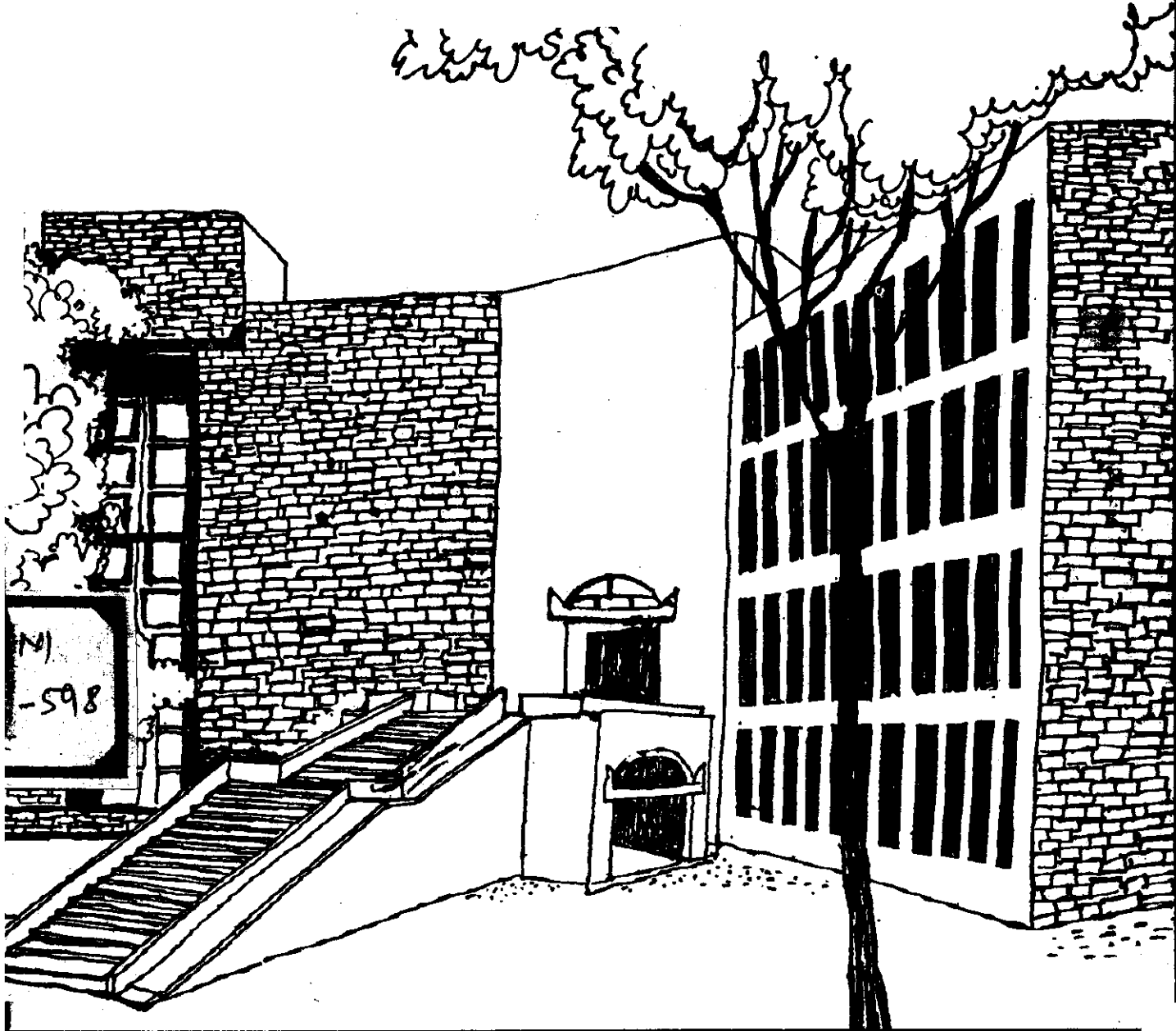


Working Paper



NATIONAL DEMAND AND REGIONAL
INDUSTRIALIZATION

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W P No. 598

February 1986

1986
(598)

The main objective of the working paper series of the IIMA is to help faculty members to test out their research findings at the pre-publication stage.

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NATIONAL DEMAND AND REGIONAL INDUSTRIALIZATION

ABSTRACT

Interstate disparity in the industrial output has been increasing in India in spite of our planned efforts to reduce the same. Our policies in this regard were based on the growth theories emphasising the role of factor supplies, particularly investment. It is argued here that such an approach is most likely to lead to the wastage of scarce national resources in the sense of sacrificing growth without reducing the disparities. Indian data seem to support demand oriented theories which suggest quite different planning and policy measures to tackle the problem.

- Ravindra H Dholakia.

NATIONAL DEMAND AND REGIONAL INDUSTRIALIZATION

Ravindra H Dholakia

I. INTRODUCTION

Reduction of regional disparity in the levels of economic development has been explicitly stated concern of the policy makers in India since the Third Plan. Our choice of the development strategy from the Second Plan onwards made us think of economic development largely in terms of industrialization. As a result, we often link the regional disparity in the level of economic development with varying degree of industrialization in different regions. Since there is considerable regional disparity in the extent and output of industry in India, it is natural for the policy makers to inquire into the determinants of industrial growth in the regions of India. Several theories have been propounded to identify the basic determinants of the growth of industry at the regional level. We may, however, classify all these theories broadly into two categories viz. the theories emphasizing the supply of the factors of production and the theories stressing the role of external demand factors. In order to facilitate policy decisions with a view to tackling the regional problem, it is important first to identify as to which of the two categories of the theories are more applicable to the Indian situation. The reason is that the strategies implied by the two sets of theories are quite different.

In the present paper, we make an attempt to examine whether the demand-oriented theories of regional growth of industry get any empirical support from the regional data in India. We take a state economy as a regional unit and confine ourselves to the case of 15 major states in India. In the next section, we begin by considering the magnitude and trend in the regional disparity in the industrial sector in India over the period 1967-68 to 1980-81. Such an analysis is useful to confirm or question the hypotheses on which our past strategy to deal with the regional problem was based. The third section, then, presents a framework for testing the hypothesis regarding the role of external demand factors in determining the industrial growth in a regional economy. The fourth section is devoted to the discussion of the results of the empirical exercise carried out for India ; and concluding remarks are given in the fifth and the final section.

II. REGIONAL DISPARITY IN INDUSTRIAL SECTOR:

The extent of industrialization, in its broad sense, can be satisfactorily measured by the income originating in the industrial sector in the regional economy. Looking to the similarity of the nature of the product, technology, factor proportions, etc., the industrial sector should include registered and un-registered manufacturing, construction and mining and quarrying activities under the Indian economic environment. Cross-sectionally comparable estimates of the income originating in these sub-sectors in different state economies are available from the CSO (1978-1985). Table 1 presents the percapita output of the industrial

Table 1: Per Capita SDP in the Secondary Sector at Current Prices in 15 Major States in India - 1967-68 to 1980-81

(in Rupees)

States	1967- 68	1968- 69	1969- 70	1970- 71	1971- 72	1972- 73	1973- 74	1974- 75	1975- 76	1976- 77	1977- 78	1978- 79	1979- 80	1980- 81
Andhra Pradesh	64	69	78	77	89	94	112	140	150	157	179	190	212	225
Assam*	73	68	79	91	91	98	105	153	170	180	204	204	183	168
Bihar	87	91	96	83	87	87	91	134	173	167	161	178	187	199
Gujarat	163	158	166	204	209	237	278	365	375	421	487	486	513	577
Haryana	107	128	142	150	188	193	198	236	279	288	337	370	405	443
Karnataka	83	83	93	143	162	173	197	234	259	284	321	344	391	425
Kerala	73	78	81	102	114	120	135	162	172	182	201	227	266	317
Madhya Pradesh	76	75	82	81	87	101	119	150	164	169	175	184	214	281
Maharashtra	196	207	224	269	298	312	364	444	453	484	524	598	662	777
Orissa	59	68	70	73	74	85	100	119	131	154	152	170	199	188
Punjab	155	159	155	164	174	199	236	275	333	336	382	413	446	466
Rajasthan	68	64	70	89	94	100	111	144	158	167	180	202	214	235
Tamil Nadu	119	124	134	146	157	169	187	243	251	310	352	378	405	453
Uttar Pradesh	56	60	65	71	72	84	92	106	120	136	152	159	170	193
West Bengal	162	165	168	173	181	197	220	282	313	314	328	358	399	440
Average	101	104	112	124	133	145	164	206	224	241	263	285	311	349

Source: CSO (1979 to 1985)

Note: * Assam includes Meghalaya.

sector (as defined above) at current prices for the 15 major state economies in India.

The lowest per capita output of Rs.168 is recorded in Assam (including Meghalaya) and the highest per capita output of Rs.777 is recorded in Maharashtra in the industrial sector in 1979-80. From Table 1 it also becomes clear that the rankings of Maharashtra and U.P. as the top and the bottom states among the major states in India have remained unchanged over the period 1967-68 to 1979-80. Assam stagnated during 1977-79 and showed a considerable decline thereafter. As a result of such abnormal tendencies, it has slid down to the bottom in 1980-81. The ratio of the highest to the lowest per capita output in the industrial sector is on an average around 4. Over the period under consideration, it shows a clear rise from 3.5 to 4.6. However, the ratio shows fluctuations during the period rather than a smooth trend. What is important to note is that the states with per capita output in the industrial sector above the national average and the states below the national average have remained the same over the period except Karnataka whose position changed from the set of below average states to the set of above average states in 1970-71. This observation suggests that the regional inequality in the output of the industrial sector is likely to have remained more or less the same over the period.¹ Dholakia (1985) finds that the secondary sector displays the highest degree of regional inequality in comparison to the primary or the tertiary sectors. The weighted co-efficient of variation (weights being proportion of population) for the per capita output in the secondary sector in 15 major states in India was at a high figure

of 46.33% in 1967-68, 51.88% in 1973-74 and 49.99% in 1979-80. As there are wide fluctuations in the degree of regional inequality in the secondary sector over the period, trend of any type is not statistically established.

Under such circumstances, it is natural to re-examine our strategy and hypotheses on which we based all our past efforts to reduce the regional disparities. As it is argued by various scholars in the field, neither the Planning Commission nor the Finance Commissions have taken any significant policy measures to specifically tackle the problem of interstate disparity in the income levels. (See, Nair, 1983). Whatever measures in this direction were taken, represented the government's immense faith in the 'magic of investment'. The measures were largely in terms of providing government expenditures and/or providing incentives for boosting private investment in backward areas besides the licensing policy. Such measures operate by affecting the supply of the factors of production, particularly of capital stock, in the regional economies. As we have already seen, all our past efforts based on the theories emphasizing the supply of the factors of production have not made any significant dent on the problems of regional disparity. Even at present, our strategy does not seem to have changed. The long-term fiscal policy announced recently contains broadly the same components of tax-incentives and subsidies to encourage industrial investments in the backward regions. Schemes based on the concept of the zero-industry districts also suggest the government's immense faith in the theories based on the logic of the factor supplies, particularly investment, governing the

industrial output. On the other hand, the pattern of the indirect taxation can significantly affect the relative prices of the commodities and thereby directly affect their demands in the national market. If the national demand governs the regional output of industry, the pattern of indirect taxation would have direct bearing on the growth of industries in the regional economies and hence on the regional disparities in the extent and output of industry. In this context, therefore, the limitations of decentralized decision making should also be well appreciated. In the Seventh Plan, more and more emphasis has been placed on the decentralized decision-making. Such a pattern of planning is likely to lose the sight of broader perspectives and the demand factors of supra-regional nature. After all, the states constitute integral parts of the common national market and to that extent the growth of state economies gets determined by the growth of national demand for the output. In the next section, we present a framework for testing this alternative hypothesis.

III. THE FRAMEWORK:

The basic hypothesis in the export base theories is that the regional growth, especially in the industrial sector, is largely governed by the external demand factor. This is because of the uniform currency and a large magnitude of commodity flows across the regions in the nation. Development of transport and communication facilities also contribute in creating a stronger national market. The role of national market, therefore, in determining the relative growth of a regional economy cannot be ignored. Thus, the degree of access of a region

to the national market is considered an important determinant of the relative advantage of a region for its relative growth. (see Perloff and Wingo, 1975).

The hypothesis of external (national) demand determining the regional economic growth has interesting implications for the approach to tackle the problem of regional imbalance in industrialization. Instead of puring capital investments and offering incentives in terms of subsidy to affect the locational decisions or to control the location of projects directly through the licensing policy, the approach would be to influence consumer preferences, remove market imperfections and encourage specialization. In order to promote industrialization in a region, according to the external demand hypothesis, we need to administer and encourage the demand for such products in the national market where the lagging region has a comparative advantage.

In order to test the external demand hypothesis we may begin by postulating that the regional industrial output has two distinct and independent components - one due to internal demand forces and the other due to the external demand forces. Symbolically, it may be represented as :

$$X_{jt} = X_{IDjt} + X_{EDjt} \quad \dots \quad (1)$$

where X stands for percapita industrial output, j is for jth state, t is for time, ID and ED are respectively for internal demand and external demand forces. Now, we may assume that the component due to internal demand forces is a function of time, whereas the component due

to the external demand forces is a function of the national demand for the industrial output. Thus,

$$X_{IDjt} = a_j + b_j t \quad \dots \quad (2)$$

and

$$X_{EDjt} = c_j X_t \quad \dots \quad (3)$$

where a , b and c are constants. Taking (1), (2) and (3) together, we have

$$X_{jt} = a_j + b_j t + c_j X_t \quad \dots \quad (4)$$

The coefficient b_j in the equation (4) represents the annual increase/decrease in the percapita output of industrial sector in the j^{th} state on account of forces internal to the state j . On the other hand, the coefficient c_j denotes the increase/decrease in the per capita output of industrial sector in j^{th} state resulting from changes in the national percapita output.² If we use equation (4) for the regression, the null-hypotheses on the parameters would be the usual ones, viz. H_0 : (i) $b_j = 0$ and (ii) $c_j = 0$. If the test fails to reject the first null-hypothesis ($b_j = 0$), our data can be considered as consistent with the null-hypothesis that the internal forces on the j^{th} state are not important in explaining its growth over time. If, however, the test fails to reject the second null-hypothesis ($c_j = 0$), we may infer that the changes in the national demand for industrial output are not important in determining the growth of output in the j^{th} state.

IV. RESULTS

We have carried out these tests with the help of the CSO comparable data for the period 1967-68 to 1980-81 for the 15 major states in India. The results are presented in Table 2. As it can be seen from the table, our model gives very satisfactory results for all states except Assam where the statistical problems like autocorrelation and heteroscedasticity have marred the reliability of the estimates in spite of a high r^2 . Considering the complications and cost involved for tackling such statistical problems on one hand and the illustrative purpose of the exercise on the other hand, we may ignore it. In all the remaining 14 major states, our results clearly indicate that national demand factors play a major role in determining the changes in the industrial output. This is because apart from Karnataka, in all other states the coefficient of the time variable (b_j), representing the internal demand forces, turns out to be statistically not different from zero. The coefficient of percapita national output in the secondary sector (c_j), on the contrary, is significantly different from zero statistically (even at 1% level) in all the fourteen states. Thus, internal demand forces as compared to the external demand forces do not seem to be governing the industrial output in most of the state economies in India.

From the table, moreover, it is clear that industrially more developed states like Gujarat, Maharashtra, Punjab, West Bengal and Tamil Nadu have experienced much greater impact of a rupee change in the national demand for the industrial products than the industrially backward

Table 2 : Regression Results for Equation (4)

States	Coefficients			T-Statistics for			r ²
	a _j	b _j	c _j	a _j	b _j	c _j	
Andhra Pradesh	2.97	1.47	0.59*	0.72	1.08	8.67	0.9959*
Assam	44.83	9.73	0.08	1.93	1.28	0.20	0.8480*
Bihar	12.40	-6.59	0.85*	0.87	-1.41	3.58	0.9261*
Gujarat	-3.66	5.74	1.48*	-0.20	0.98	4.99	0.9991*
Haryana	3.27	5.22	1.04*	0.24	1.15	4.54	0.9880*
Karnataka	-11.65	12.60*	0.74*	-1.14	3.78	4.37	0.9941*
Kerala	-18.41	-1.70	0.96*	-1.42	-0.40	4.50	0.9773*
M.P.	-19.91	-6.47	1.06*	-1.64	-1.63	5.26	0.9718*
Maharashtra	-4.18	2.80	2.02*	-0.19	0.38	5.48	0.9887*
Orissa	7.34	1.65	0.49*	0.82	0.56	3.35	0.9749*
Punjab	-0.09	-1.51	1.47*	-0.01	-0.31	5.90	0.9877*
Rajasthan	2.86	2.29	0.59*	0.70	1.70	8.59	0.9963*
T.N.	-37.40	-4.42	1.60*	-2.77	-0.99	7.15	0.9898*
U.P.	2.80	0.42	0.53*	0.68	0.31	7.68	0.9939*
W. Bengal	24.96	-5.72	1.43*	2.94	-2.06	10.20	0.9942*

* significantly different from zero at 1% level of significance.

Source: Table 1 above.

states like Uttar Pradesh, Andhra Pradesh, Bihar, Orissa, Rajasthan and Kerala. These results clearly suggest that in spite of all our policies to reduce regional imbalance, we have not been able to administer the national demand for the industrial products in a way which could reduce the imbalance. In fact, the national demand for industrial products has been so changing that greater regional imbalance in industry would result.

V. CONCLUDING REMARKS:

From the preliminary exercise carried out in the present paper, it becomes clear that the basic philosophy behind our past policy to tackle the problem of regional imbalance in industry is questionable. In the past, we relied heavily on the ultimate neo-classical solutions of operating through monitoring and administering the factor supplies directly, particularly the investments. We displayed immense faith in the dictum 'supply creates its own demand'. The exercise of the present paper on the contrary, suggests that it is better to create demand in the directions where we want the supply to emerge. The policy of directly injecting the investment or increasing the factor growth in general in the lagging region would generally lead to inefficiency in resources allocation resulting in slower growth rates. This happens because increase in investment in a lagging region in an industry where it does not have comparative advantage only raises the real cost of production of the commodity in the economy. The incremental capital-output ratio, therefore, tends to rise. If, however, the investment is directly injected into the industry where the lagging region has comparative advantage, the incremental capital-output ratio would tend to

increase when excess capacity in the industry results. If demand factors are ignored, deficiency of effective demand can lead to the excess capacity and ultimately to the slow growth of output by increasing the measured incremental capital output ratio. Such a policy, therefore, is likely to result into the wastage of scarce resources in the sense of sacrificing growth without reducing the disparities. This is precisely what seems to have happened in India where we find the index of regional disparity in capital stock declining with the index of the regional disparity in output increasing during the sixties. (see, Dholakia and Dholakia, 1980.)

Finally, we may conclude by stressing the need to consider the demand oriented theories of regional growth for tackling the regional problem in India. It is high time now for us to start planning more effectively at the central level by properly and carefully administering the demand for industrial product to achieve the twin objectives of growth and equity. This approach does not rule out the simultaneous measures and policies to provide social capital or infrastructural investment in the lagging regions. It only recognizes the market forces and tries to utilize them rather than negate them. Unlike the theories of regional growth emphasizing factor supplies, the demand oriented theories advocate tackling of the regional problem by utilizing the logic of rational locational choice based on efficiency grounds.

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NOTES

Our finding may appear to be in sharp contrast to the findings of several studies on the registered manufacturing sector (see Nair, 1983; Dholakia, 1979; Rao, 1984; etc.). Their finding suggests that regional disparity in registered manufacturing sector is clearly declining in India. Our finding here, therefore, suggests that regional disparity in the sub-sectors like unregistered manufacturing, construction and mining and quarrying is increasing in India over-time. All this together offers some insights into the nature of regional spread and growth of industrialization in India over the period.

We are taking changes in the percapita national output in the industrial sector as a proxy for the changes in the national demand for the industrial output. This, however, does not necessarily mean that we are assuming equilibrium of demand and supply of the industrial output at the national level. Even when the two are not equal, the price of the product in the open market is always governed by the demand curve at least in the short run. If, therefore, we measure the output at current prices, the assumption of equilibrium is not required.

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