SOCIAL SECURITY IN DEVELOPING COUNTRIES: MYTH OR NECESSITY? EVIDENCE FROM INDIA

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Abstract: *This paper discusses the importance of social security policies in developing economies, using empirical evidence from India. The paper discusses the viability of implementing systems of social protection in developing countries and provides an empirical analysis of the effects of socio-economic security policies on Indian's economic performance between 1973 and 1999, using a two-stage least square model adapted to data from a panel of 14 Indian states. The results show that policies that strengthen the social and economic security of the Indian population have been an important endogenous variable to both the reduction of poverty and the economic growth in India.*

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1. INTRODUCTION

More than a third of the world population lives under extreme conditions of poverty and deprivation. These are typically people found in remote areas with difficult access to markets and institutions, not educated, with poor health, employed in jobs with little security and with inadequate access to productive assets. Such characteristics make the poor vulnerable to shocks caused by life cycle changes, economic reforms and other types of events such as illness or bad weather conditions. The vulnerability of the poor to socio-economic shocks can be reduced by policies that protect their livelihoods, increase their human capital and assist them in times of crises. However, despite the *need* for social security policies, it is not immediately clear that developing countries *are able to* implement programmes of social security.

The introduction of social security programmes in developing countries is a difficult task given that capital and insurance markets are typically underdeveloped, budget restrictions are high and developing countries are usually characterised by traditional labour structures and large levels of poverty, which would require social programmes to achieve a magnitude that few governments in developing countries are able or willing to implement. In addition, governments in those countries have, in general, less capacity to collect taxes,[1] implement complex programmes of social protection or correct market failures, due to their low levels of income, education and infrastructure. Furthermore, political pressure against the implementation social security policies is also often high in developing countries as such policies may imply some form of redistribution (Radian, 1980; Newbery and Stern, 1987).

These problems have led researchers and policy advisers to argue that poverty eradication and socio-economic security of the poor should rather be achieved through sustained economic growth that will raise the level of living of the whole population (Bruno, Ravallion and Squire, 1995; Dollar and Kraay, 2000). However, although economic growth is an important factor in the promotion of better standards of living, it is not empirically clear that economic growth per se brings about social development and increased equality as pockets of poverty can persist due to the inability of some population groups to participate in the growth process (Gaiha and Kulkarni, 1998). Consequently, protection mechanisms against poverty, destitution and uncertainties are needed in order to guarantee the safeguard of vulnerable elements of the population against life contingencies and uncertainties. Although the type of social security programmes implemented in industrialised countries may not be economically or politically feasible in poorer economies, experiences of economies such as China, Costa Rica, Jamaica, Chile, Cuba, Sri Lanka and the south Indian state of Kerala have shown that extensive systems of socio-economic protection based on efficiently targeted policies, widespread public participation and careful integration of social and economic policies can perform a central role in the maintenance of living standards and the well-being of the most fragile groups in the population (Chenery et al., 1974; Drèze and Sen, 1991). In these countries, the costs of implementing forms of social security have been quite small due to the public commitment involved in the social development strategies followed by these countries and the efficiency of its administration (Drèze and Sen, 1991).[2] This suggests that the discussion on

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[1] While most rich countries collect taxes in excess of 30% of their domestic product, poor countries raise in average around 17% of their domestic product in taxes (Radian, 1980: 8).

[2] To provide an example, Dev (1996) has calculated for India that the percentage in GDP of central and state governments' expenditure on rural development and social services was 6.9% in 1993-94, or 7.5% if food subsidy expenditure is included. However, Guhan (1992) has calculated that if the whole of India was to implement a social security systems similar to that of Tamil Nadu (which has a relatively comprehensive and administratively sound programme), the cost of the whole package would represent 0.3% to 0.5% of India's domestic product. See also Mesa-Lago (1983) for evidence on Latin America.

social security in developing countries should focus not on whether social programmes should be implemented, but rather on what types of policies should be implemented.

This paper argues that adequate social security policies can be an important endogenous factor in the process of socio-political development and economic growth of developing economies. The paper illustrates this argument for the case study of India. The next section discusses the concept of social security in developing countries. The section focuses on three aspects of social security: what its objectives are, who should the beneficiaries be and who should provide social protection in developing countries. Section 3 discusses possible benefits of social protection policies in developing countries. Section 4 analyses the mechanisms of social protection in India. Section 5 provides an empirical analysis of its endogenous effects on Indian's economic growth performance between 1973 and 1999, using a two-stage least squares model adapted to panel data from 14 major Indian states. Section 6 concludes the paper.

2. The Definition of Social Security in Developing Countries

Systems of socio-economic security were introduced in Europe in the late 19th century.[3] These were slowly implemented in most countries during the early 20th century and consolidated after the Second World War. These programmes were established as a means of improving the well-being of the poor,[4] reduce inequality within society and conciliate different social demands, thus avoiding the social and political conflicts, which necessarily arose as capitalist forms of production evolved

[3] The first modern social insurance programme was established in Germany in 1880 by Chancellor von Bismarck and quickly adopted by other European countries.
[4] The Beveridge Report famously proclaimed the slogan "freedom from fear and want".

in the industrialised countries.[5] Two of the most influential examples were the United States' 1935 Social Security Act[6] and the social security programme implemented in the UK, summarised in the 1942 Beveridge Report. These programmes established the basis for modern forms of social security, defined by the International Labour Organisation (ILO) as "the protection which society provides for its members through a series of public measures against the economic and social distress that otherwise would be caused by the stoppage or substantial reduction of earnings resulting from sickness, maternity, employment injury, invalidity and death; the provision of medical care; and the provision of subsidies for families with children" (ILO, 1984).

Although the objectives of social security systems listed above should also be addressed in developing countries, the structural characteristics of those countries impede the implementation of the usual pension systems, unemployment benefits, maternity subsidies and so forth, that have become an intrinsic part of living standards in industrialised countries. On the one hand, modern social security systems require sophisticated forms of targeting and monitoring that would be financially unfeasible in poorer economies. On the other hand, the extent of poverty and vulnerability in developing countries reach far beyond the objectives of typical systems of social security implemented in richer countries. Due to these facts, recent research studies have argued that the notion of social security is too limited in face of the social and economic needs of developing countries and a more extensive notion of *social protection* should be used (Kabeer, 2002; Barrientos and Shepherd, 2003). Independently of the terminology used, the definition of social security/social protection in developing countries must address three fundamental issues. In

[5] Chancellor von Bismark already in 1880 saw the *Sozialstaat* as a solution against socialism and as a means to win the new proletariat's loyalties and keep class struggle under control (Esping-Anderson, 1990; Sala-i-Martin, 1996). See also Gintis and Bowles (1982).
[6] The 1935 Social Security Act gave rise to the term 'social security' as it is commonly understood today (Schmidt, 1995).

the words of Burgess and Stern (1991) these are: (i) *what* is included within the objectives of the social security programme), (ii) *to whom* should social security policies be targeted and (iii) *who* should provide for social security in developing countries.

2.1. What: objectives of social security in developing countries

Most social protection policies in developing countries will almost certainly be concerned with reducing vulnerability and unacceptable levels of deprivation. The extent of poverty and destitution in most developing countries would, however, make typical post-shock social security benefits of the type implemented in industrialised countries too costly to put into practice in poor economies. The role of social security policies in developing countries must, consequently, be extended not only to that of a 'safety-net', but, more importantly, to 'prevention' against increases in deprivation and the 'promotion' of better chances of individual development (Guhan, 1994). In this sense, social protection policies would not only address negative outcomes of development but would also promote more equal opportunities amongst all population groups, thereby reducing the likelihood of negative outcomes. The focus of social security policies in developing countries should thus be on the reduction and mitigation of structural forms of vulnerability and on the implementation of ways of coping with all types of risk (Norton, Conway and Foster, 2001; Kabeer, 2002) and be integrated within the overall development strategy of the country rather than implemented as individual programmes (Kabeer, 2002).

Social security policies in developing countries should aim thus at the protection and promotion of both human and physical capital. Policies that protect human capital include better access to clinics and hospitals, better nutrition, better health support, health insurance policies, improved access to schools, universal primary education and so forth. Physical capital can be protected by policies aimed at employment creation, promotion of rural development, research and incentives to encourage labour-intensive investments, better access to housing and land, improved infrastructures, reduction of remoteness of some population groups, measures to eliminate biases against women and other vulnerable groups as producers and consumers (minimum wages, measures against discrimination), improved access to capital through financial sector reforms of micro-credit schemes, implementation of employment support schemes, provision of secure ownership of key assets, crop insurance measures, etc.[7]

In order to guarantee their success, these policies must be combined with sound macroeconomic management policies. While social protection policies would aim at reducing the impact of shocks and strengthening the economic and social capacity of vulnerable groups to respond to shocks, macroeconomic policies would be concerned with preventing the occurrence of shocks by, for instance, keeping inflation low, stabilising interests rates and reducing price fluctuations. The combination of micro and macroeconomic preventive policies would guarantee that disadvantaged groups do not slip further on the distributional scale due to their inability to respond to shocks. The implementation of these policies need thus not to destabilise the economy, financially or otherwise, and may contribute towards the establishment of more efficient and equitable market economies.

2.2. To whom: beneficiaries of social security programmes in developing countries

The second point relates to the issue of who will benefit from social security programmes. The definition of social security provided by the ILO assumes the beneficiaries of social security

[7] See Norton, Conway and Foster (2001), Kabeer (2002) and Killick (2002). See also Chenery et al. (1974).

policies to be the workers who for several reasons (sickness, pregnancy, invalidity, old age) face a "stoppage or substantial reduction of earnings". These workers have contributed during their working lives towards the social security funds with a percentage of their earnings, which would entitle them to maintain their standard of living in the event of the life contingencies listed above. In developing countries, where the majority of the population is self-employed and the informal sector (where earnings cannot be accurately accounted for) is large, the focus of social protection policies cannot be on workers only. Furthermore, workers in developing countries that can be accurately put into one of the categories listed in the ILO's definition of social security will not necessarily be those worse-off since they would have been employed in the formal sector where incomes are more regular.

Social security policies implemented in developing countries should be targeted towards the 'needy' (Jhabvala, 1998), i.e. the vulnerable groups of the population, which will not have necessarily worked or contributed towards the social security funds. Addressing the needy rather than the workers will guarantee more efficiency within the programmes since financial resources (precious in budget restricted developing economies) will not be wasted on large scale universal systems. This will have the added advantage of creating better chances for the programmes being politically feasible and not opposed by the more powerful lobby groups.

2.3. Who: provision of social security in developing countries

The final point relates to the role of the state and other institutions in the provision of social security in developing countries. The financial constraints faced by most developing countries imply that social security provision should have both civil and public dimensions (see Norton, Conway and Foster, 2001). Informal arrangements of social protection have indeed played a vital role in developing countries. However, on the one hand, families and communities can be affected by the same risks (bad weather conditions affect individuals and their community in the same way) and thus they are not the ideal suppliers of insurance and socio-economic protection (Burgess and Stern, 1991; Platteau, 1991; Ahmad, 1991). On the other hand, traditional forms of family and communal arrangements are disappearing as a consequence of socio-economic modernisation and increasing urbanisation, while no other form of social organisation is replacing the old one (World Bank, 1994). Alternatives ought thus to be found to protect the most vulnerable groups who no longer can depend on extended families or communal links for survival.

Publicly provided social protection policies are a natural solution. One strong reason for the involvement of the state in the provision of social protection is the element of uncertainty, which arises from the public good aspect of social security policies. In the presence of a public good, state intervention becomes necessary because it can provide the appropriate incentives and exert the necessary pressure for the provision of the public good. In addition, the state has the obligation of protecting and promoting social, economic and political rights. Financial limitation may make this task quite difficult. However, the state does not have to rely solely on income transfers and traditional forms of social security. As argued above, policies that promote livelihoods and reinforce informal systems of social protection are equally fundamental in the establishment of efficient forms of social protection in developing countries.

The question is then how much is the state willing to intervene in order to provide social protection to vulnerable members of society. Most countries have in place some form of distributional systems governed by an array of fiscal policies. However, social insecurity does not arise exclusively from uncertainty regarding wages and other sources of income. Social and economic insecurity are determined also by the opportunities and choices each individual faces and their ability to voice their needs and demands. In other words, social security policies ought not to be only based on the redistribution of incomes, wealth and assets, but also on the guarantee of equal choices and the redistribution of social and political rights by, for instance, implementing universal primary and secondary schooling and universal access to primary health care and social security benefits, promoting equal access to job opportunities by all groups in the population (women and men, individuals of different cultural backgrounds, etc) and encouraging the establishment of equal rights of access to economic, social, political and legal institutions by vulnerable groups, thus enabling them to voice their need and concerns.

3. THE POTENTIAL BENEFITS OF SOCIAL SECURITY IN DEVELOPING COUNTRIES

Social security policies, as defined in the previous section, can have important private and social benefits in developing countries. Adequately targeted policies aimed at protecting individuals and households against socio-economic shocks may improve living standards and strengthen livelihoods. They may also increase the productive capacity of the poor and thus contribute towards the increase of their potential to secure employment, improve their productive capacities and increase incomes. This may, in turn, benefit economic development as a whole since aggregate demand may increase as a result of higher incomes, the human capital capacity of the country will be strengthened and the country may benefit from increased social stability as jobs and incomes become more secure.

Demand benefits

The poor are typically self-employed or under-employed, poorly organised and, consequently, lack the means to protect their earnings against economic shocks. Lack of physical and financial assets means that poor households will have difficulties in adjusting to external shocks and, consequently, their demand will fall. Given that unemployment tends to affect the poor disproportionately and that they constitute the majority of the population in most developing countries, aggregate demand would be thus strongly affected. Murphy et al. (1989) show that internal demand can change as a response to more equal distributions of income. Increases in the income of the poor will lead to a wealthier middle class (enlarged by those coming out of the poorer classes), which are "the natural consumers of manufactured goods" (pp. 538).[8] As argued by Murphy et al., a very unequal society implies that an "extreme concentration of wealth in the hands of the very rich manifest itself in the demand for handmade and imported luxuries rather than for domestic manufactures, even when farm or export income grows" (pp. 538). Consequently, redistributive policies are likely to induce an increase in private consumption and, consequently, an enlargement of internal markets and higher prospects for economic growth.

Human capital and stability benefits

Social protection policies may also improve the access of poor individuals and/or groups to adequate health care and education. This, in turn, will affect their ability to access more prosperous life opportunities and increase individuals' capacity to access better jobs and higher income (Saint-Paul and Verdier, 1992; Galor and Zeira, 1993; Perotti, 1993). It will also generate important social

[8] This is to a certain extent an extension of the Kaleckian idea that a concentration of wealth amongst the richest classes manifests itself in the increase of demand for luxuries rather than internally produced manufactures (Kalecki, 1976).

benefits in the form of higher productivity, thus promoting the whole economy by improving its human capital resources. In addition, wealthier, better educated and healthier populations may reduce social discontent, which, in turn, may reduce society's propensity for crime, violence and other forms of socio-political instability caused by the persistence of poverty amongst certain population groups, job insecurity and other socio-economic risks (Alesina et al., 1992; Alesina and Perotti, 1993; Ribero and Nuñez, 1999). The promotion of social and politically stable environments is, in turn, a central element in the success of any economic growth and development process.

Social protection policies can, thus, generate positive externalities on the economic growth process of development economies, in the form of larger internal markets, accumulation of human capital and the creation of stable socio-political environments. This would suggest that social security policies can be an important endogenous factor in the process of social and economic development and economic growth of developing countries. This endogenous mechanism will be illustrated in the next section for the case of India.

4. SOCIAL SECURITY IN INDIA

India is a very poor country. India's per capita gross national product is one of the lowest in the world and, although both real income and real consumption expenditure per capita have increased steadily since 1970 (table 2), levels of poverty, female illiteracy and infant mortality in India are some of the highest amongst all developing countries (table 1). As in other developing countries, the poorest individuals in India are those belonging to minority religious and ethnic groups, lower castes (scheduled castes and tribes), women, those living in remote locations, with limited access to productive assets and institutions and employed in insecure jobs (Kabeer, 2002; Krishna, 2003; Bhide and Mehta, 2003). Graph 1 shows the evolution of rural and urban poverty in India between 1970 and 1999,[9] whilst table 2 illustrates the extent of income poverty in 14 major Indian states in 1973-74 and 1999-2000.[10] Graph 1 shows that poverty has decreased consistently in India between 1970 and 1999. Although rural poverty has always been above urban poverty, the two values have converged along the years. Despite decreases in poverty, a large percentage of the Indian population still faces serious levels of deprivation and is quite vulnerable to all types of economic and social risks. The extent of poverty and vulnerability in India also varies quite significantly across the various states (table 3): while states like Andhra Pradesh, Gujarat, Kerala and Punjab have benefited from significant reductions in poverty, other states (Bihar, Madhya Pradesh, Orissa and Uttar Pradesh) have been less successful in attacking poverty.

There has recently been a large discussion in India on the need for systems of social assistance and social insurance.[11] This awareness has been a direct consequence of the structural reforms implemented in India since 1991, under the supervision of the IMF, which have unveiled some important weaknesses in India's socio-economic development strategy. Although India had some legislation inspired by the British 1942 Beveridge Report,[12] expenditure on social services in India has been very small in comparison to other developing countries (table 1). Furthermore, what

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[9] For recent discussions on the measurement of poverty and inequality in India see Deaton (2001a, 2001b) and Deaton and Drèze (2002). The Indian poverty lines are 327.56 rupees per capita per month for the rural sector and 454.11 rupees per capita per month for the urban sector (Deaton, 2001a).

[10] These dates correspond to the dates of the large sample National Sample Surveys (NSS). The National Sample Survey Organisation (NSSO) provides the main source of information on consumption expenditure (and thus poverty and inequality) in India. Their surveys were conducted annually until 1972-73 but more or less every five years thereafter: 1973-74, 1977-78, 1983, 1987-88, 1993-94 and 1999-2000. Our analysis focuses on these six years in order to ensure consistency across all variables.

[11] See Dev (1996).

[12] Examples include the Fatal Accidents Act 1885, the Workmen's Compensation Act 1923, the Maternity Benefit Act 1929 (Mumbai), the health insurance in the 1930s, and the Employees' State Insurance 1948. In

existed covered hardly more than a few public servants and administrative staff. The remaining population had to rely on informal arrangements in the form of extended family, caste or tribe ties.

In 1995, the Government of India introduced for the first time an all-India protective type social security scheme, the National Social Assistance Programme (NSAP). The NSAP encompasses a national policy for social assistance benefits to poor households in the case of old age, death of breadwinner and maternity. The programme has, so far, three main components: the National Old Age Pension Scheme, the National Family Benefit Scheme, and the National Maternity Benefit Scheme.[13] The provision of social security for the poorest sections of society is included in the 2000-2001 budget as an area of priority within India's social sector, together with other areas such as the empowerment of women, population policy and health, which extends the system of social security in India beyond the objectives of standard programmes implemented in more advanced economies.[14]

An important pillar of India's social protection policies is the food programme, implemented in the late 1960s and integrated within a wider rural poverty alleviation scheme. This combined a large programme for land reforms and the introduction of new technologies and crops in the agriculture sector (the 'Green revolution'), with an extensive rural employment scheme, designed to address the unemployment problems of the landless,[15] and the Integrated Rural Development Programme

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the 1960s and 1970s, the Government of India introduced 'means' tested old age pensions provided by the different state governments.

[13] The NSAP is 100 per cent centrally sponsored. However, each individual state in India is the main responsible for the social assistance and social insurance measures to be implemented.

[14] See Reserve Bank of India (2000).

[15] It provided food for work in selected areas, together with regular employment generation schemes.

(IRDP), targeted towards the creation of assets for the landless.[16] Table 4 reports the extent of real per capita expenditure on social services in India in 1973 and 1999 (at constant 1980-81 prices). Despite the decrease in real per capita expenditure on social services in some Indian states between the two years, on average public social spending increased by 11% in India between 1973 and 1999. Although this increase is not large, it is nonetheless likely to have contributed towards the sharp decrease of poverty in India in recent years.

The relationship between expenditure on social services and poverty in India is illustrated in figures 1 and 2 for 14 major Indian states in 1973 and 1999, respectively. The figures show also the relationship between expenditure on social security and income and consumption expenditure in India. The figures show that there have been significant changes in the relationship between expenditure on social services and poverty between 1973 and 1999. In 1973, the graphs show a positive correlation between expenditure on social services and rural poverty. These coefficients suggest that, in 1973, states with larger expenditures on social services were also those with the highest levels of rural poverty. This relationship changed in 1999, where the correlations between expenditure on social services and poverty, both rural and urban, became negative, though not statistically significant. The economic effects of expenditure on social services in India seem to be stronger for aggregate income and consumption expenditure. Although the coefficients of correlation are positive in both years, they increase significant in 1999. These results suggest that expenditure on social services has had important social and economic effects in India during the past three decades. The next section investigates in more detail these possible endogenous outcomes of social services expenditure on India’s economic development and to what extent India’s economic performance is affected by social policy decisions.

[16] See Byres (1993), Gaiha (1996) and Kebeer (2002) for a review of the IRDP in India. See Besley and

5. EMPIRICAL ANALYSIS

This section examines the empirical effects of public expenditure on social services on both the growth performance of the India's economy and the incomes of the poor. As discussed previously, poverty in India halved between the earlier 1970s and the late 1990s (table 3). In the same period, India's real per capita domestic product has more than doubled between 1970 and 1999 (table 2). Although during the 1970s, the Indian economy hardly grew at all, economic recovery accelerated in the 1980s and 1990s. In terms of consumption expenditure, economic growth rates averaged 3.4% between 1970-71 and 1999-2000 in the rural sector, whereas real urban consumption expenditure grew at an average of almost 5% during the same period (table 2). This section investigates the relationships between expenditure on social services and poverty and between economic growth (both income and consumption expenditure) and social security policies in India during the last three decades using a panel of 14 major Indian states (Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal) over six years: 1973-74, 1977-78, 1983, 1987-88, 1993-94 and 1999-2000.[17]

Panel analysis techniques are particularly adequate to the analysis of economic growth in India than time-series data given the large heterogeneity between all Indian states in social, cultural, religious, economic and political terms.[18] This analysis is based on both income and consumption expenditure

Kanbur (1988) for an analysis of the importance of food protection policies for poverty alleviation.

[17] As before, these dates correspond to the dates of the large sample National Sample Surveys (NSS).

[18] The choice of states for the panel was based on data reliability, which is higher for the larger states. We do not expect that the exclusion of smaller states and Union territories to affect significantly our results as in 1999-2000 those 14 states represented 93.3% of the total Indian population.

as consumption expenditure is often a very good indicator of well-being in countries where the poor largely outnumber the rich (Sen, 1981). This is because the values of consumption expenditure indicate the extent to which the poor have been able to transform their newly gained ‘entitlements’ into actual ‘capabilities’, whereas direct measures of income simply measure the changes in ‘entitlements’, which do not necessarily reflect changes in real well-being and standards of living.

This analysis assumes expenditure on social services to be endogenous to the process of economic growth in India. We estimate a two-least squares model adapted to panel data developed by Baltagi (1995) (chapter 7). This method allows the estimation of a single equation (economic growth equation) from a system of equations whose functional form does not need to be estimated. It is thus a convenient method to allow endogeneity without having to establish the true specification form of the endogenous variables.

Consider a model of the following form (Baltagi, 1995):

$$Y_{it} = dZ_{it} + v_i + h_{it} \tag{1}$$

with Z_{it} = [Y_{it} X_{it}], where X_{1it} is an 1 x k_1 vector of exogenous variables included a covariates, Y_{it} is an 1 x g_2 vector of g_2 endogenous variables included as covariates and assumed to be correlated with h_{it}. The error term h_{it} is, as before, assumed to be uncorrelated with the exogenous variables X_{it} and has zero mean. Given the existence of Y_{it} exogenous variables, in order to estimate (1) we assume a 1 x k_2 vector of instrumental variables X_{2it}, where $k_2 > g_2$. This means that the vector X_{it} can be expressed in terms of exogenous variables and instruments, i.e. X_{it} = [X_{1it} X_{2it}]. Model (1) can now be estimated in the usual way. The fixed-effects model will give the within-estimator after eliminating v_i by removing the panel level means from each variable. The random-effects estimator, presented in table 5, treats v_i as random independent variables identically distributed over the panels.[19]

Table 5 includes also the estimation of a single-equation random-effects model, which will be used for comparison. We need, however, to keep in mind that endogeneity (assumed in the model above) implies that the right-hand side regressors will be correlated with the disturbance term, which may cause the estimates above to be inconsistent. The random effects model has been estimated using feasible generalised least squares (FGLS) and has been corrected for heteroskedasticity (see Greene, 2000).[20]

The system of equations modelled in table 5 is the following:

$$Y_{it} = a + b_1 SS_{it} + b_2 SS_{it-1} + b_3 EDUC_{it-1} + b_4 UNEMP_{it} + b_5 Hr_{it} + b_6 Hu_{it} + b_7 Gr_{it} + b_8 Gu_{it} + b_9 OPEN_{it} + e_{it} \tag{1}$$

$$SS_{it} = a + b_1 DEXP_{it} + b_2 Y_{it} + b_3 EDUC_{it-1} + b_4 UNEMP_{it} + b_5 Hr_{it} + b_6 Hu_{it} + b_7 Gr_{it} + b_8 Gu_{it} + b_9 OPEN_{it} + w_{it}$$

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[19] We have tested the correlation between the individual effects and the vector of independent explanatory variables using the Breusch-Pagan Lagrange multiplier test for random effects and a Hausman specification test, which tests for random effects by comparing the results obtained using both random effects and fixed effects models. This procedure tests whether the omission of fixed effects in the random effects model has any effect on the consistency of the random effects estimates (Greene, 2000). The tests suggested (for all models estimated) that the random effects model would be the most appropriate.

[20] The uncorrected model showed signs of heteroskedasticity.

with i = 1, ..., 14. In column (1) in table 5, Y_{it} represents the logarithmic function of the level of per capita net state domestic product (at constant 1980-81 prices) in state *i* in period *t*. In columns (2) and (3), Y_{it} represents, respectively, the logarithmic functions of real per capita monthly rural and urban consumption expenditure (at constant 1993-94 prices). In columns (4) and (5), Y_{it} represents, respectively, the levels of rural and urban poverty (measured by the headcount index). e_{it} is the panel error term with $e_{it} = v_i + h_{it}$, where v_i represents all individual effects and h_{it} is assumed to be normally distributed with zero mean and constant variance, uncorrelated with the explanatory variables X_{it} and uncorrelated with the individual effects term.[21]

SS_{it} represents the effects of expenditure on social services (logarithmic function of per capita expenditure on social services at 1980-81 constant prices) on state income and consumption expenditure. The equation includes also lagged values of this variable in order to encompass possible long term effects of social services expenditure on economic growth. As discussed above, the social and economic effects of social services expenditure in India have changed significantly across the three decades (see figures 1 and 2). This model allows thus both static and dynamic effects of social security policies on India's economic development. In order to control for other determinants of state income, I have also included the level of unemployment in each state and a measure for the level of education in each state. These variables are represented, respectively, by $UNEMP_{it}$ (per capita number of people in live register) and $EDUC_{it}$ (per capita number of individuals enrolled in primary and secondary education). Hr_{it}, Hu_{it}, Gr_{it} and Gu_{it} are, respectively, the levels of rural and urban poverty and rural and urban income inequality (measured

[21] The random effects model assumes the individual effects and the vector of explanatory variables to be uncorrelated (see Baltagi, 1995).

by the Gini coefficient) in state *i* in period *t*. These variables are expected to capture the possible endogenous effects of social security expenditure on economic growth discussed in the previous two sections. Whilst the education and poverty variables are likely to illustrate the effects of human capital accumulation, the unemployment and inequality variables provide a good indication of possible levels of social instability. We have also included a measure for openness of the Indian economy ($OPEN_{it}$), given by the all-India ratio of imports and exports over national domestic product (per capita at 1980-81 constant prices). This variable is invariant across the 14 states.[22]

The results in table 5 show that expenditure on social services has had positive and statistically significant effects on the reduction of poverty and the increase of income growth and consumption expenditure in India. Although the immediate effect of social security expenditure is to decrease economic growth and increase poverty (these coefficients are not, however, statistically significant), in the longer term, expenditure on social services has contributed towards the increase of economic growth in India and the decrease of both rural and urban poverty. The effects of social services expenditure on consumption expenditure are more immediate and both current and lagged coefficients for expenditure on social services are positive in columns (2) and (3). The lagged effect of social services expenditure on aggregate income may be caused by the immediate negative impact education has on state income,[23] which may delay the economic benefits of social security policies. The immediate effect of education on consumption expenditure is, however, positive suggesting that consumption expenditure may be quicker to reflect social development progress than aggregate income.

[22] For discussion of the liberalisation process in India after 1990 see Srinivasan (1996) and Srinivasan (2001). I have decided to include this variable since economic liberalisation has been the most significant economic change that has taken place in India in recent years. This variable is expected to capture the effects of economic changes not related to social policy decisions.

The table shows further that the incomes of the poor are affected by the levels of unemployment in the economy. Although this variable does not affect the growth rate of aggregate income, increased levels of unemployed individuals are associated with a decreased in the growth rates of consumption expenditure in the urban sector. However, higher unemployment has a large and positive effect on the reduction of both rural and urban poverty. This apparently perverse effect may be associated with the payment of unemployment benefits, discussed in the previous section.

Finally, larger levels of economic openness have had positive impacts on both income and consumption expenditure. The variable is also associated with the reduction of poverty in India's urban sector. Although not statistically significant, the coefficient for openness has a positive impact on the levels of rural poverty in India, which may suggest the existence of inequalities in the distribution of the benefits of recent economic reforms. Given that income inequalities are associated with higher levels of poverty in India, this issue may merit further research in a future paper.

Columns (4), (5) and (6) in table 5 show the results for the single-equation model. The results are almost identical to the previous model. The results in this section illustrate thus how expenditure on social services can have a positive effect on both the reduction of poverty and the economic growth of a poor economy, as is the case of India. These results question thus previous understandings that social security/protection policies may pose unsustainable financial burdens on poor economies. In the case of India, expenditure on social services has not only contributed towards the decrease of poverty but has also created important conditions for the promotion of economic growth.

[23] Possibly due to the reduction of younger people employed or the larger resources needed to accommodate

6. CONCLUSIONS

This paper examined the case for the implementation of social protection policies in developing countries. Despite the fact that high levels of poverty in developing countries provide a strong justification for the establishment of programmes of social protection in those economies, there are strong doubts in the literature over the viability of implementing social security in developing countries. Those doubts result the fragile structures that characterise developing economies, in particularly the lack of adequate financial and labour markets, the high probability of tax evasion and the exposure of developing economies to political pressure from powerful groups against the implementation of social protection programmes.

The results obtained in this paper show, however, that expenditure on social services can have important endogenous effects on economic growth in India, one of the poorest countries in the world. Thus, even if social protection is not regarded as the primary means by which developing economies raise their levels of well-being and create the conditions for sustainable development and economic growth, their contribution towards that objective must not be underestimated.

more people in schools.

TABLE 1 – POVERTY, INEQUALITY AND REDISTRIBUTIVE POLICIES IN SELECTED COUNTRIES

	GNPpc $US ppp (1999)	% people below $US1/day 1998	Public exp educ 1997	Female illiteracy rates 1998	Public exp health 1990-98	Infant mortality rates 1998
India	2149	44.2	3.2	57	0.6	70
Low and middle income countries	3410	21.6	4.1	33	1.9	59
East Asia & Pacific	3500	15.3	2.9	22	1.7	35
Europe and Central Asia	5580	5.1	5.1	5	4.0	22
Latin America & Caribbean	6280	15.6	3.6	13	3.3	31
Middle-East & North Africa	4600	7.3	5.2	48	2.4	45
South Asia	2030	40.0	3.1	59	0.8	75
Sub-Saharan Africa	1450	46.3	4.1	49	1.5	92
High income countries	24430	-	5.4	0	6.2	6

Source: World Development Report 2000/2001.
Notes: Public expenditure on education and health are given as percentage of GNP. Female illiteracy rates are in percentage of total population above the age of 15. Infant mortality rates are per 1000 live births.

TABLE 2 – ECONOMIC GROWTH IN INDIA, 1970-1999

	SDP 1970[1]	SDP 1999[1]	SDP growth 1970s[2]	SDP growth 1980s[2]	SDP growth 1990s[2]	Rural consumption 1970-1999[3]	Urban consumption 1970-1999[3]
Andhra Pradesh	1228	2520	1.2	4.5	2.4	1.7	3.5
Assam	1171	1649	-0.8	2.0	0.8	1.5	2.4
Bihar	860	1141	0.2	2.4	-0.4	4.0	5.2
Gujarat	1804	4232	1.9	4.4	6.0	4.9	8.2
Karnataka	1357	3355	1.7	3.5	5.8	3.8	6.8
Kerala	1325	2591	0.4	1.5	4.1	5.3	4.3
Madhya Pradesh	1108	1984	-1.5	1.4	1.9	1.9	3.7
Maharashtra	1836	5386	2.8	3.9	5.1	5.9	9.0
Orissa	1175	1740	-0.4	3.3	2.8	1.6	3.1
Punjab	2070	4734	2.8	3.8	2.7	3.8	3.7
Rajasthan	1485	2068	-1.7	4.8	1.3	2.7	3.4
Tamil Nadu	1317	3488	1.9	3.9	5.1	3.3	5.8
Uttar Pradesh	1191	1933	-1.0	2.5	1.8	2.8	4.6
West Bengal	1488	3443	0.2	1.9	5.4	4.5	5.9
India[4]	1387	2876	0.6	3.1	3.2	3.4	4.9

Source: India National Accounts for state domestic product data. Consumption expenditure data from Özler, Datt and Ravallion (1996), World Bank. 1999-2000 consumption data from Deaton (2001b).
Notes: 1. Refers to per capita state domestic product at factor cost at 1980-81 constant prices in rupees. 2. Refers to the average growth rate of per capita state domestic product at factor cost at 1980-81 constant prices for the respective decade. 3. Refers to the average growth rate of real per capita monthly expenditure (at constant 1993-94 prices) between 1970-71 and 1999-2000. 4. Refers to the average values for the 14 major Indian states represented in the table.

Graph 1 - Income Poverty in India, 1970-1999

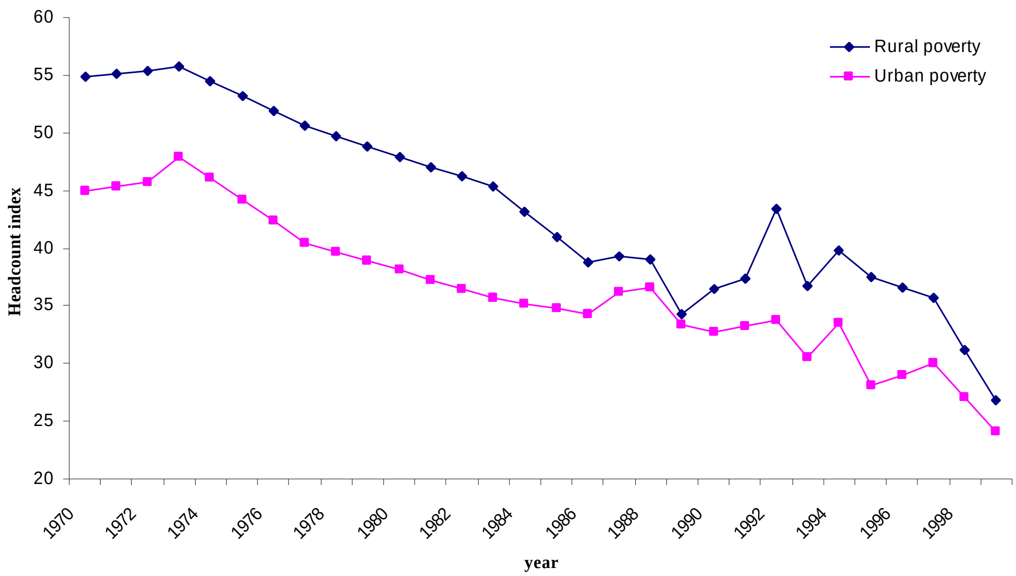


TABLE 3 –POVERTY HEADCOUNTS IN SELECTED INDIAN STATES, 1973-74 AND 1999-2000

	1973-74		1999-2000	
	Rural	**Urban**	**Rural**	**Urban**
Andhara Pradesh	56.8	51.0	10.5	27.2
Assam	56.8	40.2	40.3	7.5
Bihar	13.8	57.4	44.0	33.5
Gujarat	58.1	60.0	12.4	14.8
Karnataka	61.0	53.8	16.8	24.6
Kerala	62.1	62.7	9.4	19.8
Madhya Pradesh	66.1	56.6	37.2	38.5
Maharashtra	64.6	51.2	23.2	26.7
Orissa	58.7	60.0	47.8	43.5
Punjab	32.3	32.3	6.0	5.5
Rajasthan	59.3	54.2	13.5	19.4
Tamil Nadu	59.3	50.0	20.0	22.5
Uttar Pradesh	14.5	62.2	31.1	30.8
West Bengal	63.2	39.3	31.7	14.7
All-India	55.7	48.0	26.8	24.1

Source: 1973-74 data from Özler, Datt and Ravallion (1996), World Bank. 1999-2000 data from Deaton (2001b).

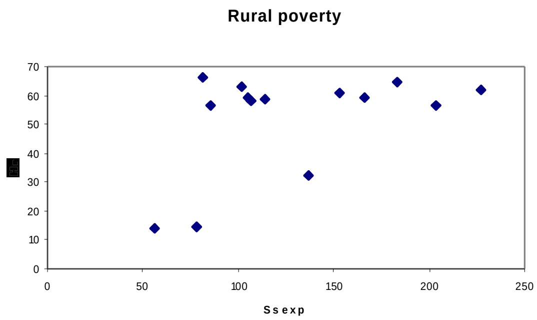
TABLE 4 – ANNUAL PER CAPITA EXPENDITURE ON SOCIAL SERVICES IN SELECTED INDIA STATES

	Expenditure on social services	
	1973	**1999**
Andhra Pradesh	85.7	151.8
Assam	203.7	31.6
Bihar	56.2	145.0
Gujarat	106.6	227.8
Karnataka	153.0	194.1
Kerala	227.0	184.0
Madhya Pradesh	81.4	52.2
Maharashtra	183.2	285.5
Orissa	113.9	50.3
Punjab	137.2	66.3
Rajasthan	105.0	129.3
Tamil Nadu	166.5	226.0
Uttar Pradesh	77.9	31.3
West Bengal	101.6	215.3
India*	128.5	142.2

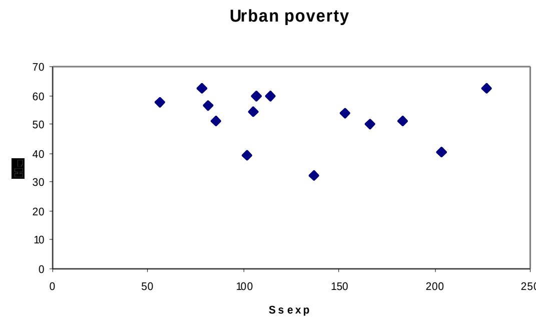
Source: Data on social services expenditure published by the Reserve Bank of India, Bulletin, various years.

Notes: Per capita expenditure on social services is in rupees at constant 1980-81 prices. The components used to build the social security expenditure variable were education; medical, public health and family welfare; welfare of scheduled castes, schedule tribes and other backward classes; labour welfare; social security and welfare; and nutrition. *Refers to average of 14 major states.

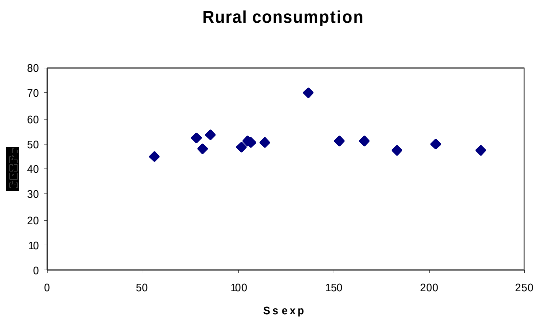
FIGURE 1 – SOCIAL SECURITY EXPENDITURE CORRELATIONS 1973



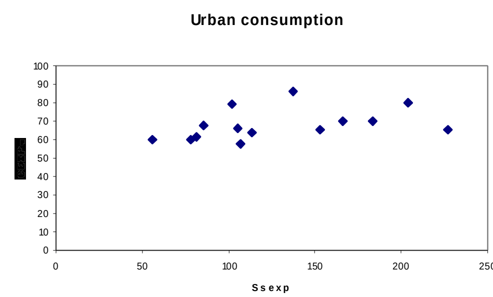
Coefficient of correlation: 0.457*



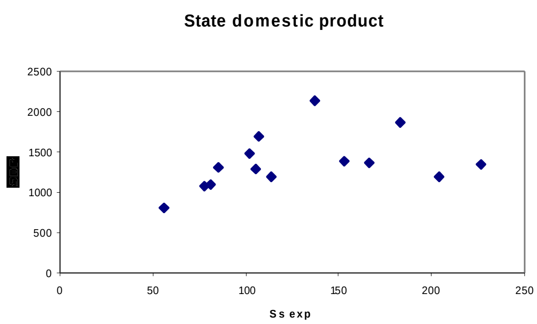
Coefficient of correlation: -0.189



Coefficient of correlation: 0.016



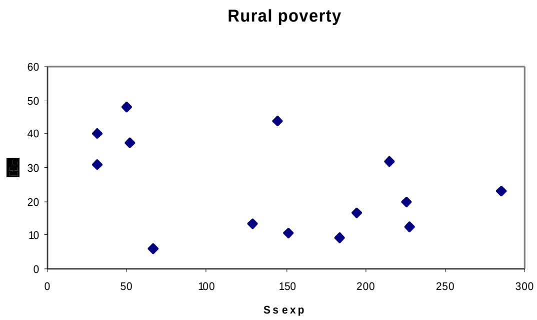
Coefficient of correlation: 0.395



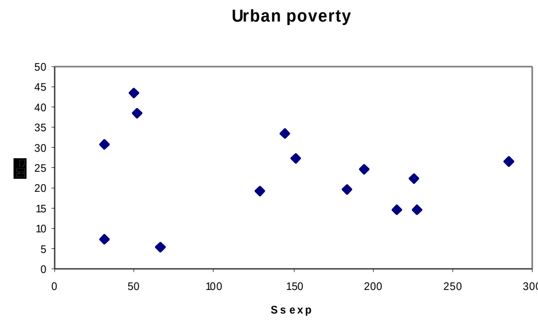
Coefficient of correlation: 0.373

Note: *** significant at 1% level, ** significant at 5% level, * significant at 10% level.

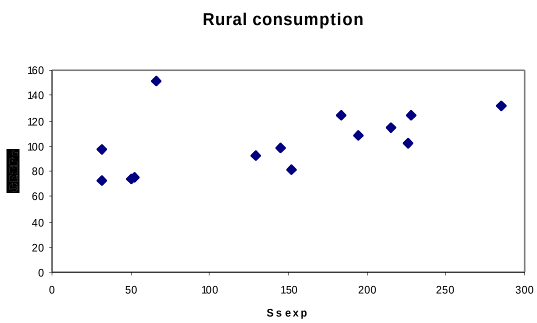
FIGURE 2 – SOCIAL SECURITY EXPENDITURE CORRELATIONS 1999



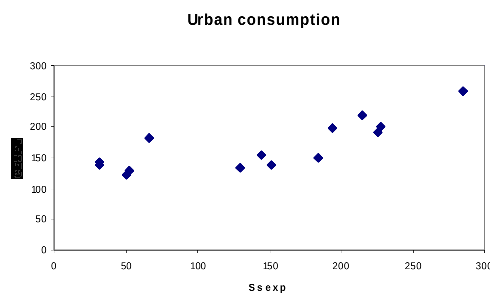
Coefficient of correlation: -0.419



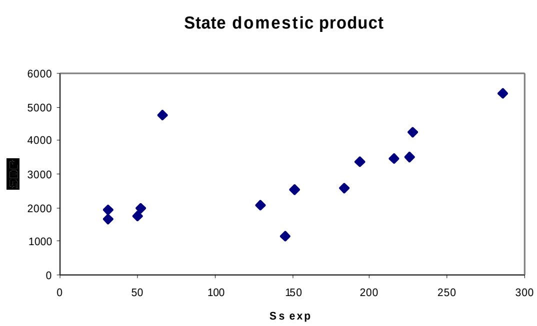
Coefficient of correlation: -0.155



Coefficient of correlation: 0.513*



Coefficient of correlation: 0.796***



Coefficient of correlation: 0.627**

Note: *** significant at 1% level, ** significant at 5% level, * significant at 10% level.

TABLE 5 – TWO-STAGE LEAST SQUARES AND SINGLE EQUATION RESULTS

	Dep var: NSDPgr (2SLS) (1)	Dep var: CEXPrgr (2SLS) (2)	Dep var: CEXPugr (2SLS) (3)	Dep var: Hr (2SLS) (4)	Dep var: Hu (2SLS) (5)	Dep var: NSDPgr (6)	Dep var: CEXPrgr (7)	Dep var: Hr (8)	Dep var: Hu (9)	Dep var: CEXPugr (10)
Exp social sserv	-0.002	0.013*	0.013**	0.256	0.120	-0.003	0.015***	-0.120	0.249	0.008
Lagged exp sserv	0.083*	0.065	0.117	-25.23***	-11.335***	0.095**	0.132	-9.152*	-17.533***	0.102
Education	-0.643***	0.805**	0.558	-4.118	8.779	-0.749***	0.639**	-16.531	16.615	0.466
Unemployment	0.545	-1.848	-2.416**	-176.45**	-119.82***	0.502	-1.732**	-157.63***	-129.55***	-1.554*
Rural poverty	-0.0003	-0.001	-0.002			-0.0002	-0.001			-0.001
Urban poverty	0.0007	-0.00004	0.001			0.0003	-0.001			0.002
Rural inequality	0.006*	0.003	-0.001	1.188***	-0.089	0.009***	-0.004	1.185***	-0.052	-0.001
Urban inequality	0.002	0.003	0.010	0.624	0.487**	0.001	0.005	0.895**	0.702***	0.008
Openness	0.083***	0.126***	0.182***	1.891	-6.256***	0.081***	0.075***	-2.633	-4.640***	0.174***
Constant	-2.654***	-3.638***	-5.445***	128.48**	260.70***	-2.727***	-2.783***	116.006**	257.96***	-5.142***
Wald-statistic	44.80***	39.29***	83.51***	90.26***	332.55***	83.66***	75.47***	110.58***	297.52***	97.61***
No. observations	70	70	70	70	70	70	70	70	70	70

Note: ***significant at 1%; **significant at 5%; *significant at 10%.

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