highest.

Of the total output effect due to IAY for the primary sector, the direct output effect is 8.48 per cent, while the indirect output effect is 91.52 per cent. This very high indirect output effect of the primary sector implies that it has very high production linkages with other sectors. Moreover, the low direct output effect due to the IAY is merely because the expenditure under this programme goes directly to the construction sector. The major sectors of the primary sector that have a significant direct output

effect are forestry and logging (3.68 per cent) and mining (2.25 per cent).

Among the primary sectors, the total output effect for mining due to government expenditure through the IAY is the highest (5.28 per cent), followed by that for cereals (3.41 per cent) and other crops (2.62 per cent) (Table 8). For cereals, pulses, fruits and vegetables, milk and milk products, and fisheries, the direct output effect is zero, but the indirect output effect is significant. The direct output effect is zero because the expenditure dispersal for these sectors under this programme is mostly undertaken on construction materials, thereby leaving much less for the wage component. All the sectors in the primary sector have significantly higher indirect output effects than the direct output effects. This notably high indirect output effect may be due to the linkages of these sectors with other sectors and parts of the economy.

The indirect output effect is 68.32 per cent, which is more than twice the direct output effect of the total output effect due to the IAY for the secondary sector. The high indirect output effect of the secondary sector suggests that it has high production and consumption linkages. The output effect of the secondary sectors due to IAY for non-metallic minerals products, metals, and metal products is the highest (12.99 per cent), followed by petroleum and coal-tar products (4.62 per cent) and other manufacturing products (4.52 per cent) (Table 8). The direct output effects for these sectors are also high among the direct output effect of secondary sectors. This indicates that the products from these sectors are directly used under the IAY.

Among the tertiary sectors, the total output effect for "other services" due to IAY is the highest (15.17 per cent), followed by that for trade (10.68 per cent) and construction (6.46 per cent) (Table 8). The reasons for the high total output effect share of "other services" and trade are the same as have been discussed above[11] for the "select SPPs taken together". The total output effect for the construction sector may be high because of the programme's specific objective, as its main direct expenditure component is expenditure on construction. The direct output effect for construction is very high (75.11 per cent of the total output effect for construction).

Table 8: Output Effect of IAY in 2011-12 (Values in Rs. Crore)

Sector	Sector Description	Direct Effect	Indirect Effect	Total Effect
S1	Cereals	0 (0.00, 0.00)	1,071 (4.58, 100.00)	1,071 (3.41, 100.00)
S2	Pulses	0 (0.00, 0.00)	254 (1.09, 100.00)	254 (0.81, 100.00)
S3	Fruits and vegetables	0 (0.00, 0.00)	527 (2.25, 100.00)	527 (1.68, 100.00)
S4	Other crops	31 (0.39, 3.78)	790 (3.38, 96.22)	821 (2.62, 100.00)
S5	Milk and milk products	0 (0.00, 0.00)	565 (2.41, 100.00)	565 (1.80, 100.00)
S6	Other animal husbandry	4 (0.05, 1.17)	337 (1.44, 98.83)	341 (1.09, 100.00)
S7	Forestry and logging	293 (3.68, 49.00)	305 (1.30, 51.00)	598 (1.91, 100.00)
S8	Fisheries	0 (0.00, 0.00)	142 (0.61, 100.00)	142 (0.45, 100.00)
S9	Mining	179 (2.25, 10.80)	1,478 (6.32, 89.20)	1,657 (5.28, 100.00)

Sector	Sector Description	Direct Effect	Indirect Effect	Total Effect
	Primary sectors	507 (6.37, 8.48)	5,469 (23.37, 91.52)	5,976 (19.05, 100.00)
S10	Food products	0 (0.00, 0.00)	971 (4.15, 100.00)	971 (3.10, 100.00)
S11	Beverages	0 (0.00, 0.00)	110 (0.47, 100.00)	110 (0.35, 100.00)
S12	Tobacco products	0 (0.00, 0.00)	80 (0.34, 100.00)	80 (0.26, 100.00)
S13	Textiles and textile products	39 (0.49, 4.46)	836 (3.57, 95.54)	875 (2.79, 100.00)
S14	Furniture and wood products	152 (1.91, 49.84)	153 (0.65, 50.16)	305 (0.97, 100.00)
S15	Paper and paper products	24 (0.30, 8.86)	247 (1.06, 91.14)	271 (0.86, 100.00)
S16	Leather and rubber products	1 (0.01, 0.63)	159 (0.68, 99.38)	160 (0.51, 100.00)
S17	Plastic products	3 (0.04, 1.59)	186 (0.79, 98.41)	189 (0.60, 100.00)
S18	Petroleum and coal-tar products	307 (3.86, 21.17)	1,143 (4.88, 78.83)	1,450 (4.62, 100.00)
S19	Chemicals and fertilisers	123 (1.54, 11.07)	988 (4.22, 88.93)	1,111 (3.54, 100.00)
S20	Non-metallic mineral products, metals, and metal products	2,320 (29.13, 56.96)	1,754 (7.50, 43.06)	4,073 (12.99, 100.00)
S21	Non-electric equipment	28 (0.35, 8.14)	316 (1.35, 91.86)	344 (1.10, 100.00)
S22	Electronic equipment	106 (1.33, 22.70)	361 (1.54, 77.30)	467 (1.49, 100.00)
S23	Other manufacturing products	644 (8.09, 45.45)	773 (3.30, 54.55)	1,417 (4.52, 100.00)
	Secondary sectors	3,747 (47.06, 31.69)	8,077 (34.51, 68.32)	11,823 (37.69, 100.00)
S24	Construction	1,521 (19.10, 75.11)	504 (2.15, 24.89)	2025 (6.46, 100.00)
S25	Electricity	119 (1.49, 19.04)	506 (2.16, 80.96)	625 (1.99, 100.00)
S26	Water supply	22 (0.28, 51.16)	21 (0.09, 48.84)	43 (0.14, 100.00)
S27	Trade	958 (12.03, 28.61)	2,391 (10.22, 71.39)	3,349 (10.68, 100.00)
S28	Hotels and restaurants	5 (0.06, 0.66)	750 (3.20, 99.47)	754 (2.40, 100.00)
S29	Financial services	300 (3.77, 25.08)	896 (3.83, 74.92)	1,196 (3.81, 100.00)
S30	Educational services	0 (0.00, 0.00)	466 (1.99, 100.00)	466 (1.49, 100.00)
S31	Medical services	0 (0.00, 0.00)	352 (1.50, 100.00)	352 (1.12, 100.00)
S32	Other services	786 (9.87, 16.52)	3,971 (16.97, 83.48)	4,757 (15.17, 100.00)
	Tertiary sectors	3,711 (46.60, 27.35)	9,858 (42.12, 72.66)	13,567 (43.26, 100.00)
	Total	7,963 (100.00, 25.39)	23,402 (100.00, 74.61)	31,365 (100.00, 100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

iv. Sector-wise Output Effect of the National Social Assistance Programme

The total output effect due to the National Social Assistance Programme (NSAP) is the highest for the tertiary sectors (41.01 per cent), followed by that for the primary sectors (30.91 per cent) and secondary sectors (28.05 per cent) (Table 9). A similar pattern has been observed for the direct output effect due to it. However, the indirect output effect due to the NSAP is the highest for the tertiary sectors (40.89 per cent), followed by that for the secondary sectors (30.46 per cent) and primary sectors (28.67 per cent) (Table 9). This indicates that it is the direct output effect of the primary sectors that makes their total output effect higher than that of secondary sectors. The possible reason for this lies in the nature of government expenditure under this programme—through the NSAP, it directly affects the purchasing power of the poor sections of society, which exhibit high income elasticity of demand for products from primary sectors. The highest output effect for the tertiary sector may be due to the production linkages and high weight accorded to services in the consumption basket of households.

for the primary sector The direct output effect is 36.97 per cent due to NSAP while the indirect output effect is 63.03 per cent of the total output effect . The high indirect output effect of the primary sector implies that it has high production linkages with other sectors. Among the primary sectors, the total output effect for cereals due to NSAP is the highest (9.62 per cent) followed by that for other crops (4.73 per cent), mining (2.90 per cent), and milk and milk products (2.86 per cent) (Table 9). The direct output effect for forestry and logging is higher (68.23 per cent of its total output effect) than its indirect output effect. This indicates that products included in the forestry and logging sector have a higher weight in the consumption basket of NSAP beneficiaries. Similarly, the direct output effect is significantly high for sectors like cereals (47.82 per cent), fruits and vegetables (48.36 per cent), and fisheries (49.72 per cent).This shows that products from these sectors have a higher weight in the commodity basket. The slightly higher indirect output effect implies that these sectors have higher production linkages with other sectors. The mining sector has a very small direct output effect (0.37 per cent) and a huge indirect output effect (99.81 per cent). It suggests that this sector has very low consumption linkages and very high production linkages.

In the case of the secondary sectors due to the NSAP, the indirect output effect (73.78 per cent of the total output effect) is almost three times higher than that of the direct output effect (26.22 per cent of the total output effect). This indicates that secondary sectors have higher production linkages than consumption linkages. Among secondary sectors, the total output effect for food products is the highest (6.26 per cent), followed by that for textile and textile products (4.50 per cent), and chemicals and fertilisers (4.22 per cent) (Table 9). As a percentage of the total output effect, the direct output effects are significantly high for food products (45.52 per cent), beverages (47.46 per cent),and tobacco products (56.60 per cent). This implies that these sectors have slightly low production linkages. The indirect output effects are very high for sectors like non-electric equipment, non-metallic mineral products, metals, and metal products, chemicals and fertilisers, petroleum and coal-tar products, paper and paper products, and furniture and wood products. That implies that these sectors have very high production linkages.

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Among the tertiary sectors, the total output effect for "other services" is the highest (16.75 per cent), followed by that for trade (11.13 per cent) (Table 9). The reasons for the high total output effect share of 'other services' and trade are same as have been discussed above[12] for the 'select SPPs taken together'. This indicates that these sectors among the tertiary sectors have the high production linkages. In general, all the sectors among the tertiary sectors have higher indirect output effects than direct output effects, which implies that these sectors have high linkages with the other sectors and parts of the economy. Moreover, the direct output effects for the construction and electricity sectors are very low (3.02 per cent and 6.31 per cent of their total output effects, respectively). This may be due to their higher production linkages with most of the sectors.

Therefore, it may be concluded that the output effect of all the three programmes is the highest for the tertiary sectors. In general, sectors like other services, trade, cereals, non-metallic mineral products, metals, and metal products and food products have shown higher output effects. The indirect output effects are higher than the direct output effects due to the linkages of these sectors with other sectors and parts of the economy.

Table 9: **Output Effect of NSAP in 2011-12 (Values in Rs. Crore)**

Sector	Sector Description	Direct Effect	Indirect Effect	Total Effect
S1	Cereals	854 (14.39, 47.82)	933 (7.39,52.24)	1,786(9.62,100.00)
S2	Pulses	135 (2.27, 39.47)	207 (1.64, 60.53)	342(1.84,100.00)
S3	Fruits and vegetables	324 (5.46, 48.36)	347 (2.75, 51.79)	670(3.61,100.00)
S4	Other crops	140 (2.36, 15.95)	738 (5.85, 84.05)	878(4.73,100.00)
S5	Milk and milk products	198 (3.34, 37.29)	333 (2.64, 62.71)	531(2.86,100.00)
S6	Other animal husbandry	118 (1.99, 27.44)	312 (2.47, 72.56)	430(2.32,100.00)
S7	Forestry and logging	262 (4.41, 68.23)	122 (0.97, 31.77)	384(2.07,100.00)
S8	Fisheries	88 (1.48, 49.72)	89 (0.71, 50.28)	177(0.95,100.00)
S9	Mining	2 (0.03, 0.37)	538 (4.26, 99.81)	539(2.90,100.00)
	Primary sectors	*2,121(35.74, 36.97)*	*3,619 (28.67,63.03)*	*5,737(30.91,100.00)*
S10	Food products	529 (8.91, 45.52)	633 (5.01, 54.48)	1,162(6.26,100.00)
S11	Beverages	56 (0.94, 47.46)	62 (0.49, 52.54)	118(0.64,100.00)
S12	Tobacco Products	60 (1.01, 56.60)	46 (0.36, 43.40)	106(0.57,100.00)
S13	Textiles and textile Products	316 (5.32, 37.84)	520 (4.12, 62.28)	835(4.50,100.00)
S14	Furniture and Wood products	11 (0.19, 13.25)	73 (0.58, 87.95)	83(0.45,100.00)
S15	Paper and paper products	19 (0.32, 11.31)	148 (1.17, 88.10)	168(0.91,100.00)

Sector	Sector Description	Direct Effect	Indirect Effect	Total Effect
S16	Leather and rubber products	28 (0.47, 23.73)	89 (0.71, 75.42)	118(0.64,100.00)
S17	Plastic products	29 (0.49, 22.48)	100 (0.79, 77.52)	129(0.70,100.00)
S18	Petroleum and coal-tar products	84 (1.42, 12.39)	594 (4.71, 87.61)	678(3.65,100.00)
S19	Chemicals and fertilisers	86 (1.45, 10.97)	698 (5.53, 89.03)	784(4.22,100.00)
S20	Non-metallic mineral products, metals, and metal products	26 (0.44, 8.41)	283 (2.24, 91.59)	309(1.67,100.00)
S21	Non-electric equipment	9 (0.15, 6.29)	134 (1.06, 93.71)	143(0.77,100.00)
S22	Electronic equipment	19 (0.32, 10.73)	158 (1.25, 89.27)	177(0.95,100.00)
S23	Other manufacturing products	94 (1.58, 23.56)	305 (2.42, 76.44)	399(2.15,100.00)
	Secondary sectors	*1,366 (23.02, 26.22)*	*3,843 (30.44,73.78)*	*5,209(28.07,100.00)*
S24	Construction	6 (0.10, 3.02)	193 (1.53, 96.98)	199(1.07,100.00)
S25	Electricity	19 (0.32, 6.31)	281 (2.23, 93.36)	301(1.62,100.00)
S26	Water supply	1 (0.02, 10.00)	9 (0.07, 90.00)	10(0.05,100.00)
S27	Trade	718 (12.10, 34.77)	1,346 (10.66, 65.18)	2,065(11.13,100.00)
S28	Hotels and restaurants	323 (5.44, 43.30)	422 (3.34, 56.57)	746(4.02,100.00)
S29	Financial services	123 (2.07, 20.30)	483 (3.83, 79.70)	606(3.27,100.00)
S30	Educational services	82 (1.38, 26.37)	230(1.82, 73.95)	311(1.68,100.00)
S31	Medical services	88 (1.48, 33.46)	175 (1.39, 66.54)	263(1.42,100.00)
S32	Other services	1,088 (18.33, 35.00)	2,021 (16.01, 65.00)	3,109(16.75,100.00)
	Tertiary sectors	2,448 (41.25, 32.17)	5,160 (40.88,67.81)	7,610(41.01,100.00)
	Total	5,935 (100.00,31.98)	12,623 (100.00,68.02)	18,558(100.00,100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

7.2 The Income Effect

The total income effect due to expenditure on all the three 'select SPPs taken together', is Rs. 101,003.63 crore (see Table 10), which is 1.77 times of the total expenditure under all the three select SPPs. This clearly indicates that not only the total output but the total income is also many times higher than the government expenditure under these programmes. The total income effects due to expenditure incurred under MGNREGA, IAY, and NSAP are 1.86 times, 1.25 times and 2.30 times higher than their respective expenditures, which indicates that though the income effect due to MGNREGA is highest in magnitude yet in terms of its proportion with the expenditure, it is highest due to NSAP. This may be due to the fact that all the expenditure incurred directly under NSAP raises the incomes of the beneficiary classes. However, in general, the income effect for the households is the highest, almost more than 90 per cent for all programmes, while the income effect for private corporations is higher than that for public enterprises.[13]

Table 10: Income Effect of Social Protection Programmes in 2011-12
(Values in Rs. Crore)

	MGNREGA	IAY	NSAP	'Select SPPs Taken T'
Households	65,805.79 (1.73)	14,694.75 (1.14)	13,421.84 (2.17)	93,922.38 (1.64)
Pvt. Corp.	3,463.65 (0.09)	1,025.66 (0.08)	605.03 (0.10)	5,094.34 (0.09)
Pub. Enter.	1,350.90 (0.04)	400.03 (0.03)	235.97 (0.04)	1986.91 (0.03)
Total	70,620.35 (1.86)	16,120.44 (1.25)	14,262.84 (2.30)	101,003.63 (1.77)

Source: Authors' calculation.

Note: The values in the parentheses show the ratio of the income effect with the total expenditure under the respective programmes.

i. Households' Income Effect of 'Select SPPs Taken Together'

The total income effect of households due to the 'select SPPs taken together' is 1.64 times of the total expenditure incurred under these programmes (see Table 10). The income effect for rural households is 71.45 per cent of the total income effect for all households, which is more than twice the income effect for the urban households (see Table 11). It may be due to the rural-centric nature of these programmes.[14] The direct income effect has been observed only for the bottom classes of rural households, that is, RH1 and RH2 (66.67 per cent and 33.33 per cent, respectively; see Table 11). This is due to the assumption that almost 30 per cent of the rural households are below the poverty line (BPL). The direct income effect for the first bottom class of rural households (i.e., RH1) is almost nine times higher than their indirect income effect while

for the second bottom class of rural households (i.e., RH2), it is almost four times higher than their indirect income effect. The higher direct income effect for the first bottom class may be due to the large amount of transfer payment to it. The transfer payment directly increases the incomes of the beneficiary classes, which they spend according to their consumption preferences. The households' consumption expenditure further generates an indirect income effect through the multiplier process.[15] Interestingly, the indirect income effect for the bottom class of the rural households is lower than that of their subsequent higher classes. The possible reason for this may be traced in the occupational pattern and the distribution of factor ownership of among rural households. In general, the people from higher sections of rural households are employed in better salary occupations than people from the lower section. Further, the people from higher sections of rural households own larger amounts of capital and land than the people from the lower sections. Accordingly, a larger share of the benefits accrues to the higher section of rural households. Similarly, a larger indirect income effect occurs in favour of the higher classes of urban households as compared to the lower classes.

Surprisingly, the total income effect for the top rural and urban households classes (i.e., RH5 and UH5) is very high in comparison to that for the subsequent lower classes except the bottom class of rural households (i.e., RH1), which is the highest (24.55 per cent) among all household categories followed by RH5 and UH5 (21.35 per cent and 15.04 per cent, respectively; see Table 11). The high total income effect for RH1 is due to its high direct income effect. The possible reason for this lies in the large amount of government transfer payments to this rural household class as well as huge employment for this household class under MGNREGA. The high total income effect of RH5 and UH5 is due to the high indirect income effects for these classes generated due to the multiplier effect through consumption and production linkages. Therefore, it implies that despite having focus on the poor in rural areas, the 'select SPPs taken together' have a significant income effect for the rich in both rural and urban households.

Table 11: Households' Income Effect due to 'Select SPPs Taken Together' in 2011-12 (Values in Rs. Crore)

Sector	Direct	Indirect	Total
RH1	20,699.72 (66.67; 89.78)	2,356.79 (3.75; 10.22)	23,056.51 (24.55; 100.00)
RH2	10,349.86 (33.33; 78.74)	2,794.88 (4.45; 21.26)	13,144.74 (14.00; 100.00)
RH3	0.00 (0.00; 0.00)	3,808.56 (6.06; 100.00)	3,808.56 (4.06; 100.00)
RH4	0.00 (0.00; 0.00)	7,036.92 (11.19; 100.00)	7,036.92 (7.49; 100.00)
RH5	0.00 (0.00; 0.00)	20,056.32 (31.90; 100.00)	20,056.32 (21.35; 100.00)
Rural	*31,049.58 (100.00; 46.27)*	*36,053.46 (57.34; 53.73)*	*67,103.04 (71.45; 100.00)*
UH1	0.00 (0.00; 0.00)	1,155.35 (1.84; 100.00)	1,155.35 (1.23; 100.00)
UH2	0.00 (0.00; 0.00)	2,054.23 (3.27; 100.00)	2,054.23 (2.19; 100.00)
UH3	0.00 (0.00; 0.00)	3,110.08 (4.95; 100.00)	3,110.08 (3.31; 100.00)

Sector	Direct	Indirect	Total
UH4	0.00 (0.00; 0.00)	6,373.78 (10.14; 100.00)	6,373.78 (6.79; 100.00)
UH5	0.00 (0.00; 0.00)	14,125.89 (22.47; 100.00)	14,125.89 (15.04; 100.00)
Urban	*0.00 (0.00; 0.00)*	*26,819.33 (42.66; 100.00)*	*26,819.33 (28.55; 100.00)*
Total	*31,049.58 (100.00; 33.06)*	*62,872.79 (100.00; 66.94)*	*93,922.38 (100.00; 100.00)*

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

ii. Households' Income Effect of MGNREGA

The total income effect of MGNREGA is the highest for RH1 and RH2 (27.49 per cent and 15.34 per cent respectively; see Table 12). The direct income effect[16] has been observed only for RH1 and RH2. It is due to the assumption that the two bottom rural classes are the poorest and the objective of the MGNREGA is to provide employment to these classes. Given this assumption, the direct income effect has also been observed for rural households only (Rs. 24,860.91 crore; see Table 12). In the case of the indirect income effect, the higher indirect income effect has been obtained for rural households (57.81 per cent; see Table 12). Interestingly, similar to the indirect income effect due to the 'select SPPs taken together', the indirect income effect for the bottom classes of the rural and urban households is lower than that of their subsequent higher classes.

Table 12: Income Effect of MGNREGA on Households' Income in 2011-12
(Values in Rs. Crore)

Sector	Direct	Indirect	Total
RH1	16,573.94 (66.67; 91.61)	1,516.95 (3.70; 8.39)	18,090.89 (27.49; 100.00)
RH2	8,286.97 (33.33; 82.07)	1,810.80 (4.42; 17.93)	10,097.77 (15.34; 100.00)
RH3	0.00 (0.00; 0.00)	2,471.66 (6.04; 100.00)	2,471.66 (3.76; 100.00)
RH4	0.00 (0.00; 0.00)	4,649.71 (11.36; 100.00	4,649.71 (7.07; 100.00)
RH5	0.00 (0.00; 0.00)	13,223.13 (32.29; 100.00)	13,223.13 (20.09; 100.00)
Rural	24,860.91 (100.0051.22)	23,672.26 (57.81; 48.78)	48,533.17 (73.75; 100.00)
UH1	0.00 (0.00; 0.00)	741.58 (1.81; 100.00)	741.58 (1.13; 100.00)
UH2	0.00 (0.00; 0.00)	1,318.13 (3.22; 100.00)	1,318.13 (2.00; 100.00)
UH3	0.00 (0.00; 0.00)	1995.44 (4.87; 100.00)	1995.44 (3.03; 100.00)
UH4	0.00 (0.00; 0.00)	4,100.20 (10.01; 100.00)	4,100.20 (6.23; 100.00)
UH5	0.00 (0.00; 0.00)	9,117.27 (22.27; 100.00)	9,117.27 (13.85; 100.00)
Urban	0.00 (0.00; 0.00)	17,272.62 (42.19; 100.00)	17,272.62 (26.25; 100.00)
Total	24,860.91 (100.00; 37.78)	40,944.88 (100.00; 62.22)	65,805.79 (100.00; 100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

The total income effect for the bottom class of rural households (i.e., RH1) is the highest among all the household categories followed by RH5, the top class of rural households (27.49 per cent and 20.09 per cent, respectively; see Table 12). The higher total income effect of RH5 is due to the very high indirect income effect for it. The top class of urban households (i.e., UH5) has obtained a significantly high total income effect (13.85 per cent of the total income effect). This is also due to its very high indirect income effect.[17] The high indirect income effect for the higher classes of both rural and urban households has resulted in the high total income effect for the top class and the upper classes of rural and urban households. This brings out the fact that despite having a focus on the poor in rural areas, MGNREGA has had a significant income effect for not only the bottom classes in the rural households, but also for the rich in both rural and urban households.

iii. Households' Income Effect of IAY

There is no direct income effect of IAY (see Table 13), as there is no policy of transfer payment or wages for a targeted section under this scheme. Therefore, in the case of IAY, the total income effect is the result of only an indirect income effect. The highest income effect has been obtained for rural households (55.86 per cent; see Table 13). Interestingly, similar to the indirect income effect due to the 'select SPPs taken together' and MGNREGA, the indirect income effect, which is also the total income effect, for the bottom classes of the rural and urban households is lower than that of their counterparts among the higher classes.[18] This shows that despite the programme target being the poor in rural areas only, the IAY has a significantly high income effect for the upper classes in both rural and urban households.

Table 13: Income Effect of IAY on Households' Income in 2011-12(Values in Rs. Crore)

Sector	Direct	Indirect	Total
RH1	0.00 (0.00; 0.00)	571.02 (3.89; 100.00)	571.02 (3.89; 100.00)
RH2	0.00 (0.00; 0.00)	663.75 (4.52; 100.00)	663.75 (4.52; 100.00)
RH3	0.00 (0.00; 0.00)	899.86 (6.12; 100.00)	899.86 (6.12; 100.00)
RH4	0.00 (0.00; 0.00)	1,568.95 (10.68; 100.00)	1,568.95 (10.68; 100.00)
RH5	0.00 (0.00; 0.00)	4,504.82 (30.66; 100.00)	4,504.82 (30.66; 100.00)
Rural	0.00 (0.00; 0.00)	8,208.40 (55.86; 100.00)	8,208.40 (55.86; 100.00)
UH1	0.00 (0.00; 0.00)	282.26 (1.92; 100.00)	282.26 (1.92; 100.00)
UH2	0.00 (0.00; 0.00)	502.32 (3.42; 100.00)	502.32 (3.42; 100.00)
UH3	0.00 (0.00; 0.00)	760.73 (5.18; 100.00)	760.73 (5.18; 100.00)
UH4	0.00 (0.00; 0.00)	1,546.88 (10.53; 100.00)	1,546.88 (10.53; 100.00)
UH5	0.00 (0.00; 0.00)	3,394.15 (23.10; 100.00)	3,394.15 (23.10; 100.00)
Urban	0.00 (0.00; 0.00)	6,486.34 (44.14; 100.00)	6,486.34 (44.14; 100.00)
Total	0.00 (0.00; 0.00)	14,694.75 (100.00; 100.00)	14,694.75 (100.00; 100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

iv. Households' Income Effect of NSAP

The main objective of NSAP is to reduce poverty and enhance the purchasing power of weaker sections of the society. Similar to the direct income effect of MGNREGA, the direct income effect of NSAP has been observed only for the bottom classes of the rural households, that is, RH1 and RH2 (66.67 per cent and 33.33 per cent, respectively; see Table 14). As regards the indirect income effect, it has been obtained for the rural households (57.69 per cent; see Table 14), which is also similar to the indirect effect seen in MGNREGA. Interestingly, similar to the indirect income effect due to MGNREGA and IAY, the indirect income effect with respect to the bottom classes of the rural and urban households is lower than that with respect to the higher classes.

Table 14: **Income Effect of NSAP on Households' Income in 2011-12**
(Values in Rs. Crore)

Sector	Direct	Indirect	Total
RH1	4125.78 (66.67; 93.88)	268.82 (3.72; 6.12)	4,394.60 (32.74; 100.00)
RH2	2,062.89 (33.33; 86.56)	320.33 (4.43; 13.44)	2,383.22 (17.76; 100.00)
RH3	0.00 (0.00; 0.00)	437.04 (6.04; 100.00)	437.04 (3.26; 100.00)
RH4	0.00 (0.00; 0.00)	818.26 (11.31; 100.00)	818.26 (6.10; 100.00)
RH5	0.00 (0.00; 0.00)	2,328.36 (32.19; 100.00)	2,328.36 (17.35; 100.00)
Rural	6,188.67 (100.00; 59.73)	4,172.80 (57.69; 40.27)	10,361.47 (77.20; 100.00)
UH1	0.00 (0.00; 0.00)	131.51 (1.82; 100.00)	131.51 (0.98; 100.00)
UH2	0.00 (0.00; 0.00)	233.78 (3.23; 100.00)	233.78 (1.74; 100.00)
UH3	0.00 (0.00; 0.00)	353.91 (4.89; 100.00)	353.91 (2.64; 100.00)
UH4	0.00 (0.00; 0.00)	726.70 (10.05; 100.00)	726.70 (5.41; 100.00)
UH5	0.00 (0.00; 0.00)	1,614.47 (22.32; 100.00)	1,614.47 (12.03; 100.00)
Urban	0.00 (0.00; 0.00)	3,060.36 (42.31; 100.00)	3,060.36 (22.80; 100.00)
Total	6,188.67 (100.00; 46.11)	7,233.16 (100.00; 53.89)	13,421.84 (100.00; 100.00)

Source: Authors' calculation.
Note: In the parentheses, the first values show the percentages of the vertical total while the second values show the percentages of the horizontal total.

The total income effect for the bottom class of rural households (that is, RH1) is the highest among all the household categories, followed by RH2 and RH5 (32.74 per cent, 17.76 per cent and 17.35 per cent, respectively; see Table 14). The higher total income effect of RH1 and RH2 is due to the high direct income effect for these households, which is a consequence of the transfer payment from the government to these households. The high total income effect for RH5 is due to the high indirect income effect for it, which is a consequence of linkages in the economy and returns to factors' income owned by this group of households. However, similar to the total indirect income effect of MGNREGA and IAY for urban households, a higher income effect has been observed for higher sections of urban households. This could be due to the generation of factor incomes resulting from the initial

consumption of the beneficiaries of NSAP. Although the higher income classes are not direct beneficiaries, they enjoy a high indirect income effect as a result of their participation in the business activities that have strong production and consumption linkages with different sectors of the economy. It emerges, therefore, that the NSAP targets only the poor in rural areas, and that the programme has a significantly high income effect for the upper classes in both rural and urban households.

Therefore, it may be concluded here that the income effect depends upon the nature of the programmes. However, despite having a focus on the poor in rural areas only, these programmes have a significantly high income effect for the upper classes in both rural and urban households.

7.3 The Employment Effect

Social protection programmes have an impact not only on the sectoral output but also on the sectoral employment. Producers employ labour to produce more output to meet the increased demand generated by the social protection programmes. Thus, these programmes create employment opportunities. The employment effects due to expenditure through MGNREGA, IAY, NSAP, and 'select SPPs taken together' are worth 6,575 thousands, 1,205 thousands, 1,343 thousands, and 9,123 thousands, respectively (see Table 15). The indirect employment effects for all these three programmes are very high. This indicates that greater employment has been generated due to induced demand, which is the result of linkages in the economy.

Table 15: Employment Effect Due to Social Protection Programmes
(Values in Thousands)

Social Protection Programmes	Direct Employment Effect	Indirect Employment Effect	Total Employment Effect
MGNREGA	2,475(37.64)	4,100(62.36)	6,575(100.00)
IAY	143(11.86)	1,062(88.14)	1,205(100.00)
NSAP	556(41.42)	787(58.58)	1,343(100.00)
Select SPPs taken together	3,174(34.79)	5,949(65.21)	9,123(100.00)

Source: Authors' calculation.
Note: In parenthesis, the values show percentage of the horizontal total.

i Sector-wise Employment Effect of 'Select SPPs Taken Together'

The total employment effect due to the 'select SPPs taken together' is the highest for the primary sectors (75.01 per cent), followed by the tertiary sectors (17.67 per cent) and secondary sectors (7.33 per cent) (see Table 16). The total output effect for the primary sectors due to the 'select SPPs taken together' is less than that for the secondary and tertiary sectors (see Table 6). The employment coefficients of the various sectors comprising the primary sectors are, in general, high (see Table

A2). Therefore, it is the high employment coefficients of the primary sectors that are causing a high employment effect for the primary sectors due to the 'select SPPs taken together'. Interestingly, the shares of the indirect employment effects are 65.18 per cent, 65.92 per cent and 65.02 per cent, respectively, of the total employment effect for the primary, secondary, and tertiary sectors, respectively. This indicates that the linkages among different sectors and parts of the economy have significantly induced the employment effect.

Among the primary sectors, the employment effect in the cereals sector due to the 'select SPPs taken together' is the highest (50.87 per cent) followed by pulses (12.38 per cent) and other crops (6.00 per cent) (see Table 16). The high employment coefficients as well as output effect for these sectors may be the possible reason for high employment effects. In general, the indirect employment effect for all sectors comprising the primary sector is higher than their direct employment effect except in the case of forestry and logging. The high direct employment effect for the forestry and logging sector is due to its significantly high direct output effect.

In the case of the secondary sectors, the total employment effect due to 'select SPPs taken together' is the highest for textiles and textile products (2.39 per cent), followed by that for non-metallic mineral products, metals, and metal products (1.05 per cent) and tobacco products (0.86 per cent) (see Table 16). These sectors have significantly high output effect and employment coefficients among all the sectors comprising the secondary sector. In general, the indirect employment effects of all sectors in the secondary sector are higher than their direct employment effect, which is due to their high indirect output effect resulting from high sectoral linkages.

Among the tertiary sectors, the total employment effect due to the 'select SPPs taken together' is the highest for trade (6.50 per cent) followed by 'other services' (5.27 per cent) and construction (1.90 per cent) (see Table 16). Similar to the above, these sectors have a significantly high output effect and employment coefficient among the sectors comprising the tertiary sector. In general, the indirect employment effects for all sectors in the tertiary sector are higher than their direct employment effect except that for the construction sector. The high direct employment effect for the construction sector may due to its significantly high direct output effect.

In general, a significant employment effect for cereals, pulses, other crops, mining, trade and 'other services' has been observed due to the 'select SPPs taken together'. The high employment coefficients as well as output effect, resulting from sectoral linkages, are the possible reasons for this.

Table 16: **Employment Effect of 'Select SPP Taken Together' in 2011-12**
(Values in Thousands)

Sector	Sector Description	Direct	Indirect	Total
S1	Cereals	1,825(57.49;39.32)	2,816(47.34;60.68)	4,641(50.87; 100.00)
S2	Pulses	351(11.07;31.10)	778(13.08;68.90)	1,130(12.38;100.00)
S3	Fruits and vegetables	27(0.85;37.58)	45(0.76;2.42)	72(0.79; 100.00)
S4	Other crops	72(2.28;13.22)	475(7.98;86.78)	547(6.00; 100.00)
S5	Milk and milk products	48(1.53;26.96)	131(2.21;73.04)	180(1.97;100.00)
S6	Other animal husbandry	29(0.92;21.58)	107(1.79;78.42)	136(1.49; 100.00)
S7	Forestry and logging	11(0.36;61.82)	7(0.12;38.18)	19(0.20; 100.00)
S8	Fisheries	12(0.37;38.51)	19(0.32;61.49)	31(0.33; 100.00)
S9	Mining	6(0.19;6.65)	82(1.39;93.35)	88(0.97; 100.00)
	Primary sectors	2,383(75.06;34.82)	4,460(74.98;65.18)	6,843(75.01; 100.00)
S10	Food products	24(0.77;34.95)	46(0.77;65.05)	70(0.77; 100.00)
S11	Beverages	2(0.07;35.69)	4(0.07;64.31)	7(0.07; 100.00)
S12	Tobacco Products	35(1.10;44.32)	44(0.74;55.68)	79(0.86; 100.00)
S13	Textiles and textile Products	63(1.98;28.92)	155(2.60;71.08)	218(2.39; 100.00)
S14	Furniture and Wood products	22(0.68;38.10)	35(0.59;61.90)	57(0.62; 100.00)
S15	Paper and paper products	3(0.09;13.40)	19(0.32;86.60)	22(0.24; 100.00)
S16	Leather and rubber products	2(0.06;15.81)	10(0.17;84.19)	12(0.13; 100.00)
S17	Plastic products	1(0.03;14.70)	5(0.08;85.30)	6(0.06; 100.00)
S18	Petroleum and coal-tar products	0(0.01;17.82)	2(0.03;82.18)	2(0.02; 100.00)
S19	Chemicals and fertilisers	3(0.09;11.84)	20(0.34;88.16)	23(0.25; 100.00)
S20	Non-metallic mineral products, metals, and metal products	48(1.52;50.52)	47(0.79;49.48)	96(1.05; 100.00)
S21	Non-electric equipment	1(0.02;7.65)	7(0.12;92.35)	7(0.08; 100.00)
S22	Electronic equipment	3(0.11;19.27)	14(0.24;80.73)	18(0.19; 100.00)
S23	Other manufacturing products	21(0.65;38.80)	32(0.54;61.20)	53(0.58; 100.00)
	Secondary Sectors	228(7.18;34.08)	441(7.41;65.92)	668(7.33; 100.00)
S24	Construction	110(3.46;63.26)	64(1.07;36.74)	174(1.90; 100.00)
S25	Electricity	2(0.05;14.08)	10(0.17;85.92)	12(0.13; 100.00)
S26	Water supply	1(0.03;49.61)	1(0.02;50.39)	2(0.02; 100.00)

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Sector	Sector Description	Direct	Indirect	Total
S27	Trade	200(6.30;33.72)	393(6.60;66.28)	593(6.50; 100.00)
S28	Hotels and restaurants	40(1.26;31.52)	87(1.46;68.48)	127(1.39; 100.00)
S29	Financial services	13(0.40;24.10)	40(0.68;75.90)	53(0.58; 100.00)
S30	Educational services	29(0.91;25.59)	84(1.41;74.41)	113(1.23; 100.00)
S31	Medical services	15(0.47;25.27)	44(0.74;74.73)	59(0.64; 100.00)
S32	Other services	155(4.88;32.26)	326(5.47;67.74)	481(5.27; 100.00)
	Tertiary sectors	564(17.76;34.98)	1,048(17.61;65.02)	1612(17.67; 100.00)
	Total	3,174(100.00;34.79)	5,949(100.00;65.21)	9,123(100.00; 100.00)

Source: Authors calculation.

Note: In parenthesis, the first values show percentage of the vertical total while the second values show percentage of the horizontal total.

(ii) Sector-wise Employment Effect of MGNREGA

Similar to the employment effect due to the 'select SPPs taken together', the total employment effect due to MGNREGA is the highest for the primary sectors (76.22 per cent), followed by the tertiary sectors (16.84 per cent) and secondary sectors (6.94 per cent) (see Table 17). The total output effect for the primary sectors due to MGNREGA is less than that of the secondary and tertiary sectors (see Table 7). The employment coefficients of the sectors comprising primary sectors are, in general, high (see Table A2). Therefore, it is the high employment coefficients of the primary sectors that are causing a high employment effect for the primary sectors due to MGNREGA. Interestingly, the shares of indirect employment effects in the total employment effect for primary, secondary, and tertiary sectors are 61.97 per cent, 64.43 per cent, and 63.25 per cent respectively. The high indirect employment effect for the three broad sectors is consistent with their high indirect output effect. This indicates that it is the linkages among the different sectors and parts of the economy that have raised the employment effect significantly.

Among the primary sectors, the employment effect due to MGNREGA is the highest for the cereals sector (52.14 per cent), followed by pulses (12.49 per cent) and other crops (5.96 per cent) (see Table 17). This is also similar to the employment effect for primary sectors due to the 'select SPPs taken together'. The possible reason for this is the high employment coefficients as well as the output effect for these sectors. In general, the indirect employment effect for all the sectors comprising the primary sector is higher than their direct employment effect except in the case of the forestry and logging sector. The high direct employment effect for the forestry and logging sector, on the other hand, is due to its significantly high direct output effect.

Similar to the employment effect due to the 'select SPPs taken together', the total employment effect due to MGNREGA in the case of the secondary sectors is the highest for textiles and textile products (2.34 per cent), followed by that for non-metallic

mineral products, metals, and metal products (0.87 per cent) and tobacco products (0.87 per cent) (see Table 17). These sectors have a significantly high output effect and employment coefficient among the sectors comprising the secondary sector. In general, the indirect employment effect of all the sectors in the secondary sector is higher than their direct employment effect, which is due to their high indirect output effect resulting from high inter-sectoral linkages.

Among the tertiary sectors, the total employment effect due to MGNREGA is the highest for trade (6.20 per cent), followed by that of 'other services' (5.13 per cent) and construction (1.61 per cent) (see Table 17). Similarly, these sectors have a significantly high output effect and employment coefficient among the sectors under the tertiary sector. In general, the indirect employment effect for all the sectors comprising the tertiary sector is higher than their direct employment effect except in the case of the construction sector. The high direct employment effect for the construction sector is due to its significantly high direct output effect.

Therefore, in general, a significant employment effect due to the impact of MGNREGA has been observed for cereals, pulses, other crops, trade and 'other services'. This is consistent with the findings for the 'select SPPs taken together'. The possible reasons for this are the high employment coefficients as well as the output effect, resulting from the inter-sectoral linkages.

Table 17: **Employment Effect of MGNREGA in 2011-12 (Values in Thousands)**

Sector	Sector Description	Direct	Indirect	Total
S1	Cereals	1,463 (59.09; 42.66)	1966 (47.94; 57.34)	3,428 (52.14; 100.00)
S2	Pulses	282 (11.38; 34.27)	540 (13.17; 65.73)	822 (12.49; 100.00)
S3	Fruits and vegetables	22 (0.88; 41.62)	30 (0.74; 58.38)	52 (0.79; 100.00)
S4	Other crops	57 (2.29; 14.46)	335 (8.17; 85.54)	392 (5.96; 100.00)
S5	Milk and milk products	39 (1.57; 30.70)	88 (2.14; 69.30)	126 (1.92; 100.00)
S6	Other animal husbandry	23 (0.95; 23.78)	75 (1.83; 76.22)	99 (1.50; 100.00)
S7	Forestry and logging	8 (0.33; 64.18)	5 (0.11; 35.82)	13 (0.20; 100.00)
S8	Fisheries	9 (0.38; 42.71)	13 (0.31; 57.29)	22 (0.33; 100.00)
S9	Mining	3 (0.14; 5.83)	54 (1.33; 94.17)	58 (0.88; 100.00)
	Primary sectors	1906 (77.00; 38.03)	3,106 (75.75; 61.97)	5,011 (76.22; 100.00)
S10	Food products	20(0.79; 38.88)	31 (0.75; 61.12)	50 (0.77; 100.00)
S11	Beverages	2 (0.08; 40.10)	3 (0.07; 59.90)	5 (0.07; 100.00)
S12	Tobacco products	28 (1.13; 48.94)	29 (0.71; 51.06)	57 (0.87; 100.00)
S13	Textiles and textile products	50 (2.01; 32.29)	104 (2.55; 67.71)	154 (2.34; 100.00)

Sector	Sector Description	Direct	Indirect	Total
S14	Furniture and wood products	13 (0.53; 36.06)	23 (0.57; 63.94)	36 (0.55; 100.00)
S15	Paper and paper products	2 (0.09; 14.91)	13 (0.32; 85.09)	15 (0.23; 100.00)
S16	Leather and rubber products	2 (0.06; 18.12)	7 (0.17; 81.88)	8 (0.13; 100.00)
S17	Plastic products	1 (0.03; 16.83)	3 (0.08; 83.17)	4 (0.06; 100.00)
S18	Petroleum and coal-tar products	0 (0.01; 17.56)	1 (0.03; 82.44)	1 (0.02; 100.00)
S19	Chemicals and fertilisers	2 (0.08; 12.20)	14 (0.34; 87.80)	16 (0.24; 100.00)
S20	Non-metallic minerals products, metals, and metal products	28 (1.12; 48.49)	29 (0.72; 51.51)	57 (0.87; 100.00)
S21	Non-electric equipment	0 (0.02; 7.70)	5 (0.11; 92.30)	5 (0.08; 100.00)
S22	Electronic equipment	2 (0.09; 19.21)	10 (0.23; 80.79)	12 (0.18; 100.00)
S23	Other manufacturing products	13 (0.52; 37.78)	21 (0.52; 62.22)	34 (0.52; 100.00)
	Secondary sectors	162 (6.56; 35.57)	294 (7.17; 64.43)	456 (6.94; 100.00)
S24	Construction	63 (2.56; 59.78)	43 (1.04; 40.22)	106 (1.61; 100.00)
S25	Electricity	1 (0.04; 13.67)	7 (0.17; 86.33)	8 (0.12; 100.00)
S26	Water supply	1 (0.03; 52.47)	1 (0.02; 47.53)	1 (0.02; 100.00)
S27	Trade	143 (5.76; 34.97)	265 (6.47; 65.03)	408 (6.20; 100.00)
S28	Hotel and restaurants	32 (1.29; 35.39)	58 (1.42; 64.61)	90 (1.37; 100.00)
S29	Financial services	9 (0.35; 24.41)	27 (0.66; 75.59)	36 (0.55; 100.00)
S30	Educational services	25 (1.03; 31.72)	55 (1.33; 68.28)	80 (1.22; 100.00)
S31	Medical services	12 (0.50; 30.04)	29 (0.70; 69.96)	41 (0.62; 100.00)
S32	Other services	121 (4.89; 35.85)	216 (5.28; 64.15)	337 (5.13; 100.00)
	Tertiary sectors	407 (16.44; 36.75)	701 (17.09; 63.25)	1,108 (16.84; 100.00)
	Total	2,475 (100.00; 37.64)	4,100 (100.00; 62.36)	6,575 (100.00; 100.00)

Source: Authors' calculation.
Note: In parenthesis, the first values show percentage of the vertical total while the second values show percentage of the horizontal total.

iii. Sector-wise Employment Effect of IAY

The total employment effect due to IAY is the highest for the primary sectors (61.74 per cent) followed by the tertiary sectors (26.99 per cent) and secondary sectors (11.27 per cent) (see Table 18). The pattern is similar to the findings for the 'select SPPs taken together' and MGNREGA. The total output effect due to IAY for the primary sectors is less than that for the secondary and tertiary sectors (see Table 8). The employment coefficients of the sectors comprising the primary sectors are, in general, high (see Table A2). Therefore, it is the high employment coefficients of the primary sectors that are causing a high employment effect for the primary sectors due to IAY. Interestingly, the shares of the indirect employment effects are 99.03 per cent, 71.69 per cent and 70.10 per cent of the total employment effect for the primary, secondary, and tertiary sectors, respectively. This indicates that it is the linkages among the different sectors and parts of the economy which has induced the employment effect significantly. It is apparent that the linkages for the primary and tertiary sectors are higher than those for the secondary sectors.

Among the primary sectors, the employment effect due to IAY is the highest for cereals (37.73 per cent) followed by that for pulses (10.89 per cent) and other crops (6.24 per cent) and (see Table 18). The possible reasons for this are the high employment coefficients and the output effects for these sectors. In general, the indirect employment effect for all the sectors comprising the primary sector is higher than their direct employment effect. The high indirect employment effect for these sectors is due to their significantly high indirect output effect.

In case of the secondary sectors, the total employment effect due to IAY is the highest for the non-metallic mineral products, metals, and metal products (2.97 per cent), followed by that for textiles and textile products (2.69 per cent) (see Table 18). These sectors have a high output effect and employment coefficient. In general, the indirect employment effect of all sectors in the secondary sector is higher than their direct employment effect except in the case of the non-metallic mineral products, metals, and metal products sector, which is due to their high indirect output effect, resulting from high sectoral linkages. As regards the non-metallic mineral products, metals, and metal products, the direct output effect is higher than its indirect output effect due to which its direct employment effect is higher than its indirect employment effect.

Among the tertiary sectors, the total employment effect due to IAY is the highest for trade (9.50 per cent) followed by that for 'other services' (7.19 per cent), and construction (5.14 per cent) (see Table 18). In general, the indirect employment effect for all the sectors comprising the tertiary sector is higher than their direct employment effect except in the case of the construction sector. The high direct employment effect for the construction and water supply sectors is due to its significantly high direct output effect.

Therefore, in general, cereals, pulses, other crops, trade, 'other services', and non-metallic mineral products, metals, and metal products have a significant employment effect due to IAY. The possible reason for this is the high employment coefficients as well as the output effect resulting from sectoral linkages.

Table 18: **Employment Effect of IAY in 2011-12 (Values in Thousands)**

Sector	Sector Description	Direct	Indirect	Total
S1	Cereals	0(0.00;0.00)	455(42.80;100.00)	455(37.73;100.00)
S2	Pulses	0(0.00;0.00)	131(12.35;100.00)	131(10.89;100.00)
S3	Fruits and vegetables	0(0.00;0.01)	9(0.83;99.99)	9(0.73;100.00)
S4	Other crops	3(1.98;3.76)	72(6.81;96.24)	75(6.24;100.00)
S5	Milk and milk products	0(0.00;0.00)	27(2.58;100.00)	27(2.28;100.00)
S6	Other animal hus-bandry	0(0.14;1.18)	16(1.54;98.82)	17(1.37;100.00)
S7	Forestry and logging	2(1.18;48.97)	2(0.17;51.03)	3(0.29;100.00)
S8	Fisheries	0(0.00;0.01)	4(0.36;99.99)	4(0.31;100.00)
S9	Mining	2(1.74;10.79)	21(1.93;89.21)	23(1.91;100.00)
	Primary sectors	7 (5.04; 0.97)	737 (69.36; 99.03)	744 (61.74; 100.00)
S10	Food products	0(0.00;0.01)	9(0.84;99.99)	9(0.74;100.00)
S11	Beverages	0(0.00;0.00)	1(0.09;100.00)	1(0.08;100.00)
S12	Tobacco products	0(0.00;0.00)	9(0.87;100.00)	9(0.77;100.00)
S13	Textiles and textile products	1(1.02;4.48)	31(2.92;95.52)	32(2.69;100.00)
S14	Furniture and wood products	8(5.54;49.71)	8(0.75;50.29)	16(1.32;100.00)
S15	Paper and paper products	0(0.26;8.93)	4(0.36;91.07)	4(0.35;100.00)
S16	Leather andrubber products	0(0.01;0.70)	2(0.20;99.30)	2(0.18;100.00)
S17	Plastic products	0(0.01;1.51)	1(0.10;98.49)	1(0.09;100.00)
S18	Petroleum and coal-tar products	0(0.07;21.16)	0(0.03;78.84)	0(0.04;100.00)
S19	Chemicals and fertilisers	0(0.32;11.05)	4(0.34;88.95)	4(0.34;100.00)
S20	Non-metallic minerals products, metals, and metal products	20(14.27;56.95)	15(1.45;43.05)	36(2.97;100.00)
S21	Non-electric equipment	0(0.10;8.04)	2(0.15;91.96)	2(0.14;100.00)
S22	Electronic equipment	1(0.68;22.69)	3(0.31;77.31)	4(0.35;100.00)
S23	Other manufacturing products	7(4.63;45.46)	8(0.75;54.54)	15(1.21;100.00)
	Secondary sectors	38 (26.91; 28.31)	97 (9.17; 71.69)	136 (11.27; 100.00)
S24	Construction	47(32.55;75.10)	15(1.45;24.90)	62(5.14;100.00)

Sector	Sector Description	Direct	Indirect	Total
S25	Electricity	0(0.34;19.06)	2(0.19;80.94)	3(0.21;100.00)
S26	Water supply	0(0.17;50.02)	0(0.02;49.98)	0(0.04;100.00)
S27	Trade	33(22.92;28.61)	82(7.69;71.39)	114(9.50;100.00)
S28	Hotel and restaurants	0(0.08;0.61)	18(1.71;99.39)	18(1.51;100.00)
S29	Financial services	3(1.99;25.07)	8(0.80;74.93)	11(0.94;100.00)
S30	Educational services	0(0.00;0.00)	20(1.84;100.00)	20(1.62;100.00)
S31	Medical services	0(0.00;0.00)	10(0.96;100.00)	10(0.84;100.00)
S32	Other services	14(10.02;16.52)	72(6.81;83.48)	87(7.19;100.00)
	Tertiary sectors	97 (68.05; 29.90)	228 (21.47; 70.10)	325 (26.99; 100.00)
	Total	143 (100.00; 11.86)	1,062 (100.00; 88.14)	1,205 (100.00; 100.00)

Source: Authors' calculation.
Note: In parenthesis, the first values show percentage of the vertical total while the second values show percentage of the horizontal total

iv. Sector-wise Employment Effect of NSAP

Similar to the findings for the 'select SPPs taken together', MGNREGA, and IAY, the total employment effect due to the NSAP is the highest for the primary sectors (80.99 per cent), followed by the tertiary sectors (13.32 per cent) and secondary sectors (5.69 per cent) (see Table 19). The total output effect for the primary sectors due to NSAP is less than that of the tertiary sectors but higher than the secondary sector (see Table 9). The employment coefficients of the sectors comprising the primary sectors are, in general, high (see Table A2). Therefore, the high employment coefficients of the primary sectors as well as the output effect have caused a high employment effect for the primary sectors due to NSAP. Interestingly, the shares of the indirect employment effects are 56.82 per cent, 64.52 per cent and 66.71 per cent of the total employment effect for the primary, secondary, and tertiary sectors, respectively. This indicates that it is the linkages among the different sectors and with parts of the economy which has raised the employment effect significantly.

Among the primary sectors, the employment effect due to NSAP is the highest in the cereals sector (56.47 per cent), followed by that for pulses (13.16 per cent) and other crops (5.98 per cent) (see Table 19). The possible reason for this is the high employment coefficients as well as the output effect for these sectors. In general, the indirect employment effect for all the sectors under the primary sector is higher than their direct employment effect except in the case of the forestry and logging sector. The high direct employment effect for the forestry and logging sector is mainly because of the high direct output effect.

The total employment effect due to NSAP among the secondary sectors is the highest for textiles and textile products (2.31 per cent), followed by that for food products

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(0.79 per cent) (see Table 19). These sectors have a significantly high output effect and employment coefficient. In general, the indirect employment effect of all the sectors in the secondary sector is higher than their direct employment effect except for tobacco products. This is due to their high indirect output effect resulting from high sectoral linkages. Due to the low linkages and consequently low indirect output effect, tobacco products have low indirect employment effect.

Among the tertiary sectors, the total employment effect due to NSAP is the highest for trade (5.25 per cent) followed by that for 'other services' (4.22 per cent), and hotels and restaurants (1.34 per cent) (see Table 19). As noted earlier, these sectors have a significantly high output effect and employment coefficient. In general, the indirect employment effect for all the sectors under the tertiary sector is higher than their direct employment effect. The high indirect employment effect for these sectors is due to their significantly high indirect output effect resulting from their strong inter-sectoral linkages.

Thus, in general, cereals, pulses, other crops, trade and 'other services' show a significant employment effect of NSAP, for which the possible reasons are the high employment coefficients as well as the output effect, resulting from high sectoral linkages.

Table 19: Employment Effect of NSAP in 2011-12 (Values in Thousands)

Sector	Sector Description	Direct	Indirect	Total
S1	Cereals	363 (65.15; 47.79)	396 (50.33; 52.21)	759 (56.47; 100.00)
S2	Pulses	70 (12.54; 39.45)	107 (13.60; 60.55)	177 (13.16; 100.00)
S3	Fruits and vegetables	5 (0.97; 48.31)	6 (0.73; 51.69)	11 (0.83; 100.00)
S4	Other Crops	13 (2.31; 15.99)	67 (8.58; 84.01)	80 (5.98; 100.00)
S5	Milk and milk Products	10 (1.73; 37.33)	16 (2.05; 62.67)	26 (1.92; 100.00)
S6	Other animal husbandry	6 (1.03; 27.34)	15 (1.93; 72.66)	21 (1.55; 100.00)
S7	Forestry and logging	2 (0.27; 68.12)	1 (0.09; 31.88)	2 (0.16; 100.00)
S8	Fisheries	2 (0.42; 49.69)	2 (0.30; 50.31)	5 (0.35; 100.00)
S9	Mining	0 (0.00; 0.28)	7 (0.95; 99.72)	7 (0.56; 100.00)
	Primary sectors	470 (84.42; 43.18)	618 (78.56; 56.82)	1,088 (80.99; 100.00)
S10	Food products	5 (0.87; 45.51)	6 (0.74; 54.49)	11 (0.79; 100.00)
S11	Beverages	0 (0.08; 47.65)	1 (0.07; 52.35)	1 (0.07; 100.00)
S12	Tobacco products	7 (1.25; 56.37)	5 (0.68; 43.63)	12 (0.92; 100.00)
S13	Textiles and textile products	12 (2.10; 37.79)	19 (2.45; 62.21)	31 (2.31; 100.00)
S14	Furniture and wood products	1 (0.10; 12.74)	4 (0.48; 87.26)	4 (0.32; 100.00)
S15	Paper and paper products	0 (0.05; 11.57)	2 (0.29; 88.43)	3 (0.19; 100.00)

Sector	Sector Description	Direct	Indirect	Total
S16	Leather and rubber products	0 (0.07; 23.95)	1 (0.15; 76.05)	2 (0.12; 100.00)
S17	Plastic products	0 (0.03; 22.27)	1 (0.07; 77.73)	1 (0.05; 100.00)
S18	Petroleum and coal-tar products	0 (0.00; 12.38)	0 (0.02; 87.62)	0 (0.02; 100.00)
S19	Chemicals and fertilisers	0 (0.06; 10.99)	3 (0.33; 89.01)	3 (0.22; 100.00)
S20	Non-metallic minerals products, metals and metal products	0 (0.04; 8.39)	2 (0.32; 91.61)	3 (0.20; 100.00)
S21	Non-electric equipment	0 (0.01; 6.31)	1 (0.09; 93.69)	1 (0.05; 100.00)
S22	Electronic equipment	0 (0.03; 10.68)	1 (0.18; 89.32)	2 (0.12; 100.00)
S23	Other manufacturing products	0 (0.17; 23.67)	3 (0.40; 76.33)	4 (0.30; 100.00)
	Secondary sectors	27 (4.88; 35.48)	49 (6.27; 64.52)	76 (5.69; 100.00)
S24	Construction	0 (0.04; 3.21)	6 (0.75; 96.79)	6 (0.45; 100.00)
S25	Electricity	0 (0.01; 6.43)	1 (0.14; 93.57)	1 (0.09; 100.00)
S26	Water supply	0 (0.00; 11.69)	0 (0.01; 88.31)	0 (0.01; 100.00)
S27	Trade	25 (4.41; 34.80)	46 (5.85; 65.20)	71 (5.25; 100.00)
S28	Hotel and restaurants	8 (1.41; 43.36)	10 (1.30; 56.64)	18 (1.34; 100.00)
S29	Financial services	1 (0.21; 20.27)	5 (0.58; 79.73)	6 (0.43; 100.00)
S30	Educational services	3 (0.61; 26.25)	10 (1.22; 73.75)	13 (0.97; 100.00)
S31	Medical services	3 (0.45; 33.31)	5 (0.64; 66.69)	8 (0.56; 100.00)
S32	Other services	20 (3.56; 35.00)	37 (4.68; 65.00)	57 (4.22; 100.00)
	Tertiary sectors	60 (10.71; 33.29)	119 (15.17; 66.71)	179 (13.32; 100.00)
	Total	556 (100.00; 41.42)	787 (100.00; 58.58)	1,343 (100.00; 100.00)

Source: Authors' calculation.
Note: In parenthesis, the first values show percentage of the vertical total while the second values show percentage of the horizontal total.

7.4 The Revenue Effect

The social protection programmes may have an impact on government revenue through direct and indirect taxes on the induced incomes of households, corporate sectors and public enterprises arising directly and/or indirectly from these programmes. Table 20 clearly indicates that the revenue generated under these three selected programmes through the multiplier process is Rs.10440.16 crore, which is almost one-fifths of the initial expenditure.

Table 20: **Revenue Effect Due to Social Protection Programmes (Values in Crores)**

	Direct Taxes	Indirect Taxes	Total Revenue
MNREGA	4,378.66(0.12)	2,479.03(0.07)	6,857.69(0.18)
IAY	1,411.13(0.11)	1,150.54(0.09)	2,561.66(0.20)
NSP	768.47(0.12)	252.34(0.04)	1,020.81(0.16)
SPP	6,558.25(0.11)	3,881.90(0.07)	10,440.16(0.18)

Source: Authors' calculation.

Therefore, it is obvious that the revenue generated is less than the expenditure under these programmes, but these do generate some revenue apart from their output, income, and employment effects, as discussed earlier.

VIII. CONCLUSION

The impact of social protection programmes is multidimensional. The application of the SAM multiplier analysis of these programmes is one of the most appropriate methods. It captures the direct as well as the indirect effect on the economy due to changes in the exogenous demand generated by SPPs. A 32-sector SAM for India for the year 2007-08, which incorporates household categories based on consumption expenditure, has been constructed for the SAM multiplier analysis. It has been shown in Table A3 (Appendix D).

The present study is an attempt to capture the economic impacts of SPPs. It is understood that since the objectives of the different social protection programmes and the expenditure thereon are different, there would inevitably be variations in their economic impact. In view of the lack of the required data on all the social protection programmes in India, the present study has selected only three social protection programmes, viz. MGNREGA, IAY, and NSAP, for evaluating their economic impact in terms of output, income, employment, and government revenue as an illustrative exercise.

As regards the output effects of all the three programmes, the study finds that the output effect is the highest for the tertiary sectors. In general, sectors like other services, trade, cereals, non-metallic mineral products, metals, and metal products and food products show a higher output effect. The indirect output effects are higher than the direct output effects due to linkages with the other sectors and parts of the economy.

The income effect of these programmes works out to be almost twice the expenditure under these programmes. The income effect of the households is higher than the income effect for private corporations and public enterprises. In general, a higher income effect is reflected in the bottom classes of rural households, with the target being rural households. However, what is highly noteworthy is that even though the focus of these programmes is on the poor

in rural areas only, the government expenditure under these programmes has induced a significantly high income effect for the upper classes in both the rural and urban households. This has happened through the linkages in the income propagation process.

These programmes have generated employment for thousands of people, both directly and indirectly. The employment impact of the programmes is the highest in the primary sectors, particularly in sectors like cereals, pulses, other crops, trade, and other services.

What is interesting is that apart from the output, income, and employment effects, these programmes also generate significant government revenue through taxation of the induced income and consumption, as mentioned above.

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X. Appendix A

10.1 Framework of a SAM[19]

The framework of a SAM is a square matrix, wherein each row represents the receipts while each column stands for the expenditure of the respective account. The SAM framework extends the input–output (I–O) model[20] by including information on income distribution and final demand. An I-O table has information on payment of incomes to factors of production by sectors, but not by institutions. Therefore, there is lack of information on the distribution of income among owners of these factors. A SAM contains not only information on the distribution of income among factor owners but also on their payments from other sources, such as transfer payments from the government and remittances from abroad. In addition, a SAM has information on direct taxes while an I–O table has information on only indirect taxes.

The construction and application of SAM attained popularity through the pioneering works of Sir Richard Stone[21] and his colleagues.

Moreover, after publication of a book that described in detail the SAM for Sri Lanka by Pyatt, et al. in 1977, the SAM has been used to study many issues such as income distribution, regional development, growth strategies in developing economies, technological and environmental concerns pertaining to economic development, among other things (see Santos, 2005, p. 1).

A SAM is based on the circular flow of goods, services, and income in an economy (Figure A1). The production of goods and services requires intermediate inputs and factors of production, for example, labour, capital, and land. Intermediate goods are made available as inputs from different sectors. Institutions contribute factors of production and receive factor payments as value added. The other sources of income for institutions are transfer payments from the government, interest on public debt, and remittances from the ROW. The income is spent on goods and services and on taxes; the remaining is saved. The saving is channelised through financial institutions and used as investment. The excess demand for savings is met from ROW. The excess demand of goods, services, and factors of production is harmonised by imports and exports.

Figure A1: Circular flow of income in an economy
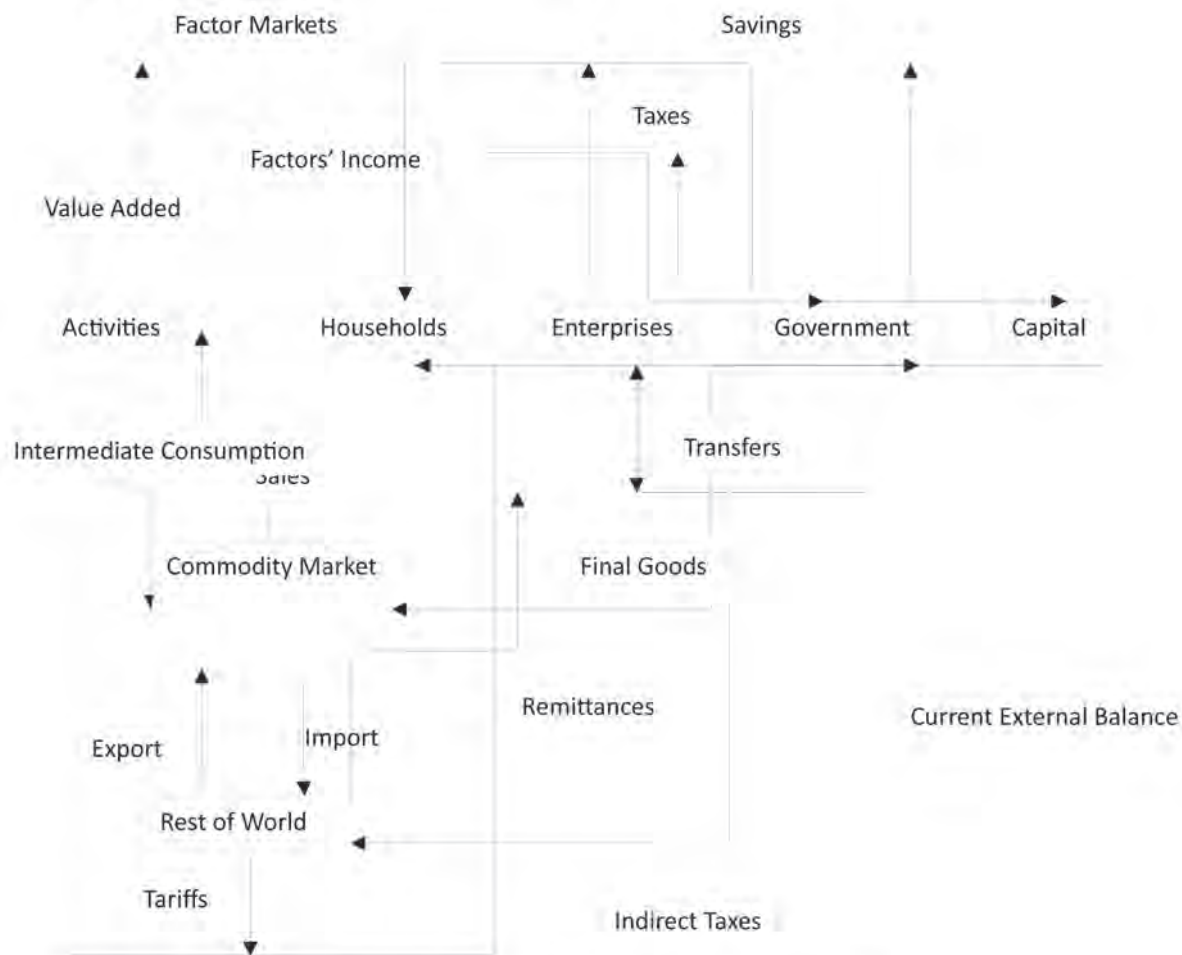
Note: The arrow in above diagram shows the direction of payments. Source:Chung-I Li (2002)

Figure A1 clearly indicates that the financial flows in an economy must be balanced for a given period. The SAM framework is ideally a matrix representation of this circular flow of income in an economy. According to Pyatt, et al. (1977), the SAM framework serves to satisfy two basic rules: first, for every row there is a corresponding column; and second, every entry is a receipt in a row and expenditure in a column (Pradhan, et al., 2006, p. 71). Keeping these rules in view, a schematic structure of a SAM has been presented in Table A1.

Table A1: Schematic Structure of a SAM

	Production Activities	*Factors*	*Institutions*	*Capital Account*	*Rest of the World (ROW)*	*Total*
Production activities	I–O table		Institutions' consumption	Grossfixed capital formation	Exports	Aggregate demand
Factors	Value added				Net factor Income from abroad	Factor income
Institutions	Taxes on intermediary goods		Taxes, transfer payments, and interest on public debt	Taxes on investment goods	Net current and capital transfer From abroad, taxes on exports	Institutions' total income
Capital account		Depreciation	Institutions' savings	Foreign savings	Gross savings of the economy	
Rest of the world						Foreign exchange payments
Total	Total cost of production	Total factor endowments	Institutions' total expenditure	Aggregate investment	Foreign exchange receipts	

A SAM has five major accounts: production, factors, institutions, capital, and rest of the world. The institutions are classified into households, private corporations, public enterprises, and government. The indirect tax account is separated from the government account to simplify the presentation of the detailed structure of taxes (see Pradhan, et al., 2006, for a detailed discussion on the schematic structure of a SAM).

The schematic structure portrays that a SAM is an important tool for creating a macroeconomic data set for an economy from different sources in a consistent framework. It is used to bring together national income, social accounts, and input–output (I–O) accounts within a unified statistical framework (Robinson, 1989) and to analyse inter-sectoral linkages and socio-economic aspects.

XI. APPENDIX B

11.1 Social Protection Programmes

The term 'social protection' implies the governments' policies and programmes that are designed to reduce poverty and enhance their capacity to manage economic and social risks. In recent years, social protection programmes have found a place in the agenda of many governments. The Indian Government has also launched programmes such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and the Indira Awas Yojana (IAY). In the present study, only three social protection programmes, namely MGNREGA, Indira Awas Yojana, and National Social Assistance Programme (NSAP), have been considered because of non-availability of data on other programmes.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA): This refers to the world's largest welfare programme, run by the Government of India. It is a job guarantee scheme for rural Indians, and was enacted by legislation on 25 August 2005. It aims at enhancing the livelihood security of people in rural areas by guaranteeing hundred days of wage employment in a financial year to a rural household whose adult members volunteer to do unskilled manual work.

Indira Awas Yojana (IAY): This is a social welfare programme, launched by the Indian Government in 1985, to provide housing for the rural poor in India. It is one of the major flagship programmes of the Rural Development Ministry and aims to construct houses for the below the poverty line (BPL) population in the villages. Under the scheme, financial assistance worth Rs. 35,000 in the plain areas and worth Rs. 38,500 in the difficult hilly terrains (highland areas) is provided for the construction of houses. The houses are allotted in the name of the woman in the family or jointly between the husband and wife. The construction of the houses is the sole responsibility of the beneficiary and engagement of contractors is strictly prohibited.

National Social Assistance Programme: The National Social Assistance Scheme (NSAS) or National Social Assistance Programme (NSAP) is a flagship welfare programme of the Government of India, which was initiated on 15 August 1995. Article 41 of the

Indian Constitution directs the state to provide public assistance to its citizens in case of unemployment, old age, sickness, and disablement, and in other cases of undeserved want within the limit of its economic capacity and development. The scheme signifies a 'giant step' towards achieving the directive principles in the Constitution. The scheme is administered by the Ministry of Rural Development, Government of India, and its beneficiaries could hail from either urban or rural areas.

XII. APPENDIX C

Table A2: Sector-wise Employment Coefficient

Sector	Sector Description	Headcount/Income
S1	Cereals	4.25
S2	Pulses	5.17
S3	Fruits and Vegetables	0.17
S4	Other Crops	0.91
S5	Milk and Milk Products	0.49
S6	Other Animal Husbandry	0.49
S7	Forestry and Logging	0.06
S8	Fisheries	0.27
S9	Mining	0.14
S10	Food Products	0.09
S11	Beverages	0.08
S12	Tobacco Products	1.16
S13	Textiles and Textile Products	0.37
S14	Furniture and Wood Products	0.52
S15	Paper and Paper Products	0.15
S16	Leather and Rubber Products	0.13
S17	Plastic Products	0.06
S18	Petroleum and Coal-tar Products	0.00
S19	Chemicals and Fertilisers	0.04
S20	Non-metallic minerals and Metal Products	0.09
S21	Non-electric Equipment	0.05
S22	Electronic Equipment	0.09
S23	Other Manufacturing Products	0.10
S24	Construction	0.31

Sector	Sector Description	Headcount/Income
S25	Electricity	0.04
S26	Water Supply	0.11
S27	Trade	0.34
S28	Hotels and Restaurants	0.24
S29	Financial Services	0.09
S30	Educational Services	0.42
S31	Medical Services	0.29
S32	Other Services	0.18

Source: Authors' calculation.

Table A3: A 32 SAM for India for 2007-08 (Values in Rs. Crore)

Sector	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
S1	84,048	2,898	597	11,232	235	6,816	0	0	0	14,902
S2	2,229	16,254	11	1,331	1,628	1,702	0	0	0	3,690
S3	423	132	2,368	1	0	61	0	0	0	29,782
S4	790	1,000	146	11,265	16,366	31,055	23	0	1	79,040
S5	173	54	0	0	96	7	0	0	0	12,135
S6	16,825	4,012	2,160	20,394	105	8	0	0	0	3,542
S7	0	0	0	0	69	0	919	0	0	53
S8	101	32	0	0	0	0	0	1,202	0	7,111
S9	1	1	0	2	0	0	0	0	1,222	283
S10	677	114	0	736	2,089	4,911	0	233	4	32,375
S11	1	0	0	0	0	0	0	0	0	80
S12	0	0	0	0	0	0	0	0	0	57
S13	1,299	107	5	427	1,589	75	554	1,680	173	540
S14	29	6	3	56	0	0	32	26	354	1,280
S15	87	16	8	66	0	0	443	0	106	3,226
S16	1	0	0	1	0	0	315	0	546	5
S17	12	4	0	10	0	0	45	0	2	1,202
S18	4,684	946	992	3,359	0	0	1,396	624	3,284	2,578
S19	19,250	1,704	1,871	15,871	212	249	56	49	3,740	3,436
S20	7	2	0	0	0	0	68	48	1,831	491
S21	963	27	348	510	30	128	351	0	5,938	753
S22	28	2	4	20	0	0	84	0	54	42
S23	50	8	112	141	0	0	1,062	1,524	839	94
S24	3,012	194	1587	2,704	21	62	744	0	3,011	2,518
S25	7,799	350	500	3,050	0	0	93	0	3,099	5,430
S26	40	3	6	28	0	0	6	0	74	18
S27	14,767	4,374	1,437	7,722	11,533	22,002	774	720	2014	49,130
S28	43	4	7	30	0	0	1,645	0	445	1
S29	4,403	821	659	4,195	251	270	53	55	2,134	9,638
S30	8	1	1	6	0	0	0	0	1,271	0
S31	0	0	0	0	0	0	0	0	0	0
S32	6,845	946	550	4,494	2,376	4,697	5,393	525	7,869	17,872

Sector	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Labour	99,966	22,305	77,993	104,891	73,114	26,676	43,412	23,647	39,312	13,681
Capital	79,429	17,723	61,970	83,342	58,094	21,196	37,899	15,283	85,578	27,240
RH1	0	0	0	0	0	0	0	0	0	0
RH2	0	0	0	0	0	0	0	0	0	0
RH3	0	0	0	0	0	0	0	0	0	0
RH4	0	0	0	0	0	0	0	0	0	0
RH5	0	0	0	0	0	0	0	0	0	0
UH1	0	0	0	0	0	0	0	0	0	0
UH2	0	0	0	0	0	0	0	0	0	0
UH3	0	0	0	0	0	0	0	0	0	0
UH4	0	0	0	0	0	0	0	0	0	0
UH5	0	0	0	0	0	0	0	0	0	0
Pvt. corp.	0	0	0	0	0	0	0	0	0	0
Pub. enter.	0	0	0	0	0	0	0	0	0	0
Govt.	0	0	0	0	0	0	0	0	0	0
Ind. taxes	-1,7692	-1,000	-436	-6606	-2554	-5386	973	147	2,995	-5899
Capital a/c	0	0	0	0	0	0	0	0	0	0
ROW	2,669	3,112	6,257	1957	1	494	5,162	188	343,383	12,176
Column total	332,966	76,151	159,158	271,235	165,255	115,024	101,502	45,950	509,279	328,502

Sector	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
S1	432	0	2	0	7	0	1	0	294	3
S2	12	0	0	0	0	1	1	2	161	1
S3	2,836	0	8	0	1	1	44	18	686	8
S4	1,107	1,752	33,825	53	265	4,543	1,742	51	3,090	232
S5	88	0	1	0	0	0	1	0	347	3
S6	14	0	1,117	133	3	7,337	594	40	1,507	51
S7	11	738	128	17,196	5,888	42	543	10	708	93
S8	16	0	0	0	0	0	3	1	284	2
S9	36	19	1,383	280	998	208	332	298,191	18,938	76,356
S10	9,219	727	616	35	440	155	488	181	7992	2088
S11	1142	0	11	1	4	2	41	33	648	36
S12	0	2536	0	0	0	0	2	0	13	1
S13	219	70	78973	786	853	2577	1137	65	2443	816
S14	30	254	1161	2483	1146	103	174	65	2023	622
S15	557	544	2176	834	22918	162	1089	144	2190	808
S16	3	0	2545	455	76	11376	1125	17	738	414
S17	589	30	3339	975	984	690	14822	160	6204	2641
S18	278	87	4001	363	1257	741	903	22009	13711	23892
S19	1322	400	23945	2542	6198	11332	24301	9270	134783	11739
S20	32	37	737	2279	635	2108	1752	146	2145	196708
S21	118	61	4510	373	343	1205	443	250	2244	9289
S22	0	0	375	168	458	637	387	4	834	5163
S23	3	4	1063	176	351	1487	462	92	1347	5523
S24	87	42	5346	189	1425	319	259	375	2256	6815
S25	782	92	8523	399	1827	1187	1560	3061	9250	15459
S26	16	0	35	0	0	4	2	1	84	12
S27	3232	2105	37436	6533	5509	8239	5220	6421	24009	63644
S28	0	0	39	0	0	0	0	0	0	0
S29	1131	546	9631	2451	1965	1853	1502	5417	9471	13286
S30	0	0	0	0	0	0	0	0	0	0
S31	0	0	0	0	0	0	0	0	0	0
S32	1658	1721	45552	4642	7380	5251	6035	9023	25999	47518
Labour	1123	1735	38290	9097	6338	9183	3773	2773	17123	27931
Capital	6382	9862	50191	17340	13678	17805	9738	62165	62800	118609
RH1	0	0	0	0	0	0	0	0	0	0
RH2	0	0	0	0	0	0	0	0	0	0
RH3	0	0	0	0	0	0	0	0	0	0
RH4	0	0	0	0	0	0	0	0	0	0
RH5	0	0	0	0	0	0	0	0	0	0
UH1	0	0	0	0	0	0	0	0	0	0
UH2	0	0	0	0	0	0	0	0	0	0
UH3	0	0	0	0	0	0	0	0	0	0
UH4	0	0	0	0	0	0	0	0	0	0
UH5	0	0	0	0	0	0	0	0	0	0
Pvt. corp.	0	0	0	0	0	0	0	0	0	0
Pub. enter.	0	0	0	0	0	0	0	0	0	0
Govt.	0	0	0	0	0	0	0	0	0	0
Ind. taxes	550	1433	-135	1423	3327	2001	4218	17649	9536	36232
Capital a/c	0	0	0	0	0	0	0	0	0	0
ROW	398	43	12642	1284	11438	5077	4827	49757	95276	150879
Column total	33424	24838	367465	72490	95709	95626	87523	487391	459137	816874

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Sector	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30
S1	0	0	30	1	4	0	284	7881	0	65
S2	0	0	8	0	1	0	84	7055	0	18
S3	1	0	75	3	9	0	110	7857	0	0
S4	59	49	259	2682	148	1	938	7128	0	157
S5	0	0	29	1	4	0	36	17817	0	41
S6	168	59	125	350	2	0	473	11421	0	4
S7	146	17	359	25413	63	0	935	0	0	0
S8	0	0	17	1	3	0	19	673	0	0
S9	1107	2566	19755	15518	18466	4	908	50	0	0
S10	98	53	349	11	79	0	436	32287	71	0
S11	3	6	10	0	4	1	16	3430	47	0
S12	0	0	0	0	0	0	7	1	0	0
S13	577	817	1311	3399	373	15	1473	2496	259	191
S14	641	540	1055	13163	343	24	1004	1552	531	350
S15	434	790	1422	2100	529	47	8130	1438	2618	501
S16	1212	756	4202	97	38	3	941	2	123	7
S17	1790	2452	8865	248	18	2	1248	0	0	0
S18	1207	1788	5821	26635	13240	38	10177	1535	1268	250
S19	2430	5453	7151	10656	1103	273	3089	256	0	660
S20	70332	44119	52951	201405	474	44	13626	94	395	4
S21	54406	9873	27916	2400	1986	83	3981	1467	235	32
S22	11662	43682	17779	9195	6721	40	2635	1259	1654	23
S23	4877	2503	102428	55919	1875	38	5578	563	1769	285
S24	3003	2503	3367	132053	2797	1242	4126	4753	3151	2041
S25	2916	4324	8511	10343	27183	315	6093	2513	3584	133
S26	7	3	119	1886	158	1361	14	118	97	6
S27	11243	8476	25162	83186	9366	38	8254	20604	800	312
S28	0	0	0	401	931	175	11228	9474	6865	2403
S29	8524	7278	21172	26026	8087	363	33646	4580	12339	3772
S30	0	0	0	0	0	0	0	0	0	1091
S31	0	0	0	0	0	0	0	0	511	0
S32	20328	24223	51215	68204	7409	2658	53048	10253	16968	6699
Labour	17948	10103	25325	319586	58774	4799	256055	27998	72498	130041
Capital	37097	26024	74642	69611	9182	4440	458979	50187	178697	36422
RH1	0	0	0	0	0	0	0	0	0	0
RH2	0	0	0	0	0	0	0	0	0	0
RH3	0	0	0	0	0	0	0	0	0	0
RH4	0	0	0	0	0	0	0	0	0	0
RH5	0	0	0	0	0	0	0	0	0	0
UH1	0	0	0	0	0	0	0	0	0	0
UH2	0	0	0	0	0	0	0	0	0	0
UH3	0	0	0	0	0	0	0	0	0	0
UH4	0	0	0	0	0	0	0	0	0	0
UH5	0	0	0	0	0	0	0	0	0	0
Pvt. corp.	0	0	0	0	0	0	0	0	0	0
Pub. enter.	0	0	0	0	0	0	0	0	0	0
Govt.	0	0	0	0	0	0	0	0	0	0
Ind. taxes	14852	11451	17920	38845	2647	44	7929	537	2169	478
Capital a/c	0	0	0	0	0	0	0	0	0	0
ROW	93125	98692	134977	2844	0	0	0	0	4192	11304
Column total	360196	308600	614330	1122183	172017	16049	895501	237279	310842	197293

Sector	S31	S32	Labour	Capital	RH1	RH2	RH3	RH4	RH5	UH1	UH2
S1	120	8	0	0	21359	25107	27402	29584	33371	8203	9501
S2	112	235	0	0	3278	4279	5111	6151	8102	1654	2219
S3	0	10	0	0	7801	10452	12400	15055	22503	3765	5473
S4	549	11752	0	0	3263	4899	6483	8549	13208	1819	2841
S5	176	3	0	0	4081	8513	13557	19928	35382	3511	6372
S6	17	133	0	0	2763	3999	4771	5520	8393	1420	1935
S7	0	2	0	0	6482	7888	8756	9506	8520	1920	1420
S8	0	0	0	0	2054	3045	3848	4792	8664	876	1398
S9	0	84	0	0	35	55	54	67	61	91	70
S10	0	127	0	0	12585	17546	20790	23898	39749	6158	8619
S11	0	5	0	0	1441	1571	2382	3474	6663	627	959
S12	0	0	0	0	1340	2243	2930	3496	4688	820	1041
S13	959	10354	0	0	7273	11190	14682	21407	42065	2818	5583
S14	1343	2394	0	0	168	614	948	2148	3599	326	894
S15	487	7182	0	0	446	690	996	1799	4970	414	711
S16	10	15498	0	0	623	1078	1572	2524	4388	376	773
S17	0	5278	0	0	643	1080	1776	2510	4550	296	729
S18	481	132116	0	0	1979	2840	4380	8081	23456	2291	5204
S19	19357	3608	0	0	1998	3017	3846	4956	9873	1110	1689
S20	63	3987	0	0	615	865	1493	1856	3098	598	844
S21	88	9162	0	0	206	328	593	767	1287	434	619
S22	1256	25174	0	0	421	716	1077	2387	4209	451	746
S23	428	41258	0	0	2186	3324	5072	6775	12211	2618	3932
S24	1174	28710	0	0	173	149	220	403	1053	44	89
S25	250	18643	0	0	419	765	1102	1619	2904	563	990
S26	8	823	0	0	23	56	97	162	340	108	223
S27	1616	43638	0	0	17112	23768	29863	38169	62440	8778	13100
S28	8887	64371	0	0	7702	10699	13442	17181	28106	3951	5897
S29	1198	23706	0	0	2839	4333	5838	7943	18389	1542	2657
S30	449	7580	0	0	1705	3447	5450	9463	26181	1918	4934
S31	0	4677	0	0	2068	2951	5370	8331	33776	1882	2660
S32	4024	106871	0	0	26652	33749	48739	76454	154123	11635	22705
Labour	50359	641569	0	0	0	0	0	0	0	0	0
Capital	21290	501108	0	0	0	0	0	0	0	0	0
RH1	0	0	106874	26543	0	0	0	0	0	0	0
RH2	0	0	111892	46609	0	0	0	0	0	0	0
RH3	0	0	147351	68736	0	0	0	0	0	0	0
RH4	0	0	168515	232732	0	0	0	0	0	0	0
RH5	0	0	516906	626006	0	0	0	0	0	0	0
UH1	0	0	54977	10378	0	0	0	0	0	0	0
UH2	0	0	98256	17935	0	0	0	0	0	0	0
UH3	0	0	149010	26897	0	0	0	0	0	0	0
UH4	0	0	291913	68849	0	0	0	0	0	0	0
UH5	0	0	609170	191092	0	0	0	0	0	0	0
Pvt. corp.	0	0	0	292822	0	0	0	0	0	0	0
Pub. Enter.	0	0	0	114207	0	0	0	0	0	0	0
Govt.	0	0	0	98682	0	0	7878	17708	64557	0	0
Ind. taxes	2234	56381	0	0	2219	3111	4228	6019	12049	1220	2097
Capital a/c	0	0	0	484558	-1184	20614	51745	120439	565724	-5821	15404
ROW	82	190237	0	0	0	0	0	0	0	0	0
Column total	117016	1956684	2254864	2306047	142768	218984	318891	489122	1272654	68419	134328

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Sector	UH3	UH4	UH5	Pvt. Corp.	Pub. Enter.	Govt.	Indi-rect Taxes	Capital a/c	ROW	Total
S1	10717	12057	13390	0	0	3659	0	-4779	13533	332966
S2	2724	3358	3962	0	0	619	0	-273	431	76151
S3	7276	9841	16566	0	0	0	0	19	3571	159158
S4	3636	4670	6159	0	0	3560	0	-1924	4004	271235
S5	9435	12933	19250	0	0	844	0	411	25	165255
S6	2273	2626	3297	0	0	1361	0	4750	1321	115024
S7	772	380	175	0	0	0	0	1040	1307	101502
S8	1730	2337	3777	0	0	0	0	124	3837	45950
S9	41	19	14	0	0	580	0	-3162	54648	509279
S10	10911	15673	34451	0	0	3381	0	14718	23431	328502
S11	1403	1942	5522	0	0	273	0	1450	197	33424
S12	1093	1362	1718	0	0	0	0	1034	456	24838
S13	7545	13570	28171	0	0	5451	0	19544	71552	367465
S14	1571	3820	5360	0	0	2417	0	16458	1380	72490
S15	1415	2370	4901	0	0	9816	0	3963	2166	95709
S16	1277	2032	4311	0	0	113	0	22314	13741	95626
S17	1073	1644	2657	0	0	221	0	14287	4444	87523
S18	8741	13616	27671	0	0	7732	0	31549	70187	487391
S19	2347	3176	6305	0	0	5739	0	29889	58887	459137
S20	1332	1645	2814	0	0	529	0	141376	63289	816874
S21	936	1175	2064	0	0	679	0	188355	23241	360196
S22	1818	4330	6344	0	0	8094	0	128670	19998	308600
S23	5880	7998	14729	0	0	8761	0	253171	55817	614330
S24	101	163	906	0	0	11964	0	881403	5628	1122183
S25	1482	2210	4377	0	0	8315	0	0	0	172017
S26	352	496	801	0	0	8460	0	0	0	16049
S27	17710	25258	44017	0	0	7368	0	41312	77089	895501
S28	7972	11369	19814	0	0	4196	0	0	0	237279
S29	4116	6860	19664	0	0	10177	0	0	6060	310842
S30	9611	17417	39032	0	0	67727	0	0	0	197293
S31	4341	8331	23738	0	0	18380	0	0	0	117016
S32	34580	83235	164608	0	0	301201	0	42733	378023	1956684
Labour	0	0	0	0	0	0	0	0	-2553	2254864
Capital	0	0	0	0	0	0	0	0	-17959	2306047
RH1	0	0	0	0	0	9352	0	0	0	142768
RH2	0	0	0	0	0	32848	0	0	27634	218984
RH3	0	0	0	0	0	47535	0	0	55269	318891
RH4	0	0	0	0	0	59612	0	0	28263	489122
RH5	0	0	0	0	0	115750	0	0	13991	1272654
UH1	0	0	0	0	0	3064	0	0	0	68419
UH2	0	0	0	0	0	8737	0	0	9400	134328
UH3	0	0	0	0	0	11838	0	0	18800	206545
UH4	0	0	0	0	0	24957	0	0	9446	395164
UH5	0	0	0	0	0	55366	0	0	4698	860326
Pvt. corp.	0	0	0	0	0	192134	0	0	0	484956
Pub. enter.	0	0	0	0	0	0	0	0	0	114207
Govt.	12631	17792	59670	192134	0	0	405005	0	0	876056
Ind. taxes	3125	5624	11359	0	0	11402	0	73497	72788	405005
Capital a/c	24578	93839	258732	292822	114207	-198157	0	0	64429	1901928
ROW	0	0	0	0	0	0	0	0	0	1242469
Column total	206545	395164	860326	484956	114207	876056	405005	1901928	1242469	

End Notes

1. For a detailed discussion, please see Annexure A.

2. In literature, the terms,'social protection' and 'social security' have generally been used interchangeably.

3. In the present study, a SAM for the year 2007-08 has been used for deriving the impact analysis of expenditure on social protection programmes in 2011-12. The main reason for it is the availability of the I-Otable. The I-Otable for 2007-08 is the latest available I-Otable for India. It has also been assumed that the production structure and relative prices would not change during the years 2007-08 and 2011-12. The construction of a 32-sector SAM for India for the year 2007-08 is different from the 78-sector SAM for India for the year 2007-08 only in terms of the number of production accounts, factors of production and the category of households. Therefore, the major section of mythology has been adopted from the 78-sector SAM for India for the year 2007-08 by Pradhan, et al. (2013).

4. Further, these ratios have been re-adjusted with the ratios obtained from SAM, 2003-04 by Saluja and Yadav (2006) and the personal income has been computed on the basis of the adjusted income–expenditure ratios.

5. In SAM 2003-04 by Saluja and Yadav (2006), the categories of households have been defined in slightly different ways. Therefore, aminute modification has been applied by re-estimating income from different sources for RH2and UH2.

6. For a detailed discussion about the selected social protection programmes in India, please see the Annexure B.

7. In the present study, three social protection programmes, namely MGNREGA, IAY, and NSAP, have been considered. In order to understand the total impact of these three programmes, their expenditure, distributed in the SAM framework, has been added to form the expenditure pattern of the select SPP in theSAM framework.

8. It has been observed that the PFCE in the Input–Output Table for 2007-08 comprises 23.68 per cent,26.09 per cent and 50.22 per cent from the primary,secondary, and tertiary sectors,respectively. Almost 54.33 per cent of the total expenditure through the select SPP goes directly to the households and the rest 45.67 per cent of the total expenditure indirectly increases the total purchasing power of the households. Therefore, it influences the output demand in the same pattern as has been observed in the PFCE of the Input–Output Table for 2007-08.

9. See the first paragraph under the sub-head, "Sector-wiseOutput Effectof 'SelectSPPsTakenTogether'".

10. See the first paragraph under the sub-head, "Sector-wise Output Effect of the Select SPPs".

11. Same as Endnote 10.

12. Same as Endnote 10.

13. The incomes of the households comprised factors' payment, transfer payment, and remittances from abroad. The incomes of private corporations and public enterprises are the undistributed profits.

14. The main focus of these programmes is poverty reduction and the prevalence of poverty in the rural areas is higher than that in the urban areas.

15. The increased income of households due to transfer payment induces consumption demand. The economy meets this increased demand for consumption through the expansion of production activities, which employ factors of production and their owners receive the payment in return as factor's income. Thus, the indirect income effect is the factor's income received by households due to the expansion of economic activities, which takes place to meet the increased demand of commodities and services due to the direct income effect during the first and subsequent rounds of the multiplier effect through consumption and production linkages.

16. The direct impact is because the labour employed belongs to the lowest two categories. The vectors of expenditure are obtained by assuming the current pattern of expenditure of their two categories. The indirect effect is increasing over quintiles and is the maximum for the richest categories of rural as well asurban areas. This is because people of the lowest class will spend money on purchasing items from the primary sectors, clothing, educational, and medical services, among other things. These sectors will require inputs (including

factor inputs) from other sectors and so on, which will provide incomes to the rich people. The indirect effect in the case of MGNREGA is inclusive of the effect of the expenditure on materials incurred under the scheme (construction materials) and that of administrative expenditure.

17. The possible explanation for this has been mentioned in the section under the sub-head, "Households' Income Effect of 'Select SPPs Taken Together'".

18. Same as Endnote 17.

19. Adopted from A Social Accounting Matrix for India 2007-08 by Pradhan et al. (2013)

20. The input–output (I–O) table, developed by Wassily Leontief, is a matrix representation of accounting for an economy, which depicts interdependencies between different sectors of the economy. An I–O table shows the flow of good sand services from each sector of an economy over a specific period. Its origin may be traced to Quesnay's Tableau Economique.

21. For his contributions tothe development of national and social accounts systems, Stone was awarded the Nobel Prize in Economic Sciencesin 1984.

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