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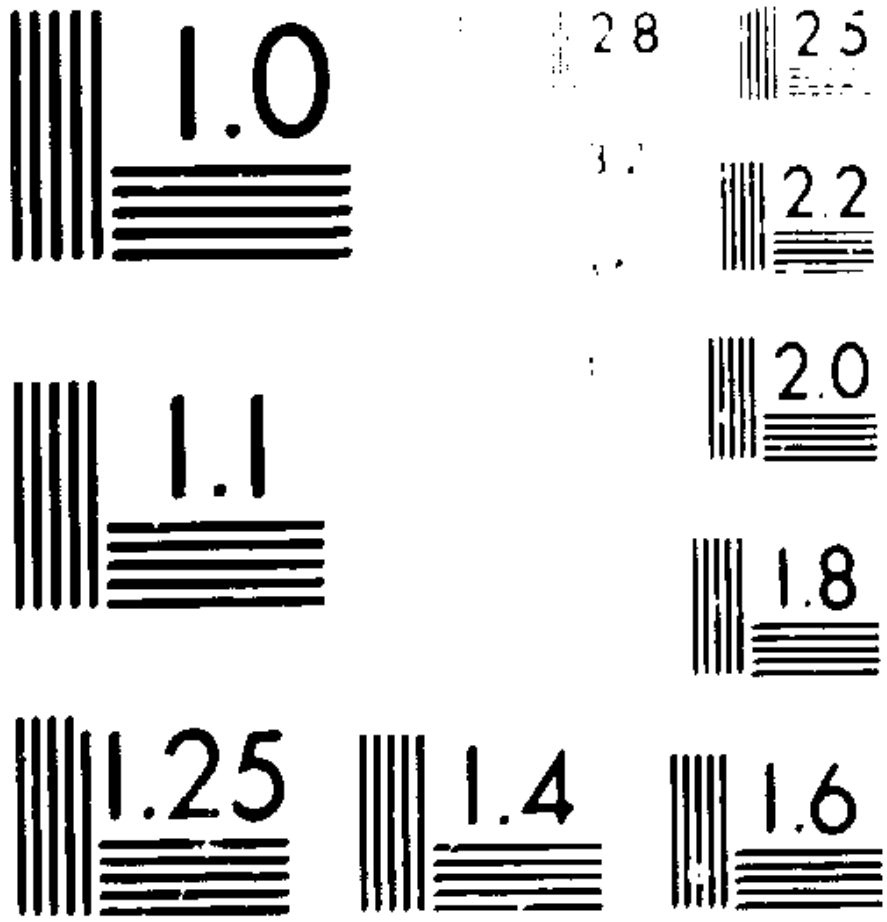
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OBSERVATIONS REGARDING THE TRANSFER OF TECHNOLOGY IN SPAIN*

by

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1. Introduction

Technology transfers in Spain were not specifically regulated until the enactment, on 21 September 1973, of Decree 2343/73 establishing a Registry of Contracts for the Acquisition of Foreign Technology.

The introduction of this regulatory machinery reflects a growing awareness all over the world of the importance of technology in national development, an awareness which has led to detailed studies of how best to promote the flow of technological know-how between nations.

From the outset, Spain has participated in the work of a number of international organizations and has taken part in the committees, commissions and working groups which these organizations have established, one example being the Intergovernmental Group on Transfer of Technology set up for this purpose in the early 1970s under UNCTAD.

Our country has always taken a clear position on the question of the transfer of technology - namely, to recognize the advantages which flow from the receipt of technology from other countries, but at the same time to criticize the negative effects of the form of this transfer, particularly such effects as are caused by restrictive or abusive terms in the transfer contracts. In addition, the Spanish Government is in favour of supporting any proposed actions designed to promote the transfer of technology and remove the obstacles that may stand in its way.

In a certain sense, Spanish legislation in this area may be regarded as a "code of conduct", which, applied as it has always been with great liberality, has contributed to improving, to some degree, the conditions of technology transfers without impeding the flow of technological know-how to Spain.

In addition, a great effort has been made to promote the export of Spanish technology to other countries through the execution of studies and preparation of catalogues covering available Spanish technology.

Of great importance in this process have been UNIDO's special technology transfer programmes, and in particular the Technological Information Exchange System (TIES) international co-operation project.

2. Transfer of technology activity in Spain in figures

Spain is a net importer of foreign technology, as shown by the following statistics.

(Figures in millions of current pesetas)

	Income	Payments	Balance
1977	4,480	28,727	- 24,247
1978	5,559	30,465	- 24,906
1979	7,642	34,704	- 27,062
1980	10,873	44,393	- 33,520
1981	16,700	52,382	- 35,682

(Figures in millions of constant 1976 pesetas)

	Income	Payments	Balance
1977	3,584	22,982	- 21,738
1978	3,725	20,412	- 16,687
1979	4,432	20,128	- 15,696
1980	5,436	22,196	- 16,760
1981	7,348	23,048	- 15,700

(Figures in millions of $US)

	Income	Payments	Balance
1977	59.0	387.5	- 328.5
1978	78.6	397.3	- 318.7
1979	109.4	512.5	- 403.1
1980	150.6	614.9	- 464.3
1981 1/	185.6	582.0	- 396.4

1/ Figures estimated because of uncertainty with respect to the rate of exchange.

The technological balance as measured in balance-of-payments terms, has improved considerably in the past five years. Nevertheless, the picture emerging from an analysis of the monetary values should be viewed in the light of certain factors which have affected them. Specifically, the sizable difference as between the increase in technology export revenue (which in real terms - constant pesetas - has doubled in five years) and the virtually unchanged level of payments for imported foreign technology may be largely due to:

(a) The effect of the economic crisis, as a result of which manufacturing licence payments have remained steady and in almost all cases proportional to production;

(b) The promotion of exports (with the assistance, among other means, of catalogues describing available Spanish technology), which has brought an increase in revenue under this heading. In addition, as investments abroad have increased, the movement of capital may have contributed to somewhat higher figures for technology-related income as a result of the technical assistance services that normally accompany capital investment.

On the question of the origin of the foreign technology acquired by Spain and the destination of technology exported by Spain, the following figures for the years 1976, 1977 and 1978 give a good idea of this aspect of the technology transfer process, measured in monetary terms of income and payments.

	Percentage of payments	Percentage of income
Americas		
United States	24.58	18.57
Other countries	1.80	14.12
Europe		
European Economic Community	59.10	38.10
Other countries	12.71	11.68
Rest of the world		
Japan	1.30	0.53
Other countries	0.51	17.00

The following table, which also applies to the period 1976-1978, makes clear the relative weight, in monetary terms, of individual sectors in technology imports and exports.

		Percentage of payments	Percentage of income
1.	Agriculture	0.36	0.63
2.	Extraction industries	3.34	3.08
3.	Food industries	6.57	3.33
4.	Textiles, leather and ready-to-wear clothing	2.90	1.19
5.	Paper and graphic arts	1.12	0.83
6.	Chemical industry	27.03	14.91
7.	Non-metallic mineral products	2.08	1.24
8.	Basic metalworking industry	5.75	11.26
9.	Metal products and machinery	3.24	0.91
10.	Electric and electronic equipment	12.49	10.28
11.	Transport equipment	21.21	5.25
12.	Other manufactured products	4.68	13.93
13.	Water, gas and electricity	5.17	0.95
14.	Construction	1.48	8.95
15.	Services	2.58	23.26

The above statistics illustrate the over-all payment and income picture for each year under existing contracts, some of which date back over a very long time, in other words, the total monetary value of payments and income under old and new contracts.

The evolution of the technology flow can perhaps be better illustrated by a statistical presentation based on the new contracts negotiated every year. In this case, however, the economic importance of the contracts must be judged on their projected application, rather than on real values such as those compiled by the Bank of Spain for the transfer of technology and presented in the preceding tables. The following table is based on the number of foreign technology contracts concluded and their classification into (a) patent and know-how licences accompanied by certain technical assistance services, and (b) technical assistance (not involving the concession of rights) and technology services.

	Licences	Technical assistance and services	Total
1977	357	327	684
1978	239	251	490
1979	271	304	575
1980	276	231	507
1981	254	345	599

In economic terms, the anticipated payment obligations for the application of these new contracts are estimated (in millions of pesetas) as follows:

	Annual royalties (Licences)	Lump-sum payment (Services)
1977	2,758.3	8,334.8
1978	1,481.2	7,211.2
1979	2,391.2	4,778.3
1980	2,079.3	5,976.6
1981	2.066.0	15,620.2

Evolution of payment obligations by countries
(in millions of pesetas)

	1977	1978	1979	1980	1981
Americas					
United States	2,536.73	2,324.37	1,474.00	1,952.10	4,042.60
Other countries	263.28	107.77	32.80	438.90	214.58
Europe					
European Economic Community	6,899.22	5,867.03	4,888.20	5,092.20	12,398.80
Other countries	1,151.86	376.67	626.40	445.80	704.70
Rest of the world					
Japan	214.02	16.56	148.10	103.40	292.50
Other countries	28.10	-	-	13.50	33.00
TOTAL	11,093.21	8,692.40	7,169.50	8,055.90	17,686.18

Evolution of payment obligations by sectors
(in millions of pesetas)

		1977	1978	1979	1980	1981
1.	Agriculture	59.21	45.89	60.40	14.70	38.36
2.	Extraction industries	556.30	214.61	222.00	638.90	102.64
3.	Food industries	66.29	122.16	104.20	183.40	226.45
4.	Textiles, leather and ready-to-wear clothing	196.00	58.10	76.00	212.90	106.48
5.	Paper and graphic arts	67.45	142.56	35.00	29.80	61.00
6.	Chemical industry	1,530.76	947.04	1,061.90	307.30	1,792.33
7.	Non-metallic mineral products	70.12	559.11	93.20	99.10	71.94
8.	Basic metalworking industry	510.03	204.63	72.30	440.00	204.14
9.	Metal products and machinery	1,355.05	949.13	847.50	402.80	1,303.08
10.	Electric and electronic equipment	857.82	520.39	309.70	266.40	3,419.25
11.	Transport equipment	3,310.71	2,322.30	2,831.00	4,205.30	5,852.48
12.	Other manufactured products	173.98	84.46	87.70	265.10	26.33
13.	Water, gas and electricity	1,497.86	1,460.36	986.30	618.10	3,575.86
14.	Construction	447.92	378.51	187.40	43.80	250.57
15.	Services	394.21	603.15	194.90	328.80	655.27
	TOTAL	11,093.21	8,692.50	7,169.50	8,055.90	17,686.18

3. Results obtained by the application of the standards regulating the transfer of technology in Spain

The objectives set by the Spanish Government in introducing the standards to regulate the acquisition of foreign technology have to a large degree been met, since:

(a) The establishment of the Contracts Registry has made it possible to know the nature of the technology flow, the countries of origin and the sectors for which the imported technology is intended, and this knowledge has contributed significantly towards the identification of priority sectors and the adoption of measures to promote technological innovation, the fruits of which, according to assessments, seem highly beneficial.

(b) The work of the Registry in giving guidance on the wording of contracts has also been useful, as seen in the fact that these contracts have been improving in their form and tending to ensure a balance between the rights and obligations of the parties and greater clarity in their definition.

(c) The procedure of evaluation of the contracts, at the time they are processed for registration, a procedure which includes calling attention to any terms or conditions in the contract which appear to be unjust or abusive on the part of the transferrer of technology, also appears to have proved advantageous in leading to more equitable contractual conditions, as indicated by the fact that the proportion of contracts accepted (i.e., not rejected for serious defects) has been in the order of 98 per cent of those submitted for registration.

(d) Specifically, the most serious defects found in the contracts submitted refer to clauses limiting the rights of the recipient, the most common ones being related to limitation of the right to export, the imposition of exorbitant payment demands and the failure to observe reciprocity in rights and duties.

(e) Nothwithstanding these improvements, non-equitable conditions continue to be frequently encountered with respect to the transfer of rights to innovations and improvements, which together with possible limitations on the right to use alternative technologies (including the recipient's own technologies) may redound to the serious detriment of the technological development of the firms acquiring the foreign

technology and, thus, of the country itself. There is also continuing evidence of the inclusion of unjustified conditions regarding the export of goods or services produced by the Spanish recipient.

4. Evolution of the policy of the Spanish Government with respect to the transfer of technology

On the basis of the eight years of experience in operating the Technology Transfer Contract Registry, it has been possible to adopt a series of standards and measures representing a movement towards greater liberalization in form, the fact being that current regulations have always been applied in a very liberal manner with a view to promoting an international flow of technology under conditions which are not incompatible with the advantages that this transfer essentially brings to all countries.

Among the changes introduced, particular mention should be made of the shift in the focus of attention from the contract itself, as was initially the case, to the firm acquiring the technology.

The aim is to undertake simultaneously a major effort to assimilate the technology acquired from abroad and a reasonable effort to develop the country's own technology. To this end, in certain cases (when a Spanish firm's over-all technological dependence on foreign suppliers exceeds a certain proportion of its activity), the recipient firm is requested to submit a programme for the future representing a tangible contribution towards the elevation of the country's technological capability.

On this point, it should be noted that the Government recognizes as a contribution to the improvement of the country's technological capability not only efforts at innovation in the recipient enterprise's own area of activity, but also efforts aimed at upgrading its "industrial environment", consisting of suppliers and consumers.

In most cases, the suppliers are small and medium-sized firms which provide materials or components and even auxiliary equipment.

It seems proper that the large companies, some of them multinationals with a great deal of economic and technological strength, should help the enterprises around them, even to the point of assisting them in their operations. In actual practice, this works to the advantage of the larger companies themselves.

These changes or modifications have been received with satisfaction by the firms concerned in that they reduce the grounds for objections to technology transfer contracts (undesirable clauses), for example, by eliminating the objection to the notion that technology payments should be proportional to the level of activity in the technological relations between financially interrelated companies (parent-subsidiary relationships or relationships between subsidiaries). Similarly, there has been understanding of the need to provide development programmes.

It is still too early to assess the tangible effects of the changes introduced in the regulation of the transfer of technology in Spain, but there are signs which indicate that they will be positive. Some of these positive results that have been observed stem from the fact that the submission of programmes by the enterprises is making it possible to coordinate and complement the larger companies' activities of technical support for their suppliers with the Government's efforts to promote industrial innovation, such as the work of the Centre for the Development of Industrial Technology (CDTI), a State agency charged with providing technical and financial support in the area of industrial innovation.