

Industrialization and the Development of Regional Economies in the State of Uttarakhand

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Abstract This paper aims to clarify the characteristics of Uttarakhand's industrialization that was advanced through policies promoting the establishment of industrial parks, as well as the ripple effects on regional economies. The Indian government is promoting the industrial development of 'special category states' and offering them various types of incentives. These incentives are generous, and they give a competitive edge to these states in attracting industries and on-site corporations. The plains region (Tarai) was chosen as the site for industrial park development in Uttarakhand, and in a short time, an industrial belt was formed along the foot of the Siwalik mountain range. Industrialization has also significantly affected the state economy. When Uttarakhand was established in 2000, the level of development of its state economy (NSDP per person) was low. After the development of industrial parks in the latter half of the 2000s, the development level of the state economy has surpassed that of the national average. The state economy has transformed into one in which its main contributors are tourism and manufacturing. However, industrialization has not progressed evenly in all regions of the state and is instead slanted toward the plains region. This also acts toward widening the gap with mountainous regions.

Key words industrialization, regional economies, Uttarakhand, India

Introduction

Along with the advance of economic deregulation since the 1990s, India's recent economic growth as a BRIC (Brazil, Russia, India, and China) country has been attracting international attention. It is known that India's economic growth is being carried by its service industry, as typified by the information and communication technology (ICT) industries. However, manufacturing production continues to expand, focusing especially on such fields as automobiles and electric/electronic goods supported by foreign investment. As pointed out by Tomozawa (1999, 2007), industrial parks that developed in the suburbs of such large cities as Delhi are serving as the basis for industrial sites. Industrial park development in India is carried out by the state government. Each state establishes independent industrial development corporation in order to provide industrial sites and related infrastructure and to promote sales. Enterprises choose their locations by comparing the conditions of these industrial parks, so that as industrial parks located in the suburbs of large cities gathered a lot of investment, the industrialization is falling behind in those states with disadvantaged site conditions.

The Indian government is establishing policies aimed at promoting industrial location in underdeveloped states that are experiencing delayed industrialization. Special attention is being paid to industrial policies targeting the mountainous states of Himachal Pradesh and

Uttarakhand.¹ As India promotes its economic deregulation policies, it may appear that its industrial decentralization policies have retrogressed (Tomozawa, 2008). However, there are regions in India suffering from adverse natural and social conditions, and special measures are necessary for developing these regions. States formed from disadvantaged areas are actually classified as "special category states,"² and they receive favorable treatment as well as the benefit of special industrial policies when subsidies are allocated by the central government.

There are three industrial policies aimed at special category states: (1) the Jammu and Kashmir Industrial Policy (2002), (2) the Uttaranchal and Himachal Industrial Policy (2003), and (3) the Northeast Industrial and Investment Promotion Policy (2007, decided in 1997 by a previous policy). The regions targeted by these policies are located in the Himalayan mountain range. Because much of their area consists of mountains and hills, they suffer from disadvantageous natural environment, are lacking in all kinds of infrastructure, and are even located remotely from markets. The Indian government has classified these states as developmentally difficult and is implementing the application of special packages and financial support. The details of the three policies mentioned above are similar. They attempt to promote industrial development, especially via exemption from excise and corporate taxes, and they provide subsidies for capital investment.

This paper discusses the characteristics of Uttarakhand's industrialization promoted by these policies, as well as the

ripple effects on regional economies.

Uttarakhand's Industrial Development Strategy

The Uttaranchal and Himachal Industrial Policy

The Uttarakhand and Himachal Industrial Policy³ targets the states of Uttarakhand and Himachal Pradesh. It applies not only to manufacturing but to other industries as well. Characteristic of this policy is the fact that it includes plans to screen industries to attract. In other words, industries that are environmentally friendly, use local resources, and could create jobs locally are targeted as “thrust industries,” whereas “negative list industries” are suppressed. Eighteen industries have been classified as thrust industries: floriculture, medicinal herbs and aromatic herbs (processing), honey, horticulture and agro-based industries, food processing industries, sugar and its byproducts, silk and silk products, wool and wool products, woven fabrics, sports goods, paper and paper products, pharmaceutical products, ICT, bottling of mineral water, eco-tourism, industrial gases, handicrafts, and non-timber forest product.⁴ The negative list mainly includes 20 industries that have a significant environmental impact.⁵

One incentive provided to new enterprises and to the expansion of existing enterprises established in specified industrial parks in both states is exemption from excise taxes. In India, a 16% excise tax is normally applied when products are shipped from factories. Under this policy, applicable enterprises receive a 100% exemption for ten years from the start of commercial production. The second incentive is exemption from corporate taxes. A tax of 30% against taxable income normally applies for corporations (effective tax rate of 33.66%). Under this policy, applicable enterprises receive a 100% exemption for five years from the start of commercial production and then a 30% exemption during the next five years. The next incentive is capital investment subsidies. Fifty percent of the amount invested in factories or machines is subsidized, with a ceiling of 3,000,000 rupees. Although the above-mentioned incentives do not apply for negative list industries, they are provided for thrust industries no matter where the enterprise is located within an applicable state. Therefore, rather than actively regulating the location of negative list industry, this is an attempt to screen industries to attract by means of applying incentives or not.

Incidentally, capital investment subsidies have also been used as a component of traditional regional policies as a means to promote industry in underdeveloped regions,

and they can be regarded as policies that are reused only with regard to special category states. However, there are no precedents for exemption from excise taxes or exemption from corporate taxes, and thus these have attracted much attention and have been described as “generous” incentives.⁶ Of course, at the same time that these three incentives give an advantage to corporations that establish bases in these regions, they can also be seen as giving a competitive edge in attracting industry to both states.

The establishment of the State Infrastructure and Industrial Development Corporation of Uttaranchal

The state of Uttarakhand was a part of Uttar Pradesh (below, UP) until 2000. According to the classification of ‘backward area’ in 1983, all eight districts of Uttarakhand at that time were classified as Category A which meant the worst level. However, there were 286 backward districts within India; limiting this to Category A, there were still 118 districts. It was not a simple matter to attract industries to these districts using only a capital investment subsidy system⁷. Following economic deregulation, this system was eliminated, and it became even more difficult to attract industries. The 1994 and 1998 UP industrial policies focused on such areas as deregulation, promotion of sites for developing industries, and development of the Delhi municipal area. They did not, however, touch on the industrial development of underdeveloped regions. Uttarakhand, with its small areas and slight populations, existed in the shadows of the vast plains region of UP, which boasted wide areas and large populations. It was feared that Uttarakhand would be left behind during India's economic growth.

The formation of an independent state from UP in 2000 led to a drastic change in these conditions. If Uttarakhand's underdeveloped regions had still been part of UP, it would have likely been difficult to recognize the degrees of underdevelopment of these regions at a national level, but with its formation as an independent state, Uttarakhand was classified as a “special category state” and therefore was able to acquire a status under which it could receive special aid from the central government.

Uttarakhand has established state industrial policies in accordance with the previously mentioned Uttaranchal and Himachal Industrial Policy, and it continues to promote industrialization. The goal of these industrial policies is to promote rapid and sustainable industrial development through providing a comprehensive framework that improves the investing climate, improves both the creation of employment opportunities and the gross state

domestic product, and establishes an economic base. The state government established SIDCUL as an organization directly responsible for accomplishing these goals in June 2002.⁸ SIDCUL has authorized financing of 500 million rupees (paid-up capital of 200 million rupees), and financing is received not only from the state government but also from private financial institutions as well.⁹ SIDCUL is also responsible for a wide range of activities, such as (1) creation of a top-line industrial infrastructure and connecting it with markets such as those in NCR, (2) simplification of procedures via one-stop application services, (3) quick provision of land for use as corporate sites and for infrastructure planning, (4) promotion of the participation of private-sector corporations in industrial park and infrastructure development, (5) provision of sufficient and continuous electricity, (6) simplification and rationalization of labor laws and guaranteed worker wages and benefits in balance with state economic development, (7) promotion of modernization and the technical improvement of micro- and small-scale industries, (8) efforts to restructure and reform poorly managed corporations, (9) systematic and scientific development of mineral resources and optimization of added value, and (10) development of the state as a foundation of education and research. Among these activities, there are those that cannot be carried out by SIDCUL alone and those that are medium- or long-term goals. However, the first five items are already producing results in the development of industrial parks.

The strategic value of industrial park development

Table 1 gives an outline of industrial parks developed or in development by SIDCUL. These six industrial parks are located in the Dehradun district, the Udham Singh Nagar district, the Haridwar district, and the Pauri Garhwal district. Industrial parks in the Dehradun district individually specialize in ICT and in pharmaceutical at a scale that is not particularly large. In contrast, IIE (Integrated

Industrial Estate) Haridwar and IIE Pantnagar are integrated industrial parks; the former consists of 2,034 acres, and the latter boasts a size of 3,339 acres. The state of Uttarakhand is split into two regions, Garhwal in the west and Kumaon in the east. IIE Haridwar and IIE Pantnagar were developed in order to act as industrial development bases for Garhwal and Kumaon, respectively. The average lot costs roughly 1,500 rupees per square meter in both industrial parks,¹⁰ and conditions are similar in both. As of October 2006, 542 companies have entered into contracts with SIDCUL for the former, and 399 companies have contracted to enter the latter. It is estimated that these industrial parks will create 82,000 jobs (44,000 in the former, 38,000 in the latter), which is roughly twice the number of industrial jobs in the state during fiscal year 2003 (42,000 workers).¹¹ Ranking third after these parks in scale, the ELDECO-SIDCUL industrial park is a joint venture between the private real estate capital group ELDECO¹² and SIDCUL. Meanwhile, the Sigaddi Growth Center is an industrial park exclusively for thrust industries. Based on the central government's "growth center" plan, the center has received 150,000,000 rupees in financial support.

Looking at the development sites of these industrial parks, it is clear that they are all situated in the Tarai region which stretches before the Siwalik mountain range or in their basins (Figure 1). The industrial parks form a belt around the edge of the Himalayas, and although they appear to form an industrial belt, there are insufficient routes connecting the industrial parks, and they are actually more deeply connected with Delhi, which is 200 to 250 km away.

The development strategy behind these industrial parks is shown in Figure 2. If hypothetical operation costs before introducing incentives are expressed as a solid line, these costs gradually increase in comparison with distances from markets (Delhi) in the plains, and it is supposed that the slope will drastically increase toward the mountainous

Table 1. Outline of industrial parks developed by SIDCUL (2006)

	Name of Industrial Park	Location (district)	Area (acre)	Number of Factories	Remarks
1	IIE Haridwar	Haridwar	2,034	542	
2	IIE Pantnagar	Udam Singh Nagar	3,339	399	
3	Sitarganj (ELDECO-SIDCUL)	Udam Singh Nagar	1,200	—	
4	Sigaddi Growth Center	Pauri Garwal	100	25	assigned to trust industries
5	Pharma City	Deheradun	50	31	assigned to pharmaceutical industry
6	IT Park	Deheradun	60	12	

Source: Arora (2007) etc.

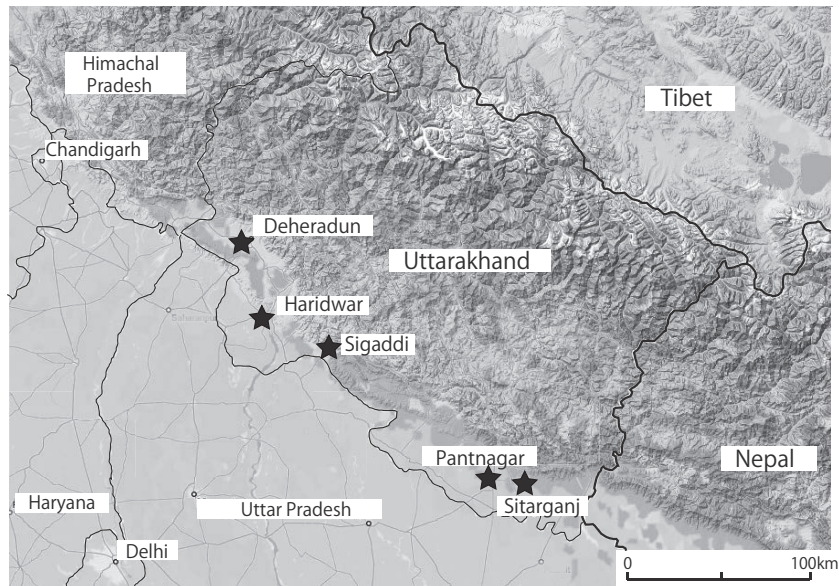


Figure 1. Distribution of industrial parks developed by SIDCUL

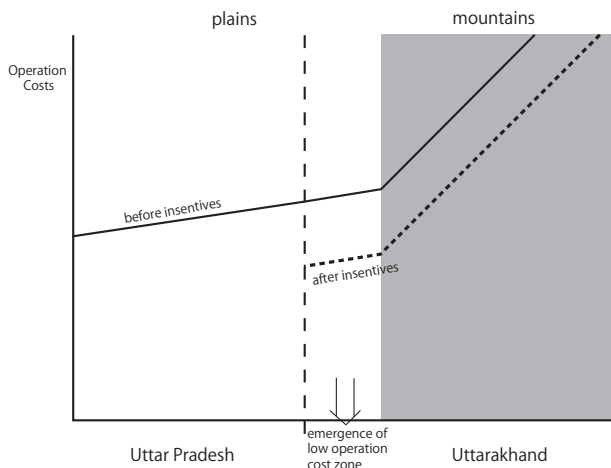


Figure 2. Hypothetical operation costs
Source: Tomozawa (2008)

areas. As shown by the broken line, introducing incentives reduce hypothetical operation costs. The emergence of a low operation cost zone in the plains area of Uttarakhand (Tarai) can also be seen. Although the actual amount of reduced operation costs will vary by company, an example will be given here of Bajaj Auto Limited, which established a factory in IIE Pantnagar. Bajaj Auto Limited began commercial production of its 100 cc Platina motorcycle in this region in April 2007, and by doing so, it was able to reduce the retail price of this model from 36,000 rupees to 33,000 rupees.¹³ The company was able to achieve a 3,000 rupee (8%) cost reduction at their Uttarakhand location.

As seen in this example, corporations gain a competitive edge by locating within this low operation cost zone, and it was reasonable for Uttarakhand (which wanted to promote industrialization) to develop industrial parks in this zone. Industrial belts can be seen as being formed by

the sites of corporations that anticipate industrial park development that matches the terrain conditions within the state with industrial policies, as well as incentives therein.

Characteristics of Two Large-Scale Industrial Parks and On-Site Corporations

Overview of industrial parks

IIE Pantnagar SIDCUL created IIE Pantnagar (Figure 3) from land the state government had purchased from the G.B. Pant University of Agriculture and Technology¹⁴ and is currently selling land there after building a supporting infrastructure. With an estimated total investment of 35,730,000,000 rupees and expected employment of 38,000 people, the scale of development is unprecedented in the state. The nearest city is the district capital, Rudrapur (2011 population of 141,000 people), in the Udham Singh Nagar district. By May 2007, 393 companies had obtained industrial sites there. Of those, 92 companies have started commercial production. There is also the ELDECO-SIDCUL industrial park located in Sitarganj (population of 22,000), approximately 30 km east of Rudrapur in the same district. In addition, bio-IT parks are being built nearby in cooperation with the G.B. Pant University. In this way, the same district within the state of Uttarakhand is being given an extremely elevated position in industrial development.

IIE Pantnagar's development continues gradually. Sectors one through eight¹⁵ and the Integrated Infrastructure Development Centre (IIDC)¹⁶ were created during the first phase. Initially, each sector was assigned an indus-

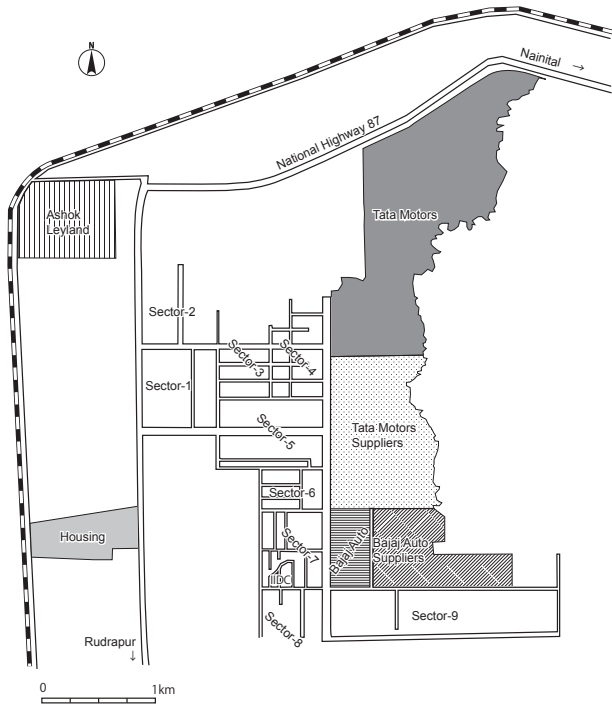


Figure 3. IIE Pantnagar
Source: Tomozawa (2008)

try. For example, it was planned that Sector 1 would be assigned to the processing of agricultural and food products.¹⁷ In actuality, other industries have mixed in, even as the intended industries for each sector have received focus. Development during the second phase has mainly been implemented in the eastern part of the industrial park. As is clearly shown in Figure 3, most of this part has been allocated for automobile industry sites. In 2007, two-wheeled vehicle manufacturer Bajaj Auto Limited and comprehensive vehicle manufacturer Tata Motors Limited both began operating factories. In 2010, commercial vehicle manufacturer Ashok Leyland also began operating in the northwest part of the industrial park. It is significant

that a zone of lots dedicated to suppliers neighbors these vehicle factories. These boast a total area of 1,357 acres, which accounts for approximately 41% of the entire area of the industrial park. The placement of these sites belonging to multiple automobile corporations was not anticipated by SIDCUL at the time but instead was promoted by the corporations themselves, who realized that it was possible to obtain incentives and large pieces of land.

IIE Haridwar IIE Haridwar (Figure 4) was developed as an industrial park after SIDCUL obtained land owned by the government-run heavy electrical manufacturer Bharat Heavy Electrical Ltd (BHEL). It is located in the city of Haridwar (2011 population of 225,000). It is composed of 12 sectors (Figure 5), and as with IIE Pantnagar, the intention was to devote each sector to a certain industry. For example, Sector 1 was for cosmetics, Sector 5 for food products, and Sector 6 for pharmaceutical products. However, other industries have actually setup their factories in these sectors. The largest corporation in the park is Hero MotoCorp Ltd. (“Hero Honda” at the time it was first established in the park), which took over land that was originally used as an airfield (Sector 10, roughly corresponding to the area used by the airfield to the left of Figure 4). The same company occupies an area of 116 acres on the eastern side of Sector 10, and the western side is being developed as a supplier park, with seven companies located within. Because Hero MotoCorp Ltd.’s advance into the park came into development later, other suppliers could not secure the land within this industrial park. For this reason, a real-estate development company was established within the Hero Group, the development of industrial parks neighboring IIE Haridwar (Industrial Park-2 and Industrial Park-4) was allowed,¹⁸ and suppliers were invited into this area. Although industrial land pro-



Figure 4. Satellite image of Haridwar in 2003 and 2013

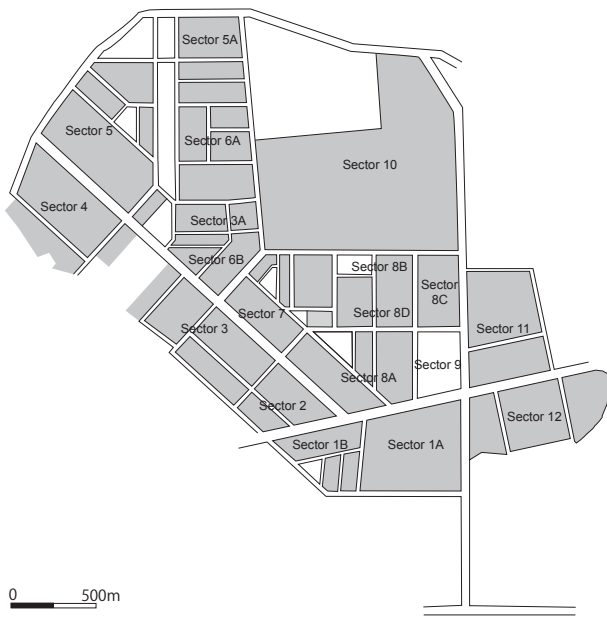


Figure 5. Outline of IIE Haridwar

visioning is similarly saturated within IIE Pantnagar, the ELDECO-SIDCUL industrial park located approximately 15 km away is satisfying demand for new industrial land. In comparison, industrial land offered by the state is unable to meet demands in Haridwar, and private industrial parks are playing a certain role as bases for industry.

Many industrial parks in India are formed on land purchased from farmers. In these cases, there are many entities to negotiate with and thus commensurate transaction

costs and time are required. It is worth noting that these industrial parks were purchased from a university and a government-run corporation, so there was only a single entity to negotiate with in each case. This can be seen as one factor in how Uttarakhand was able to start the development of industrial parks shortly after its statehood was established.

Special characteristics of industries located in industrial parks

Table 2 shows how factories are organized in both industrial parks by industry.¹⁹ The four industries that make up 10% or more of all of IIE Pantnagar are first, transport equipment (14.3%), second, pharmaceutical products and third, plastic products (both 11.7%), and fourth electric/electronic products (11.2%); there is no single outstanding industry. Some state thrust industries account for the sites of ten or more factories, and they include food products (6.9%), textile products (5.9%), paper products (3.6%), and cosmetics and hygiene products (2.6%) in addition to the pharmaceutical products mentioned previously. Although the plastic industry is a negative list industry, it is likely highly ranked at the top because its use in packaging etc. for pharmaceutical products is excluded from the list. Incidentally, the approximately 60 suppliers for Tata Motors Limited are not listed in materials obtained from SIDCUL and are not included in Table 2. If these were included, the position of transport

Table 2. Industrial location in IIE Pantnagar and IIE Haridwar (2007)

(1) IIE Pantnagar*			(2) IIE Haridwar		
Type of industry**	Factories	Percentage	Type of industry**	Factories	Percentage
transport equipment	56	14.3	electric/electronic products	133	24.6
pharmaceutical products	46	11.7	pharmaceutical products	79	14.6
plastic products	46	11.7	plastic products	61	11.3
electric/electronic products	44	11.2	metal products	45	8.3
machinery equipment	31	7.9	transport equipment	32	5.9
food products	27	6.9	textile products	31	5.7
metal products	28	7.1	cosmetics and hygiene products	28	5.2
chemical products	18	4.6	paper products	23	4.3
textile products	23	5.9	food products	21	3.9
paper products	14	3.6	machinery equipment	18	3.3
cosmetics and hygiene products	10	2.6	other manufacturing	56	10.4
other manufacturing	44	11.2	unclassifiable	14	2.6
unclassifiable	5	1.3	Total	541	100.0
Total	392	100.0			

Source: SIDCUL

Note: * excludes Tata Motors and its suppliers

** distinguished by the author

Table 3. Investment source regions(districts) in IIE Pantnagar and IIE Haridwar

(1) IIE Pantnagar			(2) IIE Haridwar		
Source region	Companies	Percentage	Source region	Companies	Percentage
Delhi	148	37.8	Delhi	228	42.1
Gautam Budha Nagar	24	6.1	Haridwar	56	10.4
Mumbai	19	4.8	Mumbai	46	8.5
Udam Singh Nagar	18	4.6	Faridabad	29	5.4
Faridabad	15	3.8	Gautam Budha Nagar	27	5.0
Ghaziabad	15	3.8	Ghaziabad	15	2.8
Kanpur	15	3.8	Gurgaon	15	2.8
Nainital	9	2.3	Meerut	13	2.4
Ahmadabad	8	2.0	Kolkata	12	2.2
Lucknow	8	2.0	Deheradun	9	1.7
Gurgaon	6	1.5	Kanpur	9	1.7
Kolkata	6	1.5	Saharanpur	7	1.3
Bangalore	6	1.5	Chennai	7	1.3
Aurangabad	6	1.5	others	68	12.6
others	53	13.5	Total	541	100.0
no information	35	8.9			
Total	392	100.0			

Source: SIDCUL

Note: Shaded columns indicate source regions including in the Delhi NCR

equipment as the chief industry in this industrial park would become unquestionable. Although the initial plan in Pantnagar was to promote industrialization focusing on thrust industries, this was weakened with the arrival of the large-scale automobile industry during the second phase.

The three industries that account for 10% or more of all industries in IIE Haridwar are electric/electronic equipment (24.6%), pharmaceutical products (14.6%), and plastic products (11.3%). It is thought that the heavy weight given to electric/electronic products is related to the fact that a BHEL Haridwar factory that manufactures turbines and other electronics is located nearby. Pharmaceutical products are ranked highly because of their status as state thrust industries, whereas the high ranking of plastic products is likely attributable to the existence of companies responsible for packaging. A certain number of other thrust industries are also recognized. However, transport equipment makes up a low percentage of industry in IIE Haridwar, because many of Hero MotoCorp Ltd.'s suppliers are located in neighboring private industrial parks.

In addition, Table 3 shows a similar trend in investment source regions (districts) for both industrial parks. In other words, the investments from within Uttarakhand do not account for even 10% of the total. Most investments come from outside the state. This is one characteristic of

an underdeveloped state with poor industrial reserves. Investments from other regions in the Delhi NCR, such as Delhi, Gautam Budh Nagar, Faridabad, and Ghaziabad, account for more than half of the total number of investments, and industrialization of these regions can be interpreted as having an aspect of the extensional enlargement of those industries located in the NCR. Investments are also being made by Mumbai and other major cities in India. However, because suppliers for Tata Motors Limited are not included in Table 3, if these were taken into consideration, the positions of cities that include Tata Motors production bases, such as Pune and Jamshedpur, would increase somewhat.

Effects of Industrialization on Regional Economies

Actual industrialization

How has industrialization resulting from the development of the above large-scale industrial parks changed the character of industries in Uttarakhand? Looking at composition by industry immediately before industrialization (2003), Table 4 shows that food products and beverages were the chief industry in terms of numbers of factories, numbers of engaged persons, and total output,

Table 4. Changes of Uttarakhand's industry

(a) 2003

Description	Factories (number, %)		Total persons engaged (number, %)		Total Output (million Rs, %)		Net value added (million Rs, %)	
15 Food products and beverages	281	41.3	12,290	29.6	21,839	30.1	1,893	12.5
21 Paper and paper products	34	5.0	4,839	11.6	7,768	10.7	1,799	11.9
24 Chemicals and chemical products	48	7.1	2,243	5.4	5,294	7.3	1,704	11.3
25 Rubber and plastic products	24	3.5	1,563	3.8	6,280	8.7	1,523	10.1
26 Non-metallic mineral products	55	8.1	2,375	5.7	1,671	2.3	205	1.4
27 Basic metals	35	5.1	2,040	4.9	4,884	6.7	464	3.1
28 Fabricated metal products	26	3.8	1,065	2.6	765	1.1	90	0.6
29 Machinery and equipment	16	2.4	7,854	18.9	10,441	14.4	5,006	33.1
31 Electrical machinery	42	6.2	2,769	6.7	3,615	5.0	1,345	8.9
32 Radio, Television and communication	8	1.2	805	1.9	1,548	2.1	594	3.9
33 Medical, precision and optical instrument	13	1.9	990	2.4	1,090	1.5	-25.6	-0.17
34 Motor vehicles, trailers and semi-trailers	4	0.6	73	0.2	24	0.0	4	0.0
36 Furniture	15	2.2	372	0.9	173	0.2	53	0.3
Other industries	79	11.6	2,283	5.5	7,098	9.8	490	3.2
Total	680		41,561		72,488		15,144	

Source: Annual Survey of Industries 2003-04

Note: National industrial classification, 1998

(b) 2009

Description	Factories (number, %)		Total persons engaged (number, %)		Total Output (million Rs, %)		Net value added (million Rs, %)	
10 Food products	320	13.6	22,233	9.3	72,398	9.1	12,573	7.1
13 Textiles	39	1.7	6,536	2.7	13,701	1.7	1,523	0.9
17 Paper and paper products	143	6.1	14,782	6.2	33,120	4.2	2,951	1.7
20 Chemicals and chemical products	158	6.7	20,272	8.5	59,859	7.5	15,991	9.0
21 Pharmaceuticals	263	11.2	27,583	11.6	63,364	8.0	22,609	12.8
22 Rubber and plastics products	250	10.7	21,073	8.8	57,732	7.3	9,463	5.3
23 Other non-metallic mineral products	84	3.6	5,754	2.4	8,565	1.1	1,591	0.9
24 Basic metal	108	4.6	7,160	3.0	46,878	5.9	7,976	4.5
25 Fabricated metal products	102	4.3	11,275	4.7	27,574	3.5	4,301	2.4
26 Computer, electronic and optical products	119	5.1	12,984	5.4	75,209	9.5	13,637	7.7
27 Electrical equipment	223	9.5	23,165	9.7	78,431	9.9	15,485	8.7
28 Machinery and equipment	57	2.4	12,575	5.3	76,400	9.6	20,212	11.4
29 Motor vehicles, trailers and semi-trailers	202	8.6	30,395	12.7	96,896	12.2	31,683	17.9
30 Other transport equipment	33	1.4	4,892	2.0	43,573	5.5	9,539	5.4
Other industries	245	10.4	18,116	7.6	39,524	5.0	7,654	4.3
Total	2,346		238,795		793,224		177,188	

Source: Annual Survey of Industries 2003-4 and 2009-10

Note: National industrial classification, 2008

accounting for 30% of all employment and production in the state. Following this was machinery and equipment, which is especially significant in that it had accounted for one-third of all net value added. Prior to industrialization in this state, the only factory of an outstanding scale was

the BHEL Haridwar, which also was responsible for the total output and net value added of the machinery and equipment sector. Looking at LQs (location quotients) are calculated by comparing the industry's share of the state total output with its share of the national total output,

wood and wood products (6.7) and machinery and equipment (3.4) are ranked relatively high. Therefore, it can be stated that the state's industries are characterized by those that depend on local resources such as agriculture and forestry, as well as government-run factories placed by national policy.

Comparing 2003 and 2009, it is first noteworthy that wide quantitative expansion is seen in each indicator. Total output (793,200 million rupees) and net value added (177,200 million rupees) increased ten times over or more, and the number of total workers (239,000 workers) increased approximately five times over. Regarding the state's national share, the number of engaged persons increased from 0.53% to 2.07%, total output increased from 0.56% to 2.12%, and net value added increased from 0.75% to 2.99%. The rate of industrialization during this period can be therefore interpreted as developing at a pace that outstripped that of the entire country. Manufacturing production that had not even reached the level of that of the Union Territory Pondicherry in 2003 increased at such a rate that it had exceeded that of Jharkhand and Chhattisgarh a mere six years later.

In terms of industry composition,²⁰ motor vehicles and trailers, which had had only slight production before, was in 2009 the highest ranked for total number of engaged persons, total output, and net value added. This can be perceived as the transformation of the comprehensive automobile industry, in conjunction with other transport equipment including two-wheeled vehicles, into a structure that pulls state industrial activity along with it. Furthermore, pharmaceuticals (a thrust industry) was ranked second in total number of engaged persons and net value added, and the weight of electrical equipment has also increased. In contrast, the weight of food products and machinery equipment has decreased. This situation is extremely concordant with the results of an analysis of the industries at these two large industrial parks. Overall, conditions changed from those in 2003 that were skewed toward certain industries to a more scattered composition of industries in 2009. It can therefore be understood that as manufacturing production experienced a quantitative expansion, types of industries continued to diversify.

Effect on regional economies

What effect does Uttarakhand's rapid industrialization have on regional economies? Uttarakhand's gross state domestic product (GSDP) for FY 2011 was 609,000 million rupees (2004 FY price, Central Statistical Organization). This accounted for 1.6% of India's total, which is larger than Uttarakhand's proportion of India's total

population (0.8%). The FY 2011 net state domestic product (NSDP) of 47,831 rupees per person far exceeds that of the Indian average of 38,005 rupees and is a standard that exceeds that of both Punjab and Karnataka. Therefore, although it can be stated that Uttarakhand's economy is ranked relatively high within India, this is largely attributable to the economic growth since the formation of the state in 2000. According to Figure 6, which shows the trends in the rates of economic growth in India and Uttarakhand, excluding the first half of the 2000s, the rate of economic growth for Uttarakhand has exceeded that of India. In particular, a period of rapid economic growth of 10% or greater was maintained from FY 2004 until FY 2009. Although the NSDP per person in FY 2000 of 14,932 rupees was lower than that of the Indian average of 16,172 rupees (1999 FY price), production within the state rose substantially because of this rapid growth.

What factors can be assigned to this economic growth? Figure 7 show trends in the rates of industrial contribu-

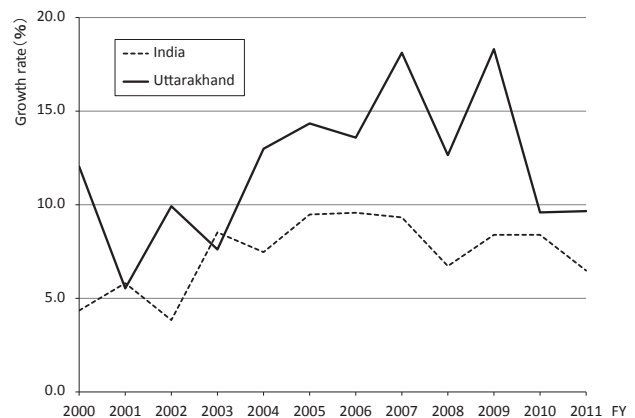


Figure 6. Trends in the rates of economic growth in India and Uttarakhand
Source: Central Statistical Organization

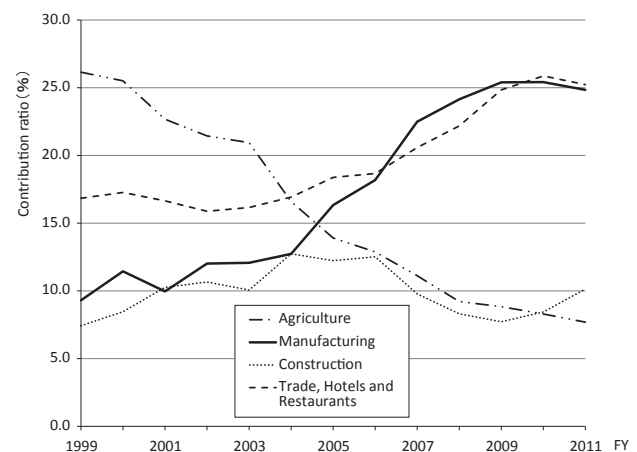


Figure 7. Trends in the rates of industrial contribution to the GSDP
Source: Central Statistical Organization

tion to the GSDP for the top four industries (agriculture, manufacturing, construction, and trade, hotels and restaurants). Looking at conditions during FY 2000, agriculture accounted for 25.5% of the GSDP, whereas trade, hotels and restaurants (which is closely related with tourism) accounted for 17.3%. It can be stated that the entire state economy rested largely on agriculture and tourism. From then, the rate of contribution of agriculture largely decreased, accounting for a mere 7.7% in FY 2011. In contrast, the rate of contribution of trade, hotels and restaurants continued to rise, reaching 25.9% in FY 2011. The manufacturing industry, which had a rate of contribution of only 11.4% in FY 2000, showed rapid growth after FY 2005. In particular, it became the most important state industry, over all other industries, during the period between FY 2007 and 2009. Although the rate of contribution in FY 2011 was lower at 24.8% than that of the previous FY, its rate of contribution since FY 2000 has been unrivaled by other industries. Although the construction industry showed a rate of contribution exceeding 10% during the middle of the 2000s, it has shown a declining trend since then. Although recent years have shown an increasing trend in the industry, a wide disparity between its figure and that of the manufacturing industry (which was at the same level in the first half of the 2000s) has formed. As mentioned before, the two industries that show GSDP growth and concordant activity are first manufacturing and then trade, hotels and restaurants (which has a deep relationship with tourism). It can be concluded that growth in these industries has led the development of the state economy.

This paper therefore recognizes the fact that this sort of industrialization has significantly contributed to the

growth of the state economy. However, if it is given that industrialization in the state has progressed in only those districts found in the plains region, it is necessary to also consider this issue at the district level. The author has obtained 2008 economic statistics for these districts. These statistics are net product figures calculated from an advanced estimate, and they differ slightly from the above-mentioned GSDP figures.²¹ Looking at the correlation between the net product per person with the rate of contribution for the chief industries in the 13 districts located within the state, a positive correlation is seen in manufacturing (0.665) and trade, hotels and restaurants (0.444), but a negative correlation is seen in agriculture (-0.654) and construction (-0.471). In other words, this is a composition in which the net product per person is larger for districts where manufacturing and trade, hotels and restaurants have a high rate of contribution, with smaller net product per person for districts where agriculture and construction have a high rate of contribution.

Figure 8 shows the relationship between net product per person and the contribution rate of manufacturing from this perspective. Net product per person exceeds 30,000 rupees in Haridwar and Dehradun, followed by Nainital. Haridwar's rate of contribution for manufacturing stands out, followed by those of Udham Singh Nagar, Dehradun, and Nainital. However, the net product per person in Udham Singh Nagar, which was a center of industrialization along with Haridwar, has not reached the average net product of the state. This may be related to the facts that agriculture has a high rate of contribution (20.4%) within the district and that factories that have moved into the district had not yet gone into full-scale operation at the advance estimate stage. Generally, net

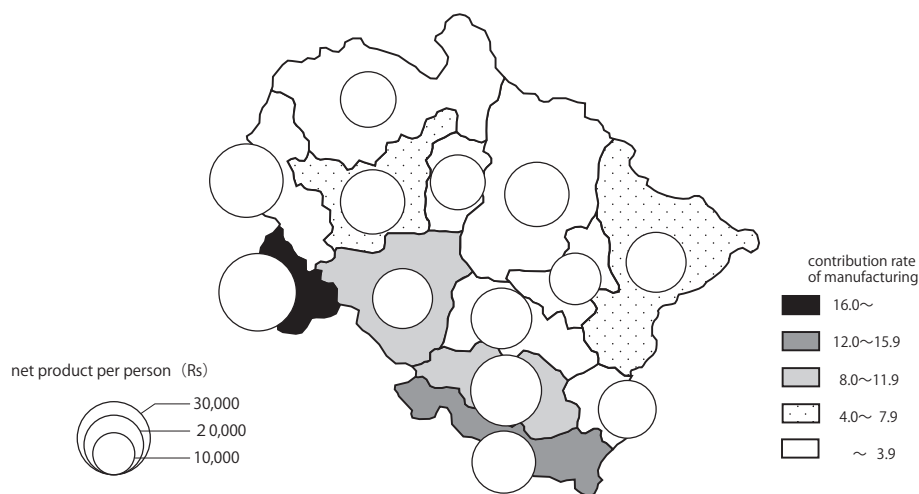


Figure 8. Relation between net product per person and the contribution rate of manufacturing (FY 2008)

Source: Directorate of Economics and Statistics, Uttarakhand

product per person tends to be high for districts in which industrialization has progressed. These districts are in the plains region and are not found in mountainous regions. Industrialization can therefore be seen to act toward widening regional gaps within the state. Many factors make it difficult to actually establish industrial sites in mountainous regions. However, it is expected that the growth of tourism industry, which makes use of local resources, will be also expected from the standpoint of regional economic development.

Conclusion

This paper discussed the characteristics of Uttarakhand's industrialization that was advanced through policies promoting the establishment of industrial parks in underdeveloped states that were experiencing delayed industrialization, as well as the ripple effects on regional economies. The following points can be presented as the results of this study.

1. The Indian government is promoting the establishment of thrust industries by creating special category states and offering them various types of incentives. In comparison with traditional incentives offered to underdeveloped regions, these incentives are generous, and they give a competitive edge to these states in attracting industries and on-site corporations.

2. As the region that would most likely offer the best results, the plains region (Tarai) was chosen as the site for industrial park development in Uttarakhand, and in a short time, an industrial belt was formed along the foot of the Siwalik mountain range. However, collaboration between industrial parks is weak, and the parks are dominated by on-site factories established as branch factories by corporations located in the Delhi NCR. Therefore, these industrial parks have a strong extensional enlargement aspect, focusing on Delhi.

3. At first, food product industry and factories operated by the government played an important role in Uttarakhand's industry. As a result of automobile manufacturers' entering into industrial parks with a focus on obtaining incentives from the middle of the 2000s, the structure of state industry is currently changing to one led by this industry. At the same time, locations continue to develop for thrust industries such as pharmaceutical products and electric/electronic goods, reflecting industry diversification in the state.

4. Industrialization has also significantly affected the state economy. When Uttarakhand was established, the level of development of its state economy (NSDP per

person) was low when compared with that of India as a whole, with agriculture and tourism contributing most significantly. With the development of industrial parks in the latter half of the 2000s, not only has the development level of the state economy significantly surpassed that of the national average, the state economy has transformed into one in which its main contributors are now tourism and manufacturing.

5. However, industrialization has not progressed evenly in all regions of the state and is instead slanted toward the plains region. This also acts toward widening the gap with mountainous regions.

Notes

1. These policies target types of businesses ranging from primary industries to tertiary industries. However, because the main target of these policies is manufacturing industries, these policies can be thought of as having the same meaning as manufacturing policies.
2. These consist of the eight states in the northeast region (Assam, Arunachal Pradesh, Sikkim, Tripura, Nagaland, Manipur, Mizoram, and Meghalaya), Uttarakhand, Himachal Pradesh, and Jammu Kashmir, for a total of 11 states.
3. Information on the Uttarakhand and Himachal Industrial Policy was taken from Arora (2007).
4. There are subdivisions of these 18 industries, some of which are found on the negative list. Of course, these industry subdivisions are not recognized as thrust industries.
5. These are tobacco and tobacco products, thermal power plants (coal and oil based), coal washeries or dry coal processing, inorganic chemicals, organic chemicals, tanning and dyeing extracts, marble and mineral substances, flour mill or rice mill, foundries using coal, mineral fuels and mineral oils, synthetic rubber products, cement clinkers and asbestos, explosive, mineral and chemical fertilizers, insecticides/fungicides/herbicides/pesticide, fiber glass, manufacture of pulp and wood pulp, branded aerated water or soft drinks (non-fruit based), paper, and plastics. There are chemical product sub-industries related to thrust industries that are excluded from this list.
6. These incentives have been described in this way in such sources as the January 29, 2012, edition of *The Economic Times*. http://articles.economicstimes.indiatimes.com/2012-01-29/news/30674056_1 (last confirmed on April 4, 2013)
7. Okahashi et al. (2011) pointed out that attempts to attract industry to industrial parks developed in the Kumaon area at this time actually ended in failure.
8. The official name is the State Infrastructure & Industrial Development Corporation of Uttarakhand Ltd. Although it was called the State Industrial Development Corporation of Uttaranchal Ltd. at the time of its founding, its name was changed in February 2008.
9. The three financial institutions are the Life Insurance Corporation of India, ICICI Bank, and the Small Industries Development Bank of India.
10. The current lot costs have risen to 3,812.5 rupees per square

- meter in IIE Haridwar and 4,501.25 rupees per square meter in IIE Pantnagar.
11. Taken from the *Annual Survey of Industries*. Employment in fields such as the handicraft industry that belong to the unorganized sector are therefore not included.
 12. ELDECO is a construction company that was established in Agra in 1975 that has shown growth in the urban-development field. Its joint venture with the Development Authority of Lucknow (the capital city of Uttar Pradesh) is one of India's first cooperative projects with private enterprise. In addition to Uttarakhand, ELDECO is developing industrial parks in cooperation with industrial development bureaus in states such as Maharashtra.
 13. Taken from the Bajaj Auto Limited website: http://www.bajajauto.com/press/plant_pantnagar.asp (last confirmed on December 1, 2012)
 14. The G.B. Pant University of Agriculture and Technology was the first Indian agricultural university, founded in 1960. It is famous as the location where the Indian green revolution was born.
 15. Sectors 3 and 4 were left partially completed in the first phase, but the majority of their formation took part in the second phase.
 16. The IIDC is an industrial park that was developed in order to promote small-scale industry in underdeveloped regions. Its goals include strengthening the relationship between agriculture and industry and creating employment opportunities. It was established as an organization in 1994.
 17. Sector 2 is for general industries, Sector 3 for plastic products and packaging, Sector 4 for medicinal plants, drug manufacturing, and cosmetics, Sector 5 for ICT, electronics and large-scale manufacturing, Sector 6 for apparel and general industries, Sector 7 for plastic products and general industries, and Sector 8 for plastic products.
 18. This applies to Industrial Park-2 and Industrial Park-4, developed by Arrow Infra Ltd. The former has a total area of 110 acres, and the latter is 85 acres. Development of housing for members of the middle class working in IIE Haridwar also continues to progress.
 19. This table was created by the author after determining industries from manufacturing items, based on a list of on-site corporations provided by SIDCUL.
 20. India's industry classifications changed during this time, so although there were some industries that were difficult to compare directly, there should be no harm in conducting an inter-temporal comparison.
 21. The net product per person for the state is 25,114 rupees. The rate of industry contribution is 15.4% for agriculture, 12.7% for manufacturing, 18.7% for construction, and 16.9% for trade, hotels and restaurants. This is slightly different from the value calculated from the SGDP of the same financial year.

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