

DO RURAL BANKS MATTER? EVIDENCE FROM THE INDIAN SOCIAL BANKING EXPERIMENT*

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Abstract

Between bank nationalization in 1969 and the onset of financial liberalization in 1990 India was home to the largest rural branch expansion program undertaken in any country. This paper exploits a key institutional feature of this program to provide evidence on the finance-poverty nexus. In 1977, the Indian central bank mandated that for every branch opened in an already banked location a commercial bank must open four in unbanked locations. This rule was removed in 1990. Between 1977 and 1990 this rule caused banks to open more rural branches in states with fewer branches per capita in 1961. The reverse was true outside this period. We exploit these facts to obtain credible instruments for rural branch openings. Our estimates suggest that a 1 percent increase in the number of rural locations banked per capita reduced rural poverty by 0.42 percent and increased total output by 0.34 percent.

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1 Introduction

Working out ways to lift people out of poverty is the key objective within development economics. While there is a great deal of debate on this subject our understanding of what concrete steps can be taken remains limited. One policy area that has attracted much attention is credit. Access to finance has been seen as a critical factor in enabling people to transform their production and employment activities and to exit poverty (Banerjee and Newman 1993; Aghion and Bolton 1997; Banerjee, 2001). Countries with better developed financial systems, it is argued, should be better able to exploit growth opportunities (Schumpeter, 1934; Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991). Financial development may also help to enhance financial stability with positive implications for economic performance (Bernanke and Gertler, 1990). In short, lack of access to finance may be a key reason as to why people and countries stay poor.

This type of reasoning led governments across the developing world to intervene in the banking sector. However, whether such interventions have been successful in their stated aim of reducing poverty remains an open and important question. At present our evidence base on this question is extremely thin.¹ In this paper we evaluate the poverty impact of the Indian rural bank branch expansion program – the largest ever attempted in a developing country. Between bank nationalization in 1969 and the onset of financial liberalization in 1990 bank branches were opened in over 30,000 rural locations which had no prior presence of commercial banks (henceforth, unbanked locations). Alongside, the share of bank credit and savings which was accounted for by rural branches rose from 1.5 and 3 percent respectively to 15 percent each.

This branch expansion was an integral part of India’s social banking experiment which sought to improve the access of the rural poor to cheap formal credit. The preamble to the Bank Company Acquisition Act of 1969 – the piece of legislation which empowered the state to nationalize commercial banks – makes the intentions of the Indian government plain.

“The Banking system touches the lives of millions and has to be

¹A positive correlation between banking expansion and economic growth has been observed in cross-country data (King and Levine, 1993; Levine and Zervos, 1998; Rajan and Zingales, 1998). The lack of comparable cross-country data on poverty across time, however, implies that working out the distributional impact of banking expansion is problematic. In addition, the fact that countries (or regions) with greater growth potential are likely to attract more banks makes it difficult to establish a causal link between banking expansion and poverty and growth.

inspired by larger social purpose and has to subserve national priorities and objectives such as rapid growth of agriculture, small industries and exports, raising of employment levels, encouragement of new entrepreneurs and development of backward areas. For this purpose it is necessary for the government to take direct responsibility for the extension and diversification of banking services and for the working of a substantial part of the banking system”.

Key to the branch expansion endeavor was the imposition of the 1:4 license rule in 1977. This rule stated that a bank could open one branch in an already banked location only if it opened four in unbanked locations. This rule was disbanded in 1990.² As we document this rule implied that Indian states with lower levels of initial financial development (as measured by the number of banked locations per capita in 1961), and therefore more unbanked locations, attracted *more* rural branches between 1977 and 1990. The reverse was true outside this period.

We first show that an identical temporal pattern exists for rural poverty – poverty fell more rapidly in states with lower initial financial development between 1977 and 1990. The opposite was true outside this period. We then combine differences in the initial financial development of Indian states with information on the timing of license regime shifts to isolate the plausibly exogenous determinants of branch expansion in a state. We use these as instruments for the number of rural locations banked in a state. Our instrumental variable estimates suggest that a one percent increase in the number of rural banked locations reduced rural poverty by roughly 0.4 percent and increased total output by 0.30 percent. The output effects are solely accounted for by increases in non-agricultural output – a finding which suggests that increased financial intermediation in rural India aided output and employment diversification out of agriculture.

The Indian branch expansion program was representative of a whole host of state-led rural credit programs that spread across the developing world in the post-colonial period. This trend was not restricted to low income countries – in the United States, for example, the Community Reinvestment Act of 1977 requires banks to meet the credit needs of its entire community, including low income neighborhoods (Zinman 2002). In most cases these credit

²The license rule was suspended in 1990, and in 1991, after the advent of the economic reforms in India, the recommendations of the Committee on Financial System (popularly called the Narasimhan Committee) formally ended the branch expansion program (Government of India, 1991).

programs went hand in hand with government oversight of the banking sector, often aided by government ownership of banks.³ Such interventions were often justified with some kind of ‘commanding heights’ argument regarding the role played by banks in encouraging growth of nascent industries in low income countries (Gerschenkron 1962).

The prevailing view as regards social banking is, however, pessimistic. It is widely believed that state control of the banking sector implied that political, not economic, considerations determined the flow of credit across sectors and individuals. This, in turn, led to widespread elite capture of the system (La Porta, Lopez-De-Silanes and Shleifer (2003), Sapienza (2003)). Some go as far as to claim that elite capture, combined with the imposition of interest rate ceilings in the formal sector, led to financial dualism wherein formal concessional funds are concentrated in the hands of the powerful few and terms in the informal markets (on which the poor were forced to depend) worsened (see Adams et al 1984; Braverman and Guasch 1986).⁴ In sum, not only was formal subsidized credit ineffective in reaching the poor, it may even have undermined rural development and increased rural poverty. Social banking programs were set up precisely to attack poverty by expanding access to credit. However, by virtue of their vintage, social banking episodes, though numerous and large in scale, have largely escaped serious evaluation. And this is despite the fact that, even today, state provided finance remains the dominant source of formal finance in the rural areas of developing countries (Besley 1995).

India is an appropriate place for such an evaluation, both because of the size and scope of the social banking experiment and also because India is home to close to a third of the world’s poor, the bulk of whom are located in rural areas (Deaton and Dreze, 2002). The rapid increase in the Indian rural branch network and rural credit and savings share after bank nationalization in 1969, and the subsequent slowdown post 1990 has been widely documented (Nair 2000). However, evidence on the economic impact of the social banking program remains mixed. Binswanger, Khandker and Rozensweig (1993) and Eastwood and Kohli (1999) find evidence that the branch expansion program and directed lending program enhanced growth. In contrast, Bell (1990) and Kochar (1997) claim that the role of commercial banks in promoting rural development has been limited. These studies, however, take limited account of the potential bias in their estimates caused

³La Porta, Lopez-De-Silanes and Shleifer (2002) report that, in the average country, 42 percent of the equity of the ten largest banks remained government owned in 1995.

⁴Hoff and Stiglitz (1998) show formally that a subsidized credit scheme may worsen the terms of loans offered by moneylenders in the informal sector

by endogenous branch placement. We make progress on this issue by directly exploiting the institutional features of the branch expansion policy for identification purposes. Our methodology is related to Duflo (2001), and to other recent work which uses trend breaks to identify the impact of policy changes (e.g. Almond, Chay and Greenstone, 2002).

The paper is organized as follows. In Section 2 we provide background on the data we use, and the program we study. Section 3 describes our identification strategy, and Section 4 contains the empirical analysis. Section 5 concludes with a discussion of the implications of our findings for policy.

2 Data and Program Description

2.1 Data

We use a panel data-set for the sixteen major Indian states which spans the period 1961-2000. Table 1 gives the means and standard deviations for the main variables that we use, and the Data Appendix provides information on variable definitions and data sources.⁵

Our bank branch data is from a branch level data-set which records the opening date and census location for every commercial bank branch opened since 1805 (Reserve Bank of India (2000)). We define the initial financial development of an Indian state as the number of census locations in the state with at least one bank branch in 1961. This variable is positively correlated with state income. The main explanatory variable of interest is the annual cumulative number of branches opened in rural unbanked locations (Figure 1).⁶ The average rural bank branch undertakes both deposit-taking and lending activities.⁷ Deposit taking is relatively straightforward, with the rate of interest and other terms and conditions laid down by the Indian central bank. In the area of lending, the bank official enjoys limited discretion subject to abiding by bank-level guidelines on meeting directed lending targets to the so-called ‘priority’ sectors of agriculture, entrepreneurs and small scale industry. To give some sense of a rural bank’s lending portfolio, in 1996, the average rural bank lent 38.6 percent to agriculture, 27.5 percent

⁵For some variables the data span fewer years; details are in the Appendix.

⁶As each rural location that receives a branch transits from being classified as unbanked to banked this variable represents a cumulative count of the number of banked rural locations in a state in each year. For our sample states this variable increased from 116 to 30,428 between 1961 and 2000.

⁷The average bank branch is staffed by one officer, two clerks, one of whom also acts as the cashier, and one security guard.

to industry, 13.9 percent to trade and 9 percent as personal loans (Reserve Bank of India, 1997). Overall, between 1969 and 2000, the average annual deposits per rural bank branch (in real terms) was 29,961 rupees and average credit disbursed per rural branch was 17,157 rupees. These numbers reflect a massive growth in the shares of bank credit and savings disbursed by rural branches, which is graphed in Figure 2.

In Table 2, we use information from Indian household surveys to decompose the debt of rural households by source for ten year intervals between the years 1951 and 1991. At independence, the informal credit sector accounted for the bulk of lending to rural households in India, with moneylenders contributing close to seventy percent of the total. In contrast, less than one percent of rural household debt came from commercial banks. These banks remained confined to urban areas and geared towards the financing of trade and commerce activities (Reserve Bank of India, 1954).⁸ This remained true until 1971 when lending by commercial banks contributed only 3 percent to rural household debt. However, by 1991 this figure had risen ten fold to 29 percent. Over the same time period the moneylender share of rural household debt more than halved from 35 to 15.7 percent. Thus over this period, arguably due to the large scale expansion of commercial banks into rural India, commercial banks transited from being the smallest to the largest lender in rural areas. Our focus is on identifying the economic implications of this change in rural India.

India is unique amongst developing countries in having carried out household expenditure surveys on a regular basis since the 1950s. This allow us to construct a consistent and comparable series of rural and urban poverty measures across our period.⁹ We use the head count ratio which measures the proportion of the population below the Indian poverty line. Figure 3 graphs the annual average rural and urban head count ratios. Until 1973 there are sharp year-to-year fluctuations in both series without any long term trend. Between 1973 and 1990 both urban and rural head count ratios show a clear and similar downward trend. Immediately after 1990, as

⁸These findings come from the Report of the 1951 All-India Credit Survey. The report concluded that financial backwardness was a root cause of rural poverty, and that commercial banks needed to be harnessed to improve access to formal credit in rural areas – both to enable poor, rural households to adopt new technologies and production processes, and to displace ‘evil’ moneylenders who exploited their monopoly power to charge high rates of interest. These conclusions formed the basis of Indian banking policy for the next four decades.

⁹We are grateful to Gaurav Datt and Martin Ravallion for providing us these state-level poverty figures (see Ozler, Datt and Ravallion (1996)). Gaurav Datt was kind enough to provide us with comparable updates which allowed us to extend the series from 1994-2000.

India entered a period of economic liberalization, the pattern becomes less clear with considerable debate over the net direction (Deaton 2001).¹⁰ The most recent figures suggests that the post 1990 trend is overall downward. Over this period real male agricultural wages, an important correlate of rural poverty, doubled. Given the controversy surrounding the more recent poverty figures using agricultural wages as an alternative dependent variable provides a useful robustness check. The same holds of school enrollment, measured here as the fraction of children aged 6-14 currently enrolled in classes 1 through 8.

In 1961 real state non-agricultural and agricultural output per capita were of similar magnitudes at Rs. 427 and Rs. 434 respectively. By 1997, non-agricultural output at Rs. 2814 was more than double agricultural output (Rs. 1266). Figure 4 illustrates this divergence. We examine the links, if any, between rural branch expansion and this increase in economic activity outside agriculture. Within non-agriculture we consider the impact of rural branch expansion on the growth of registered and unregistered manufacturing output. Small businesses which employ less than ten persons with power, or twenty without are classified as unregistered manufacturing. These businesses are an important source of output and employment in rural areas. In contrast, registered manufacturing which refers to firms with employment levels above these cut-offs are located mainly in urban areas. We also examine whether the ratio of non-agricultural to total rural laborers is affected. These measures allow us to obtain some handle on the process of structural change in India.

2.2 The Program

The initial impetus for social banking in India came from the Report of the 1951 All-India Rural Credit Survey which concluded that lack of access to commercial banks was a root cause of rural poverty (Reserve Bank of India, 1954). In 1969 the fourteen largest Indian commercial banks were nationalized, at which point they came under the direct control of the Indian central bank and were formally incorporated into the planning architecture of the country (Balachandran, 1998). The point of bank nationalization was to empower the state to target financial backwardness as a means of promoting social objectives. A central aim was to reduce and equalize the average population per bank branch across Indian states. To achieve this unbanked

¹⁰Deaton (2001), among others, has argued that the smaller household surveys conducted between 1994 and 1998 were unrepresentative and poverty measures based on these samples are potentially misleading.

locations – that is, census locations with no prior presence of commercial banks – were targeted (Desai 1987). In consultation with state authorities and commercial banks, the central bank drew up state-wise lists of locations to be filled. New lists were prepared roughly every three years, and provided to commercial banks. In identifying unbanked locations the Indian central bank used the census location lists and moved down the population distribution of locations – that is, larger settlements were targeted earlier. As the criteria for what constituted an unbanked location was common across states, at any given point in time, more unbanked locations were targeted in less financially developed states. One commercial bank was designated as the ‘Lead Bank’ in every Indian district, and made responsible for fulfilling branch expansion targets. While a bank may have enjoyed some freedom in choosing between unbanked locations on the list, the fact that it had to meet targets at the district-level implied that the policy forced banks to open more branches in states with more unbanked locations. For this reason we conduct our analysis at the state-level.¹¹

To ensure that targets were fulfilled the Indian central bank exploited its licensing powers. Prior to opening a branch each commercial bank must obtain a license from the central bank (Banking Regulation Act, 1949). On January 1, 1977 the Indian central bank announced that to qualify to open one branch in an already banked location a commercial bank must open four in unbanked locations.¹² The underlying assumption was that in the absence of this policy banks would concentrate branch building in already banked locations. In 1990 the licensing procedure was frozen, and in 1991 formally repealed. It was deemed that future branch expansion should depend on “need, business potential and financial viability of location” (Government of India, 1991).

Figure 1 suggests that the 1:4 license rule altered the relative rates of branch expansion into unbanked and banked locations. The solid line traces out the cumulative number of branches opened in rural unbanked locations, and the dotted line the cumulative number of branches opened in already banked locations. Between 1977 and 1990 the rate of branch building in rural unbanked locations accelerated while that in already banked locations fell. As soon as the rule was disbanded in 1990 banks stopped building branches in rural unbanked locations and increased the rate at which they

¹¹Clearly, an alternative would be undertake the analysis at the district level. However, annual poverty estimates are only available at the district level.

¹²Up to this point banks had enjoyed some latitude as regards branch placement due to a continuing emphasis by the central bank on the banking of towns and the need to satisfy pent up urban demand.

built branches in already banked locations. To date, a bank cannot close a rural branch if it is the only branch servicing the location.

The license rule was binding at the bank-, not state-, level. However, as financially backward states had relatively more unbanked locations the 1:4 license rule helped both reduce and equalize the population per bank branch across Indian states. Figure 5 graphs the state-wise evolution of population per bank branch. There is some, albeit limited, evidence of convergence in population per bank branch across Indian states prior to nationalization. Convergence is much stronger between 1970 and 1990, with the post-1977 convergence driven by differential rates of rural branch expansion across Indian states. By 1990, all states were at or below the national target of 17,000 persons per bank branch.¹³ Interestingly, after the removal of placement restrictions in 1990 there is some evidence that population per bank branch began to increase and diverge across Indian states with more backward states seeing larger increases (see inset panel, Figure 5).

The years after bank nationalization also saw a rapid rise in the shares of credit and savings disbursed by rural branches (Figure 2). Mandated lending to the so-called ‘priority sectors’ principal amongst which were agriculture and small scale industries was also increased over the period. This policy was introduced in 1968, and remains in place till date.¹⁴ However, unlike rural branch expansion, the policy itself would not lead us to expect the share of rural credit to vary systematically with a state’s initial financial development.

3 Identification Strategy

In this section we provide evidence that the bulk of rural branch expansion in India was policy-driven, and was associated with a significant increase in the flows of bank credit and savings to rural areas. These facts will both allow for a credible evaluation of the economic impact of the banking of rural areas, and help us interpret our results as informative of the role of state-led financial intermediation in affecting rural development. This approach also allows us to sidestep many of the endogeneity problems associated with a direct study of the impact of credit flows.¹⁵

¹³Between 1961 and 2000 the average population per bank branch fell tenfold from 139,790 to 14,681.

¹⁴These targets were ratcheted up over time – they started at 33 percent of total bank lending and have stood at 40 percent since 1985.

¹⁵In a similar vein Jayarathne and Strahan (1996) use an indicator variable on when a U.S. state relaxed branching restrictions to look at how financial markets affect economic

The 1:4 license rule was intended to coerce commercial banks to open more branches in rural unbanked locations in less financially developed states. If it had any bite we would expect its imposition in 1977 and subsequent removal in 1990 to alter the relationship between initial financial development of a state and subsequent rural branch expansion. To check whether this is the case we run a fixed effects regression of the form:

$$B_{it}^R = \alpha_i + \beta_t + \sum_{t=1961}^{2000} (B_{i61} \times D_k) \gamma_k + \sum_{t=1961}^{2000} (X_{i61} \times D_k) \delta_k + \epsilon_{it}$$

α_i and β_t are state and year effects respectively. B_{it}^R , the cumulative number of branches opened in rural unbanked locations per capita, is our social banking measure and B_{i61} , the total number of banked locations per capita in state i in 1961, is our measure of initial financial development.¹⁶ D_k is a dummy which equals one where $k = t$. The coefficient set γ_k captures the year-wise effect of initial financial development on rural branch expansion. As other initial conditions in a state may also have a time-varying effect on branch expansion we include a vector of control variables (X_{i61}) as additional covariates. This vector includes log real state income per capita, total state population and the number of rural locations per capita, all measured in 1961. These controls also enter the regression interacted with year dummies.

Figure 6 graphs the γ_k coefficients for two specifications. The dots on the solid line are the coefficients from a specification without the X_{i61} controls, and the dots on the broken line are from a specification with the X_{i61} controls. In both cases 1961 is the control year, and the 1961 dummy is omitted. γ_k summarizes the effect of the between-states variation in initial financial development on the cumulative number of branches opened in rural unbanked locations as of year t . A comparison of the coefficients for any two adjacent years (γ_k and γ_{k+1}) is informative of the relationship between initial financial development and the growth in rural branch openings.

Over this period the number of rural banked locations trended upwards in every state. However, what stands out in figure 6 is two clear reversals in the relationship between a state's initial financial development and the number of rural banked locations – one in 1977 and one in 1990. Between 1961 and 1977 the γ_k coefficients increase with time – that is, financially *more* developed states witnessed *higher* growth of rural banked locations.

growth

¹⁶Both variables are normalized by 1961 population. The results are robust to an alternative normalization of the banking variables by land area (as in Binswanger, Khandker and Rosenzweig 1993).

As banks enjoyed considerable leeway regarding where to locate this would suggest that financially more developed states offered banks greater profit opportunities. This relationship is reversed in 1977 precisely when the 1:4 license rule was imposed. Moreover, the reversal is not temporary. Between 1977 and 1990 the γ_k coefficients decrease with time – that is, financially *less* developed states witnessed *higher* growth of rural banked locations. After 1990 branch expansion into rural unbanked locations ended, and this is reflected in the subsequent lack of over time variation in the size of the γ_k coefficients. A comparison across specifications shows that the shape of this relationship is invariant to the inclusion of controls. Overall, the precise correspondence in the timing of these trend reversals and license regime shifts provides strong *prima facie* evidence that the pattern of rural branch expansion across Indian states was policy driven.

The 1:4 license rule refers specifically to the number of bank branches that could be opened in banked versus unbanked locations. Throughout this period, banks were free to decide branch placement in already banked locations. If the state-wise profitability of opening such branches was throughout positively correlated with initial financial development, then the imposition and subsequent removal of the 1:4 license rule should affect the rate of building in already banked locations but not its distribution across states. To check this we run regression (1) where the outcome variable is the cumulative number of branches opened in banked locations per capita. Figure 7 graphs out the γ_k coefficients on the interaction between initial financial development of a state (B_{i61}) and year dummies (D_k). This relationship, though affected by license regime shifts in 1977 and 1990, is positive throughout. This mirrors what was happening with branch openings in rural unbanked locations pre-1977 but is in strict contrast to what was happening between 1977 and 1990 when the 1:4 license rule was imposed.

We interpret the expansion of banks into rural India as improving the access of the rural population to formal credit. One way to check this is to examine the relationship between rural bank credit and initial financial development. Figure 8 reports the γ_k coefficients from regression (1) where the dependent variable is the share of bank credit disbursed by rural branches. As with rural unbanked locations we find a hump-shaped relationship. This suggests that rural branch expansion was associated with increases in rural credit and saving flows. It puts us on stronger grounds in interpreting the economic effects of rural banks as coming, at least in part, through improved financial intermediation in rural areas. However, as flows of credit and savings are, by definition, demand driven, our focus in the regression analysis remains on rural bank branches.

The key trend reversals in the relationship between rural branch expansion and initial financial intermediation occur in 1977 and 1990 (figure 6). There is limited variation in the relationship between initial financial development and rural branch expansion before 1977, between 1977 and 1990, or after 1990. The variation in Figure 6 can, therefore be summarized by a linear trend break model:

$$B_{it}^R = \alpha_i + \beta_t + (B_{i61} \times [t - 61])\gamma_1 + (B_{i61} \times [t - 77] \times P_{77})\gamma_2 + (B_{i61} \times [t - 90] \times P_{90})\gamma_3 + (B_{i61} \times P_{77})\gamma_4 + (B_{i61} \times P_{90})\gamma_5 + \epsilon_{it}. \quad (1)$$

The first coefficient of interest, γ_1 , measures the trend relationship between initial financial development (B_{i61}) and rural branch expansion. To check for trend reversals in this relationship we include two further interaction terms – first, an interaction of B_{i61} with an indicator variable equal to one if the year is 1977 or after (P_{77}) and a post 1976 time trend ($t-77$), and second, an interaction of B_{i61} with an indicator variable which equals one if the year is 1990 or after (P_{90}) and a post 1989 time trend ($t-90$). To allow for intercept changes we include the interactions of B_{i61} with P_{77} and P_{90} respectively.¹⁷ This, and all subsequent, regressions are estimated with and without the set of additional controls X_{i61} . These controls enter the regression in the same way as B_{i61} . As the results are robust across specifications we only report the regressions which include these controls.

Column (1) in Table 3 reports the trend break model results for branch expansion into rural unbanked locations. Both the 1977 and 1990 trend reversals are statistically significant. The coefficient γ_1 , given in the first row, tells us that between 1961 and 1977 a one point increase in initial financial development increased the number of rural banked locations by 0.2 points. The second row, which reports γ_2 , shows that this positive trend was reversed between 1977 and 1990 with a one point increase in financial development lowering rural branch growth by 0.5 points.¹⁸ Finally, the third row, which reports γ_3 , identifies a second trend reversal in 1990 with the post 1990 trend close to zero.¹⁹ In contrast, and in line with Figure 7, the results for branch expansion into banked locations do not show any trend reversals (column (2)).

Columns (3) and (4) consider the relationship between the shares of bank credit and savings disbursed by rural branches and initial financial develop-

¹⁷These coefficients are largely insignificant and therefore not reported.

¹⁸This is given by $\gamma_1 + \gamma_2$. F -test 1 shows that $\gamma_1 + \gamma_2$ is significantly different from zero.

¹⁹This is given by $\gamma_1 + \gamma_2 + \gamma_3$. F -test 2 shows that $\gamma_1 + \gamma_2 + \gamma_3$ does not differ significantly from zero.

ment.²⁰ Prior to 1977 both variables are uncorrelated with initial financial development. However, after 1977 they are significantly negatively correlated with initial financial development. This negative correlation persists into the 1990s, although post 1989 it is much more muted in the case of rural credit. In column (5) we find no evidence of trend reversals in the case of the share of bank lending going to priority sectors. This makes sense as priority sector targets were set at the bank-level, and remained independent of the state-wise distribution of a commercial bank’s rural and urban branches.²¹

4 Effects on Rural Development

The exposure of an Indian state to the rural branch expansion program was jointly determined by its initial financial development and the license regime shifts in 1977 and 1990. Between 1977 and 1990 initial financial development and rural branch expansion were negatively correlated, with the reverse true outside this time-period. In this section we exploit this fact to provide two types of evidence on the link between rural development and rural branch expansion. In section 4.1 we check whether rural development outcomes also exhibit trend breaks in 1977 and 1990 in their relationship with initial financial development, and in section 4.2 we use these trend breaks as instruments for rural branch expansion.

4.1 Reduced Form Evidence

Basic Results

We start by examining the relationship between initial financial development and poverty outcomes. The bold line in figure 9 traces out the γ_k coefficients for a regression (of the form in equation (1)) where rural poverty is the dependent variable, and the dotted line the γ_k coefficients from a regression where urban poverty is the dependent variable. Each γ_k summarizes the effect of between state variation in initial financial development on poverty in year t . The pattern across years thus tells how poverty rose or fell in relation to the financial development of a state. In interpreting these coefficients it is useful to remember that between 1973 and 1990 both rural and urban poverty series trended downwards (Figure 3). Figure 9 shows that up to

²⁰These data are only available from 1969.

²¹We also do not observe any trend breaks in the case of the share of formal credit disbursed by rural credit cooperatives – the other main source of formal credit in rural areas (see Table 2).

1978 both rural and urban poverty correlate negatively with financial development. After this the two series flatten out and from the early 1980s diverge with rural poverty reduction more pronounced in less developed states and changes in urban poverty unrelated to initial financial development.²² After 1990 both series return to being negatively correlated with financial development as they were pre-1978. The plot for rural poverty in Figure 9 is thus the inverse of that for rural branch expansion in Figure 6. Backward states, in contrast, did not experience more rapid urban poverty reduction between 1977 and 1990. This matches up with the fact that branch expansion into urban locales which tended to be already banked was higher in financially developed states throughout the period (Figure 7).

In Table 4 we summarize these, and other, findings for poverty outcomes using our basic trend break model (see equation 2). In column (1) we observe that rural poverty fell faster in more financially backward states between 1977 and 1990. In contrast, rural poverty reduction is less rapid in these states in the pre-1977 and post-1990 periods. We do not observe such an effect on urban poverty in column (2). This is consistent with the fact that we are evaluating a rural program.²³ The results for aggregate poverty in column (3) mirror those for rural poverty in column (1). This suggests that poverty reductions in rural India that drove the aggregate movements.

In column (4) we see that the results for real daily agricultural wages of male laborers mirror those for rural poverty. Relative to financially developed states, the agricultural wages grew more quickly in backward states only between 1977 and 1990. Column (4) serves as a robustness check on our poverty results, and points to an important route through which rural branch expansion could improve the lot of the poorest of the poor in India. As a robustness check we show in column (5) that real wages for workers in registered manufacturing – which is mainly located in the urban sector – do not exhibit breaks in 1977 and 1990. Finally, if the arrival of banks improves individual access to formal credit then we might expect this to be reflected in human capital investments. In column (6) we see that between 1977 and 1990 financially backward states saw a greater increases in school enrolment for children in classes 1-8.

In Table 5 we consider different components of state output. Column

²²We would expect there to be a lag between the opening of rural branches and their exerting any effect on rural poverty. This may explain why trend breaks in poverty lead those in branch expansion.

²³The fact that urban poverty reduction is more rapid in financially developed states post-1990 matches up with the fact that branch expansion into already banked was more rapid in these states after placement restrictions were removed in 1990.

(1) tells us that the relationship between real non-agricultural output per capita and initial financial development exhibited trend reversals in 1977 and 1990. More backward states experience higher growth only between 1977 and 1990. This pattern is not shared by agricultural output (column (2)). In column (3) we see that non-agricultural output drove the growth in total output, with the latter also exhibiting trend breaks in 1977 and 1990. Columns (4) and (5) focus on one key component of non-agricultural output – the manufacturing sector. Within this sector, the small businesses which make up unregistered manufacturing are important contributors to non-agricultural output in the rural sector (Visaria and Basant, 1994). In contrast, firms which are classified as registered manufacturing are mainly located in urban locations. Unregistered manufacturing and initial financial development were positive correlated until 1977, and negatively thereafter, column (4). In contrast registered manufacturing and initial financial development are uncorrelated until 1990 and positively thereafter, column (5). Total manufacturing reflects the sum of these trends – total manufacturing and initial financial development are positively correlated before 1977 and after 1990 and negatively between 1977 and 1990, column (6). These findings are consistent with the thesis that the growth of the non-agricultural sector lowered rural poverty. Again, consistent with this thesis, in column (7) we observe that between 1977 and 1987 more backward states witnessed faster growth in the share of non-agricultural laborers in total rural labor.²⁴

Robustness

We interpret the observed trend breaks in the relationship between rural development outcomes and initial financial development as reflecting changes in rural branch expansion which were caused by the choice of the 1:4 license rule. One check on this interpretation is to ask whether key political and policy variables which have the potential to influence rural development exhibited trend reversals in their relationship with initial financial development at the same points as rural branch expansion. If yes, then omitted variable bias would be a natural concern – i.e., changes in these variables, not rural branch expansion, underlie the evolution of rural development outcomes.

The Congress party which had been the dominant party in Indian politics since independence suffered a major electoral setback in 1977.²⁵ If the

²⁴As our data series ends in 1987 we cannot check for a 1990 trend break in employment

²⁵This setback was linked to Indira Gandhi's decision to invoke a State of Emergency in 1975 as a means of remaining in power – a decision which tainted herself and her party. The proportion of Congress seats in state assemblies fell from 0.56 in 1976 to 0.25 in 1978.

extent of state-wise ousting of Congress was systematically related to both the state's initial financial development and the choice of state-level public policies then we might worry that political, as opposed to license, regime shifts underpin the changes we observe in rural outcomes. Column (1), Table 6 examines the relationship between the share of Congress legislators in a state and initial financial development of a state. We find no evidence of trend breaks in 1977 or 1990. The 1977 political shock realigned political interests between the center and states with possible implications for resource flows. More backward states, for example, may have received more federal resources post-1977 as a result of this reconfiguration.²⁶ However, in column (2) we find no evidence of trend breaks in the relationship between center-state alignment, as measured by whether the same party is in power in both places, and initial financial development.

We can also directly examine whether the relationship between an array of anti-poverty policies and initial financial development exhibited trend breaks in 1977 and/or 1990. In the first few decades after independence land reform as a program for ushering in a just social order was an important item on almost every state government's policy agenda (Besley and Burgess, 2000; Banerjee, Gertler and Ghatak, 2002). Using state panel data 1958-1992 Besley and Burgess (2000) show that this land reform measure had a negative impact on rural poverty. We, however, find no evidence of trend breaks in the relationship the cumulative number of land reform acts passed by a state government bears to initial financial development (column (3)). In column (4) we examine the relationship between the extent of public food distribution in a state and its initial financial development.²⁷ The use of this program as a major poverty alleviation policy increased in the 1970s, with its incidence showing substantial variation across states (Besley and Burgess, 2002). However, again, we see no evidence of trend breaks. Finally, in columns (5) and (6) we directly consider the shares of government spending going to sectors which have the potential to impact rural development – education and health – and find no evidence of trend breaks.

These findings suggest that our identification strategy is reasonable and rural branch expansion affected rural, but not urban, outcomes. We now turn to a more structural analysis of the impact of rural branches on rural development outcomes.

²⁶Dasgupta, Dhillon and Dutta [2001] show that state governments who were politically aligned with central government received greater transfers between 1968 and 1997.

²⁷The Indian public food distribution system seeks to enhance the real income of poor households, and protect them against food shocks.

4.2 Instrumental Variables Evidence

Consider the estimation equation:

$$y_{it} = \alpha_i + \beta_t + \lambda B_{it}^R + \varepsilon_{it},$$

where y_{it} is the outcome of interest and B_{it}^R is the cumulative number of branches opened in rural unbanked locations per capita. Column (1), Table 7 reports the results for rural head count ratio. The coefficient on rural branch expansion is positive and significant. This finding is robust to including the interaction between a state’s initial financial development and a time trend as an additional control (column (2)).²⁸ Naively interpreted, this suggests that rural branch expansion increased rural poverty. However, an alternative ‘program’ based explanation is that the OLS estimate reflects the fact that poorer, less developed states attracted more rural branches between 1977 and 1990. And less rural branches outside this ‘treatment’ period. In columns (3) - (5) we run regressions separately for the 1961-76, 1977-89 and 1990-2000 periods. Consistent with the program interpretation we see that the positive association between rural banks and rural poverty is driven by the 1977-89 period when poorer, backward states were attracting more rural branches. We observe no relationship between rural banks and rural poverty outside this period.

To take account of endogenous branch placement we use deviations in the trend relationship between initial financial development and rural branch expansion which were induced by license regime shifts in 1977 and 1990 as instruments for branch openings in rural unbanked locations. This is equivalent to a difference in difference estimator where we control for the systematic variation in branch expansion across states and time by state fixed effects and a time trend interacted with initial financial development, and *only* consider the interaction between initial financial development and whether a state is in a treatment or control period as exogenous. Here, we have two ‘control’ periods (1961-1976 and 1990-2000) and one ‘treatment’ period (1977-1989).

The first stage regression is as in column (1), Table 3, and the second stage regression takes the form:

$$y_{it} = \alpha_i + \beta_t + \lambda B_{it}^R + \eta_1([t - 61] \times B_{i61}) + \eta_2(P_{77} \times B_{i61}) + \eta_3(P_{90} \times B_{i61}) + u_{it},$$

where $P_{77} \times [t - 77] \times B_{i61}$ and $P_{90} \times [t - 90] \times B_{i61}$ are instruments for B_{it}^R . This strategy assumes that these instruments affect rural development only

²⁸The coefficient on the initial financial development time trend interaction term shows that throughout this period rural poverty was lower in more financially developed states.

via rural branch expansion. In the previous section we showed that a range of political and policy variables which might affect rural development were orthogonal to our instruments. We also report over-identification tests of the validity of this assumption (Sargan (1958)).

Columns (1) - (3) of Table 8 report *IV* estimates for poverty outcomes. The point estimates in column (1) imply that a one percent increase in the number of rural banked locations per 10,000 persons reduces rural poverty by 0.42 percent.²⁹ The instruments also pass the over-identification test with ease. This finding lines up with the reduced form evidence but is in strict contrast with the *OLS* results. There is no suggestion here that rural branch expansion has undermined rural development. In column (2) we find no evidence that rural branch expansion affected urban poverty. This increases our confidence that we are identifying the poverty impact of banking rural locations. Also given that our explanatory variable is a cumulative stock and that rural and urban poverty trend downwards this finding reduces concerns that we are capturing a trend effect.³⁰ Column (3) summarizes the overall poverty impact of the rural branch expansion program. A one point increase in the number of rural banked locations per 10,000 persons lowers aggregate poverty by 0.40 points. The fact that the aggregate and rural poverty elasticities are very similar makes sense given that the bulk of the poor in India are located in rural areas.

The operation of casual agricultural labor as a ‘last resort’ employment option underlines its link with poverty and a range of studies suggest that agricultural wages are an important and independent marker of rural welfare (Dreze and Mukherjee, 1987). In column (4) of Table 8 we see that a one percent increase in the number of rural branches increase agricultural wages by 0.49 percent.³¹ This elasticity is comparable to that found for rural poverty. In contrast, we find no evidence that factory wages are affected by rural branch expansion (column (5)). This increases our confidence that we are capturing, in column (4), the impact of the rural branch expansion program on agricultural wages. In column (6) we see that a one percent increase in the number of rural banks per capita leads to a 0.14 percent

²⁹The point estimate for the marginal effect of rural banks on poverty is -547.87 (Table 8, column (1)) while the sample means for rural poverty and rural banked locations is 48.1 and 0.037 respectively. This gives an elasticity of rural poverty to rural branch expansion evaluated at the sample means of -0.42

³⁰Consistent with this we also find that rural branch expansion reduces the gap between rural and urban poverty – a variable which exhibits no clear trend over the period (see Figure 3).

³¹As the estimated model is a log linear model this elasticity is simply the product of sample mean of number of rural banked locations (0.037) and the point estimate (13.32)

increase in the fraction of children aged 6-14 who are enrolled in classes 1-8. Given the debates surrounding the accuracy of the Indian poverty figures for the 1990s (see Deaton 2001; Deaton and Dreze 2002) it is also comforting to see the impact of rural branch expansion being felt on other, independently collected measures of welfare such as agricultural wages and enrolment.³²

A key mechanism through which we may expect rural branch expansion to affect rural poverty is economic growth and diversification. Table 9 examines different elements of state domestic product in India. Rural branch expansion increases log state income per capita, and this occurs through effects on the non-agricultural as opposed to agricultural component (columns (1)-(3)).³³ The estimated elasticity of non-agricultural output to rural branch expansion at 0.68 reflects a high return to credit expansion in rural India. The corresponding elasticity for total output stands at 0.3 percentage points. Columns (4) and (5) tell us that rural branch expansion had a significant and positive influence on the expansion of unregistered manufacturing but none on registered manufacturing. The estimated elasticity of unregistered manufacturing to rural branch expansion is 0.97 suggesting a close to one to one correspondence between increases in credit to this sector and output. The findings for total manufacturing in column (6) reflect our findings for unregistered manufacturing. We find an elasticity of share of rural labor employed in non agricultural activities which is similar to that for non-agricultural output in column (7). This also suggests that a movement of labor out of agriculture contributed to the increase in agricultural wages.

Robustness

The above analysis uses both the 1977 and 1990 trend breaks as instruments for the number of rural locations banked. We use over-identification tests to check the assumption that the instruments only affect the outcome variable of interest via their impact on rural branch expansion. An alternative to the overidentification test is to separately run the regressions for the time periods 1961-1989 and 1977-2000 and check whether our results are similar across the two specifications. In Table 10 we report these results for a subsample of outcome variables.³⁴ In column (1) we restrict the sample to

³²Instrumented rural branch expansion is also associated with increases in the shares of rural credit and savings in their respective totals.

³³The absence of an effect in the agricultural sector is striking as raising agricultural productivity was a central objective of the program, and often the focus of evaluations (see e.g. Binswanger et al, 1993).

³⁴We checked that the results with the other outcome variables were also robust to this change in specification.

the pre-treatment (1961-1976) and treatment period (1977-1989) and use a single instrument $- P_{77} \times [t - 77] \times B_{i61}$. In column (2) we instead restrict the sample to the treatment and post-treatment periods (i.e. 1977-2000). Here, our instrument for rural branch expansion is $P_{90} \times [t - 90] \times B_{i61}$. We find similar results across the two samples, though the point estimates are always higher in the second case. A possible interpretation is that during the control period 1990-2000 financial liberalization exerted independent effects on outcome variables.

A standard concern with difference-in-difference estimation using repeated cross-sectional data is serial correlation. Our analysis exploits trend breaks to identify the relationship between rural branch expansion and outcome variables of interest. We do, however, check throughout whether our results are robust to clustering by state as suggested by Bertrand, Duflo and Mullainathan (2002) as means of correcting for serial correlation and column (3) reports the results for the main outcome variables of interest. In all cases, except school enrollment, the statistical significance of our results are unaffected.³⁵

Our poverty estimates are based on National Sample Survey data. For years in which the survey was not conducted, Ozler, Datt and Ravallion (1996) use weighted interpolation to construct poverty measures. In column (4) we report results for rural head count ratio where we restrict the regression only to years in which NSS surveys were conducted. This is to check that the results are not driven by data interpolation. We find the results are robust to such a restriction.

5 Discussion

The question of whether and how finance and poverty are linked is a key theme within development economics (Banerjee, 2001). In this paper we exploited the institutional features of the Indian rural branch expansion program to gain insights into this issue. This program was the flagship of a whole host of state-led rural credit programs that spread across the developing world in the post-colonial period. To date, these programs have, however, largely escaped serious evaluation. Our central finding is that rural branch expansion in India significantly reduced rural poverty, while leaving urban poverty unaffected. The implied elasticity of rural poverty to rural branch expansion is -0.42 . We find no evidence that the program ‘under-

³⁵Our choice not to use this specification throughout is driven by the fact that as we only have sixteen states the power of this correction is limited.

mined' rural development. Rather, the program appears to have played a significant role in enabling rural Indians – that previously had no access to banks – to escape poverty.

But how were the effects we observe on rural poverty achieved? Again the paper provides some insights. We find that the arrival of banks into rural areas led to increases in aggregate economic growth, and that these increases were driven by non-agricultural output. At over 0.6, the elasticity of non-agricultural output to rural branch expansion exceeds that found for poverty. Our findings are consistent with a diversification or structural change story whereby expansion of access to formal finance enabled to people to expand non-agricultural production activities. As the economic returns from these activities are typically higher than those accruing from agricultural activities this would lead to falls in rural poverty.

Manufacturing is often seen as the engine of diversification and growth (see Kaldor, 1967). We find the effect of rural branch expansion on aggregate manufacturing output is driven solely by unregistered manufacturing. This suggests that the arrival of banks in rural areas helped people to start and expand small businesses. In a similar vein, within the unskilled rural labor force, rural banking increased non-agricultural employment at the expense of agricultural employment. This tightening of the rural agricultural labor market is also reflected in a rise in male agricultural wages which benefits landless and marginal farmers who may not directly benefit from banking expansion. The positive effect of rural banks on school enrollment, which is both a correlate of poverty and a potential driver of growth and diversification, is also consistent with these patterns.

The program also appears to have enjoyed some success in displacing the traditional moneylender (see Table 2). Though patchy, the available evidence suggests that throughout this period moneylender interest rates exceeded those charged by commercial banks (see Banerjee, 2001). The entry of banks thus provided the rural populations access to a cheaper credit than was previously available. It may have also exerted downward pressure on interest rates charged by moneylenders. The lack of comparable and consistent data on moneylender interest rates, however, prevents us from testing directly for this effect in our data.

Two key design features appear to have underpinned the program's success in reaching the rural poor. The first is that licensing was successful in coercing banks to open branches in backward rural locations. Without state coercion it is unlikely that the vast majority of India's rural poor would have ever been reached by banking services. The second was the enforcement of directed lending requirements which implied that groups which would usu-

ally not have access to formal credit – small businessmen, agriculturalists, benefitted from rural branch expansion.³⁶

It would, however, be premature to conclude that social banking was the optimal policy response to the problem of widespread rural poverty. The branch expansion program was ended in 1990 because the expansion and operation of rural bank branches exacted such a heavy toll on the balance sheets of commercial banks. One reason was the use of rural interest rate subsidies – during the 1980s the average interest rate on loans from rural branches was 11 percent as against 14 percent in urban branches. Another was high loan default rates – the average default rate for commercial banks during the 1980s stood at 42 percent (as a share of all loans due for repayment).³⁷ To give some sense of the magnitude of losses of rural branches – at the height of the social banking epoch in 1986 the government certified losses for rural bank branches in India were (in real terms) Rs. 2125.5 per person per bank branch (Reserve Bank of India, 1989).³⁸ A simple cost-benefit measure is the ratio of the value of subsidies to a measure of benefits accruing to borrowers. Our estimates suggest that opening one bank branch per capita increases output by 0.66 percent, and the average real state output per capita in 1986 was Rs. 2210. Hence this cost-benefit ratio is 1.45 ($2125/(2210 \times 0.66)$).

This ratio is testimony to the fact that rural branches were a vehicle for costly redistribution of resources to rural areas. From a policy design viewpoint this, in itself, is not a damning criticism of the program. It is well-known that, in the presence of informational asymmetries, it is often optimal for a governments that wish to target resources to particular groups of citizens undertake costly redistribution in order to best screen amongst citizens (see, e.g., Besley and Coate 1992). It is also clear that the Indian government wished to redistribute resources via the commercial banks to

³⁶At the height of the social banking program in 1985 marginal farmers (those with less than 2.5 acres of land) accounted for 12.2 percent of operational landholdings but 33 percent for bank short term agricultural credit. In contrast, large farmers (with more than 5 acres of land) controlled 73.7 percent of operational land holdings but only received 38 percent of the short term credit (Reserve Bank of India, 1989).

³⁷Default rates were very similar across types of borrower – a finding consistent with poor monitoring of borrowers at all levels, and the fact that large scale loan defaults were very often politically condoned. This was also reflected in a low average productivity in rural branches as measured by average rural business (deposits+advances) handled per employee. In 1986, this figure stood at 1.45 million rupees in rural branches as against 2.1 million rupees in urban branches. An important reason for this was the under-staffing of rural branches and poor monitoring of staff.

³⁸This is calculated from Reserve Bank of India, (1989) figures of 654.1 million rupees in nominal terms for 7706 branches

the rural poor. The relevant policy question is, whether, in the class of costly redistributive programs, the social banking program was the most cost-effective.

Here, the evidence remains mixed. The belief that state-led credit programs were too costly has, in part, been responsible for the widespread proposition that micro-finance replace banks as the key provider of finance in rural areas.³⁹ In particular, due to monitoring advantages, default rates for micro-finance schemes tend to be lower than those for commercial banks (Morduch, 1999). However, a growing literature documents the fact that micro-finance schemes entail significant subsidization, and have difficulty in reaching the poorest who are often involved in marginal agriculture. There is also no means of coercing these organizations to locate in the poorest rural areas or to lend to the poorest borrowers. Indeed costs are likely to highest in these areas and for these borrowers and the returns lowest. Despite having been running for some years there is no evidence that micro-finance schemes have reduced aggregate poverty in any country. The cost benefit ratio we computed for an Indian rural bank branch is in the ball park of cost-benefit ratios reported in Morduch (1999) for the Grameen Bank of 1.48 and for BRAC of 2.59 for borrowing to men in Bangladesh. The comparability of these figures reflect the fact though the costs of social banking in India are high so are the benefits. One clear thing that we do learn from this paper is that coercion is needed to expand formal credit into backward rural areas. And here government may have some advantages in terms of coordination, legal powers and resources. Whether these advantages make it the optimal vehicle for redistribution in rural areas remains an open question.

³⁹The Indian central bank is increasingly encouraging banks to use micro-finance schemes to reach the rural poor. The central bank instituted task force on micro-finance (1997) stated, 'To achieve a process of change leading to empowerment of 7.5 million poor households, and more particularly of the women from these households, through strong and viable people's structures like Self help groups and micro-finance institutions which draw strength and support from the banking system with the message that banking with the poor is a profitable business opportunity for both the poor and the banks'.

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6 Data Appendix

The data used in the paper come from a wide variety of sources.⁴⁰ The data cover the sixteen main Indian states, and unless mentioned otherwise the period 1961-2000.⁴¹ Haryana split from the state of Punjab in 1965 and enters our sample in 1965.

Deflators and Population Variables expressed in real terms are deflated using the Consumer Price Index for Agricultural Laborers (CPIAL) and Consumer Price Index for Industrial Workers (CPIIW). These are drawn from the Indian Labor Handbook, the Indian Labor Journal, the Indian Labor Gazette and the Reserve Bank of India Report on Currency and Finance. Ozler, Datt and Ravallion [1996] have further corrected CPIAL and CPIIW to take account of inter-state cost of living differentials and have also adjusted CPIAL to take account of rising firewood prices. The reference period for the deflator is October 1973-March 1974. Post-1994 we update this series using the Indian Labor Journal (CPIIW) and the Monthly Abstract of Statistics (CPIAL). Post-1995 we do not adjust for firewood prices. We normalize all series by the state's population in 1961, which comes from the decennial census [Census of India, Registrar General and Census Commissioner, Government of India]. The number of rural locations in a state in 1961 is also from this source – the census terms a location as rural if it has a population of less than 10,000.

Banking data refers to scheduled commercial banks.⁴² The Bank branch data is from Reserve Bank of India [2000] which uses the census definition of rural locations. The initial financial development of a state is the number of banked locations in that state in 1961 per 10,000 population. A location is categorized as banked if it has at least one branch of any commercial or cooperative bank. Two bank branch variables are defined: the number of branches opened in rural locations with no prior presence of commercial banks (rural unbanked locations), and the number of branches opened in

⁴⁰The data-set builds on Ozler, Datt and Ravallion [1996] which collects published data on poverty, output, wages, price indices and population to construct a consistent panel data set on Indian states [1958-1992]. We are grateful to Martin Ravallion for providing the data, and to Gaurav Datt for answering various queries. We have added information on bank location and credit outcomes, state income, rural employment, infrastructure and public finances of Indian states.

⁴¹The states in the sample are: Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal

⁴²This category includes (1) State Bank of India and its associates, (2) Nationalized banks, (3) Regional rural banks, (4) Private sector banks, and (5) Foreign banks.

already banked locations. Rural bank share of credit is the proportion of total advances outstanding of commercial banks which are disbursed by rural branches. Rural bank share of saving is similarly defined. Share of priority sector lending is the fraction of bank credit going to the priority sectors. These three variables are available from 1969-2000. Data on bank credit and saving is from the Reserve Bank of India publication *Statistical Tables relating to Banks in India*.

Poverty figures are for rural and urban areas of India's 16 major states. 1961-1992 figures were put together by Ozler, Datt and Ravallion [1996], and the 1993-2000 update which uses the same methodology was provided by Gaurav Datt. Data is missing for Jammu-Kashmir after 1991, giving 627 observations. These measures are based on 25 rounds of the National Sample Survey (NSS) which span this period.⁴³ The NSS rounds are also not evenly spaced: the average interval between the midpoints of the surveys ranges from 0.9 to 5.5 years. Surveys were carried out in the following years 1961, 1962, 1963, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1973, 1974, 1978, 1983, 1987, 1988, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 2000. Because other data is typically available on a yearly basis weighted interpolation has been used to generate poverty measures for years where there was no NSS survey. The poverty lines recommended by the Planning Commission [1993] are used and are as follows. The rural poverty line is given by a per capita monthly expenditure of Rs. 49 at October 1973-June 1974 all-India rural prices. The urban poverty line is given by a per capita monthly expenditure of Rs. 57 at October 1973-June 1974 all-India urban prices. See Datt [1995] for more details on the rural and urban cost of living indices and on the estimation of the poverty measures. The headcount index is estimated from the grouped distributions of per capita expenditure published by the NSS⁴⁴, using parameterized Lorenz curves using a methodology detailed in Datt and Ravallion [1992].

Wage Agricultural wages data is from the Agricultural Wages in India (Ministry of Agriculture, Government of India) and deflated using the CPIAL. The data spans the period 1961-1998. It is unavailable for Jammu and Kash-

⁴³For 11 states (Andhra Pradesh, Assam, Bihar, Karnataka, Kerala, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal) all rounds have been covered. Because Haryana only appears as a separate state from Punjab in 1965 we have adopted the including separate series for these two states from this date onwards.

⁴⁴Reports from the National Sample Survey Organization, Department of Statistics, Ministry of Planning, Government of India and Sarvekshena, Journal of the National Sample Survey Organization, Department of Statistics, Ministry of Planning, Government of India.

mir and after 1992 for Kerala. No separate wage data is available for the state of Haryana. Data is missing for Orrissa in 1968. This gives a total of 545 observations. Factory wages data spans 1961-1995. These are defined to include all remunerations capable of being expressed in monetary terms plus the imputed value of benefits in kind and also payable more or less regularly in each pay period to factory employees. The wages are expressed in terms of gross value i.e. before deduction for fines, damages, taxes, provident funds, employee's state insurance contribution etc. The source is the Annual Survey of Industries and are expressed in log real terms per employee.

State output figures come from Estimates of State Domestic Product published by Department of Statistics, Ministry of Planning, Government of India. These span the period 1961-1997. Output variables are expressed in log per capita terms. The breakdown of total output into agricultural, non-agricultural and manufacturing output is done under the National Industrial Classification System (NIC) which conforms with the International Standard Industrial Classification System (ISIC). Within manufacturing – unregistered manufacturing refers to firms below these cutoffs and the size of this sector is appraised by sample surveys carried out by the Department of Statistics.

Employment data come from the 1963-65, 1974-75, 1977-78, 1983, and 1987-88 issues of the Rural Labour Enquiry, National Sample Survey Office, Government of India. The data refer to rural labor households, where rural labor is defined as manual paid activities as opposed to non-manual employment or self-employment.

Policy variables. Education and health expenditure data are from an annual publication Public Finance Statistics (Ministry of Finance, Government of India). These are available 1961-1997, 1999. The information is also collated in the Reserve Bank of India annual publication – Report on Currency and Finance. The land reform variable is the cumulative number of land reform acts undertaken by a state, and is from Besley and Burgess 2001 and spans 1961-1992. Public food distribution is food grains measured in tonnes distributed via the Public Food Distribution system and comes from the Bulletin on Food Statistics, Ministry of Food and Agriculture, Government of India. It is expressed in per capita terms. Data is available 1961-1993.

Politics variables. Data on the number of seats won by the Congress party from 1961-1990 are for Butler, Lahiri and Roy, 1991. The 1992-2000 update is from the Election Commission of India state election reports. The center-state alignment variable is from Dasgupta, Dhillon and Dutta 2001 and spans 1961-1995. State political configurations are held constant between elections.

TABLE 1 -- SUMMARY OF MAIN VARIABLES

STATE	BANKING			POVERTY				OUTPUT				
	Initial financial development	No. branches, by location:		Rural head count ratio	Urban head count ratio	Agri. wages	School enrollment	Total	Non-agricultural	Agri-cultural	Manufacturing	
		Rural unbanked	Banked								Unregistered	Registered
Bihar	0.0016	0.033	0.016	64.2	48.3	4.36	0.53	988.7	544.2	444.4	50.8	78.4
		(0.03)	(0.01)	(6.2)	(8.9)	(1.1)	(0.1)	(380.8)	(258.2)	(128.7)	(29.8)	(35.6)
W.Bengal	0.0017	0.027	0.034	46.2	31.3	6.67	0.71	2083.0	1396.3	686.6	136.2	214.5
		(0.03)	(0.02)	(16.0)	(6.7)	(2.1)	(0.1)	(967.7)	(712.5)	(265.5)	(85.2)	(42.2)
Orrissa	0.0019	0.041	0.017	52.6	51.9	4.45	0.62	1436.1	799.4	636.6	58.3	82.0
		(0.03)	(0.01)	(11.5)	(8.7)	(1.1)	(0.1)	(642.0)	(527.8)	(140.3)	(32.6)	(52.7)
Assam	0.0019	0.032	0.02	49.6	23.2	5.46	0.65	1673.6	969.2	704.4	36.6	119.9
		(0.03)	(0.01)	(8.2)	(10.3)	(1.1)	(0.1)	(731.5)	(521.8)	(224.7)	(6.8)	(64.1)
Uttar Pradesh	0.0021	0.032	0.025	45.3	49.5	5.36	0.62	1421.7	756.6	665.1	75.7	87.4
		(0.03)	(0.02)	(7.4)	(10.2)	(1.7)	(0.1)	(598.5)	(418.1)	(184.1)	(39.1)	(62.5)
Madhya Pradesh	0.0030	0.035	0.029	54.9	49.6	4.26	0.59	1536.5	876.0	660.5	73.5	116.1
		(0.03)	(0.02)	(8.4)	(8.2)	(1.4)	(0.2)	(802.3)	(563.7)	(244.1)	(46.3)	(91.9)
Jammu& Kashmir	0.0031	0.07	0.05	34.5	24.9		0.56	1816.4	1041.9	738.3	71.4	37.3
		(0.06)	(0.03)	(8.1)	(7.7)		(0.1)	(797.9)	(572.1)	(220.3)	(20.4)	(26.8)
Andhra Pradesh	0.0035	0.031	0.034	45.3	40.7	5.01	0.63	1769.5	1063.4	706.0	84.0	130.2
		(0.03)	(0.02)	(12.9)	(9.7)	(1.4)	(0.1)	(1017.7)	(775.1)	(248.7)	(50.6)	(110.8)
Maharashtra	0.0035	0.027	0.056	60.5	41.6	4.07	0.82	2474.0	1910.0	564.0	159.4	446.8
		(0.02)	(0.03)	(10.7)	(5.4)	(1.3)	(0.1)	(1500.6)	(1279.0)	(229.8)	(100.6)	(243.2)
Tamil Nadu	0.0039	0.027	0.048	52.2	42.9	4.38	0.94	1679.5	1243.7	435.7	138.9	247.1
		(0.02)	(0.02)	(12.5)	(8.9)	(1.2)	(0.2)	(891.8)	(796.0)	(109.2)	(58.6)	(164.4)
Rajasthan	0.0046	0.043	0.034	52.4	39.4	5.47	0.5	1480.3	776.4	703.9	68.1	77.7
		(0.04)	(0.02)	(8.3)	(9.9)	(1.1)	(0.1)	(768.9)	(502.5)	(275.8)	(20.3)	(61.1)
Haryana	0.0051	0.044	0.049	29.9	28.4	8.87	0.65	3052.0	1599.4	1452.8	178.2	346.7
		(0.03)	(0.03)	(6.4)	(11.3)	(1.7)	(0.1)	(1662.9)	(1109.1)	(567.8)	(128.7)	(270.3)
Karnataka	0.0061	0.048	0.057	52.4	43.6	3.97	0.73	1824.9	1094.5	730.3	94.7	172.6
		(0.04)	(0.03)	(9.0)	(10.5)	(0.8)	(0.1)	(931.1)	(704.7)	(232.1)	(41.5)	(105.8)
Gujarat	0.0063	0.038	0.057	48.9	45.3	4.81	0.78	2267.7	1571.5	696.2	133.2	403.3
		(0.03)	(0.03)	(12.7)	(10.4)	(1.3)	(0.1)	(1301.6)	(1075.4)	(252.7)	(99.2)	(338.2)
Kerala	0.0064	0.011	0.065	50.0	47.8	6.42	0.98	1431.1	905.2	525.9	86.6	109.6
		(0.01)	(0.04)	(17.8)	(17.8)	(1.5)	(0.1)	(655.3)	(502.2)	(161.4)	(43.4)	(58.0)
Punjab	0.0065	0.058	0.073	22.7	22.7	8.58	0.75	3107.0	1621.4	1485.5	182.7	217.7
		(0.03)	(0.04)	(8.3)	(10.3)	(1.3)	(0.1)	(1483.7)	(910.4)	(579.7)	(110.6)	(150.7)
Total	0.0038	0.037	0.042	48.1	39.8	5.42	0.69	1855.8	1133.1	731.2	180.2	101.4
		(0.03)	(0.03)	(14.7)	(13.8)	(2.0)	(0.2)	(1133.7)	(827.5)	(394.2)	(188.8)	(79.0)
Number obs.	636	636	636	627	627	545	507	579	579	579	579	579

Standard deviations are in parentheses. The Data Appendix gives details on construction and source of variables. The banking and output variables are normalized by 1961 population. The data cover the sixteen major states over 1961-2000. Haryana was created by the division of Punjab in 1965 and enters the sample in 1965. We, therefore, have a total of 636 possible observations:

The final row gives the total number of observations available for each variable over this period

TABLE 2: SHARE OF RURAL HOUSEHOLD DEBT HELD BY DIFFERENT CREDITORS (percentage)

YEAR	INSTITUTIONAL SOURCES		NON INSTITUTIONAL SOURCES		OTHERS
	Banks	Cooperatives	Relatives and Friends	Moneylenders	
1951	1.1	4.6	14.4	68.6	9.3
1961	0.3	10.4	5.8	60.9	22.6
1971	2.4	20.1	13.8	36.9	26.8
1981	28.6	28.6	9	16.9	16.9
1991	29	18.6	6.7	15.7	30

Interest-free non-institutional loans are included under loans from relatives and friends. The 'Others' category includes loans from government, landlords and traders/commissioners. The data source for 1951 is the "All India Rural Credit Survey", and for all subsequent years "All India Debt and Investment Surveys".

TABLE 3: BANKING AS A FUNCTION OF INITIAL FINANCIAL DEVELOPMENT

	Number of bank branches in:		Rural bank share of		Priority sector credit share
	Rural unbanked	Banked	Credit	Saving	
	(1)	(2)	(3)	(4)	(5)
Number of banked locations in 1961 per capita *1961-76 trend	0.18** (0.09)	0.40*** (0.04)	0.203 (0.843)	-0.35 (0.73)	-1.24 (1.06)
Number of banked locations in 1961 per capita*Post-76 trend break	-0.73*** (0.13)	-0.21*** (0.05)	-3.14*** (0.90)	-2.01*** (0.77)	1.49 -1.15
Number of banked locations in 1961 per capita*Post-89 trend break	0.54*** (0.18)	0.28*** (0.08)	2.20*** (0.58)	0.69 (0.55)	-0.92 (0.77)
State and year dummies	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES
Adjusted R-squared	0.94	0.99	0.89	0.87	0.88
F-test 1	37.71 [0]	40.07 [0]	80.93 [0]	90.75 [0]	0.34 [0.55]
F-test 2	0 [0.94]	40.16 [0]	2.27 [0.13]	11.84 [0]	1.11 [0.29]
Number observations	636	636	512	512	512

Robust standard errors in parentheses, and p-values in square brackets. Explanatory variables are the number of banked locations in a state in 1961 per capita interacted with (row-wise): (i) a time trend (t), (ii) an indicator variable which equals one if the year>1976 and a post 1977 time trend (t-1977), (iii) an indicator variable which equals one if the year>1989 and a post-1990 time trend (t-1990). 'F-test 1' tests if the sum of the coefficients for first two rows differs from zero, and 'F-test 2' whether the sum of coefficients in first three rows differs from zero. All regressions include as additional co-variables (separate) interactions between the number of banked locations in 1961 and the 1977 and 1990 indicator variables. Bank branch variables are deflated by 1961 population. 'Other controls' include state population log state income per capita and per capita number of rural locations. These are measured in 1961 and enter the regression in the same way as the number of banked locations in 1961. Rural bank share of credit and saving are expressed as a share of total bank credit and saving respectively. Priority sector credit share refers to the share of bank lending going to 'priority sector'. The sample covers 16 states and 1961-2000. Haryana enters the sample in 1965. The credit and savings data span 1969-2000. * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

TABLE 4: BANK BRANCH EXPANSION AND POVERTY: REDUCED FORM EVIDENCE

	Head count ratio			Wage		School enrollment
	Rural	Urban	Aggregate	Agricultural	Factory	
	(1)	(2)	(3)	(4)	(5)	(6)
Number of banked locations in 1961 per capita *1961-76 Trend	-260.30*** (61.84)	-37.19 (51.58)	-231.17*** (54.20)	2.71** (1.27)	6.11 (4.17)	1.31*** (0.48)
Number of banked locations in 1961 per capita*Post-76 trend break	395.07*** (70.42)	68.98 (69.19)	356.76*** (61.26)	-7.57*** (1.70)	-5.04 (4.31)	-1.95** (0.85)
Number of banked locations in 1961 per capita*Post-89 trend break	-386.82*** (133.94)	-246.70*** (80.92)	-385.17*** (109.76)	15.17*** (2.66)	-5.29 (3.58)	3.56 (8.12)
State and year dummies	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES
Adjusted R-squared	0.83	0.91	0.88	0.91	0.72	0.86
F-test 1	16.28 [0]	0.48 [0.49]	19.36 [0]	18.35 [0]	0.93 [0.33]	0.82 [0.36]
F-test 2	3.78 [0.05]	10.45 [0]	5.99 [0.01]	18.83 [0]	1.54 [0.21]	0.13 [0.17]
Number observations	627	627	627	545	553	507

Robust standard errors in parentheses, and p-values in square brackets. Explanatory variables are the number of banked locations in a state in 1961 per capita interacted with (row-wise): (i) a time trend (t), (ii) an indicator variable which equals one if the year>1976 and a post 1977 time trend (t-1977), (iii) an indicator variable which equals one if the year>1989 and a post-1990 time trend (t-1990). 'F-test 1' tests if the sum of coefficients for first two rows differs from zero, and 'F-test 2' whether sum of coefficients in first three rows differs from zero. All regressions include as additional co-variates (separate) interactions between the number of banked locations in 1961 and the 1977 and 1990 indicator variables. 'Other controls' include state population, log state income per capita and rural locations per capita. These are measured in 1961 and entered in the same way as number banked locations in 1961. The head count ratio measures the fraction of population with monthly expenditure below the poverty line. The agri. wage is the log real male daily agricultural wage, and the factory wage is the log real remunerations per worker in registered manufacturing. School enrollment is the share of children aged 6-14 enrolled in classes 1- 8. The sample covers 16 states and spans 1961-2000. Haryana enters the sample in 1965. Differences in sample size are due to missing data, details of which are in Appendix. * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

TABLE 5: BANK BRANCH EXPANSION AND OUTPUT: REDUCED FORM EVIDENCE

	Output			Manufacturing output			Labor share
	Non-Agricultural	Agricultural	Total	Unregistered	Registered	Total	Non-agri
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Number of banked locations in 1961 per capita *1961-76 trend	6.57*** (0.90)	-1.97* (1.17)	2.47*** (0.83)	10.52*** (2.47)	3.265 (2.24)	6.967*** (1.43)	26.61*** (3.29)
Number of banked locations in 1961 per capita*Post-76 trendbreak	-11.66*** (1.36)	-0.81 (1.71)	-5.85*** (1.12)	-18.03*** (4.28)	-4.199 (3.40)	-11.08*** (2.31)	-29.14*** (5.86)
Number of banked locations in 1961 per capita*Post-89 trendbreak	12.66*** (3.05)	6.58* (3.53)	9.81*** (2.04)	10.36 (8.07)	18.60** (7.38)	17.52*** (5.86)	
State and year dummies	YES	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES	YES
Adjusted R-squared	0.98	0.93	0.98	0.88	0.93	0.96	0.89
F-test 1	24.36 [0]	4.95 [0.02]	18.48 [0]	4.8 [0.02]	0.13 [0.71]	4.79 [0.02]	0.29 [0.59]
F-test 2	6.96 [0]	1.32 [0.25]	11.53 [0]	0.14 [0.7]	6.52 [0.01]	5.82 [0.01]	
Number observations	579	579	579	579	579	579	365

Robust standard errors in parentheses, and p-values in square brackets. Explanatory variables are the number of banked locations in a state in 1961 per capita interacted with (row-wise): (i) a time trend (t), (ii) an indicator variable which equals one if the year>1976 and a post 1977 time trend (t-1977), (iii) an indicator variable which equals one if the year>1989 and a post-1990 time trend (t-1990). 'F-test 1' tests if the sum of coefficients for first two rows differs from zero, and 'F-test 2' whether the sum of coefficients in first three rows differs from zero. All regressions include as additional co-variables interaction terms between 1977 and 1990 indicator variables and number banked locations in 1961. 'Other controls' include state population, log state income per capita and rural locations per capita. These are measured in 1961 and entered in the same way as number banked locations in 1961. The output variables are expressed in log real rupees per capita, and defined in the Data Appendix. The sample covers 16 states, and the output data spans 1961-1997. Haryana enters the sample in 1965. Variations in sample size are due to missing data, details are in the Data Appendix. * indicates significance at 10%, ** at 5% and *** at 1%.

TABLE 6: BANK BRANCH EXPANSION, POLITICS AND POLICY: REDUCED FORM EVIDENCE

	POLITICS		POLICY			
	Congress legislators share	Center-state alignment	Land reform	Public food distribution	State spending	
	(1)	(2)	(3)	(4)	Education (5)	Health (6)
Number of banked locations in 1961 per capita *1961-76 trend	-3.39** (1.40)	-8.66** (3.47)	-4.6 (12.61)	33.02 (95.29)	-0.34* (0.20)	0.15 (0.11)
Number of banked locations in 1961 per capita*Post-76 trendbreak	-0.78 (3.14)	0.89 (5.29)	-7.98 (19.31)	179.94 (191.5)	-0.06 (0.30)	-0.19 (0.14)
Number of banked locations in 1961 per capita*Post-89 trendbreak	-0.25 (4.17)	8.03 (15.70)	12.57 (219.16)	103.49 (595.7)	-0.65 (0.49)	0.08 (0.14)
State and year dummies	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES
Adjusted R-squared	0.46	0.48	0.73	0.81	0.76	0.79
F-test 1	2.21 [0.13]	3.78 [0.05]	0.74 [0.39]	1.64 [0.20]	3.39 [0.06]	0.2 [0.65]
F-test 2	2.05 [0.15]	0 [0.98]	0 [1]	0.31 [0.58]	5.74 [0.01]	0.11 [0.73]
Number observations	634	539	508	522	613	613

Robust standard errors in parentheses, and p-values in square brackets. Explanatory variables are the number of banked locations in a state in 1961 per capita interacted with (row-wise): a time trend (t), (ii) an indicator variable which equals one if the year>1976 and a post 1977 time trend (t-1977), (iii) an indicator variable which equals one if the year>1989 and a post-1990 time trend (t-1990). 'F-test 1' tests if the sum of the coefficients for first two rows differs from zero, and 'F-test 2' whether the sum of coefficients in first three rows differs from zero. All regressions include as additional co-variables interaction terms between the 1977 and 1990 indicator variables and number banked locations in 1961. 'Other controls' include state population, log state income per capita and rural locations per capita. These are measured in 1961 and enter the regression in the same way as the number of banked locations in 1961. The sample covers 16 Indian states. Congress legislators share is the proportion of state legislators who belong to Congress party. Data are available for 1961-2000. Center-state alignment is a dummy variable which equals one for a state when the same party is in power in the center and state; data is available 1961-1995. Land reform is a cumulative index of land reform acts passed in a state (sample spans 1961-1992), and public food distribution is the per capita food grains (in tonnes) distributed via Public food distribution system (data spans 1961-1993). Education and Health spending is expressed as a share of total state government spending. These data are available 1961-1999. In all cases Haryana enters the sample in 1965. * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

TABLE 7: BANK BRANCH EXPANSION AND RURAL POVERTY -- OLS ESTIMATES

	Rural head count ratio				
	Whole sample		1961-76	1977-89	1990-2000
	(1)	(2)	(3)	(4)	(5)
Number branches in rural unbanked locations per capita	211.99***	190.24*** (28.7)	102.59 (137.9)	129.16*** (44)	3844.65 (2580.9)
Number of banked locations 1961 per capita * Trend		-72.18*** (15.59)	-277.81*** (61.33)	227.92*** (47.18)	-204.69*** (79.53)
State and year dummies	YES	YES	YES	YES	YES
Other controls	NO	NO	NO	NO	NO
Number observations	627	627	252	176	167

Robust standard errors in parentheses. All bank branch variables are normalized by 1961 population. The rural head count ratio measures the fraction rural population with monthly percapita expenditure below the poverty line. The sample covers sixteen Indian states. In columns (3)-(5) the sample is restricted to the years 1961-1976, 1977-1989 and 1990-2000 respectively. * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

TABLE 8: BANK BRANCH EXPANSION AND POVERTY -- INSTRUMENTAL VARIABLES EVIDENCE

	Head count ratio			Wage		School enrollment
	Rural (1)	Urban (2)	Aggregate (3)	Agricultural (4)	Factory (5)	(6)
Number branches in rural unbanked locations per capita	-547.84*** (143.92)	-139.3 (96.69)	-503.44*** (127.74)	13.32*** (3.41)	6.96 (1.17)	2.671** (1.121)
IMPLIED ELASTICITY	[-0.42]		[-0.40]	[0.49]		[0.14]
Number of banked locations 1961 per capita * Trend	-169.50*** (57.62)	-53.31 (37.25)	-155.57*** (50.47)	0.55 (1.19)	4.7 (3.08)	0.845** (0.40)
State and year dummies	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES
Overidentification test p-value	0.99	0.91	0.99	0.99	0.99	0.99
Number observations	627	627	627	545	553	507

Robust standard errors are reported in parentheses. See notes to Table 4, and Data Appendix for description of the dependent variables. The number of branches in rural unbanked locations is normalized by 1961 population. The two instruments for this variable are the number of banked locations in 1961 per capita interacted with (i) an indicator variable which equals one if the year > 1976 and a post 1976 time trend (ii) an indicator variable which equals one if the year > 1989 and a post 1989 time trend respectively. Table 3, column (1) reports the corresponding first stage regression. We also report the p-value for an overidentification test due to Sargan [1958]. The number of observations times the R-2 from the regression of the stage two residuals on the instruments is distributed chi-squared (T+1) where T is the number of instruments. * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

TABLE 9: BANK BRANCH EXPANSION AND OUTPUT -- INSTRUMENTAL VARIABLES EVIDENCE

	Output			Manufacturing output		Labor share
	Non-agricultural	Agricultural	Total	Unregistered	Registered	Non-agri
	(1)	(2)	(3)	(4)	(5)	(6)
Number branches in rural unbanked locations per capita	18.64*** (3.59)	2.54 (2.67)	9.04*** (1.91)	25.70*** (7.54)	761.8 (1341.0)	36.42*** (7.73)
IMPLIED ELASTICITY	0.63		0.3	0.87		0.87
Number of banked locations 1961 per capita * Trend	5.24*** (1.36)	-1.31 (1.02)	1.77** (0.77)	6.64** (2.63)	2193.9 (669.9)	23.59*** (2.47)
State and year dummies	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES
Overidentification test p-value	0.99	0.97	0.94	0.99	0.93	
Number observations	577	577	587	577	577	365

Robust standard errors are reported in parentheses. See notes to Table 5, and Data Appendix for variable description. The number of branches in rural unbanked locations is normalized by 1961 population. The two instruments for this variable are the number of banked locations in 1961 per capita interacted separately with (i) an indicator variable which equals one if year>1976 and a post-1976 trend and (ii) an indicator variable which equals one if the year>1989 multiplied by a post 1989 trend respectively. Table 3, column (1) reports the corresponding first stage regression. We report the p-value for Sargan overidentification test [1958]. The number of observations times the R-2 from the regression of the stage two residuals on the instruments is distributed chi-squared (T+1) where T is the number of instruments. * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

TABLE 10: BANK BRANCH EXPANSION AND RURAL DEVELOPMENT -- ROBUSTNESS CHECKS ON IV ESTIMATES

	Coefficient on number of branches in rural unbanked locations per capita			
	1961-1989	1977-2000	Clustered standard errors	NSS survey years
	sample	sample	whole sample	
	(1)	(2)	(3)	(4)
Panel A: Rural Head count ratio	-540.40*** (155.34)	-701.79*** (245.53)	-547.83** (249.70)	-485.43** (215.47)
Panel B: Agricultural wages	11.80*** (3.55)	23.06*** (6.44)	13.31** (4.62)	
Panel C: Non-agricultural output	17.13*** (3.36)	23.02*** (6.162)	17.88** (5.72)	
Panel D: Manufacturing output	27.83*** (7.02)	31.92*** (12.13)	17.75** (8.81)	

Robust standard errors are reported in parentheses. See notes to Tables 4 and 5, and Data Appendix for description of the dependent variables. The number of branches in rural unbanked locations is normalized by 1961 population. In column (1) the sample is restricted to 1961-1989. The instrument is the number of banked locations in 1961 percapita interacted with an indicator variable which equals one if the year>1976 and a post 1976 time trend. In column (2) the sample is restricted to 1977-2000, and the instrument is an indicator variable which equals one if the year>1989 and a post 1976 time trend. In column (3) standard errors are clustered at the state level. In column (4) we run the regression only for years in which an NSS survey was conducted (N=375). * indicates significance at 10%, ** significance at 5% and *** significance at 1%.

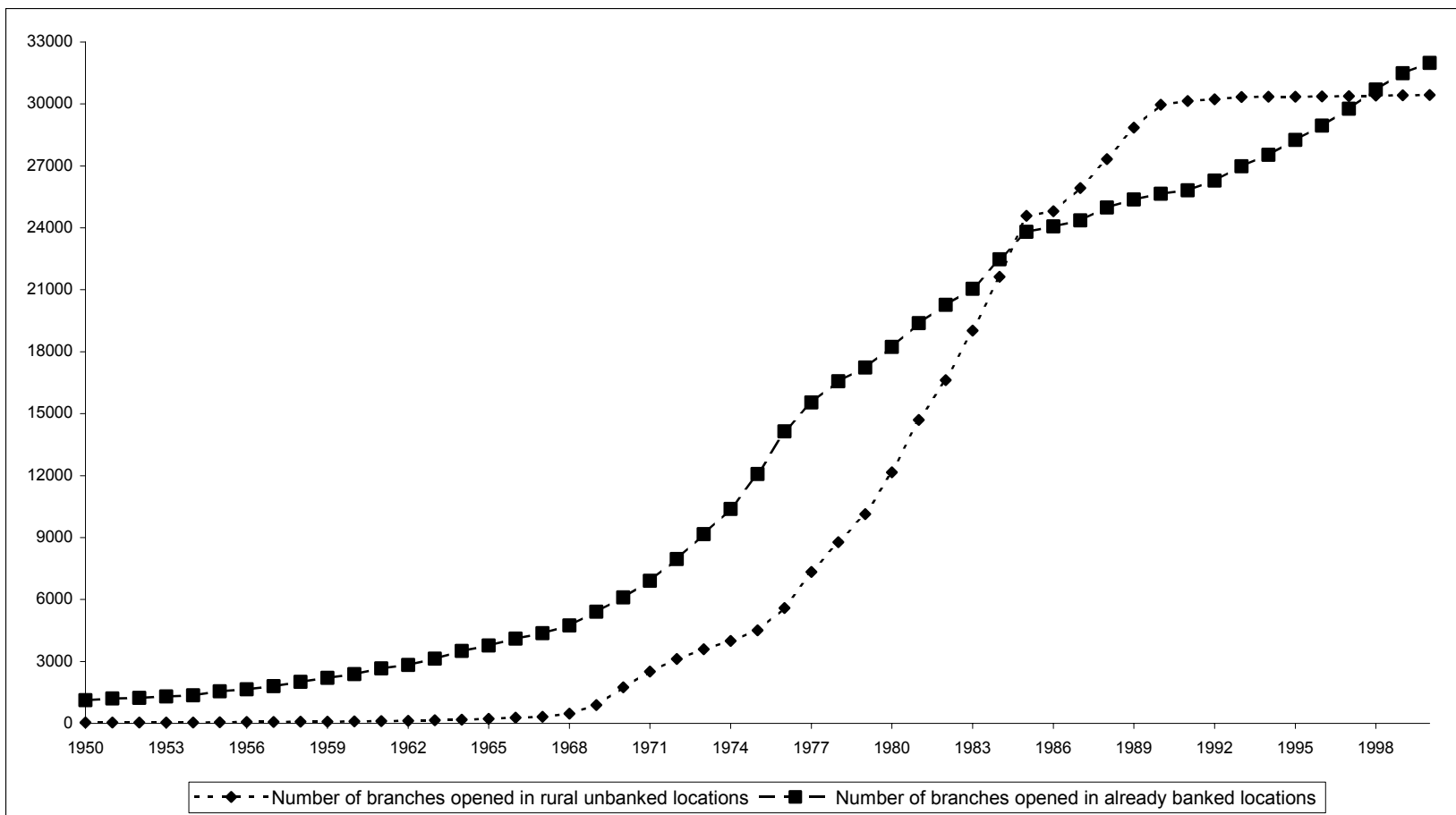


FIGURE 1: GROWTH OF BANK BRANCHES IN INDIA

Notes: Both variables are stock variables and refer to the cumulative number of branches (of that type). These variables are constructed using information from the Reserve Bank of India Basic Statistical Returns, as provided in the 'Directory of Commercial Bank Offices in India (Volume 1)', The Data Appendix provides a full description of these data.

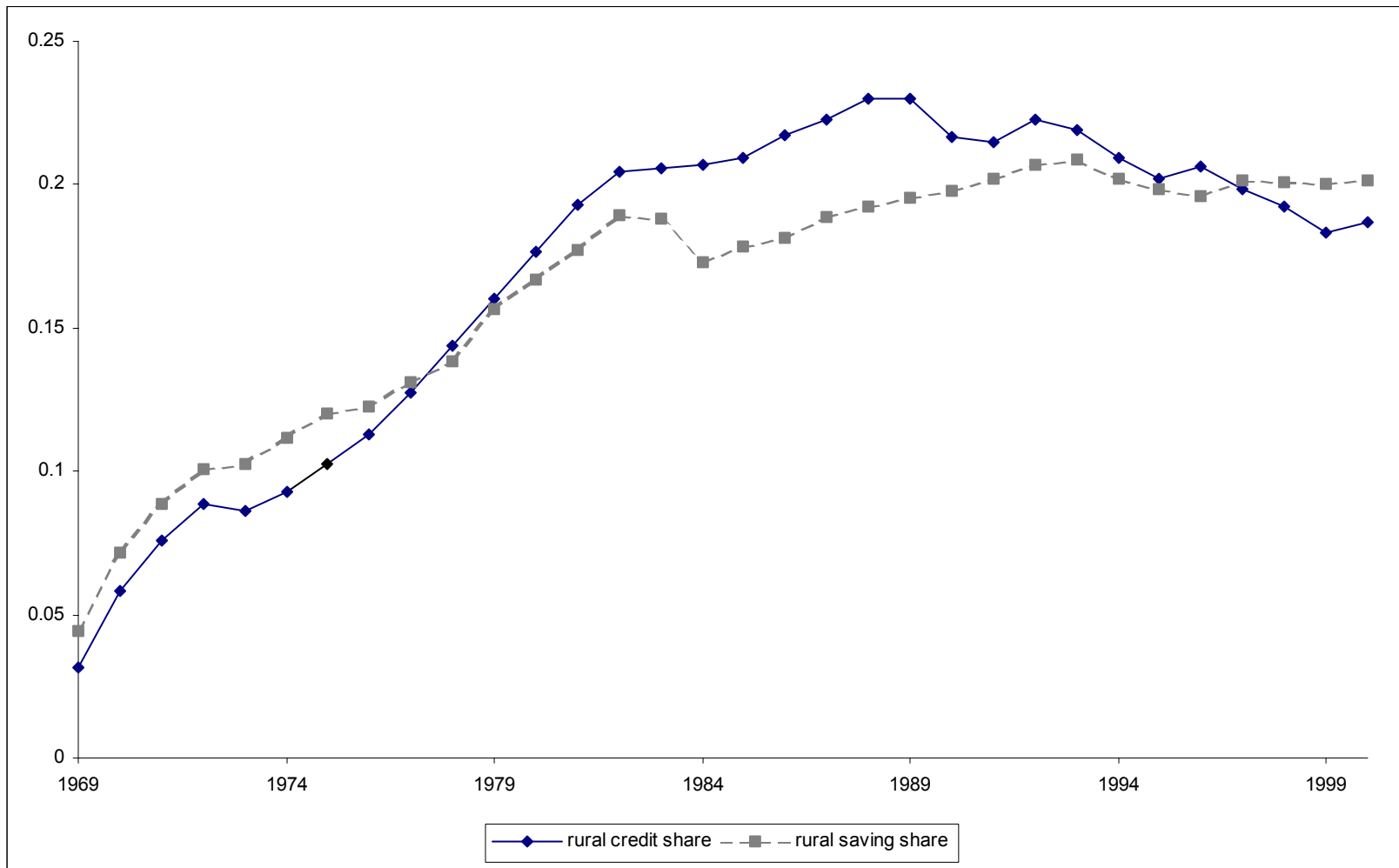


FIGURE 2: SHARES OF RURAL CREDIT AND SAVINGS ACROSS INDIAN STATES

Notes: The rural credit and savings share refer to the fraction of total commercial bank credit and savings which are disbursed via rural bank branches. The reported data are the annual averages for the 16 Indian states in our sample. The Data Appendix provides information on the construction of these variables.

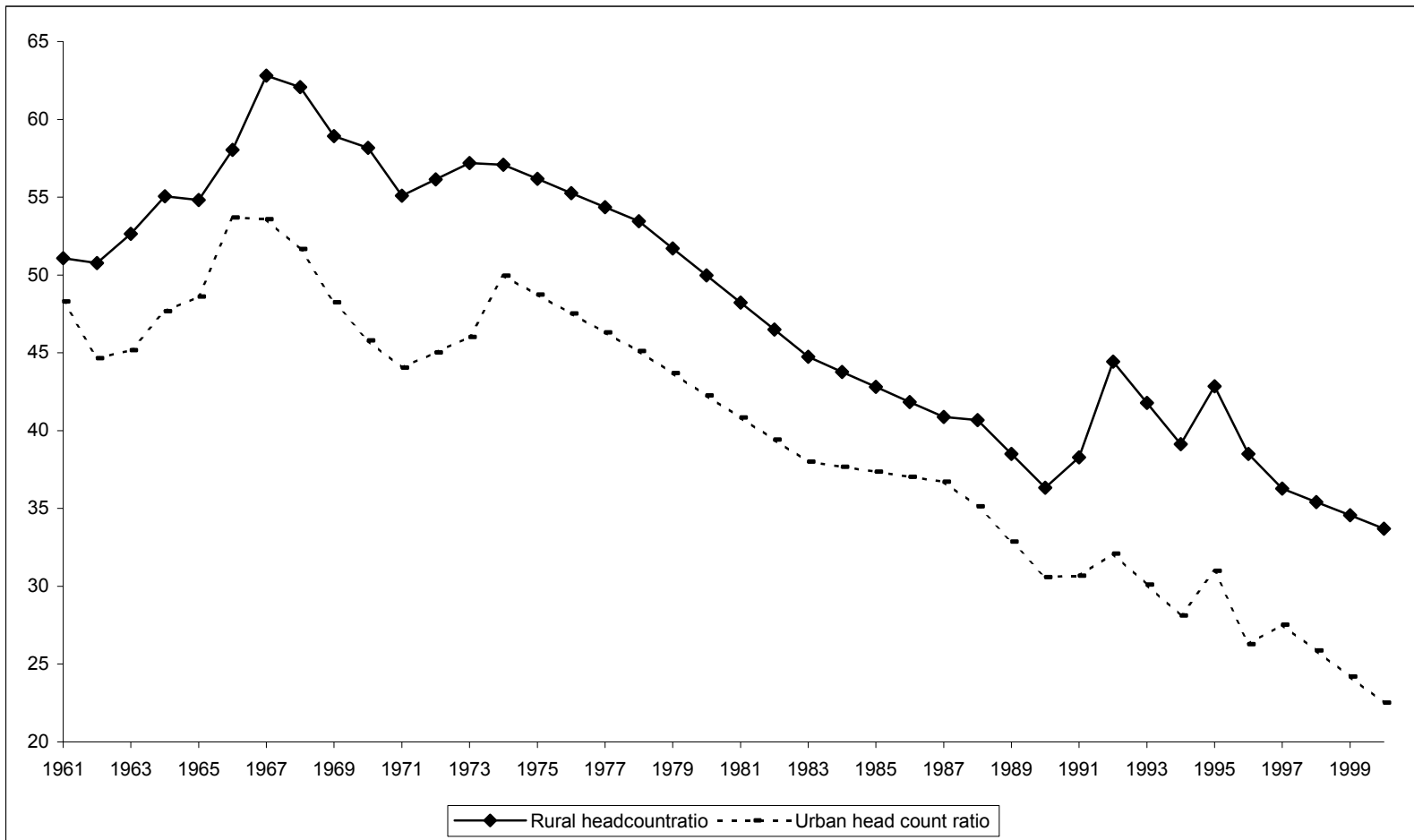


FIGURE 3: RURAL AND URBAN HEAD COUNT RATIO ACROSS INDIAN STATES

Notes: The rural and urban head count ratio variables are the annual averages for the 16 Indian states in our sample. The Head count ratios have been constructed from National Sample Survey information. The Data Appendix provides information on the construction of these variables.

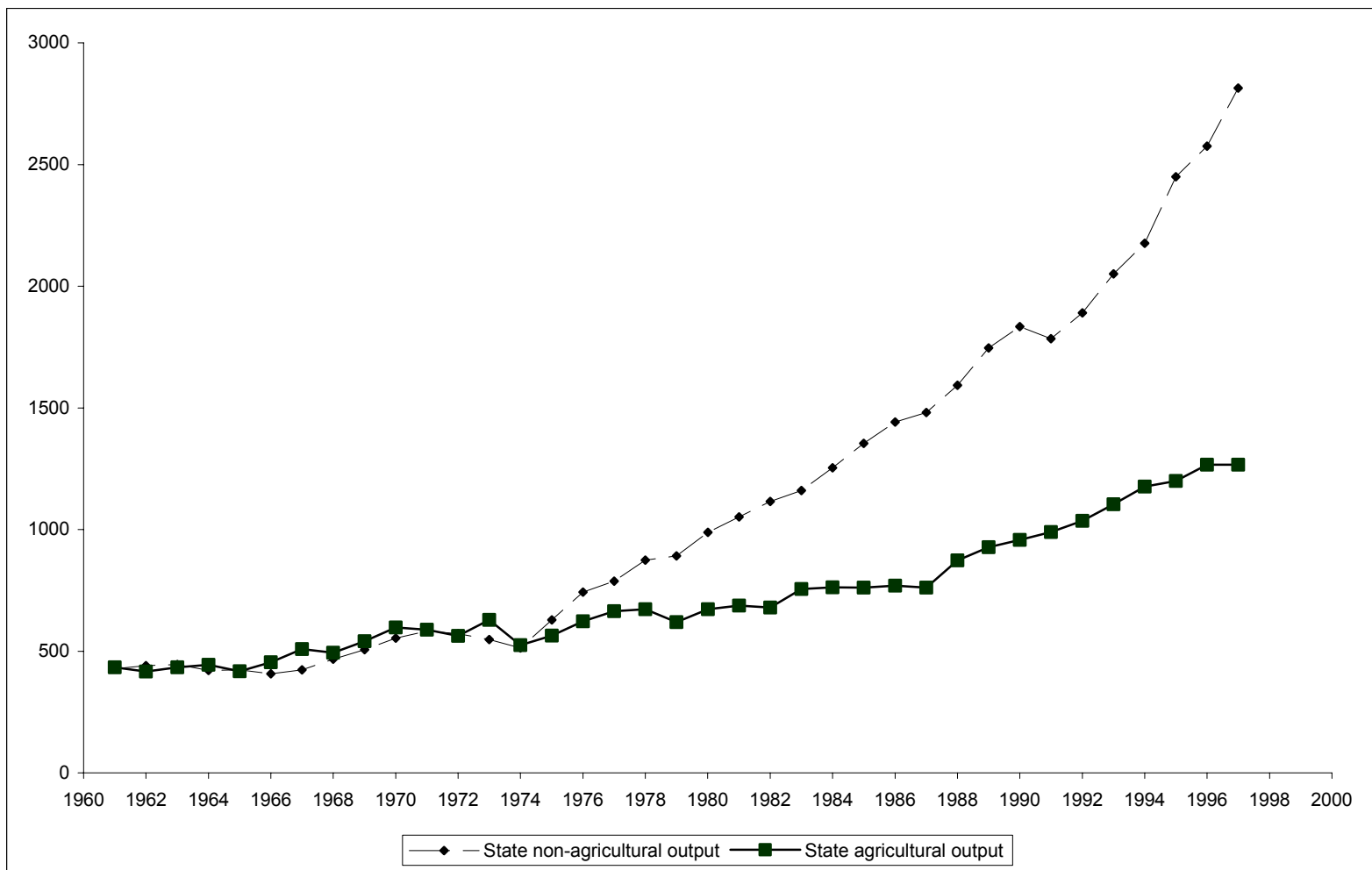


FIGURE 4: STATE AGRICULTURAL AND NON-AGRICULTURAL OUTPUT

Notes: The state agricultural and non-agricultural incomes are the annual averages of the real state agricultural and non-agricultural incomes for the 16 Indian states in our sample normalized by 1961 population. The Data Appendix provides information on the construction of these variables.

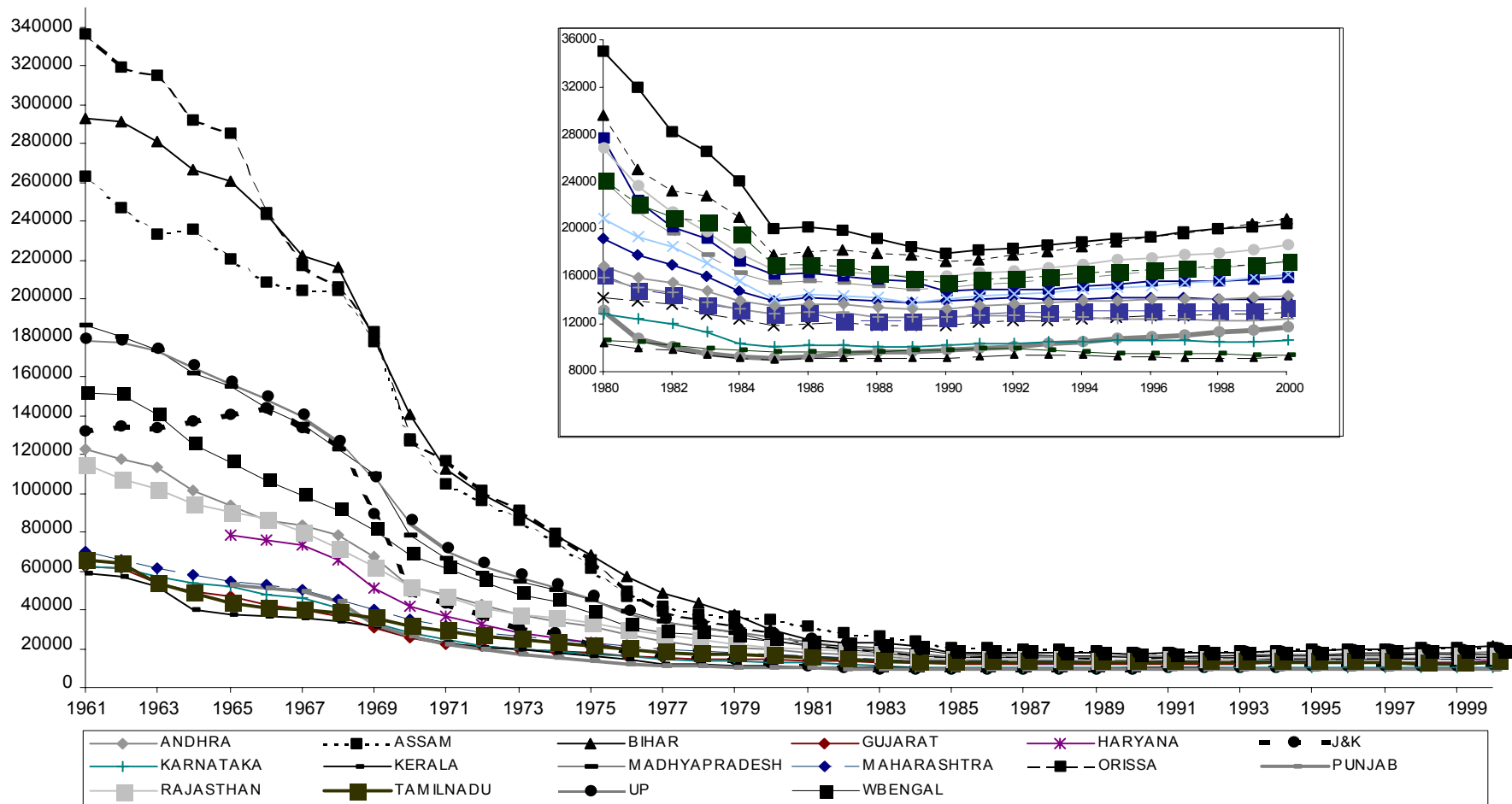


FIGURE 5: POPULATION PER BANK BRANCH ACROSS 16 INDIAN STATES

Notes: This variable is the ratio of the state's current population divided by the total number of bank branches in the state. The Data Appendix describes the data sources.

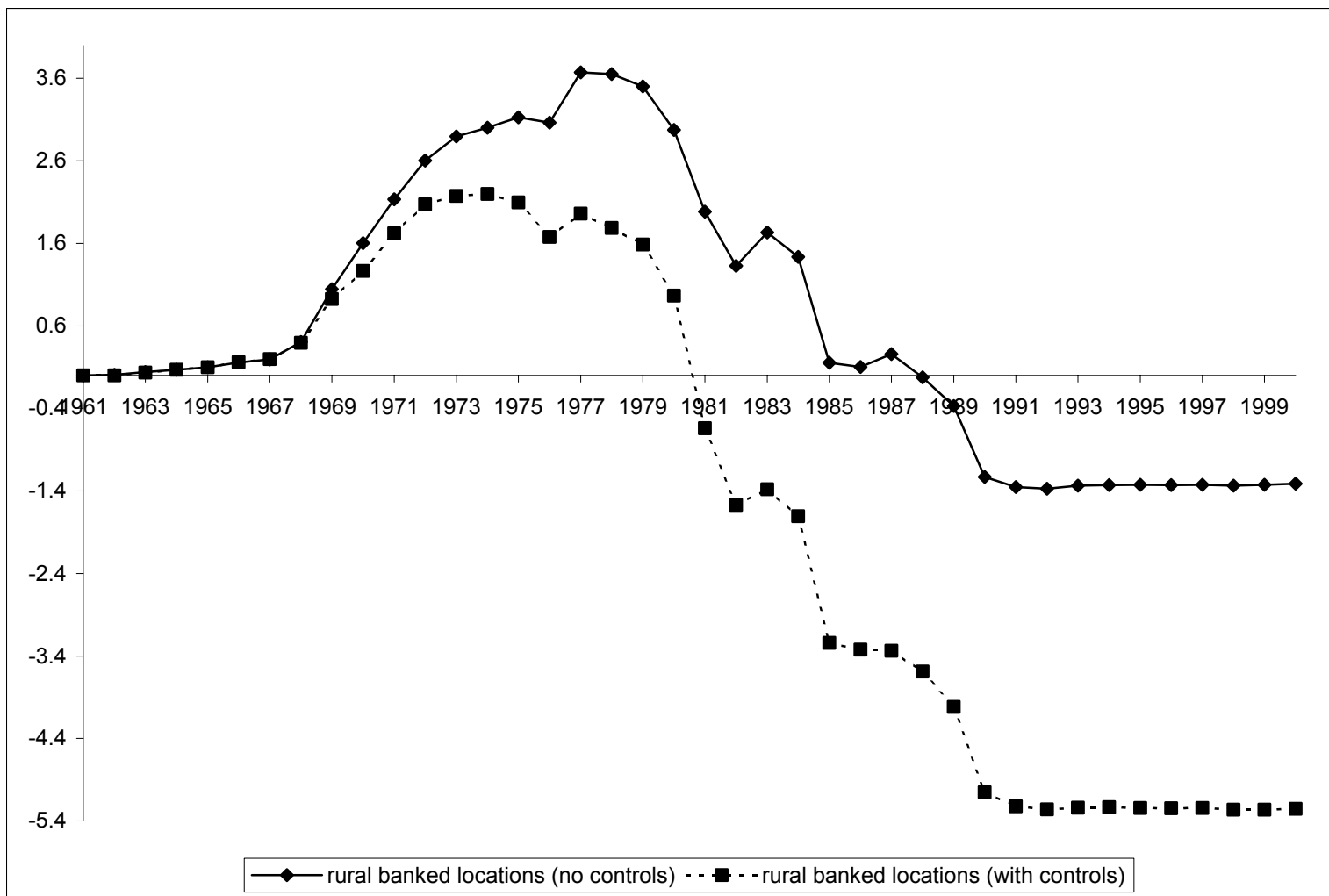


FIGURE 6: INITIAL FINANCIAL DEVELOPMENT AND BRANCH EXPANSION INTO RURAL UNBANKED LOCATIONS

Notes: This figure graphs the coefficients for two regressions. The series "Rural banked locations (no controls)" graphs the set of "number of banked locations in 1961" X year interaction terms from the regression given in Equation (1), and the series "Rural banked locations (with controls)" graphs the corresponding set of interaction terms from the regression in Equation (2) which includes population, income and location controls,

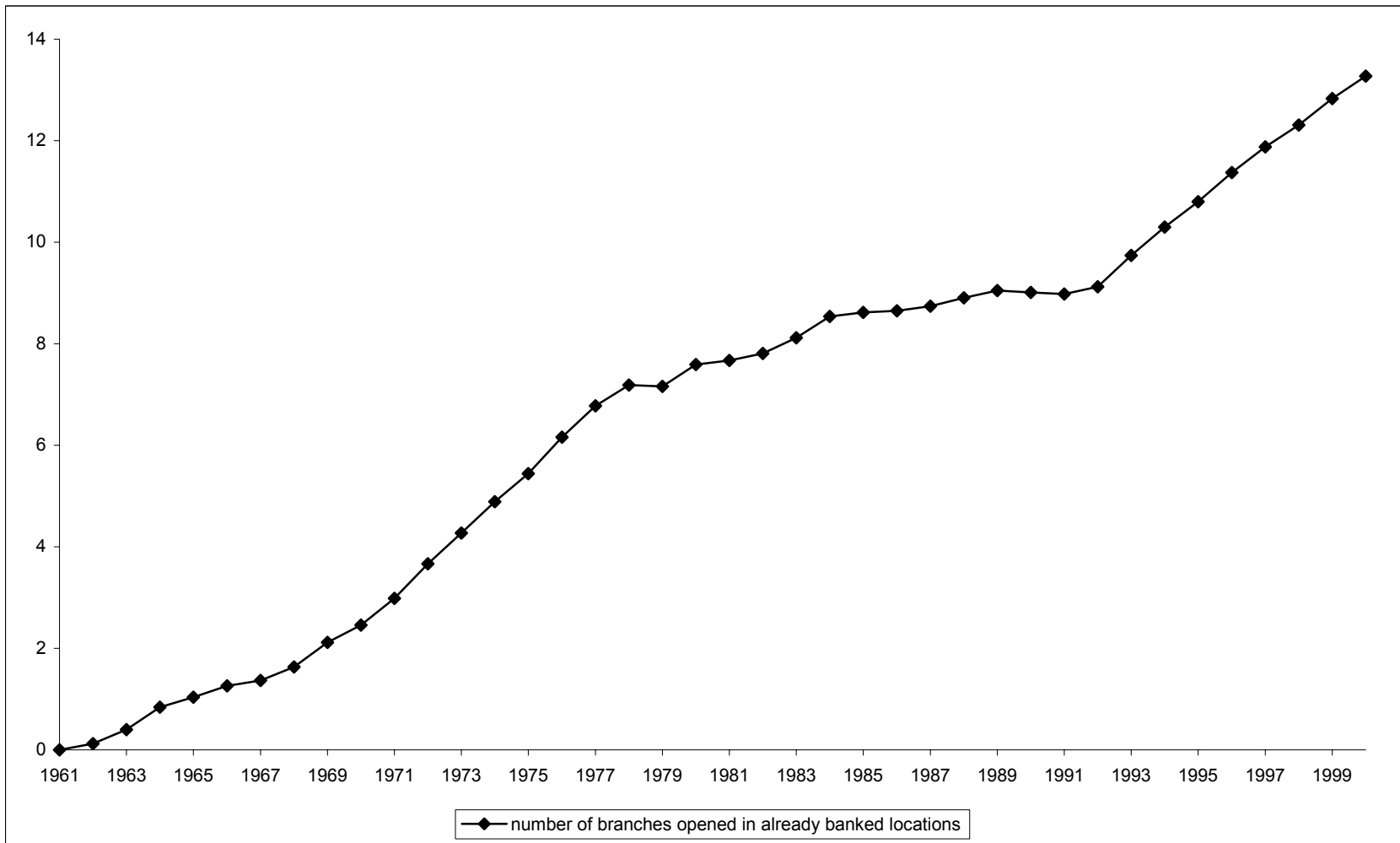


FIGURE 7: INITIAL FINANCIAL DEVELOPMENT AND BRANCH EXPANSION IN ALREADY BANKED LOCATIONS

Notes: This figure graphs the set of “Number of banked locations in 1961 × Year” Interaction terms from a regression in which the dependent variable is the number of branches opened in already banked locations. The regression includes population, income and location controls,

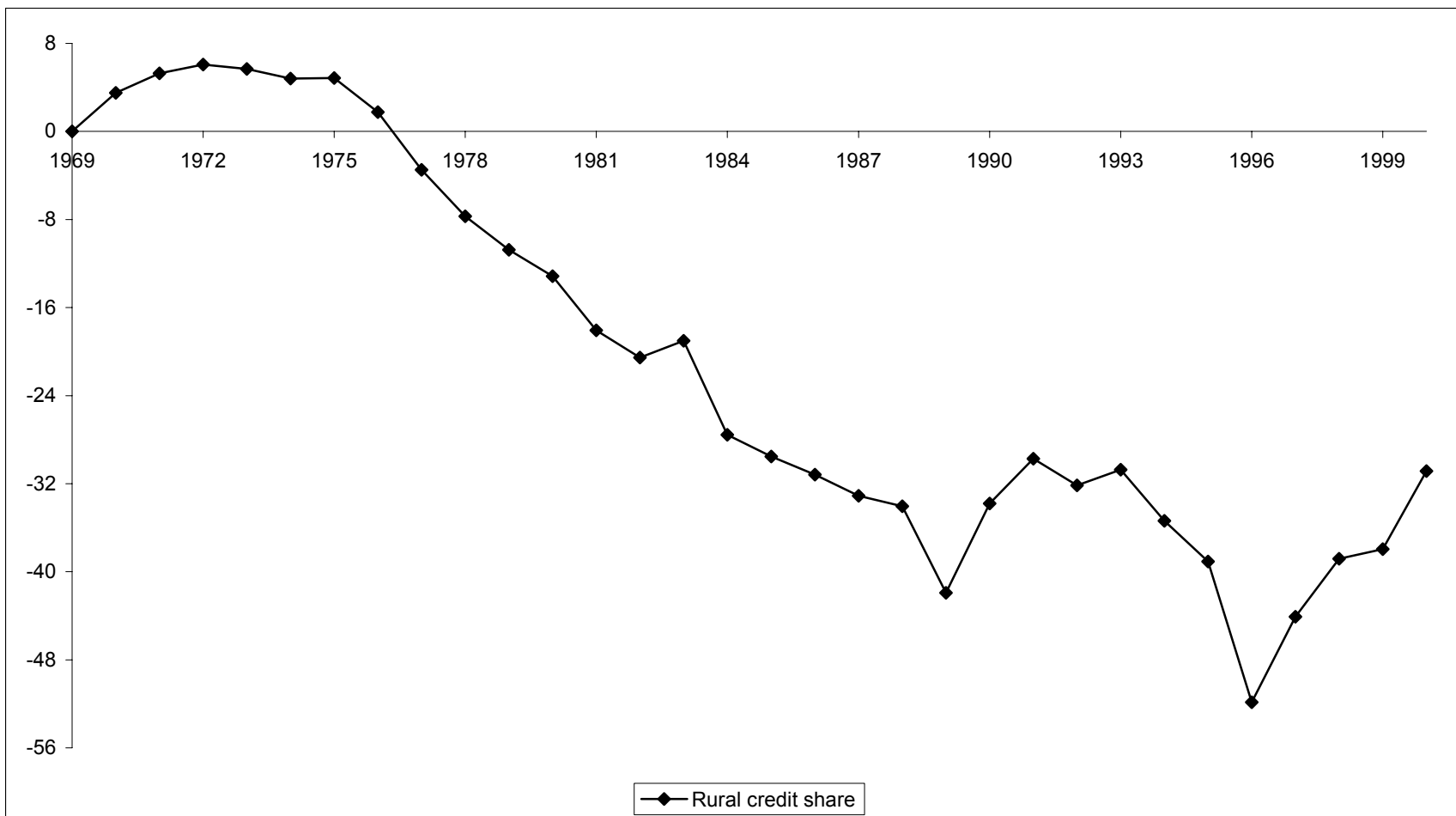


FIGURE 8: INITIAL FINANCIAL DEVELOPMENT AND RURAL CREDIT SHARE

Notes: This figure graphs the set of “Number of banked locations in 1961 × Year” Interaction terms from a regression in which the dependent variable is the share of total credit disbursed via rural branches. The regression includes population, income and location controls,

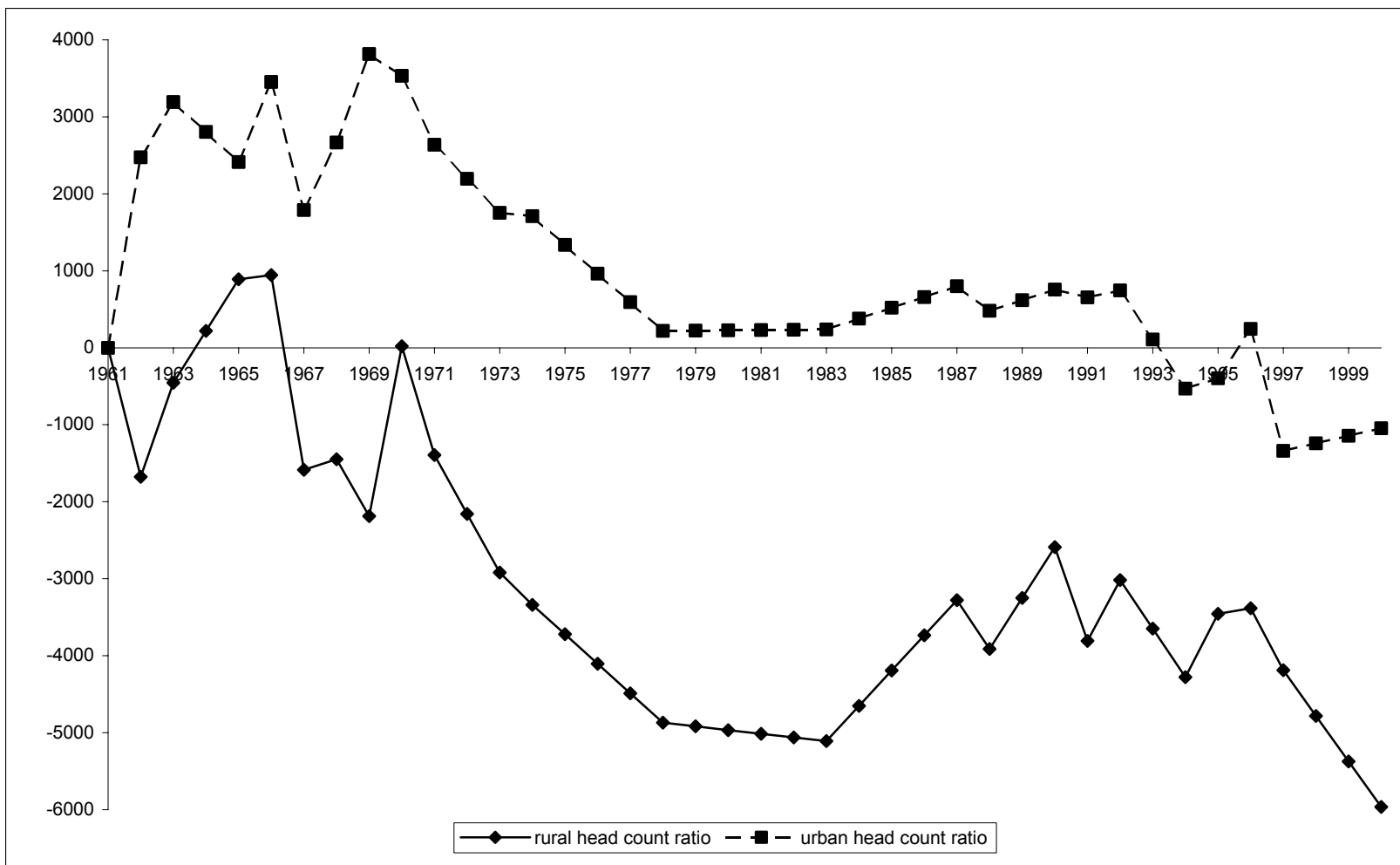


FIGURE 9: INITIAL FINANCIAL DEVELOPMENT AND POVERTY

Notes: This figure graphs the coefficients for two regressions. The series "Rural head count ratio" graphs the set of "Number of banked locations in 1961 \times Year" interaction terms from the regression in which the dependent variable is rural head count ratio; the series "Urban head count ratio" graphs the corresponding set of interaction terms from the regression in which the dependent variable is urban head count ratio. Both regressions include population, income and location controls,