THE ROLE OF SUBSIDIES IN PROMOTING ITALIAN JOINT VENTURES IN LEAST DEVELOPED AND TRANSITION ECONOMIES°

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Abstract

This paper analyses the impact of subsidies to promote Italian joint ventures (JVs) with firms in LDC and transition economies. The empirical analysis is carried out on a unique dataset of 172 JVs interviewed during 1998 by means of a closed-answer qualitative-quantitative questionnaire. The main finding of the study is that although there is a significant deadweight component in incentive policy, subsidised firms are significantly more likely to grow. Moreover, JVs comprising new firms (which need to grow to survive) also achieve a higher-than-average employment performance, and so too do (labour intensive) JVs motivated by the search for lower labour costs, and JVs in East European countries.

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1. Introduction

As of the end of the eighties, the relative political and economic stability achieved by some Least Developed Countries (LDC), together with liberalisation processes in Central and Eastern European countries, brought significant acceleration in foreign direct investments (FDI) on a global level. The growth of these investments was very rapid between 1992 and 1995 (18%, 16% and 28% respectively in '93, 94 and '95), followed by a slowdown (-0.7% in 1996) due mainly to a net decrease in investments made by EU member states (-4.6% in 1996).

During the first half of the nineties, Italian foreign investments partly reflected the expansion characteristic of other European nations. The number of employees of foreign firms with Italian shareholders increased from 244,188 in 1986 to 606,266 at the end of 1997, and most of this increase occurred in LDC or in transition countries, where 53% of such employees were recorded in 1997 (see Cominotti, Mariotti and Mutinelli, 1999). If total foreign investments are considered, however, there was still a gap compared with the three other major European countries: the United Kingdom invested 3.5 times as much as Italy, Germany 2.5 times as much and France twice as much (in 1994 Italy contributed 3.5% to total world capital stock invested overseas: see Prometeia - Comit 1998). However, the capacity of Italian firms to invest abroad was nevertheless considerable if investments in LDCs and transition economies are considered alone. For example, Italy (together with Austria) is the third largest investor in Central and East European countries after Germany and the USA (see Mutinelli and Piscitello, 1997).

This paper analyses the impact of the two main financial instruments for the promotion of Italian joint ventures (JVs) with firms in LDC and transition economies: subsidised credit provided by the Foreign Office in accordance with the law on development aid (art. 7 Law 49/87) and funds provided by Simest and Mediocredito Centrale in accordance with Law 100 of 1990 (this is officially a Public Development Finance Corporation, while in practice the funding is equivalent to subsidised credit). The context for the application of these instruments - which essentially provide subsidised credit for the financing of investments - is significant as regards both the total volume of Italian investment and the volume of the facilities provided. For example, approximately. 350 JV projects were approved by Simest and the Foreign Office at the end of 1998: 300 by Simest and 50 by the Foreign Office.

Given that the total number of foreign firms with Italian shareholders in the LDCs and transition economies amounted to approximately 1,000 at the beginning of that year (source: National Committee for the Economy and Labour, CNEL), around 35% of Italian investments

were subsidised. The amount of the subsidies was also considerable: a previous study by one of the present authors (Barba Navaretti, 1997) showed that around 30% of total capital invested by beneficiary firms was subsidised, and that the subsidy generated a reduction of between 10% and 20% in the total cost of the investment.

The aims and means of subsidising are a matter of controversy. When credit facilities substitute for funds obtainable on the open market for the financing of investments which would take place in any case, there is simply a deadweight effect, i.e. a net transfer of resources from taxpayers to subsidised firms (see Hansson and Stuart, 1989; Wren, 1996). In this regard, a descriptive analysis by Barba Navaretti (1997) has shown that the Italian firms which have benefited from credit facilities have been mainly large-scale ones, i.e. those which should not encounter problems in finding finance on the market. By contrast, any market failure ought to involve small and medium-sized firms, since these find investing abroad more difficult than large ones because of financial and managerial limitations (see Buckley 1979 and 1989). This preliminary evidence corroborates the suspicion that facilities granted to Italian JVs might have a deadweight component.

This paper conducts more detailed analysis of the impact of subsidies by using information from a study of a sample of JVs financed by the promotional instruments described above. Comparison between data relative to these JVs and data on other Italian JVs in developing nations which have not received subsidised credit has made it possible to study the role performed by incentives. More specifically, it has enabled us to answer the following questions. To what extent has the investment really been induced by the availability of the subsidy? Are subsidised firms different from non-subsidised ones? Have the subsidised firms performed better than the non-subsidised ones? The answers to these questions shed light on whether the subsidies effectively generate investments which otherwise would not be made, and whether the resources are really devoted to investments with high growth potential. A total of 172 JVs – either set up *ex novo* or deriving from the purchase/takeover of existing plants by Italian firms in LDCs or transition economies – are analysed.

The paper is organised as follows. Section 2 describes the data used and presents descriptive statistics for subsidised firm profiles, especially as regards the reasons for their decision to set up a JV; Section 3 presents a probit analysis of the relation between the probability of being a subsidised firm, irrespective of whether it had either applied for a particular subsidy scheme or, if so, whether it had or had not been admitted to the scheme, and the firm profile; Section 4 examines whether the existence of the subsidy or other company

features are decisive factors in the performance of Italian JVs abroad; finally, Section 5 draws some conclusions.

2. Data and descriptive statistics

The empirical analysis is carried out on a unique dataset of 172 JVs interviewed in 1998 by means of a closed-answer qualitative-quantitative questionnaire (Table 1). 134 of these JVs concerned industries in which Italy is specialised (mechanical engineering, textiles, clothing), while the remaining 38 cases involved firms from a mix of industries. Some of the JVs had exploited the credit facilities provided by Law 100 and Art. 7 of Law 49. In order to evaluate the impact of the subsidy, it was necessary to compare these JVs with a control subsample: i.e. with JVs starting up independently and without subsidies. In our case, 34% of the sample consisted of subsidised firms, while 66% were unsubsidised. This combination reflects the incidence of subsidies in the population of Italian investors in LDCs and transition economies (see Section 1).

Table 1: Composition of the sample

	TOTAL	SUBSIDISED	NON-SUBSIDISED
	172 FIRMS	**59 FIRMS**	**113 FIRMS**
MECHANICAL ENGINEERING?	42%	25%	50%
TEXTILES	10%	10%	11%
CLOTHING	26%	14%	32%
OTHER INDUSTRIES	22%	51%	7%
EAST EUROPE	31%	41%	26%
LATIN AMERICA	17%	14%	19%
FAR EAST	30%	27%	31%
OTHER	22%	18%	24%

The JVs were located in almost all areas of the world, although many of them were concentrated in Central-Eastern Europe (53 cases, equal to 31%) and the Far East (India, China and the Far East: 51 cases, equal to 30%). Given that the investments considered were generally new, this geographic distribution reflects recent trends in foreign Italian investment: between 1986 and 1998, investment in Central-Eastern Europe grew from 0.6% to 19.9% of the total number of overseas firms with Italian shareholders (including firms in industrialised nations), while that in Asia grew from 7.6% to 13% (see Barba Navaretti, 1997) .For two reasons - the availability of only partially complete data and the need to obtain a sample which

reflected present relative proportions between subsidised and non-subsidised firms in the reference population - it has not been possible to balance the two sub-samples from an industry and geographical point of view. The firms received a questionnaire designed to gather information about the company profile (turnover, employees, investment, motivation, type and effectiveness of subsidy, etc.) relative to both the parent company and the JV.

The first question considered was whether the incentives generated additional investments in developing nations. If they did not, the companies concerned were using credit facilities to finance investments that they would in any case have made at market cost; thus the incentives were merely the transfer of resources from the general public to the owners of the firms (deadweight effect). The question was addressed in two stages: first we asked the firms some questions directly; then we carried out a descriptive and a regression analysis to determine whether the subsidised firms had different characteristics from the non-subsidised firms. Table 2 gives the frequencies of the replies to the questions put to the 58 subsidised firms regarding the influence of the subsidy on their decision to invest. The questions were broken down into several points.

Table 2: Subsidy and decision to invest

	Simest				Law 49			
	Yes	**Partially**	**No**	**Tot**	**Yes**	**Partially**	**No**	**Tot**
The decision to invest was influenced by:	%	%	%	%	%	%	%	%
Availability of financial facilities	4.5	29.5	65.9	100	13.3	40	46.67	100
Reduced cost of investment	2.3	45.5	52.3	100	0	46.67	53.3	100
Was a developing nation chosen because of the availability of credit facilities?	2.3	32.6	65.1	100	6.67	40	53.3	100
Was the JV chosen because of the availability of credit facilities?	9.3	30.2	60.5	100	6.67	33.3	60	100
Was your competitiveness influenced by the availability of credit facilities?	6.8	27.3	65.9	100	0	43.0	57	100

We first asked whether the decision to invest was influenced by the availability of credit facilities (in the case of firms with a limited ability to raise capital on the market) and by the availability of the subsidy, which reduces the cost of financing. The results were rather disquieting: in all cases, the majority of firms replied 'no', and over 90% replied 'no' or 'partially'. This suggests that the firms could have found money on the market (reply regarding the availability of credit) and that the expected yield from the investment was such to repay the market cost of credit (reply regarding the reduced cost of credit).

We then asked whether the subsidy had influenced the decision to invest in a JV rather than in a fully-owned subsidiary, and to invest in a developing nation rather than in an industrialised one. These aspects are important, in that the aim of the subsidy is partly to foster the development of the host nation. The formation of a JV rather than a subsidiary permits greater interaction with local partners. Again, a large majority of firms believed that the subsidies were useless: that is, they stated that they would have invested in a developing nation and in a JV even without the facilities.

Finally, we asked whether the subsidy had significantly influenced the firm's competitiveness. The majority of replies were 'no' in this case as well, which confirms that the expected profit margins on the investment were such that the reduction in the cost of the investment resulting from the subsidy was insignificant.

These results suggested that the subsidy was a mere transfer of resources from taxpayers to the firms, and that it did not effectively help to compensate for market failures which might hinder investment activity. This aspect can be analysed more thoroughly by comparing the characteristics of the subsidised JVs against those of JVs financed in accordance with market conditions. The more similar the two groups of firms, the more valid the hypothesis of a deadweight effect becomes.

As a first step, we describe the motivational factors that prompt investment overseas. An initial examination of these factors (table 3) yields interesting and surprising information on the factors the determine the decision to form a JV with a foreign partner. With subsidised firms separated from non-subsidised ones (table 3), the first feature to emerge is that the most important motive for the former is the opportunity to increase or maintain their presence in foreign markets. For non-subsidised firms, the most important factor is reduced labour costs, although the market is still significantly important.

Of the other factors considered, subsidised firms rated the income deriving from sale of technology, brands, plant, and licences in third place (immediately after reduced labour costs). This factor was rated last but one in importance (just above access to locally-available skills, technology, and know-how) by the non-subsidised firms (these results are not surprising, given the low or medium/low technological level of the host nations).

Overall, the motives of the subsidised and non-subsidised firms do not seem significantly different, although there is a tendency for the subsidised firms to display more progressive motivation (market and technology). From this particular point of view, therefore, the subsidy seems to perform a positive discriminating function.

Table 3: Determining factors for a joint venture (Likert scale from 1 to 4, averages, standard deviations in brackets): subsidised and non-subsidised firms*

DETERMINING FACTOR	TOTAL (151)	SUBSIDISED (54)	NON SUBSID. (97)
Market	2.93 (1.29)	3.06 (1.22)	2.87 (1.33)
Labour costs	2.84 (1.17)	2.57 (1.21)	2.99 (1.13)
Barriers	1.93 (1.10)	2.06 (1.22)	1.87 (1.03)
Strategy	1.87 (1.06)	2.04 (1.20)	1.77 (0.97)
Input	1.85 (1.16)	2.06 (1.20)	1.74 (1.12)
Technology	1.83 (1.12)	2.26 (1.17)	1.60 (1.03)
Skills	1.54 (1.07)	1.70 (1.21)	1.45 (0.98)

Note: 151 firms are included, not 172, because 21 did not reply in full to the questions on motivation.
The questionnaire items on motivation summarised in the table are the following: what motives caused you to decide to invest abroad?
- chance to increase or maintain foreign market penetration (market)
- income deriving from sale of technology, brands, plant, licences (technology)
- guaranteed cheap supply of raw materials/semi processed goods (input)
- reduced labour costs (labour costs)
- need to find loopholes in trade, technical or legal barriers (barriers)
- access to locally-available skills, technology, and knowhow (skills)
- reply to similar moves by competitors (strategy)

3. Who benefits from the subsidy?

The next step is to analyse the differences between the subsidised and non-subsidised firms in more detail. The aim of this exercise is to define the «ideal type» of the subsidised firm, irrespective of whether it had either applied for a particular subsidy scheme or, if so, whether it had or had not been admitted to the scheme. Using a probit analysis, we estimated the following model:

$$(1) \qquad P_{i,j,k}(SUBS=1) = a_1 + a_2 \, X_i + a_3 \, Y_j + a_4 \, Z_k + \varepsilon$$

(1) enabled us to estimate the probability that JV *i* set up by the Italian firm *j* in nation *k* is subsidised in relation to a series of characteristics of the JV itself (**X**), the Italian firm (**Y**) and the host nation (**Z**). Table 4 describes the variables used and table 5 gives the regression results. The choice of variables used in the multiple regression is the result of a selection procedure that excluded all the characteristics not theoretically associated with the perception of the subsidy and all the characteristics non-significantly linked with the dependent variable in the simple one variable regression. The number of observations was reduced from 172 to 104 because not all the questionnaires were answered in full.

Table 4: Key to variables used in estimating model (1)

Variable	Description
SUBSIDY	Dummy = 1 if financing is subsidised = 0 if financed by market
GROWTH	Growth rate of per-capita income (1995) of host nation
PER-CAPITA GNP	absolute per-capita GNP in 1995 (OECD data) of host nation
DEAST	Dummy East European nations
SHARE	Share of JV held by the parent company in 1997
LOG EMPLOYEES	Parent company employees logarithm
MKT	value attributed by the firm to market penetration as motivating factor
LC	value attributed by the firm to reduced labour costs as motivating factor
EMPTURN	Labour intensity (employees/turnover) of the JVcompared with the parent firm

As regards the host nation, we considered the income growth rate, average per-capita GNP and a geographic and cultural proximity dummy (DEAST). The lower the per-capita income and its growth, the lower the nation's ability to attract new investments, and therefore the greater the importance of the subsidy in redirecting foreign investments towards development objectives. This proves not to be the case, in fact: both variables exerted little influence, with GROWTH having a significant and positive influence on the likelihood of obtaining a subsidy: in other words, subsidised firms do not seem to be directed towards countries different from those which attract investments by companies using finance provided by the market.

Another important factor when considering the development of the host nation is the share of capital provided by the local partner. The higher this share, the more local workers can take part in management of the firm and accelerate the process of know-how transfer. The coefficient of this variable had the expected sign and was partially significant. In this case the subsidy seems to have been beneficial to the host nation.

As regards the parent company, we may imagine that a typical market failure would be linked with the size of the investing firm (higher finance costs and lack of managerial skills: see Paragraph 1). In fact, the LOG EMPLOYEES variable entered the Probit estimate with the expected negative coefficient and was highly significant. The subsidy seems therefore to compensate for market failure linked with small size. However, this result should be treated with caution. If one reasons - as one should in these estimates - in terms of the number of firms with credit facilities, it is true that many of them are medium-small. If, however, one

reasons in terms of investment volume, a large majority of the credit facilities go to large firms (see Barba Navaretti, 1997).

Table 5: Probability of being a subsidised firm

Dependent Variable:
SUBSIDY

	(a)	**(b)**	**(c)**
CONSTANT	1.82***	2.18***	2.05***
	(0.70)	*(0.79)*	*(0.80)*
GROWTH	0.04**	0.04**	0.04**
	(0.03)	*(0.03)*	*(0.03)*
PER-CAPITA GNP	0.00	9.19E-05	7.16E-05
	(0.00)	*(0.00)*	*(0.00)*
DEST	-0.51	-0.544	-0.49
	(0.35)	*(0.35)*	*(0.37)*
SHARE	-0,01*	-0.01*	-0.01*
	(0.01)	*(0,01)*	*(0.01)*
LOG EMPLOYEES	-0.37***	-0.36***	-0.37***
	(0.10)	*(0.10)*	*(0.10)*
MKT	-	-0.09	-
		(0.12)	
LC	-	-	-0.04
			(0.14)
EMPTURN	-0.74	-0.799	-0.81
	(0.79)	*(0.81)*	*(0.80)*
Pseudo-R^2	*0.18*	*0.189*	*0.185*
Log-likelihood	*-52.11*	*-51.10*	*-51.34*
Observations	*104*	*104*	*103*

Note: Standard error in brackets*; * = 90% significant; ** = 95% significant; *** = 99% significant;*

Finally, the variables linked with the strategy pursued by the firm through the JV were not significant. The fact that a firm was motivated by market-seeking and/or (labour) cost-reducing was not reflected in a higher (or lower) probability of obtaining a subsidy. This result means that caution is necessary when drawing conclusions on the basis of the descriptive comparisons given in table 3. Similarly, a strategy of decentralisation of labour-intensive activities (EMPTURN) did not discriminate.

4. Subsidy and the performance of subsidised firms

A further issue investigated was the extent to which investment promotion programmes are able to select investments with good growth potential. On the basis of the data gathered by means of the questionnaires, the performance of the firms studied can be measured either in terms of turnover or in terms of employees. We chose the latter for two reasons. Firstly, the

data on the JVs' turnover suffered from intra-firm flows and complex internal price dynamics; secondly, the Italian firms had invested in countries with different tax systems, which may have influenced turnover data (see King and Fullerton (1984)). We thus decided to take as the proxy for JV performance the annual employment growth rate between the initial year and 1997.

The regression analysis followed a stepwise procedure, so that the JV features (size, size of parent firm, industry sector, geographical area, host country's GNP, JV capital shares, existence of subsidy, motivation listed in table 3) were evaluated according to their impact on the JV's employment growth. The selection of significant variables and necessary checks (fixed effects) led to definition of the following model, which was estimated using White's correction for heteroskedasticity.

$$(2) \quad \Delta EMP = \beta_0 + \beta_1 DSUBS + \beta_2 LC + \beta_3 DACQUI + \beta_4 DMEC + \beta_5 DTEX + \beta_6 DCLO + \beta_7 DEAST + \beta_8 DLAT + \beta_9 DFAR + u$$

Table 6 describes the variables used and table 7 gives the regression results.

Three estimates were made (Table 7): in the first, (a), only industry specific effects were checked for; in the second, (b), geographical areas were also considered, to include the impact of the economic cycle and institutional features of the host nations on JV employment growth patterns; in the third, (c), the LC variable was omitted. The number of observations was reduced from 172 to 67 (70 in (c)), mainly because of the exclusion of initiatives for which it was not possible to calculate the annual growth rate of employment due to a lack of data or because they started up in 1997. The diagnostics of the three estimates was satisfactory, with acceptable values for both the R squared and the F test.

The results highlight a possible positive role of the subsidy, which has a highly significant coefficient in all the estimates. The selection procedure for firms entitled to a subsidy thus seems to identify those with the best growth potential (the annual employment growth rate is 28% if all 72 firms for which the figure is available are considered, and rises to 64% when one considers the subset of 30 subsidised firms). Nevertheless, the fact that the subsidised firms were those with the best dynamics reinforces the suspicion that market financing and subsidised financing are interchangeable. Indeed, it is likely that performance in terms of growth is positively related to the probability that the firm is able to finance its foreign investments on market conditions. This result therefore lends itself to two interpretations: on the one hand, the presence of a subsidy seems to increase the likelihood of employment growth

in the JV and therefore increases the benefit to the host nation; on the other hand, the good performance displayed by the subsidised firms suggests that the subsidy may contain a deadweight component (the firm could have obtained the same results with market finance).

Tabella 6: Key to variables used in estimating model (2)

Variable	Description
ΔEMP	annual employment growth rate in the JV between startup and 1997
DSUBS	dummy = 1 if the firm obtained a subsidy, 0 otherwise
LC	value attributed by the firm to the reduction in labour costs as motivating factor
DACQUI	dummy = 1 if the JV was started up by the takeover of an existing firm or 0 if it was a new firm
DMEC	dummy = 1 if the JV is in the mechanical industry, 0 otherwise
DTEX	dummy = 1 if the JV is in the textile industry, 0 otherwise
DCLO	dummy = 1 if the JV is in the clothing industry, 0 otherwise
DEAST	dummy = 1 if the JV is in Eastern Europe, 0 otherwise
DLAT	dummy = 1 if the JV is in Latin America, 0 otherwise
DFAR	dummy = 1 if the JV is in the Far East, 0 otherwise.

The negative, significant (even if only at the 95% level), coefficient for the DACQUI variable indicates better employment prospects for the JVs which give rise to new firms, compared with those that result from the takeover of existing firms. This result is consistent with the findings in the literature on the post-entry performance of firms (see for example Audretsch et al., 1999): newly-formed firms are usually smaller than the best minimum size for the sector and therefore survive only if they manage to grow rapidly during the first years of activity.

The comparison between sub (b) and sub (a) estimates indicates weakness in the significance of the LC variable when the geographical dummies are included; indeed, the value of the relative coefficient in estimate (b) is smaller that that in estimate (a) and only significant at the 90% level. Overall, the fact that firms started up (or taken over) as a result of the need to reduce labour costs have a greater tendency to grow (in terms of employees) than do those which give lesser importance to this motive is to some extent supported by the data. This result is not surprising, given that a JV started up mainly in order to reduce labour costs would presumably be characterised by labour-intensive processes.

Table 7: Determinants of employment growth in the JVs

Dependent Variable
EMP

	(a)	**(b)**	**(c)**
CONSTANT	-0.55*	-0.44	-0.11
	(0.35)	*(0.37)*	*(0.21)*
DSUBS	0.74***	0.73***	0.69***
	(0.24)	*(0.24))*	*(0.22)*
LC	0.17***	0.10*	-
	(0.07)	*(0.06)*	
DACQUI	-0.26**	-0.39**	-0.43***
	(0.13)	*(0.17)*	*(0.15)*
DMEC	0.37*	0.43*	0.39*
	(0.27)	*(0.26)*	*(0.23)*
DTEX	-0.05	0.01	0.04
	(0.25)	*(0.26)*	*(0.23)*
DCLO	0.10	0.16	0.26
	(0.26)	*(0.28)*	*(0.28)*
DEAST	-	0.32**	0.30**
		(0.17)	*(0.16)*
DLAT	-	-0.02	-0.07
		(0.16)	*(0.14)*
DFAR	-	-0.26**	-0.34**
		(0.16)	*(0.15)*
R square	*0.30*	*0.38*	*0.36*
R adjusted square	*0.23*	*0.28*	*0.27*
F Test	*4.26***	*3.85***	*4.23***
Observations	*67*	*67*	*70*

Note: Standard error in brackets, * = 90% significant; ** = 95% significant; *** = 99% significant; estimates have been corrected for heteroskedacity (White's correction).

As regards fixed sector effects, only the mechanical industry dummy has a relatively significant, positive coefficient in all the estimates. This result derives from an increased demand for capital goods in the LDCs and transition economies.

Of the area dummies, only that for East Europe has a significant (though only at the 95% level) positive coefficient influencing the employment growth of the JVs. The availability of low-cost skilled labour may be important when interpreting this result, given that it is the most attractive feature of transition economies.

5. Conclusions

The main results of this study can be summarised as follows:

1) Most firms declare that the subsidy was not crucial to their decision to invest, or in the way they invested abroad, which reveals a significant deadweight component in incentive policy.

2) Smaller investing firms (with limited access to capital markets) have a higher probability of being included in the category of subsidised firms, so that the subsidy seems partly to compensate for market failure.

3) If the JV's performance is measured in terms of employment growth, subsidised firms are significantly more likely to grow. This result has a twofold interpretation: on the one hand, the presence of the subsidy seems to increase the JV's chances of employment growth, thereby heightening the benefit for the host nation; on the other hand, the good performance of subsidised firms increases the suspicion that the subsidy may contain a deadweight component (the firm is healthy and could probably have obtained similar results with financing obtained on the open market).

4) The JVs comprising new firms (which need to grow to survive) also achieve a higher-than-average employment performance, as do the (labour intensive) JVs motivated by the search for lower labour costs, and the JVs in East European countries (attractive from an employment point of view because of their endowments of skilled but cheap labour).

As to future directions for research, the most interesting is distinguishing between the beneficial effect of the subsidy on performance and the deadweight effect, the aim being to measure their relative importance. To this end, the construction of new *ad hoc*datasets is required; databases with a panel structure and containing information on firms involved in joint ventures gathered before and after the subsidy has been obtained.

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