



SHARP *Results*

MARCH 2006

ECONOMIC REFORM

ECONOMIC, social and decision-making independence are still illusory for most women in India's rural areas. Mostly illiterate, these women do not have a say in decision-making either at home or outside. In this backdrop, the self-help group (SHG) movement has emerged as an avenue for women in rural India to create and manage powerful civil society institutions that could make a significant

Building Capacities of Rural Communities through People's Institutions: Self-Help Groups as Channels for Infrastructure Development and Economic Empowerment

difference to their lives.

SHGs are village-level institutions involved in activities that include promotion of savings, cred-

it delivery to members at nominal rates of interest, encouraging entrepreneurial activities, and networking with NGOs and state departments for enhancing the quality of life in the region. Though SHGs began their activities as 'small savings groups', many of them have diversified their activities and enhanced their economic capacities. They have created opportunities for women to achieve social

RECOMMENDATIONS

✓ SHGs must be integrated into the processes of development planning and implementation.

✓ Information about state initiated programmes must be channelled through SHGs.

✓ The collection and marketing of minor forest produce of the village must be channelled through the SHG.

✓ Contracts for carrying out development activities in the community must be given to SHGs by panchayats without insisting on deposits.

✓ Facilitators for both state and NGO sponsored SHGs must be drawn from the village itself, to the extent possible.

✓ State departments and voluntary groups must take the initiative to link up SHGs with institutions that can place regular orders for their products.

✓ A common collection point for

SHG products must be created in each *hobli* (circle) for ensuring a continuous supply.

✓ The Karnataka Forest Department can think of linking SHGs and village forest councils for sustainable management of forest resources.

✓ A platform must be created in each panchayat block to facilitate periodic meetings of SHGs, members of Panchayati Raj Institutions, representatives of state departments and local communities. This will help in achieving a convergence between all the institutions that have a responsibility for local governance.

✓ A state level SHG capacity-building institute with branch offices located in each division needs to be established. This could serve as a nodal centre for linking all institutions that need to be involved in building or strengthening the capacities of SHGs to function effectively.



and physical mobility, which were hitherto inaccessible to them. The groups also act as a strong counter force against exploitative credit delivery systems.

It is estimated that there are more than 700,000 SHGs in India. Each group usually has 15-20 members. Despite these large numbers, the capacity of SHGs to generate and disburse resources to create or upgrade rural infrastructure such as primary schools, primary

health centres, roads, fair price shops, safe drinking water sources and other community assets has not yet been realised.

Can this revolution that is sweeping across the country be leveraged to build capacities of not only individuals but also village communities? How can a convergence be achieved between SHGs, Panchayat Raj Institutions (PRIs) and voluntary agencies to develop essential rural infrastructure? Can SHGs go beyond microfinance? Can the SHGs evolve to act as pressure groups influencing policy formulation and implementation in rural development?

These questions formed the context in which this research was conducted in the Joida *taluk* of Karnataka's Uttara Kannada district, which is rich in natural resources but lags behind in essential infrastructure. This action research also set itself the task of training and building the capacities of the SHGs and their members.



Why SHGs?

THE benefits of centralised governance as well as transfer of power to local bodies did not create opportunities for sustainable livelihoods for large sections of the rural population. Local bodies such as the panchayats could not often rise above power struggles based on caste, class and gender.

Experience has shown that it is not just economic growth that holds the key to India's economic development but setting in motion a process that addresses itself to issues of economic inequalities and achiev-

ing quality economic development. Policies aimed at economic reform have not been marked by the kind of realism, which should give due recognition to regional and culture specific issues.

Although Joida is rich in natural and human resources, due to the absence of an effective channel of communication between local bodies, bureaucracy, citizens and policymakers, the region's development is severely affected.

Joida has a population of 48,901 of which 93% live in rural areas. 87% of the total land area is under forest cover. The region is divided into 15 panchayat blocks, with the population being spread over as many as 455 settlements. Joida is one of the least developed areas in the state in terms of infrastructure development with just about 19% of the villages having access to public transport in the village itself. Only the town of Ramanagar has a market in the entire Joida *taluk*.

Successive forest policies did not bring any significant change in the lives of the poor in this region. The economy of the *taluk* is mainly dependent on agriculture and forestry. The construction of as many as 6 dams on the Kali River, considered the lifeline of the region, has resulted in large-scale displacement of people. Village forest committees, which were started as part of the joint forest management programme, are yet to make their mark in most villages.

Joida has 242 SHGs, of which 110 are Stree Shakti (all-women groups). They were initiated from 2000 onwards with the support of the Karnataka government. Ten SHGs were started under the aegis of the state literacy programme and 8 mixed-group SHGs were started by the *taluk* (bloc) panchayat. The remaining 114 SHGs were formed by voluntary initiative.

Due to lack of resources and leadership, their full potential is yet to be tapped. Some are not currently functioning effectively. It was also noticed that there is lack of leadership within the SHGs to

PROFILES OF CANADIAN SELF-HELP INSTITUTIONS

Self-Help Institution	Age	Practical Needs
Tignish Fisheries Co-operative Tignish, Prince Edward Island	77	Response to exploitatively low prices in the fisheries
West Baffin Eskimo Cooperative, Nunavut	46	An economic alternative for subsistence hunting cultures
Conseil Coopératif Acadien de la Nouvelle-Écosse, Nova Scotia	25	Financial difficulties faced by a local fishing cooperative
Women in Support of Fishing Miminegash, Prince Edward Island	25	Response to exploitatively low prices for Irish Moss
Indo-Canadian Women's Association, Edmonton, Alberta	20	Provide new immigrants with settlement services in their own language
Chez Nous Community Care Cooperative, Wellington, Prince Edward Island	13	Provide Acadian seniors with affordable housing and care
Multicultural Health Brokers Cooperative, Edmonton, Alberta	12	Provide access to healthcare services to new immigrant mothers in their own language
Grassroots Women, Vancouver, British Columbia	10	Address the needs of women stuck in low wage, service sector employment

undertake entrepreneurial activities for income generation. There is also over-dependence on external agencies such as NGO facilitators and *anganwadi* (crèche) workers even for carrying on day-to-day SHG activities. Savings, loan disbursement and repayment are the only activities that most SHGs are actively engaged in.

The project chose 150 SHGs to generate data on their composition, activities and future priorities with the hope that a symbiosis could be achieved between grass-roots institutions and elected local bodies in working for holistic development. A total of 1,565 members participated in the study of which 1,517 were women.

Home Truths

WHEN the project team started work in Joida *taluk*, they discovered many home truths. The team realised that though women had started most of the SHGs, the utilisation of loans availed by SHG members are almost always controlled by men in the family. Women seldom seemed to have any control over the use of the loan.

The SHGs had also become only a savings activity and the members did not use their collective voice to raise issues such as alcoholism and dowry. In fact, out of the 150 SHGs selected for this study, only 3.33% had taken the initiative in protesting the sale of liquor in Joida.

Not a single Stree Shakti SHG was involved in any community capacity building activity or had been able to establish linkage with any state department. Only about 12% of NGO-sponsored SHGs were involved in community level activities such as maintenance and construction of roads, community halls, drinking water sources and health check-up clinics.

The silver lining though was that the formation of SHGs had unified the women and built their confidence. Many women came out of their homes for the first time and met on a common platform to discuss issues of common interest. That itself was a revolutionary step for most of the women.



A village in Joida

At the onset, the project organised capacity-building workshops in different parts of Joida for SHG members. These workshops were often attended by policymakers including the local member of the legislative assembly, members of *gram* (village), *taluk* (block) and *zilla* (district) panchayats and members of NGOs, SHGs and *anganwadi* workers.

Prakruthi

SUBSEQUENTLY, the team concentrated on building the capacities of 20 SHGs that have formed themselves into a federation named Prakruthi. The members have worked at gaining better understanding of credit delivery systems, market network, and government programmes.

An interesting result of the research team's efforts is the formation of a people's theatre group called Siddanatha Kala Tanda, which has been formed by 12 youngsters from the villages of Deria, Wagabandh, Kasargalli and Mynol. This group, trained in the concept

and practice of street theatre, is now touring different parts of Joida creating awareness about development issues and urging local people to act as pressure groups on policy-makers and administrators to work for the region's development.

Prakruthi also intends to emerge as a pressure group to fight for social justice. The federation has been constantly striving to update members' knowledge base on government programmes, inter-SHG linkages and identifying and strengthening market connections. The federation has also organised training programmes for its members, apart from participating in handicrafts exhibitions and also sending its members on exposure visits to SHGs in other parts of Karnataka.

The SHG members were given training in computers and the accounts of Prakruthi-affiliated SHGs were computerised. This kind of training has meant that there is now an increasing demand for handing over contracts to SHGs for infrastructure creation and maintenance. The women are also being mobilised to protest against and for closure of *arrack* (local alcoholic brew) shops.

The project research plan also included seeking public participation, sensitising media persons to development issues with a special focus on SHGs, training local youth for mapping infrastructure, developing infrastructure situation profiles and resource maps for each village and settlement.



The Shastri Applied Research Project seeks to address urgent issues in social development and health, economic reform and environmental management. Canadian and Indian researchers are collaborating on 19 studies on various topics. SHARP is implemented by the Shastri Indo-Canadian Institute and funded by the Canadian International Development Agency.

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THE PIONEERS OF DERIA

DERIA village in Joida *taluk* was the first point of entry for the project team. Initially the team encountered the problem of gaining acceptance by local communities. In a cultural milieu where women were never in the forefront, the very idea of focusing special attention on women's empowerment was not acceptable. But with the realisation that the project's visions were conceived with sincerity, the entire village became the community partner in the project.

Today, due to a combined effort by the project team and the local community, Deria is well on its way to becoming a model village in Joida. It is the only village with a computer centre in the entire Joida *taluk*. The community hall with a TV and DTH (direct to home) facility, reading room and a library that is equipped with books and CDs to facilitate the acquisition of spoken English skills stand out as examples of Deria's attempts at catching up with changes taking place in the world. Deria's enthusiasm for engaging change has now inspired elected representatives to work for providing to the village a metalled approach road and tap water for all houses. A plan for building a small auditorium in the community hall is also on the anvil. The fact that a public toilet, a long-standing need of the village, was constructed overcoming all resistance from many community elders is an example of the imprint that the project has left.



The last was an important step since it was for the first time that infrastructure mapping was done in all the human settlements in Joida. This process of generating and validating data on infrastructure involved the community researchers, local population, PRIs, state departments, schools and *anganwadi* teachers.

Infrastructure development in the region is concentrated only in a few pockets of the *taluk*. Since there is a close link between infrastructure availability and level of development, it is very important to strengthen the region's infrastructure. Thus, this document is likely to be used as a base to revise electoral rolls and also to create new voting booths in Joida.

SHGs for All Round Development

THE SHGs have now realised that they have a role to play in the all round development of the village. There was also a mutual exchange of information on self-help initiatives in India and Canada. Effective practices of eight self-help institutions in Canada were documented (*profiles of Canadian institutions given on page 2*). Effective practices in self-help institutions identified from the Canadian component of the research were the ethic of volunteerism, spirit of mutual assistance, external support, clearly identified needs, organisational infrastructure and financial sustainability.

The activity profiles of 150 SHGs were created and infrastructure profiles, a manual for SHG management, newsletters and a select bibliography on micro credit initiatives in India were published.

Some of the major impacts of this project were that it created an opportunity for the SHG members to acquire skills, build linkages with markets and meet people from different walks of life. The exposure to new ideas has also benefited the SHG members and made them much more confident and assertive. ■



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SHASTRI APPLIED RESEARCH PROJECT

ECONOMIC REFORM

INDIA started full-scale liberalisation from the early 1990s following a severe balance payments crisis coupled with a high fiscal deficit and a high inflation rate. A series of reforms have been undertaken since then. The major areas of reforms include industrial reforms, trade and exchange rate reforms, reforms relating to foreign direct investment (FDI), financial sector reforms, and fiscal and public sector reforms.

Following the reforms, the GDP growth rate, and the industrial, trade and financial sectors have done well. But at the same time employment has not grown much, particularly in the organised sector of the economy. Further, real wages have also not risen much in most sectors except in selected sectors.

The study focused on labour market reforms and policies pertaining to labour laws and labour market regulations before and after the reforms. It attempted to analyse the work incentives, bonus and promotion policies in India. The sectors covered by the study included manufacturing and, in the labour market component, other industrial activities as well. The informal sector was covered, but in a literature-based analysis.

Research Components

THE first component of the study attempted an overview of the major economic reforms undertaken by the Indian government in the last 20 years, especially in the 1990s. It also analysed how the incentive structure in various sectors of the economy was affected by the reforms. In subsequent components the team analysed the

Economic and Labour Reforms in India: Their Impact on Exports, Growth, Employment and Poverty



FINDINGS

- ✓ The economic reforms of the 1990s have had a considerable impact on all three targeted areas: exports, employment and poverty.
- ✓ Economic reforms, trade liberalisation, and currency realignment with various internal reforms, have led to increased competitiveness and a movement of resources towards industries with comparative advantage in the manufacturing sector.
- ✓ The increased competitiveness has resulted in growth of exports, particularly in pharmaceutical products, textiles and some basic metals.
- ✓ The reform impact on employment has been stable but has not grown any faster than before the reforms. In the seven years following the start of trade liberalisation, manufacturing employment has kept rising at slightly more than 2% per annum.
- ✓ This outcome has been attributed to three factors: the simultaneous opening of the economy to foreign trade and investments and the correction of currency misalignment; the implementation of internal reforms alleviating the burden of licensing and administrative controls, and gradual implementation and sequencing of these reform measures.
- ✓ The labour market study shows that employment has been affected negatively by the existing job security regulation, reducing the growth rate by 2.4% per year.
- ✓ The informal sector seems to have played the role of a buffer, absorbing some of the labour force released by the organised sector, but it has not led to the expected decline in real wages, partially because some of the workers' transfer has taken the form of subcontracting.
- ✓ The investigation of poverty has led to the conclusion that poverty alleviation has continued, although apparently at a slower pace than in the 1980s. This is attributable to an increase in income disparities.



impact of these reforms and the need for additional reforms to maintain high growth rates. The areas of trade policies, labour laws, financial and technology policies were considered.

The second component of the project examined various issues related to the labour market, in particular employment, unemployment, poverty and welfare of the workers. It examined the need for labour reforms in India to boost productivity, exports and job creation, as experienced by China and the East Asian countries.

Labour reforms by themselves cannot increase employment and reduce poverty without appropriate associated policies. A rapid expansion of exports, especially of labour-intensive manufactured goods, can play an important role in employment generation. With this in mind, the third component of this research studied the issues of competitiveness of India's manufacturing industries.

The incentive structure and its changes were used, together with industry cost data from the Annual Survey of Industries (ASI) to analyse the changes in competitiveness of the manufacturing sector. At the same time the project examined to what extent increases in competitiveness were followed by increases in output, exports and employment. The purpose of this analysis was to identify the weaknesses and pitfalls of past reforms and to formulate proposals for further policy reforms to boost India's exports. The competitiveness analysis includes the measurement of various remaining distortions, which prevent industries or sectors from realising their full potential. The study attempted to identify industries

that are potential future exporters, as well as those that need continued support to compete against imports under further liberalisation.

The fourth component of the study linked the findings of the former components to the ultimate question of poverty alleviation. The study examined first how the poverty level has declined during the pre-reform and post-reform periods by surveying the methods and findings of previous studies. It has then used the Human Development Index to examine poverty and found that there is clearly convergence in human development between the richest and the poorest Indian states. Although much of the convergence is attributable to a slow down in the richer states, there is still progress in the poorest states. This is interpreted as an indication of continued poverty alleviation, albeit at a slower pace than in the pre-reform period.

Methodology

THE study undertook a detailed econometric analysis of the employment and wages in India's manufacturing sector using two digit industry level data from the Annual Surveys of India for the period 1960 to 1997,

the longest such data series used by any empirical study so far. The team could not extend it further till 2005 because of the major changes in the industrial classification system by ASI beginning 1998.

It also analysed the impact of economic reforms and of job security regulations on employment and wages. Theory suggests that an increase in exports would increase employment in the exportable sector and an increase in imports would reduce employment in the import competing industries. When both exports and imports increase simultaneously, as has been the case in India since the 1991 liberalisation, the overall impact on employment would be ambiguous. If however, liberalisation leads to higher growth of value added, employment should increase.

India has one of the strongest job security laws in the world. Job security regulation in the organised sector of Indian manufacturing was strengthened with the implementation of the Industrial Disputes (Amendment) Act 1976, which made it mandatory for all firms employing 300 or more workers to seek government permission before any layoff of workers. A 1982 amendment (imple-



mented only in 1984) further expanded the scope of this legislation to all firms employing 100 or more workers.

In this context, the study examined the determinants of employment and wages. In addition, the study analysed the impact of economic reforms and job security regulations on employment and wages. It also tested whether there has been any other shift in the demand curve for labour, by including a liberalisation dummy, which was measured as the ratio of exports to GDP and shows a significant increase after 1991.

The analysis covered the manufacturing sector of India for the period between 1960-61 and 1997-98 using both CSO and ASI data. Seventeen industries were covered in the study. The team used a dynamic panel model called General Methods of Moments (GMM) for its analysis.

level of education and capital stock per workers has increased the real wage. Labour productivity is also positively associated with the real wage.

The study also examined the changes in international competitiveness and comparative advantage that have occurred over the period from 1987-88 to 1997-98 as a consequence of the reforms, and to relate these changes to the manufacturing sector's export performance. It used an innovative method of measuring competitiveness and comparative advantage.

The method of analysis used in this component consisted of the computation of three unit cost indices of competitiveness and their changes over time. It also traced policy changes from the levels of protection and currency misalignment to unit cost changes, and growth of exports, value added and employment.

impact on prices of the reforms more than real cost reductions. This effect is unexpected, but results from the fact that the lowering of import duties was accompanied by a substantial depreciation of the rupee.

Export Competitiveness

THE most dramatic improvements in competitiveness observed were those at the level of export competitiveness. This means that the total manufacturing cost per unit value of output at international prices declined by an average of over 20%. Although textiles, clothing and leather products were among the most export competitive industries, the gain in competitiveness was even more dramatic in formerly highly protected industries like chemicals, basic metals and the rubber, plastic, petroleum and coal industries.

Several industries have also diminished their unit cost ratios at shadow prices, which means that they increased or approached comparative advantage, in particular the clothing industry, leather products, chemicals, basic metals and other manufacturing. The fastest growing industries had stronger comparative advantage than the slower growing or declining industries. This means that resources have moved towards activities with comparative advantage.

The research component on the informal sector was based on the existing literature and concluded that this sector seems to have absorbed much of the shock received by the formal industrial sector through the reforms. By absorbing most of the labour that may have been set free by the formal sector, its employment has expanded more than formal employment. It has also avoided a potentially possible wage decline. This may be the consequence, at least partially, of outsourcing or subcontracting, which implies that the shift of employment from formal to informal sub-sectors occurred on the demand and supply sides rather than on the side of labour supply only.

The team's investigation of poverty has led to the conclusion that poverty alleviation has continued, although apparently at a slower pace



Findings

THE economic reforms of the 1990s have had a considerable impact on all three targeted areas of exports, employment and poverty, but the degree of impact varies. Economic reforms seem not to have had any significant impact on labour demand as the liberalisation dummy comes out as insignificant. GDP growth has a positive impact on labour employment. Job security regulations had a negative impact on labour demand, reducing the growth of labour demand by a whopping 2.4% per annum. It was also found that the

Starting from the level of protection, which is widely measured by tariff-based nominal and effective rates of protection, the team found that estimates of protection were significantly lower than the tariff-based rates. The analysis suggests that Indian prices of most manufactured products tend to be lower than suggested by the tariff-based prices.

Using these estimates of protection the team computed unit cost ratios and found that industries have, on an average, become slightly more profitable. Interestingly, this change corresponds to the direct

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LIBERALISATION AND EMPLOYMENT

THIS study analysed the employment scenario in India before and after liberalisation. The Planning Commission data shows that in the pre-liberalisation period (1983-1993), the GDP grew at an average annual rate of 5.42% while employment grew at about 2% per year. In the post-reforms period (1992-97), average annual GDP growth increased to 6.5% per year, while employment growth increased to 2.44% per year. The study also analysed organised sector employment (public and private) after the economic reforms were initiated. Although private sector employment increased during the post-reforms period, total employment has not increased much due to a fall in public sector employment (partly as a result of privatisation of some of the public sector units). In the public sector, employment declined in major industries like manufacturing, agriculture, construction, and mining and quarrying during the post-reforms period. However, there has been significant rise in employment in some private sector industries like information technology, telecommunications, finance, insurance, real estate, transport, and the wholesale and retail trade after liberalisation. The study finds mixed evidence of male and female employment in the organised sector. While male employment fell in the public sector, it witnessed high growth in the private sector. Female employment in contrast had a positive growth rate in the public sector and negative in the private sector.

The study also undertook econometric estimation of labour demand, real wages and productivity in the Indian industrial sector. The findings suggest that labour demand increased with output growth, availability of capital and the rate of return on capital, while it declined with real wage increases. No significant change in the labour demand function is found before and after liberalisation. The job security regulations and its minor decline after liberalisation does not seem to have affected either labour demand or labour productivity.

than in the 1980s. This is attributable to an increase in income disparities.

Recommendations

ECONOMIC reforms have generally benefited India by increasing growth rates of GDP and exports. The reforms have led to increased competitiveness of many industries, particularly pharmaceutical products, textiles, some basic metals and engineering products. Reforms have also led to increased inequality and slower poverty reduction than in the 1980s. To increase the rate of poverty reduction, the government needs to ensure that the manufacturing sector expands more rapidly, as this sector has the potential to create a lot of jobs that can help reduce poverty while simultaneously increasing the growth of exports and GDP.

The study of the labour market suggests that Indian job security regulations are hindering the growth of employment in the manufacturing

sector. Thus, to increase employment and reduce poverty, the government may need to re-balance labour laws by increasing social security for contractual and casual workers while allowing some flexibility in the job security regulations. This is even more important for exporters. Thus as a first step, the government may consider more flexible labour laws in the export processing zones.

Areas of Further Study

THE study has found that following the 1991 reforms, some industries have done better while others have done worse. There is a need for carrying out a survey of several such industries with a view to finding out what causes this differential effect of economic reforms on different industries. Also, it would be useful to examine how various industries perceive the effect of reforms on them and what further reforms are needed. ■



SHARP *Results*

MARCH 2006

ECONOMIC REFORM

Despite the phenomenal growth in food production since the mid-1960s, 800 million people around the world still suffer from chronic hunger. This situation arises not only due to the uneven spread of natural and economic wealth between the North and the South but also because modern production systems have grossly overlooked the issues of environmental sustainability and social equity.

In India, despite self-sufficiency in food production, millions of people remain underfed and underemployed. While poverty is multifaceted, manifested in terms of lack of access to food, health, education, shelter, information, quality and other rights and services, we still measure poverty on the basis of consumption expenditure associated with a normative requirement of calorie intake.

The focus of this study is on India's agricultural trade policy and its relation to food production in the country and economic decisions regarding procurement, pricing and the public distribution system, all of which eventually affect the food security of the poor.

The team's main objectives were to review the impact of liberalisation on production, trade and environment in selected countries of the North and the South. It sought to examine the social and environmental impact of agricultural production under different scenarios of compliance with the Agreement of Agriculture's commitments and export possibilities for India.

Another issue considered is an assessment of the scope for pro-

Food Security and Sustainable Production Systems in India: Implications under Trade Liberalisation



RECOMMENDATIONS

Community

✓ Actively engage with service providers and support organisations in order to learn about low-cost sustainable farming practices. Proactively seek information about new sets of farming practices. To promote these practices, demand appropriate extension services from the state and other organisations including input suppliers.

Policy

✓ Strengthen networking of service providers and support organisations for sharing of experience. Engage closely with the mainstream agricultural research and extension system in order to demonstrate that sus-

tainable farming practices call for different modes of functioning - modes that are interactive and continuous in nature.

✓ There should be a substantial and separate budget for promoting on-farm research and extension activities being carried out by civil society organisations in collaboration with research scientists.

✓ A part of the wasteland in public ownership should be made available for enhancing availability of biomass and fodder, which will contribute positively to sustainable farming systems in dry land regions.

✓ Restructure pricing and subsidy policies in favour of the lagging regions.

moting sustainable agriculture, including organic farming and its feasibility for ensuring aggregate food supply, growth in exports and institutional development. From this, it has derived policy implications for reformulating the domestic subsidy structure for India and the requisite investment funds.

In this background, the specific activities that took shape were a review of the theoretical literature and empirical evidence on environmental implications of trade with special reference to India, the European Union and Canada. This included an examination of the present pattern of trade flow and the development of an alternative scenario that incorporates environmental 'load' of agricultural produce, especially food crops, for obtaining a closer understanding of technological, institutional and market-related issues pertaining to organic (sustainable) farming in India.

Processes Involved

THE two-fold contemporary debate on how developed countries use environmental damages as non-tariff barriers so as to prevent imports and plead for differential standards was examined. In the case of developing countries like India, the team studied how not to allow environmental implications to influence competitive advantage by promoting market access and pleading for a level playing field in treating agricultural production. Overall, a case-by-case approach was adopted to study the multi-functionality of agriculture.

Assessing damage and fixing responsibility turned out to be a more complex issue than in the corresponding case of manufacturing. Though pleading for sustainable development and technological transfer, the team felt none of the questions historically determined comparative advantage. Their main proposition was to consider natural resource endowment as a primary factor for determining comparative advantage across sectors and countries, with zero per cent of forest to total area, cropland per capita, utilis-



able water per crop area. It also emphasises that there should be convergence between trade and domestic policies where priority should be given to increased resource mobilisation and allocation rather than on growth and exports per se.

The study involved a detailed review of the impact of trade liberalisation in agriculture in some major countries in the North and South. It analysed trends in agricultural production, exports, and input use (including labour) of major crops in India, estimated the environmental impact of cost of damages and benefits in improving productivity of selected crops (rice, wheat, soybeans and coarse cereals).

We critically examined the existing subsidy structure and the incentive policies for promoting agricultural production and exports in the three sets of crop region combinations by identifying the scope and mechanism for reallocation of subsidies in favour of the less water-intensive crops and additional requirements for promoting them. The team also examined the various experiments in the field of sustainable agriculture practices and organic farming in various parts of India and South Africa primarily to assess the feasibility of such practices for technological potential, institutional mechanisms for implementation and financial requirements.

Notable Findings

THE study culminated in significant policy relevance in terms of exploring new options for a sustainable production system the world over. It took a comprehensive view of the various agencies and contributed to the network that promotes technology on a wider scale. Outputs involved research reports, publications in professional journals, policy briefs, participation in email discussions, and organising consultative workshops with policymakers, academicians, and practitioners of sustainable agriculture.

The study also provides a comprehensive analysis of the environmental impact of the present production system and a realistic assessment of the potential impact of sustainable agriculture on aggregate production, employment and the environment. This is expected to lead to the identification of appropriate options for sustainable agriculture and institutional mechanisms essential for promoting such options.



PROMOTE SUSTAINABLE FARMING

DESPITE a fairly impressive track record in a predominantly agro-economy like that of India, agricultural growth finds itself at the crossroads. There have been many positives like limited adverse impact on the environment, favourable changes in forest and cultivated land use, low use of chemical fertiliser and pesticides on crops, development of improved seeds. Yet it is felt that agricultural growth needs to emerge from areas with limited natural resource endowment. This requires an intense focus on sustainable agriculture. In some measure, this can be best achieved through organic farming.



Though many subsistence farmers have turned to organic practices by default, there is a felt need for enhancing yield and net returns without increasing the chemical inputs. The research team feels that basic investment in soil and water conservation alone is not adequate. It is essential that there be an integration of wasteland development with increased productivity of subsistence farming. Markets need to be developed for specialised products with a stress on large investments. There is a need to focus on growth that is based on efficient use of resources and that conserves soil, water and biodiversity, a focus that is widespread across all regions and among all farmers. The growth should be demand-driven, catering to domestic markets and at the same time maximising benefits from export of agricultural products in the face of challenges arising from economic liberalisation and globalisation. This is possible when growth is sustainable technologically, environmentally, economically and socially.

The team hopes the study will strengthen the political and institutional environment for promoting sustainable agriculture. It will also influence the policy paradigm of the World Trade Organisation (WTO) by shifting from trade-linked to environment-linked systems for food production. The team strongly believes that India should take a lead in enhancing food security through improved entitlement among the poor and environmental sustainability.

The analysis based on primary data collected from 150 farmers practicing organic farming in three districts, one each in Gujarat, Madhya Pradesh and Karnataka and on secondary data from India, the EU and Canada, focused on three inter-related aspects that included impact of agricultural trade on environment; scope and challenges in promoting sustainable agriculture, and its implications for domestic and trade policy.

Trade and Environment

A review of theoretical and empirical studies suggests that some of the developing economies with limited natural resources in the South do not have a real advantage in primary products that use resources more intensively. While total availability of water resources per unit of crop-land in India is relatively higher, the actual utilisable water is less as compared to some of the developed economies in the North.

Moreover, rainfall in large tracts of dry land regions in the country is spread over three months in a year and is highly variable over time. Notwithstanding the relative scarcity, India is one of the top five countries having net export of virtual water through agricultural trade. Increased trade liberalisation is likely to further aggravate the situation because of the export of irrigation intensive crops like rice and wheat.

Promotion of Sustainable Agriculture

INDIA has substantial scope for promoting organic farming and specialised crops, given her diverse agro-ecological conditions. While trade liberalisation may open up new avenues for exports of organic products, that alone is not sufficient to enhance productivity of a large number of farms and farmers operating under subsistence conditions.

Organic farming, as it is being practiced in large parts of India, still revolves around specific crops rather than encompassing changes in the entire farming system, such as ensuring soil quality maintenance by comprehensive biomass recycling. In many situations farmers, especially in dry land regions, find it difficult to obtain the required amounts of quality biomass. This often leads to loss of productivity, and at times, loss of net returns as compared with conventional farming.

In the absence of adequate price support and crop insurance, farmers who might otherwise opt for organic methods tend to resort to using chemical inputs to ensure an adequate income. Partial adoption of organic farming practices thus leads to discontinuation and reversion to conventional farming practices especially among those who can ill-afford the initial loss. A large number of resource-poor farmers are caught in a situation where they can neither afford to use full doses of chemical inputs nor adopt comprehensive organic or low-input sustainable practices in a holistic manner. Hence they lose out on both ends.

More than price or financial support, promotion of sustainable farming requires institutional support in terms of managing production and distribution of biomass during the initial period when farmers could shift to a new mode of farming system and in the long run become self-sufficient with respect to biomass and other organic inputs. Access to public wasteland has the potential to go a long way towards facilitating this shift.

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Domestic and Trade Policies for Agriculture

WHILE it is important to plead for increased market access in the developed economies insofar as it makes the trade 'fair', the long-term objective of an equitable multilateral trade regime should be to attain sustainable agricultural production systems in both the North and the South. This is essential because in the absence of a well developed manufacturing sector, developing countries in the South are likely to be pushed to expand the exports of primary products, which may impact their own food security while causing further depletion of their natural agricultural capital.

As a first step, the onus therefore should be to correct anomalies in the domestic pricing and subsidy structure. For India, this would imply shifting the locus of agricultural growth from irrigated crops and regions to high potential rain-fed areas and to specialised products from dry land farming systems by promoting sustainable farm practices. This would imply a gradual shifting of subsidies from water and chemical inputs to water-saving technologies and from field crop production to diversified products including biomass for mulching, fodder for livestock, and horticultural and other specialty crops for value addition.

The team notes that all these are not entirely new findings. They feed into the existing discourse on sustainable agriculture by incorporating

the trade perspective. The findings could help to strengthen the campaign for 'fair' trade and 'trade for sustainable development' provided the lack of co-ordination among the three important ministries (agriculture, commerce, and forest and environment) is immediately corrected.

Areas of Further Study

THIS study of organic farming has been designed in consultation with local service providers and state government departments. The results will be disseminated to these participants as the findings strengthen the ongoing recognition for promoting sustainable agriculture.

The team is confident that their work on trade and environment will continue beyond the current project span. They are hopeful that the work on sustainable agriculture will continue through local organisations like JATAN in Gujarat and Agriculture Man Ecology in Gujarat and Karnataka. The IDRC has been approached for funding a comparative study on Agricultural Growth, Sustainability Policies under Trade Liberalisation in India and Africa.

The project is directly focused on exploring new avenues for sustainable agriculture through changes in domestic and trade policies in India. The findings should work as a building block for a paradigm shift in agricultural policies that should work better for the poor, especially in the economically lagging regions in the country. ■



SHARP *Results*

MARCH 2006

ECONOMIC REFORM

Globalisation and the Poor: Sustaining Rural Livelihoods in India

RECOMMENDATIONS

Community

✓ The research has shown that the powerful forces of markets and globalisation have superseded many innovative experiments at the local level. The scope of manoeuvre seems to be very limited under the current context, not only for local communities but also for states within the country. In order for communities to become able to respond more effectively to the challenges of globalisation and reform, local institutions, for example, producer associations and, in particular, the panchayats, which in the past have tended to become undermined by special task institutions, would need to be strengthened at the local level, such as water-user groups or village forest committees. The strong NGO sector in Madhya Pradesh is likely to continue playing a major role in the building of local-level institutional capacities.

Programme Providers and Planners

✓ In the constraining general framework of globalisation and liberalisation, the challenge for the state of MP will be to provide effective services as well as incentives to render the powerful private sector more sensitive to the concerns and interests of the poor. Where such incentives cannot be created, intervention by the public sector and NGOs will continue to be crucial to protect the livelihoods of the poor who cannot benefit from globalisation and reform.

GLOBALISATION has become a matter of intense public debate and academic pursuit after the implementation of increased openness, liberalisation and reform policies worldwide. There seems little doubt now that as globalisation proceeds, socioeconomic differences between, and within, countries and regions have not evened out. Rather, the process of globalisation may have accentuated inequalities and reshaped the categories of rich and poor.

India was comparatively weakly integrated into the global economy until the early 1990s. After economic reforms were initiated in 1991, the rural poor - a population of about 250 million - have very often been left out of policy focus despite the implementation of some measures that were expected to help mitigate any short-term negative impact of globalisation and liberalisation on poverty, inequality and unemployment. However, it has proven very difficult to reduce hardcore poverty and expand rural livelihoods in the present framework. It now appears necessary to put into place a more concentrated and integrated programme of pro-poor growth and development.

No Trickle Down

WHILE India's overall growth has remained high, regional disparities have also increased causing an incontrovertible impact on rural farm and non-farm livelihoods. The creation of new markets and opportunities in agriculture and other allied

sectors through the opening up of agriculture and scaling back of state subsidies seems not to have 'trickled down' to the rural poor as predicted by proponents of liberalisation.

Indeed there is evidence of deeper crisis in the agrarian and rural sector. Despite a larger body of studies now available, there are still significant gaps in information about the way India's structural reforms, in the context of increased globalisation, have affected small farm and off-farm production in rural areas



and how this varies under different agro-ecological conditions.

It was in this context that the project team undertook a collaborative research in Madhya Pradesh (MP), a high poverty state in India. The research focused on livelihoods in the state in the context of globalisation and reform. It compared commercial agriculture and strong market linkages with peripheral areas where rain-fed agriculture and forestry are the basis of the local economy. It sought to understand the extent to which civil society and governments at the national, provincial, district and local levels can mediate the impacts of globalisation through pub-

lic policy in order to improve rural livelihoods.

The study successfully achieved its expected outcomes and generated various new databases. Primary data on livelihood dynamics from the micro level were carefully triangulated with topical case studies as well as macro-level secondary data. The research covered a broad range of topics and sectors significant for rural livelihoods including labour, employment and migration; agriculture and environment (with a focus on soybean); forestry, non-timber forest products and medicinal plants; social sectors (with particular attention to basic education), and public-private partnerships in corporate marketing through self-help groups.

The empirical studies confirmed that the commonly made assertion that globalisation and liberalisation would lead to widening social and regional disparities. The in-depth analyses of particular sectors provided insights on the actual mechanisms of globalisation in peripheral contexts. These insights can form the basis of specific improvements in pro-poor policy-making, although the team recognised that fiscal and other pressures related to globalisation and reform constrain the capacity and manoeuvring space of state governments.

Processes Involved

THE study integrated the various datasets from the macro-, meso- and micro-levels. At the macro level, the team analysed secondary data on policy changes, income and fiscal trends, poverty and employment, as well as agriculture and industry. For the meso-level topical and institutional case studies, the team conducted dozens of focus group interviews in selected villages, as well as more than one hundred semi-structured interviews with villagers and supra-local stakeholders - policymakers, NGOs, corporate representatives and academics in Bhopal, Indore, Nagpur, Mumbai and Delhi.

At the micro level, the team combined qualitative and quantitative methods of data collection. Quantitative surveys were carried out

in 18 villages in the three districts of Panna, Betul and Sehore where more than 2,000 households participated in a general census and where 360 households gave invaluable information in a detailed survey. The qualitative studies involved in-depth individual and household interviews, mapping, life histories, participant observation and PRAs (participatory rural appraisals) in seven villages.

The project designs included women equally in the study as men. Indeed, women have in many cases been in the focus of the research as they often belong to the most vulnerable groups. Focus groups have been conducted on various topics with women-only groups. Further, the team made an effort to engage female researchers and devise gender-

exchange of information by e-mail and numerous personal visits.

The policy-related work has been based on the principle of generating policy recommendations jointly with policymakers to create a sense of ownership of the project among key decision-makers. So far, about 75 policymakers have been involved in this process. The final dissemination workshop in Bhopal engaged senior government officials, as well as development practitioners, with whom the findings and recommendations were shared and who gave detailed and useful feedback on the research.

Furthermore, team members have disseminated core findings of the project in various academic conferences in India, Canada, the USA



sensitive policy recommendations.

In order to coordinate the effort within a team of eight senior researchers, six junior researchers and two interns, various intra-team workshops on methodology, division of responsibilities, and reviews of progress were organised. The training of junior researchers was facilitated by conducting seminars and courses on qualitative methodology, globalisation and the regional context of MP.

The team has undertaken great efforts to involve policymakers (government officials as well as representatives of civil society) in a continuous and sustainable way. The inception workshop held in Bhopal helped raise the interest in the project among policymakers. This interest was sustained throughout the project phase through consultations and

and the UK. Several articles have been accepted for publication, and a research monograph is under preparation that will draw from the numerous field reports written during the course of the project.

Notable Findings

THE data from the various databases show a fairly consistent picture of the impacts of globalisation and economic reform on rural livelihoods in MP. The state has shown comparatively low post-reform rates of growth, which has widened the gap with the rest of India. Within MP, benefits from globalisation and economic reform have generally bypassed economically and socially weaker sections of society as well as the less developed regions of the state. In many cases, globalisation,

liberalisation and privatisation have also created new vulnerabilities.

The increased fiscal stress experienced by MP in the post-reform era led to a decline in growth rates of real expenditure on education and social services as well as of capital expenditure, especially in agriculture, despite some recent increases for the medium and major irrigation sector as well as total social services.

The case study on the soybean sector exemplifies the retreat of the state and the privatisation of agricultural extension and marketing, and showed that smallholders have not been able to benefit from the new private support systems that focus on economies of scale and opportunities from export markets.

Declining public investment partly explains sluggish agricultural growth rates. Indeed, agriculture has emerged as a major problem sector with a crisis of yields and output, despite the extension of higher value crops (especially soybean) into peripheral areas. Slow growth, partial mechanisation and availability of migrant labour have had negative impacts on local agricultural employment, which remains the mainstay of rural employment in MP.

Macro-level data suggest a comparatively weak employment diversification in the state. Moreover, the micro-level investigations clearly show that this diversification is caused by distress and is higher among socially deprived groups and less developed districts.

Relatively fast production and employment growth rates from a low base occurred in the construction and service sectors. In the manufacturing sector, however, the most significant change has been toward 'informalisation' and 'casualisation' of production and employment while a few industries experienced capital-intensive modernisation.

Lack of local opportunities, as well as improved rural infrastructure, has motivated poorer sections of society to seasonally migrate for farm and off-farm (primarily construction) work. An in-depth case study on migration identified various streams, forms and trends of migration from

CRISIS IN OILSEED

SUSTAINING and accelerating crop agriculture is a probable solution to improve rural livelihoods. The protection of the oilseed sector has been effective in cushioning some of the potential adverse consequences of the liberalisation.

But this sector too is facing some major challenges that need to be overcome through better public provisioning or incentives and regulation of the private sector, aiming to strengthen the sustainable use of water resources and water management; to extend research and extension services; to promote pro-poor markets, storage, post-harvest technology and quality standards; to package financial services (including both credit and agricultural insurance markets) and to encourage credit institutions (micro-credit, co-operatives, rural banks) that meet credit needs of small farmers. Accelerating employment and growth in the informal non-farm sector will also help as this sector has far more direct

and stronger impact on employment than the organised manufacturing sector. So far, a lot of rural employment diversification has been led by distress, and what is not led by distress tends to require physical and human capital beyond the capabilities of the rural poor. Thrust areas that can be used for diversification of rural employment need to be identified.



rural MP. Apart from a livelihood option for poorer sections of society, increased seasonal migration has also led to wider socio-cultural changes, including the adoption of new tastes, which often puts pressure on limited cash incomes.

The other case studies also confirmed the general conclusions of the project: that the relatively better off have been able to better take advantage of globalisation, liberalisation and market integration. For instance, the deregulation of the forest sector, including the non-timber forest products, together with increased domestic and global market demand led to the unsustainable overexploitation of high-value medicinal plants without creating new self- or wage-employment opportunities. This only increased vulnerabilities for the traditional collectors (largely scheduled tribes and many women).



Further, the rapid increase of private primary and secondary schools seems to have been accompanied with quality improvements from which, however, economically and socially weaker sections of society do not benefit as they continue to depend on the public system. Finally, the use of self-help groups and local women for the marketing of branded products by multinational companies, while using developmental rhetoric, provided only a livelihood for a very few better-off women who have access to help from their male relatives.

Areas of Further Study

THE study worked on the principle that rigorous analysis of the impacts of globalisation and reform precedes the recommendation of particular policy responses. The project team was aware that there would be limitations on the degree to which policymakers can act on the project findings and recommendations. But at the same time it was felt that a better understanding of how globalisation and reform are impacting economically and socially weak sections of society could provide a

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CHANGING LABOUR PATTERNS

THE team feels that the changing patterns of labour demand will impact on livelihoods in the years to come. But will increased incomes and migration help the rural poor escape from local bondage? Will they fall prey to new dependencies from outside labour contractors? There is often a seasonal replacing of local labour in the migration destination areas. With changing consumption patterns anticipated, there would be a need to reduce pressure to migrate, improve the conditions of migrants and enhance the bargaining power of local labour. Moreover, labour policy and state regulation will need to address the issue of core labour standards, in terms of working conditions and wages.

The case study on soybean-related agricultural livelihoods identified a new globalised context of reduced tariffs and quotas for oilseed imports, increased exports of oil-

cakes, the privatisation of input and output markets, processing and extension, but continued output price support. The recent expansion of private extension that is linked to input and output markets (including exports), however, bypasses smallholders. The fallout has been a price squeeze - particularly for smaller operators - and environmental degradation and risks caused by intensification. Alternative institutions and regulations should be sought that could render the private sector more responsive to needs of smallholders. The role of the public sector will have to be strengthened in those areas where desirable private sector contribution is not forthcoming. In order to ensure environmental sustainability, concentrated investments and efforts in research and development of alternative cropping systems would need to be made.



starting point for pro-poor policies.

The utility of findings for the studied communities will require the mediation and contribution of NGOs working in the study areas. Many of these NGOs have been involved in this research. The team believes that the availability of committed civil servants and NGO leaders, a clear institutional framework (such as the panchayat system as defined by the Constitution) will facilitate the uptake of the proposed recommendation. However, the general framework of globalisation and liberalisation at present provides limited scope of action for the public sector.

The project team will continue to collaborate and we plan to publish a research monograph on the project. Rene Véron has secured three years of funding to carry out similar research in Kerala and West Bengal. Gary Fehr will further explore the issue of non-timber forest products and medicinal plants. It is also planned to continue the collaboration with selected NGOs in MP. The project team will also try again to inform government and non-governmental development agencies in Canada and elsewhere about the policy implications of the research findings. ■



SHARP *Results*

MARCH 2006

SHASTRI APPLIED RESEARCH PROJECT

ECONOMIC REFORM

Poverty Reduction, Gender Disparities and the Non-Farm Sector: 1983-99

THE last two decades of economic development could be a matter of pride for any Indian. The GDP growth rate shot up to 5.8% per annum in the 1980s and then increased further to 6.1% in the 1990s after having stayed at around 3.5% per annum till the 1970s. The proportion of the population below the poverty line declined from about 44.5% in 1983-84 to 26% in 1999-2000. This would suggest that growth has 'trickled down' to the poor.

Empirically, higher growth has been associated with lower poverty at most times and in most places. However, to explain the trickle-down processes, it is important to go beyond such correlations. It is of immense importance to know what were the mechanisms in operation that led to a decline in poverty. How did it happen? Does this have serious policy implications?

Background

It is widely accepted that agricultural wages are strongly and inversely correlated with poverty. Between 1983 and 1999, real wage earnings of agricultural labour increased by around 60%. Agricultural earnings can rise through either increased agricultural productivity or through a shift to non-farm activities so that the land to labour ratio rises in agriculture and with it the wages of those left in agriculture.

Since the economic reforms started in 1980s and 1990s have concentrated mainly on the non-farm sector, it is important to inves-



FINDINGS & RECOMMENDATIONS

- ✓ Despite the rapid growth of the non-farm sector, this research concludes that agricultural wages have responded more to changes in farm productivity. Improving farm productivity is likely to reduce poverty much more rapidly than expansion of the non-farm sector. As population has grown, the labour-to-land ratio in agriculture has increased in most states, which suggests that wages would have fallen were it not for agricultural productivity growth.
- ✓ The analysis has been done by gender. It finds that while males might yet gain from non-farm sector growth, the gains to agricultural earnings of females is likely to be dependent on agricultural productivity growth.
- ✓ The government needs to re-evaluate its reform agenda. In particular, agriculture needs to figure in the reform process prominently. Economic growth without robust growth in agriculture is unlikely to have appreciable impacts on poverty.

tigate and study whether and how the growth in the industrial and service sectors may have been responsible for the observed increase in agricultural earnings during 1983-99. Most past work does not address the 'how' of poverty decline and what kind of policies are likely to have the greatest impact on poverty.

Through its findings, the study now hopes to begin a debate on the mechanics of poverty decline - a much-neglected topic in India. It is hoped that this will ultimately shape policy priorities. This study further undertook to examine the role of education in poverty removal and the differential impact of the growth process on women in the labour force.

Notable Findings

THE research started by asking what are the different channels through which there could be an increase in

agricultural incomes. Agriculture uses land and labour and other inputs. Increases in the marginal productivity of labour either through technological change (for example, better seeds) or through investment (for example, irrigation) in agriculture will, of course, directly increase labour incomes or earnings.

Growth in non-agricultural productivity could affect agricultural wages by lowering the labour-to-land ratio in agriculture. Thus, when the expansion of the non-agricultural sector results in a movement of labour away from agriculture, it not only confers benefits on the labour that moved but also on those still left in agriculture.

The decline in agriculture's share in employment in India has been modest relative to the historical experience in other countries. Between 1983 and 1999, the share of agricultural employment declined from 60% to 53% for males. Most of this shift occurred for younger males. The non-farm sectors that have absorbed them are primarily construction, trade and hotels, and transport and communications. In effect, the non-farm sector has created jobs for literate people and the younger age categories that are able to raise their educational status and move out of agriculture. Given that the educational premium has increased over time, it seems likely that if a greater percentage of the population were educated, the non-farm sector would have played a greater role.



CONTRIBUTION OF NON-FARM SECTOR: 1983-99

State	% contribution of non-farm sector
Andhra Pradesh	19.1
Assam	- 157.8
Bihar	10.0
Gujarat	32.3
Haryana	75.4
Karnataka	15.1
Kerala	49.9
Madhya Pradesh	14.2
Maharashtra	31.1
Orissa	13.7
Punjab	47.4
Rajasthan	16.5
Tamil Nadu	17.3
Uttar Pradesh	27.4
West Bengal	38.2
All India	25.8

No Benefits to Women

AMONG females, there is no change in the employment structure. Women have not directly benefited from employment in non-farm sectors. However, when men find jobs in non-farm sectors, women seem to substitute for them



in agricultural activities. To some extent, this process may have prevented the wage gap across genders from growing.

However, these employment trends differ across states. Kerala and Tamil Nadu are the states where the share of the farm sector has declined sizably for both genders. Assam, Haryana, Kerala, Punjab and Rajasthan record substantial (over 12 percentage points) decline for men. Andhra Pradesh, Gujarat, Maharashtra, Tamil Nadu and Uttar Pradesh have between 5 and 8 percentage points decline in the share of agriculture.

In Karnataka and Orissa, the share of female employment in agriculture has shown an increase. It increased drastically in Punjab. Of the states that experienced a fall in agriculture's share, Tamil Nadu, Uttar Pradesh and West Bengal are the only states where there is a rise in the share of manufacturing in the female workforce.

The study also examined sectoral patterns of employment by disaggregating the population into cohorts of 8-year age intervals. It is only the youngest male cohort (18-26 years in 1983) that shows a signifi-

cant decline in agriculture's share in employment. In other words, it is this group that is finding employment in industry and services. Neither the older cohorts nor females show a significant decrease in agriculture's share of employment. It seems clear that the job market in industry and services has favoured younger people and, especially, men.

Moreover, the indirect route through which women benefit from non-farm employment suggests that they are more vulnerable than men to the effects of slow agricultural productivity growth. Increases in agricultural productivity through technical change remain the principal avenue through which the earnings of women can be increased.

Yet, as population has grown, the labour-to-land ratio in



agriculture has increased in most states. This suggests that agricultural wages would have fallen were it not for total factor productivity (TFP) growth in agriculture. TFP captures that part of output growth that is not due to greater use of inputs. Instead, it denotes the effect of factors like technical change and better organisation of the production process.

The project team set out a model of a typical 'regional' economy, where there are two sectors within the region: a farm sector (which produces food) and a non-farm sector (which produces non-agricultural goods). Food production requires labour and land, whereas non-farm output requires only labour. The model conceptually separates the impacts of productivity growth in the farm and non-farm sectors on agricultural wages. The empirical predictions of the model are examined

EDUCATION AND HIGHER EARNINGS

THIS study suggests that there is a strong correlation between education and the shift out of agriculture into non-farm employment with higher earnings. The study compares the earnings of illiterate workers in the age group of 34-42 years in 1983 with the earnings of workers without schooling of the same age group in 1999. The analysis was done separately for men and women. For illiterate men, agricultural activity accounts for 68% of working days in both 1983 and 1999. The increase in expected earnings is therefore entirely due to higher sectoral earnings and none at all due to shifts in employment.

For illiterate women, the contribution of agriculture to their total income is much higher (72% and higher). This is mainly because their dependence on agriculture has increased from 76% to 80% between 1983 and 1999. This study therefore found that the non-farm sector has played a limited role in accounting for the higher earnings of male illiterates and none at all for female illiterates.

Employment shift from agriculture to non-farm activities varies greatly with education. The contribution of agriculture in earnings drops dramatically for men and women who have completed middle school. It, therefore, pays more to get non-farm jobs and the probability of getting these jobs rises with education.

How has the growth in non-farm sectors contributed towards poverty reduction? Would the contribution have been much greater if a much greater proportion of the population was educated? The analysis indicates that it is likely that if more middle school and high school graduates were available in 1999, they would have found employment in industry and services.

An important reason why the non-farm sector has not been able to contribute more to poverty reduction is that most of the employment it creates is for educated workers rather than for illiterates and primary school graduates.



using all India data on employment and earnings from the National Sample Survey Organisation (NSSO) surveys of 1983, 1993-94 and 1999-00. This is supplemented by cost of cultivation data and estimates of agricultural TFP constructed by the research team.

Farm Productivity

FROM an econometric cross-section analysis, the study finds that the contribution of the non-farm sector to the growth in incomes of agricultural labourers is of subsidiary importance during 1983-1993. In addition, these gains have

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WOMEN AND EMPLOYMENT

THE study has found that the share of agriculture in women's employment has remained stagnant. This is true for younger age groups as well. This could be due to educational disparities between the genders since entry into the non-farm sector seems to be highly correlated with education. The absence of a shift in women's employment patterns raises the question whether women have received even the limited gains (from the growth of the non-farm sector) that men have received. This could happen if the greater competition for male labour in non-farm activities results in a higher demand for female labour in agriculture. Thus, as men leave agriculture, women take their place, and also gain from the declining labour-land ratio.

The study finds evidence that over time

women have been substituting for men in agricultural activities. It would then seem that despite the absence of shifts in the employment structure, women have also gained from a growing non-farm sector. Weekly earnings for women in agricultural operations have grown at about the same rate (49%) as that of men in similar activities (53%).

RATIO OF MALE TO FEMALE LABOR IN AGRICULTURE

Particulars	1999	1983
Ploughing	11.62	17.40
Sowing	1.85	2.90
Transplanting	1.26	1.30
Weeding	1.09	1.17
Harvesting	1.8	1.61
Other cultivation	2.41	2.55
Forestry	1.38	2.23
Plantation	2.25	2.04
Animal husbandry	0.98	1.66
Fisheries	7.93	3.25
Other	2.53	2.59
All Activities	2.02	2.25



accrued mostly to males.

To examine the sources of agricultural wage change over time, the study constructs a counterfactual exercise that asks the question: if the non-farm sector had not absorbed any labour, what would the wage increase in agriculture have been? From this exercise, it finds that only 25% of the increase in agricultural wages over the period 1983-99 can be attrib-

uted to the non-farm sector.

This brings out the conclusion that agricultural wages have responded more to changes in farm productivity than non-farm contributions. It is most likely that growth in agricultural productivity has played a major role in raising agricultural wages and reducing poverty. Clearly, this has serious implications for framing policies to alleviate poverty. ■