

Job Creation by Local Initiatives: Effects of Special Zones for Structural Reform¹

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I. What Is a Special Zone for Structural Reform?

The purpose of this paper is to examine the effects of deregulation policies initiated by local government on the creation of local employment. When local governments, such as prefectural and municipal governments tried to implement an industrial or employment policy in Japan, nationwide systems and regulations were treated as given conditions in the past. In the case where any discriminating system (for example, tax system) was applied, it was usually introduced as part of the regional development policy initiated by the central government. In this sense, the “special zones for structural reform,” which has continued up to now since the first special zone was approved in 2003, is an entirely new attempt that seeks to revitalize local economies by introducing the “special zones where exceptions to unified regulations are applied in response to regional characteristics and on the basis of the ideas created voluntarily by local authorities or private business firms.”^{2,3}

In the process of approving special zones for structural reform, desires for deregulation related to a proposal of the special zone are brought to the Office

¹ This paper is based on Yugami (2007). I am most grateful for valuable comments from Mr. Sumio Egami and Mr. Hirokazu Fujii (both, of The Japan Institute for Labour Policy and Training). All remaining errors in this paper are mine.

² The Office for the Promotion of Special Zones for Structural Reform, “Basic Policies for Promoting Special Zones for Structural Reform” (September 20, 2002).

³ Yokoyama (2002) pointed out as the background of introducing Special Zones for Structural Reform that the regulatory reform initiated as a policy for revitalizing the Japanese economy was in harmony with the local economy revitalization strategy aiming to be free from uniform local policy and to develop characteristic local economy. Ono (2003) raised the following points as the uniqueness of these special zones that were not seen in the past: (i) They try to test regulatory reform, (ii) special zones are realized quickly, (iii) addition of regulatory exceptions is assumed, (iv) extensive information disclosure to the public, (v) tie-up between local governments and central government, (vi) no ministry or agency notices concerning special zones, and (vii) citizens (local authorities) and business firms, which are to be governed by laws and regulations, are treated as the parties that propose regulatory reform. (However, the parties who apply for the proposal are limited to local authorities.)

for the Promotion of Special Zones for Structural Reform in the Cabinet Secretariat first from public entities, including local authorities, private firms and universities, and then “regulations that allow for regulatory exceptions” are to be decided after prior adjustments are made by the related ministries. After this, from the list of regulations, local authorities choose a regulatory exception necessary for realizing the special zones and draw up a plan to apply. In the first proposal invitation in 2002, there were 426 proposals for the special zones and about 900 request items for deregulation, and of these figures, 93 regulatory exceptions were approved. In the first approval of the special zones between April and May 2003, 117 special zones were created including international logistics special zones (reduction of special service fees at harbors), industry-university tie-up special zones (prioritized treatment of foreign researchers’ entry and resident application), agricultural revitalization special zones (approval for corporations’ agricultural management). By the 14th approval of the special zones in July 2007, the total cases of the new approved plan came to 963.

The latest special zones for structural reform aim to achieve (1) “deregulatory reforms” by which an example of the structural reform in a specific area leads to the structural reform across Japan for the economic revitalization of Japan as a whole and (2) “regional policy” that aims to revitalize the local economy by concentrating industries or creating new industries that meet the characteristics of the area. For these purposes, there can be two standards of evaluation of for the special zones (Ono 2003).

The first is the evaluation to be conducted by the central government aiming to nationalize the deregulation. Specifically, based on the survey results by the authorities that have jurisdiction over regulation, together with an independent survey, including the site inspection of the special zones and hearing of opinions from the authorities, the evaluation committee placed at the special zone promotion headquarters will judge the targeted regulatory exceptions by classifying them into “nationwide implementation,” “continuous implementation in the special zones” and “abolition and correction of regulatory exceptions.” Actually, under the basic concept that “the regulatory exceptions shall be rapidly promoted nationwide unless there are any special problems,” no regulatory exceptions were abolished and corrected in the evaluation conducted 6 times in the past, and 71 out of 72 regulatory exceptions, including regulations for corporations’ participation in the management of

agriculture, were applied nationwide, and accordingly the approval of 563 special zone plans was cancelled.⁴ It is pointed out, however, that for the promotion of the regulatory exceptions throughout Japan, it is necessary to conduct a program evaluation based on data collected systematically from the inside and outside of the special zones and a quantitative evaluation including comparison of benefit and loss expected from the nationwide deregulation (Suzuki 2004).

The second is the evaluation of the special zone measures for promoting the local economy based on the characteristics of the special zones. In this case, the effects produced in a certain special zone are not always guaranteed in other areas and are not considered a base of the judgment of the nationwide implementation of deregulation. However, the evaluation of the performance based on the objectives for each special zone as well as the consideration of issues involved in the management of the special zone will be useful for analysis of creating the future special zone that will be managed independently by the local area based on deregulation.

Accordingly, this paper discusses the effects of the special zones on the local economies, using the results of the independent questionnaire survey of municipalities that obtained the approval of the special zone for structural reform. There have been many plans that are not intended to have direct effects on the industry and employment of the local area as in the case of special zones related to education and welfare. Instead, this paper examines the factors of success or failure up to the present by limiting the subject to the special zone plan related to the agriculture, tourism and the industry and employment involving industrial revitalization. The paper also examines the effect of the special zone measures focusing on the growth of the local employment in the 2000s by comparison with non- special zone areas.

This paper comprises of the following: Section II discusses a distinctive feature in the process of implementation in special zones by showing the outline of the independent questionnaire survey. Section III considers various factors involving success and failure of the special zones. Section IV quantitatively analyzes the effect of the special zone measures using the number of employees

⁴ Therefore, as of July 2007, there are 400 special zone plans to which area-limited regulatory exceptions apply, and as of August 2007, there are 70 items of regulatory exceptions which can be used to apply for special zones.

by area shown in the Establishment and Enterprise Census of the Ministry of Internal Affairs and Communications. The last section V summarizes the conclusions of this paper and presents a policy issue on the key point of the use of the special zone measures for the creation of the local employment.

II. Characteristics of Special Zone Plans

Below, I will utilize the data from “Survey on Effect of Special Zones for Structural Reform on Employment” conducted by the Japan Institute for Labour Policy and Training in August and September 2006.

Considering the time lag until the commencement of effect of special zones and on the basis of the plan classification by the Office for the Promotion of Special Zones for Structural Reform of the Cabinet Secretariat, 250 special zones were selected from 609 special zones where more than one year had passed as of July 2006 after the approval of the plans. The selected special zones are related to industrial and employment policies such as “agriculture,” “farming village and city exchanges,” “industry-university cooperation,” “industrial revitalization,” and “ICT-related.” Then, questionnaires were sent to the special zone divisions of 368 local authorities which had implemented these plans.⁵ The number of questionnaires collected is 192 in terms of plans and 259 in terms of the local authorities which implemented special zones, representing the collection rate of 76.8% and 70.4%, respectively.

Table 1 reclassifies planned fields into four groups in accordance with the characteristics of regulatory exceptions used in special zones. The first group deals with revitalizing industry through industry-university joint research and development and enhanced human resources management and is special zones focusing on personnel-related industrial policies such as the use of researchers and the development of skilled personnel. The second is special zones using deregulation for industry attraction, focusing on deregulation for plant attraction. It includes a small number of special zones which plan to attract large retailers into the central commercial areas. The third is special zones related to tourism, focusing mainly on deregulation related to regulatory exceptions of the Liquor Tax Act for production of *doburoku* (unrefined *sake*) and for operation of farm

⁵ The plans include those for which approval was cancelled as a result of the nationwide implementation of regulatory exceptions.

**Table 1. Planned fields of respondents and main contents
of regulatory exceptions**

Planned fields	Main contents of regulatory exceptions	Number of plans	Number of implementing entities
Industry-university cooperation and human resources	Deregulation for side work of national university teachers, promotion of acceptance of foreign researchers, exemption of ICT course tests, joint public-private job placement, etc.	46	67
Industry attraction	Approval for renting land developed by land development corporations, exclusion from industry-transfer promotion areas, and attraction of large retailers into central commercial areas	34	42
Tourism and farming village-city exchanges	Mitigation of requirements for farm tourist homes, approval to produce unfiltered alcoholic beverages in farm tourist homes, use of national and quasi-national parks for tourism, etc.	45	65
Agriculture revitalization	Entry of corporations into agriculture business management, mitigation of requirements for lower limit on land area after acquisition of agricultural land, free job placement services for agricultural universities, etc.	67	85
Total		192	259

tourist home. The last is special zones that plan to reuse idle or brown farmland or to increase agricultural workers, using mainly deregulation concerning entry into agriculture business by joint-stock companies and NPOs.

Table 2 shows the profiles of plans and responses to subjective outcome at this moment. Considering the limited space of this paper, I will list up the characteristics of each planned field as follows:

- (i) Regarding the entities that implement special zones, the special zones related to tourism and agriculture are, in many cases, implemented by towns or villages with population of less than 50,000, while those related to industry-university cooperation, industry attraction, etc. that aim to promote industry are often implemented by local authorities with a large population. Especially in the field of industry-university cooperation, many

Table 2. Characteristics of special zone plans by planned field

		All samples	Planned fields			
			Industry-university cooperation and human resources	Industry attraction	Tourism and farming village-city exchanges	Agriculture revitalization
Responding local authorities	prefecture	30.1%	46.3	38.1	16.9	23.5
	city	50.2%	50.8	57.1	38.5	55.3
	town or village	19.7%	3.0	4.8	44.6	21.2
Implementation patterns	By prefecture alone or jointly	11.6%	19.4	16.7	4.6	8.2
	By municipality alone or jointly	43.6%	19.4	52.4	49.2	54.1
	Jointly by prefecture and municipality	44.8%	61.2	31.0	46.2	37.7
Implementation periods	Average number of months passing after approval	29.3	34.9	30.6	27.6	25.5
	Average number of months of applying regulatory exceptions	24.6	32.9	24.6	25.7	17.0
	Nationwide implementation (cancellation of approval)	52.5%	17.9	61.9	30.8	91.8
No action for implementing special zones		11.2%	10.5	7.1	23.4	4.7
Independent job creation programs related to special zones	Available before approval	16.5%	33.3	17.5	1.6	14.3
	Available after approval	16.9%	21.2	20.0	12.5	15.5
	No related programs	66.5%	45.5	62.5	85.9	70.2
Job creation effect of special zones	Effective in job creation	25.3%	20.6	47.5	15.6	25.6
	No effect	34.5%	31.7	27.5	40.6	35.4
	Job creation effect is not anticipated or is not grasped	40.1%	47.6	25.0	43.8	39.0
Sample size		259	67	42	65	85

prefectures are involved in the implementation of special zones.⁶

- (ii) The period of implementation of special zones until the date of this survey is long in the case of special zones related to industry-university cooperation and industry attraction, but is quite short in the case of many special zones related to tourism and agriculture. As regulatory exceptions related to industry attraction and entry in agriculture were applied nationwide, more than 50% of the survey samples are those of the local authorities that already had approval of their plans cancelled.
- (iii) Nearly 90% of the local authorities have taken actions since obtaining the approval of their plans. However, many of them only conduct public relations activity or set up a section in charge of their plans, and only a few have proceeded with their plans involving various local entities such as business firms, universities and citizens.
- (iv) Industrial programs and skill development for creating employment opportunities and supports for jobseekers are collectively called “job creation programs.” As a result of analyzing the implementation of local authorities’ own programs related to special zone plans, a majority of respondents reply that there are no job creation programs related to special zones. However, the survey results suggest the existence of forward-thinking municipalities. Namely, approximately 17% of the local authorities started to implement related programs before the approval of special zones and they have used deregulation policies for the special zones as a means to proceed with their independent industrial and employment programs.
- (v) According to the respondents’ subjective outcomes concerning the effect of special zones on job creation up to the date of this survey,⁷ many local authorities do not expect or have grasped direct effect on job creation, and approximately only 25% of respondents reply that they have had job

⁶ According to other responses obtained in this survey, approximately 70% of the local authorities that “anticipate the effect of special zones on employment” have identified their target industries: the target industries of the special zones related to industry-university cooperation and industry attraction and that of the special zones related to tourism and agriculture revitalization are the manufacturing industry and agriculture, respectively.

⁷ Regarding replies to job creation and increase in employment in their local area, replies saying “there is a great effect” or “there is a certain effect” are grouped into replies saying “there is an effect,” while replies saying “there is no much effect” or “there is almost no effect” are grouped into replies saying “there is no effect.”

creation effect.

III. Factors Determining Success of Special Zones

Government policies are usually evaluated on the basis of the objective outcomes affected by the policies. For example, in order to evaluate vocational training programs for the unemployed and new learning programs for education at schools, the employment rates and wages of the unemployed after the completion of the programs and the performance of students are adopted as outcomes, respectively, and the effects of these programs are measured quantitatively.

However, the existing survey results concerning the outcomes of special zones for structural reform show that the outcomes vary largely from one special zone to another.⁸ For example, as the effect of special zones related to industry-university cooperation, some say the special zone resulted in constructing a system of collaboration with local firms, while others report quantitative results, including the number of business firms entering into the zones. In addition, the quantitative results, including the numbers of business firms producing and the quantities of production, are commonly reported as in the case of the special zones using the deregulation policy related to *doburoku* (unfiltered *sake*), and whether to report the number of tourists, which is an indirect effect, depends on the policies of local authorities.

In this questionnaire survey, the type of entities responding to the survey and the target industries vary depending on each plan. Consequently, using the subjective answers given concerning the existence or non-existence of the effect on job creation in the special zones listed in Table 2, I will identify the factors that determine the degree of planner satisfaction with job creation.

⁸ Office for the Promotion of Special Zones for Structural Reform, Cabinet Secretariat, "Special Zones are Gold Mines—Examples of Special Zone Outcomes" (May 2006), <http://www.kantei.go.jp/jp/singi/kouzou2/kouhyou/051026/takara.pdf>.

In September 2006, a survey was conducted on the economic effects of the special zones approved up until November 2005. Although quantitative results are publicized concerning the number of people employed, the amount of production, etc. in each planned field, the outcomes of each individual plan are not publicized (Office for the Promotion of Special Zones for Structural Reform, Cabinet Secretariat, "Economic Effects of Special Zones," <http://www.kantei.go.jp/jp/singi/kouzou2/kouhyou/060925/siryou.pdf>).

However, many local authorities do not assume any employment increase as in the case of special zones related tourism. In the case that no effects are grasped, the effects of special zones on job creation will be unclear. Therefore, I first estimate a selection model in which “assuming and grasping effects” is 1 and “not assuming or grasping effects” is 0. Based on this, I estimate the probit model that uses, as an explained variable, binary outcome variable of 1 for “having effect” on creation or increase of employment and 0 for “having no effect” on creation or increase of employment.

Explanatory variables are roughly classified into three as shown in Table 2. The first are the variables related to details of special zone plans, using the dummy variables that show four planned fields and plan implementation patterns (namely, implementation only by prefecture, only by ward, city, town or village or jointly by these). The second are the variables related to the continuity of the plans which include the periods of continuity of the plans and the dummy variable on nationalization of regulatory exceptions. The third are the dummy variables that show the availability of operational measures taken for complementing special zones (not available is 1 and some form of measures have been taken is 0, in accordance with the form used in the questionnaire) and that show the availability of job creation programs for special zones (namely, related programs not available, related programs available after special zones, and related programs available before special zones). I also have used three kinds of plan implementation dummies (prefecture, city, town or village) as explanatory variables used only in the selection model of the first step.⁹

Table 3 indicates estimation results. In Columns (1) and (2), the results are obtained by using, as the variables showing the period of duration of plans, the number of months passing from the date of plan approval to the survey date and the number of months of duration of regulatory exceptions applicable only to certain areas (or duration up to approval cancellation in the case of nationalization of the exceptions), respectively.

First, let us see the estimation results from the selection model indicated in the lower part.

⁹ There are 246 observations in the estimation because I have excluded from the analysis 10 cases for which no answers are given regarding effect on employment and 3 cases in which the values of explanatory variables are missing.

Here, since the “case that effect on employment is anticipated and grasped” is 1, the groups that more strongly anticipate effect on employment have positive and significant coefficients. From the estimation results, we can confirm that there are no differences derived from planned fields or the attributes of local authorities responding to the survey and that there is a significant difference only as regards the implementation patterns of special zones. In other words, job creation effect is more strongly anticipated in special zones implemented alone by a prefecture or a municipality than in special zones jointly implemented by prefecture and municipality. Most of the special zones implemented by a prefecture or municipality are implemented independently by one local authority. Therefore, these local authorities may probably be more interested in creating employment.¹⁰

With regard to the effect of special zones on job creation (as indicated in the upper part), since “having effect on the creation and increase of employment” is 1, more positive and significant coefficients indicate the factors that improve the job creation effect. First, there are differences with respect to the planned fields, showing that the ratio of respondents saying their special zones have effect on job creation is higher in the special zones related to industry attraction than in the special zones related to farming village and city exchanges and tourism. This means that they have succeeded in obtaining results in compliance with the main purpose of plans for the attraction of business firms. The plan implementation patterns bring about the anticipation of job creation effect as well as significant differences in terms of outcomes. Namely, the special zones that are implemented alone by a prefecture or municipality (independently in many cases) tend to enjoy greater job creation effect than the special zones implemented jointly by prefecture and municipality.

The estimated coefficients for the period of duration of plans are positive and significant, meaning that it takes time until job creation effect begins to appear. The effect of the period is greater in the period from approval date to the survey date than in the period of duration of regulatory exceptions until their adoption throughout Japan (as shown in Column [2]), and the effect

¹⁰ I conducted other estimations using labor supply-demand indexes and population-size dummies before starting special zones. However, these explanatory variables were not statistically significant.

Table 3. Factors determining effect on employment

Effect on employment (effective on employment=1, No effect on employment=0)	(1) Coefficient	(2) Coefficient
Planned fields (reference: exchange and tourism dummy)		
Industry-university cooperation and human resources dummy	-0.283 (0.293)	-0.246 (0.310)
Industry attraction dummy	0.619 (0.293) *	0.657 (0.294) *
Agriculture revitalization dummy	0.226 (0.269)	0.252 (0.282)
Patterns (reference: joint prefecture-municipality dummy)		
Prefecture alone dummy	0.632 (0.279) *	0.657 (0.290) *
Municipality alone dummy	0.553 (0.213) **	0.514 (0.234) *
Number of months after approval	0.032 (0.012) **	
Number of months of regulatory exceptions		0.026 (0.012) *
Nationwide implementation dummy	-0.013 (0.195)	0.226 (0.225)
Action (non-action) dummy	-0.329 (0.426)	-0.324 (0.428)
Related programs (reference: no program dummy)		
Available after approval dummy	0.306 (0.200)	0.329 (0.203)
Available before approval dummy	0.664 (0.173) **	0.681 (0.249) **
Constant	-2.318 (0.468) **	-2.121 (0.473) **
Selection (grasping employment effect=1, others=0)		
Planned fields (reference: exchanges and tourism dummy)		
Industry-university cooperation and human resources dummy	-0.075 (0.253)	-0.063 (0.255)
Industry attraction dummy	0.406 (0.285)	0.382 (0.290)
Agriculture revitalization dummy	0.028 (0.211)	0.018 (0.232)
Patterns (reference: joint prefecture-municipality dummy)		
Prefecture alone dummy	0.621 (0.272) *	0.612 (0.313) †
Municipality alone dummy	0.480 (0.204) *	0.475 (0.206) *
Responding local authorities (reference: town or village dummy)		
Prefecture dummy	0.349 (0.220)	0.365 (0.223)
City dummy	0.073 (0.248)	0.073 (0.281)
Constant	-0.285 (0.223)	-0.289 (0.224)
atanh rho	-12.067 (570.297)	7.296 (162.138)
rho	1	0.999
Wald test (rho=0): $\chi^2(1)$	2.04	2.26
Prob > χ^2	0.153	0.133
Wald $\chi^2(10)$	52.22	34.13
Prob > χ^2	0.000	0.000
Log likelihood	-239.480	-241.072
Number of Obs.	246	246
Censored Obs.	100	100
Uncensored Obs.	146	146

Note: Standard errors in parenthesis. **, * and † denote statistically significant at 1%, 5%, 10%, respectively.

is not necessary lessened as a result of nationalization. This is clear also from the fact that the coefficient of dummy variable on nationalization are not significant.

It is most interesting to note how the efforts made by local authorities independently affect the job creation in special zones. The estimated results indicate that the local authorities that have implemented related programs since before the approval of special zones are more likely say that there is the effect of special zones than the local authorities that have not implemented any job creation programs related to special zones. Moreover, after the introduction of special zones, there is no significant difference in the job creation effect between the local authorities that implemented related programs and the local authorities that did not implement such programs. The use of deregulation programs is in fact a low-cost means unaccompanied by fiscal measures, but the existence of independent programs for creating employment is still important to increase the quantitative effect on employment. Using the regulatory exceptions to complement local industrial and employment policies is understood to have been successful in the local authorities that have implemented related programs since before the introduction of special zones.¹¹

The results of comparison and analysis of the local authorities that implemented special zones for structural reform indicate that the (subjective) effect of special zones on the quantitative aspect of employment depends on the period of duration in which they work on their special zones before and after the regulatory exceptions are nationalized and that it is important to make the best use of special zones to complement the independent industrial and employment policies of local authorities in order to secure greater effects.

¹¹ Regarding the characteristics of related programs, I separately analyzed the parties that implemented programs and the details of the programs. However, as calculation did not converge with the estimation model considering selection, probit estimation was conducted using only the second-stage samples of responses made as to the degree of effect on employment. As a result, the ratio of the local authorities that reply there is the effect of special zones on employment is significantly higher in the case of the local authorities saying that “there are relevant programs established and implemented independently” or that they have “implemented relevant non-fiscal programs” such as supports for new businesses, industry-university cooperation and jobseekers than in the case of the local authorities saying that “there are no programs.” Additionally, using special zones to complement industrial and employment policies seems to result in improving the quantitative effect on employment.

IV. Effects of Policies for Special Zones

1. Framework of Analysis

Next, we will try to evaluate the effects of policies for special zones using objective outcomes. However, with regard to the programs which can be implemented only by those who wish to do so as in the case of these special zones, it is difficult to estimate the effects of policies through simple comparison between the outcomes (for instance, the number of employed people) of the areas that have implemented special zones and the outcomes of the areas that have not. This is because the local authorities that applied for plans with stronger motivation to create local employment and higher ability to plan and implement programs are more likely to accomplish the same level of outcomes without introducing special zones. Therefore, it is necessary to estimate the effect of special zones after statistically removing unobserved factors, including motivation.

There are a number of methods for dealing with cases where the implementation of programs correlate with the unobserved factors (called endogeneity problem). Here, an evaluation method called Difference in Differences (hereinafter referred to as “DID”)¹² is used.

If we suppose that the unobserved factors specific to local authorities, such as motivation and planning ability, do not change over time, we can remove the factors specific to local authorities by using differences between the outcomes before and after local authorities implemented special zones. Then, comparing differences in the outcomes before and after the implementation of special zones between the areas that have implemented special zones and the areas that have not, we can remove changes occurred in the entire Japanese economy during the time (macro shock) and estimate the net differences in the outcomes between the implementation and non-implementation of special zones. To deal with cases where response to macro shock differed between the local authorities that implemented special zones and local authorities that did not, we can add data of the period having similar macroeconomic changes as

¹² The method for dealing with endogeneity is called Non-Experimental Method, which proposes (i) instrumental variable method, (ii) Difference in Differences, and (iii) matching method. For Non-Experimental Method, refer to Blundell and Costa Dias (2000; 2002) and Kurosawa (2005). Also, Suzuki (2004) discusses policy evaluation methods that suit the characteristics of the Japanese special zone system.

those of the period before and after implementation of special zones and compare changes in the outcomes during the two period (Differentially Adjusted Difference in Differences: DADID).¹³ Analysis will be conducted later to consider this point.

The effect of policies obtained from the above evaluation method is the average effect of special zones in the local authorities that “have actually implemented special zones,” and is to be clearly separated from the average effect of deregulation in the general population, including the local authorities that have not participated in special zones.¹⁴ It should be noted that this effect of programs cannot be used as a basis to determine whether to nationalize the regulatory exceptions.

Here, based on the current demarcation of city, ward, town and village as of June 2004, the data of 3,123 cities, towns and villages, including Tokyo’s 23 wards, are used. Of these areas, the areas that have implemented special zones are the areas approved as special zones in the first approval in April 2003 through the fourth approval in March 2004 and are classified as the special zones related to industry and employment according to the plan classification used in the previous section.¹⁵ (The regulatory exceptions applied to 819 municipalities).

Of these areas, the special zones related to industry-university cooperation and human resources and to industry attraction are classified into one group as “special zones related to industry promotion” (205 municipalities), while the special zones related to farming village and city exchanges and tourism and to agriculture revitalization are classified into another group as “special zones related to agriculture” (614 municipalities).

As outcomes of the special zones, the number of persons (workers) engaged in the agriculture, forestry and fisheries is used to examine the effects of

¹³ Bell et al. (1999). However, for the estimation in this paper, the author used data on changes between 1999 and 2001 as the data of a different period before the implementation of special zones, because the observation figures of three years (1999, 2001 and 2004) could only be obtained due to limitation in the availability of data.

¹⁴ The former is called Average Treatment on the Treated Effect (TTE), while the latter is called Average Treatment Effect (ATE) (Blundell and Costa Dias 2002).

¹⁵ Unlike the analysis of Section III, for the special zones implemented by prefectures, the municipalities to which the regulatory exceptions apply are considered to be the areas where special zones have been implemented. Actually the data of 3,122 municipalities are used, excluding Miyake Village of Tokyo of which 2001 data is not available.

special zones related to agriculture, and the number of persons (workers) engaged in the manufacturing industry is used to examine the effects of special zones related to industry promotion.¹⁶ The data are the number of persons engaged in the private offices of each municipality as released by the Ministry of Internal Affairs and Communications in the Establishment and Enterprise Census in October 2001 and June 2004. Differences in the outcomes before and after the implementation of special zones (namely, the average number of annually increased persons engaged in the offices in 2001 to 2004) are the explained variables for outcome functions.

In order to consider differences in industrial agglomeration among areas, the number of workers and coefficient of specialization of relevant industries at the beginning of the year are introduced as explanatory variables.¹⁷ Based on this, the effects of policies after the implementation of special zones are indicated by the coefficients of dummy variables that identify whether to have implemented related special zones (special zones related to agriculture or industry promotion).

When considering the fact that response to the macro shock varies from implementing areas to non-implementing areas, the data on municipalities as regards changes from 1999 to 2001 are added and estimation is made by pooling the data of the two periods.¹⁸

¹⁶ As mentioned in note 6, this questionnaire survey indicates that approximately 70% of the local authorities that “anticipate the effect of special zones on employment” identify target industries and that many respondents point out, as the target industry, manufacturing industry and agriculture in the special zones related to industry promotion and in the special zones related to agriculture and tourism, respectively. As there are a small number of special zones aimed at promoting forestry and fisheries, agriculture, forestry and fishery are treated as one group.

¹⁷ Coefficient of specialization is p_{ij} / p_i . Here, p_{ij} and p_i indicate the composition of workers of industry i in prefecture j and the national average of the composition of industry i , respectively.

¹⁸ As standards for selecting additional comparison period, Bell et al. (1999) mention the period with the same economic environment that is the nearest in time to that before and after the implementation of policies. During the two periods from 1999 to 2001 and from 2001 to 2004, the effective job offer-job seeker ratio slowly increased. Therefore, this paper uses the data of the period of 1999 to 2001 as the comparison period.

Table 4. Job creation effect of special zones (DID)
 (Explained variables : Differences in the number of private sector workers between 2001 and 2004 by industry [annual average])

Explanatory variables	(1) Agriculture, forestry and fishery	(2) Manufacturing industry
	Coefficient	Coefficient
The number of workers at the beginning of the year	-0.045 (0.002) **	-0.042 (0.000) **
Coefficient of specialization at the beginning of the year	-0.037 (0.036)	43.511 (6.708) **
Dummy for special zones related to agriculture	0.575 (0.627)	
Dummy for special zones related to industry promotion		122.959 (18.587) **
Constant	1.962 (0.335) **	-24.206 (9.612) *
adj. R ²	0.139	0.761
F-statistics	169.41 **	3307.55 **
Sample size	3,122	3,122

Note: Figures in the parentheses are standard errors. Of the explanatory variables, the number of workers and coefficient of specialization at the beginning of the year are of agriculture, forestry and fishery for Column (1) and of the manufacturing industry for Column (2). ** and * denote statistically significant at 1% and 5%, respectively.

2. Estimation Results

Table 4 shows the results of OLS estimation. If special zone coefficient is positive and significant, it indicates that industry-related employment increased in the municipalities to which regulatory exceptions applied more rapidly than in the municipalities to which regulatory exceptions did not apply. The estimation results do not confirm any significant effect in the special zones related to agriculture such as agriculture revitalization and farming village and city exchanges (Column [1]). The questionnaire survey used in Section III also indicates that approximately 35% of the local authorities that implemented agriculture-related special zones “did not assume employment to increase as a result of special zones.” This is probably because the effect of special zones is essentially weak to create employment. Meanwhile, the special zones related to industry promotion, such as industry-university cooperation and industry attraction, enjoy significantly positive effect for local employment of

manufacturing industry (Column [2]).

The estimated coefficient implies that the municipalities to which regulatory exceptions applied created approximately 123 jobs in the manufacturing industry on an annual average basis more than the municipalities to which regulatory exceptions did not apply. The previous questionnaire survey also indicates that the ratio of respondents who reply “assuming no employment increase” is small in these special zones and that they have obtained the effect on employment as expected.

In order to confirm the robustness of the results, estimation was also made considering changes made before the commencement of the special zone system.¹⁹ Table 5 shows the results. In addition, the cross term between “2001 to 2004 dummy,” which indicates the period before and after the implementation of special zones, and “special zone dummy” is the variable that indicates the implementation of special zones.

According to the variables that indicate the newly defined effect of special zones, estimated coefficient is negative and non-significant in the special zones related to agriculture (Column [3]), showing no job creation effect as the previous results indicate. The results concerning the effect of special zones related to industry promotion are interesting. According to Column (4), the estimated coefficient of “special zones related to industry promotion” is positive and significant, which means that the average rate of employment increase was high in the areas to which regulatory exceptions applied throughout the two periods. However, the cross term with 2001 to 2004 dummy is negative and non-significant, showing there is no job creation effect of special zones during the implementation of special zones. In other words, the job creation effects of special zones related to industry promotion confirmed by Table 4 also include the effect of macro shock which varies from the areas that have implemented special zones to the areas that have not (for example, the effect of globalized production in the manufacturing industry).

The same results as those above are obtained when the special zones subjected to analysis are limited.

For instance, in order to consider the time lag until the commencement of

¹⁹ The data on the number of workers in each industry in 1999 and 2001 is newly added (pooled), and the average annual increase in each of the two period is estimated by OLS and used as an explained variable. The sample size is 6,244 (=3,122×2).

Table 5. Job creation effect of special zones (DADID)

(Explained variables : Differences in the number of private sector workers between beginning and end of the year by industry [annual average])

Explanatory variables	(3) Agriculture, forestry and fishery	(4) Manufacturing industry
	Estimated coefficient	Estimated coefficient
The number of workers at the beginning of the year	-0.035 (0.002) **	-0.037 (0.000) **
Coefficient of specialization at the beginning of the year	-0.081 (0.034) *	43.983 (5.734) **
Dummy for 2001 to 2004	-4.435 (0.523) **	-32.670 (7.724) **
Dummy for special zones related to agriculture	1.017 (0.834)	
Cross-term between “2001 to 2004” and “special zones related to agriculture”	-0.441 (1.178)	
Dummy for special zones related to industrial promotion		74.562 (21.684) **
Cross-term between “2001 to 2004” and “special zones related to industry promotion”		-6.513 (30.143)
Constant	5.787 (0.407) **	-6.263 (9.002)
adj. R ²	0.069	0.654
F-statistics	92.85 **	2361.20 **
Sample size	6,244	6,244

Note: Figures in the parentheses are standard errors. Of the explanatory variables, the number of workers and coefficient of specialization at the beginning of fiscal year are of agriculture, forestry and fishery for Column (3) and of the manufacturing industry for Column (4). ** and * denote statistically significant at 1% and 5%, respectively.

the effect of special zones, the job creation effect of approved special zones was estimated only for first approval plans which were approved between April and May 2003. As a result, regarding employment increase in the related industries from 2001 to 2004 only, a positive and significant job creation effect was confirmed in the special zones related to agriculture as well as industry promotion. However, when changes before special zones are taken into account, these special zones experienced an increase in employment of related

industries both before and after commencement of the special zone system, showing no such employment increase that is unique to the periods before and after implementation of the special zones.

As shown above, regarding the deregulation policies for the special zones related to agriculture and industry promotion, the fact is that many local authorities that had increased the employment of related industries even before implementing special zones applied and participated in the special zone system, and the job creation effect of special zones has not been confirmed at this moment.

V. Summary and Conclusion

There can naturally be two evaluation standards for the special zones for structural reform which aim to revitalize local economies and apply deregulation throughout Japan. In this paper, an attempt was made to examine the effects of the special zone measure in which local governments take initiative in creating local employment using deregulation as their policy means. The results are summarized below.

Firstly, analysis has been made on the factors that increase the subjective effect of special zones by limiting the subject to its effect on job creation. The results indicate that the job creation effect of special zones depends on the periods in which local authorities work on special zones, including the period after the regulatory exceptions are nationalized, and that it is important to use special zones to complement their own industrial and employment policies in order to secure greater effect of special zones.

Secondly, verification has been made on the quantitative effect of special zone policies using the number of workers by the municipalities. As a result, no job creation effect of special zones has been confirmed in relation to the deregulation policies taken up in this paper for industry and employment. This is mainly because the municipalities had increased the employment of related industries even before implementing special zones.

Since the special zone system relies on the initiative of local authorities, it is reasonable that local authorities with high motivation use the special zones bearing “their local strengths” in mind. However, in this questionnaire, only around one-fourth of the local authorities reply that there is job creation effect of special zones, and no effect has been confirmed through comparison

analysis with the areas that have not implemented special zones. As such, no subjective or objective effect of policies has been confirmed. As shown by the analysis results in this paper, the policy measure using the regulatory exceptions do not fully function if the measure is applied alone and independently. Consequently, it is vital for local authorities to use the method by linking it closely with their own job creation programs.

The above conclusions have very important implication in the process of decentralization in the 2000s and beyond. Namely, decentralized local revitalization policies, in which local authorities with high motivation carry out industry and employment programs making full use of their local strengths, imply that the success of the programs depends on their ability to create proper measures and put these into practice. The local policies of Japan after the special zones for structural reform have been rapidly changing to the policies proposed by local governments as seen in the “local proposal-type projects for job creation” of the Ministry of Health, Labour and Welfare. It is vital to continue to improve the policy-making ability of local authorities though policy-planning competition as well as to provide the local management models that suit regional characteristics and build up a system for developing personnel in charge of policy making.

Long- and medium-term evaluation is one of the issues to be tackled in the future. According to the questionnaire survey used in this paper, the special zones are useful for a majority of local authorities for “collaboration with related local parties,” such as business firms, universities and residents, and for “drawing attention to their areas.” It may take a long time for these local revitalization efforts to lead to job creation. Therefore, it is necessary to evaluate the effects of special zone policies not only from a short-term viewpoint but also from a long-term viewpoint. In addition, as mentioned at the beginning of this paper, the analysis of this paper covers only the effect of policies of the local authorities that participated in the special zone program. Therefore, this paper does not assure that other local authorities can obtain the same effects when deregulation is nationalized. In order to examine the effect of deregulation policies in a real sense, it is necessary to systematically collect the data from inside and outside of special zones and measure average program evaluation as suggested by Suzuki (2004). This is an issue to be addressed in the future.

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