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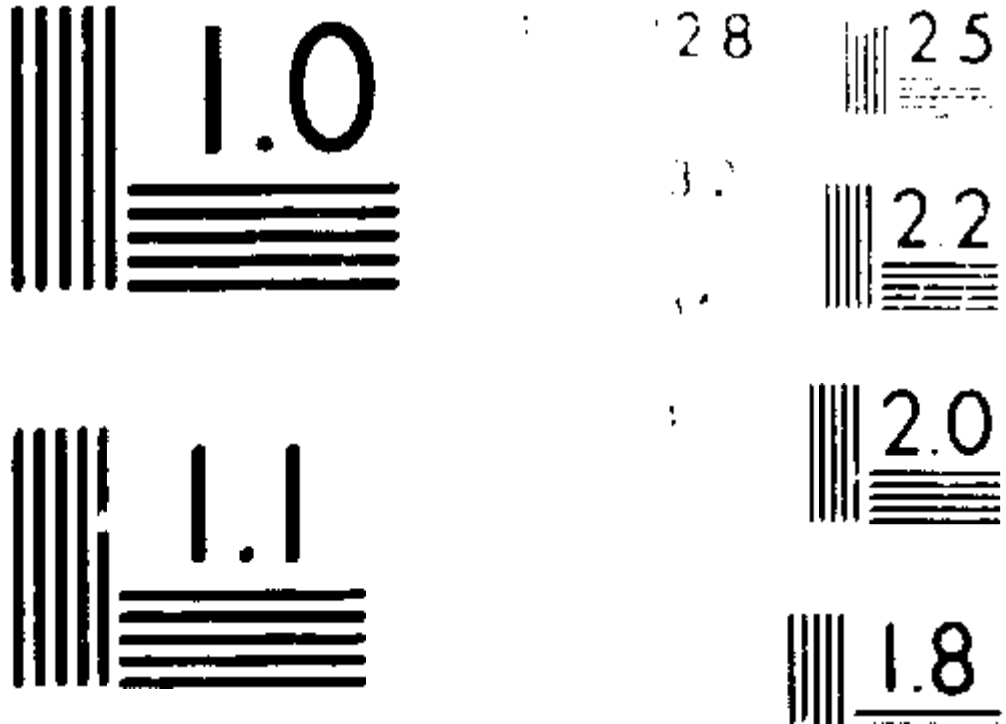
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org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TIES NEWSLETTER

TECHNOLOGICAL INFORMATION EXCHANGE SYSTEM

Issue Number 18

12046

November 1982

Dear Reader,

As mentioned in previous issues the next TIES meeting will be held in New Delhi from 7 to 10 December. Some twenty-five developing countries will review the progress made with TIES and will discuss various other issues of common interest. I am very pleased that so many countries will be represented at the New Delhi meeting despite the severe financial constraints of many TIES member organizations.

With regard to UNIDO's Programme on Technological Advances and Development, I am happy to report that a high-level meeting on the establishment of the International Centre for Genetic Engineering and Biotechnology will take place in Belgrade, Yugoslavia, from 13 to 17 December 1982. This meeting which is convened by the Government of Yugoslavia in co-operation with UNIDO, will review the Centre's work programme including intended co-operation with national centres and ongoing international activities as well as matters such as the structure of the Centre and its location.

May I take this opportunity to wish all our readers a Merry Christmas and a Happy New Year.

G.S. Gouri
Director
Division for Industrial Studies

UNIDO activities

TECHNOLOGICAL CO-OPERATION AMONG DEVELOPING COUNTRIES

In continuation of the article which appeared in Newsletter Number 17; under this heading and which covered information collection and exchange, the networking of institutions and technology, this covers the establishment and strengthening of consultancy and engineering services, the mechanism for regulating technology inflow and the commercialization of technology. The next issue of the Newsletter will bring the last in the series and will deal with enhancing negotiating power and the advanced technologies.

Establishment and Strengthening of Consultancy and Engineering Services

Not enough attention has so far been devoted to the role played by consultancy and engineering services in facilitating technology flow from developed to developing countries and among developing countries as well as in strengthening the negotiating power of developing countries vis-à-vis the technology suppliers.

Developing countries which lack adequate industrial consultancy capacity tend to rely on foreign consultancy firms for devising investment projects or for improving industrial production and management. This however can have several undesirable consequences. It has been found that consultancy organizations from developed countries are not generally fully aware of the conditions and needs of the developing countries for which they design investment projects. They tend to transplant solutions found effective in developed countries into a developing country environment where they may not be quite appropriate or relevant. What is worse, such solutions tend to favour the purchase of technology, equipment and production inputs from the home country of the consultancy organization. The possible supply of certain inputs from the recipient country is not generally taken into account. On the other hand, when consultancy and engineering services are carried out by competent domestic organizations with a sound knowledge of local conditions, the potential benefits to the recipient country can be quite sizeable. Technological solutions can be more appropriate, absorption of foreign technology more efficient and investment packages can be more clearly delineated. There is also a possibility for reducing the cost of projects and their foreign exchange component, because local consultancy services are often cheaper and there is a higher proportion of local inputs than with foreign based services.

Developing countries need to take appropriate measures to develop and strengthen consultancy capability, both nationally and sectorally, bearing in mind the priority areas identified by the New Delhi meeting of the Heads of Science and Technology Agencies. Some of the industrially more developed countries such as Brazil, Mexico, Argentina, Republic of Korea and India have relatively well-developed consultancy and engineering capabilities both in certain specialized areas as well as comprehensive consultancy services. These countries have some large private as well as public sector consultancy organizations which are capable of handling complex projects on their own. Frequently, they carry out turn-

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key projects for their clients. Some of them are subsidiaries or joint ventures of consultancy organizations from industrialized countries. At the same time, they have a large number of small consultancy organizations and individual consultants who are capable of providing only the basic pre-investment services. Only a few organizations possess the capability of providing processes and technological consultancy services; most are capable of only providing general economic and management consultancy services. There is thus an urgent need to both build up consultancy and engineering services where they do not exist, and to strengthen and broaden the range of such services in other cases. To a large extent this objective could be achieved by developing mechanisms for effective co-operation among the developing countries themselves. Developing countries who have acquired expertise and experience in this field would be in a position to share them with others who are on the threshold of starting the process of industrial and technological development and related services.

Two main constraints inhibiting the development of co-operative programmes and activities in the field of consultancy and engineering services are the lack of adequate information regarding existing consultancy and engineering capabilities in different developing countries and the lack of credibility in their competence. Information on existing consultancy services in different developing countries should be systematically collected, compiled and disseminated for the benefit of all developing countries. The information, in order to be of practical value to the developing countries will need to be organized on a sectoral basis, such as consultancy and engineering capability in respect of fertilizer plants, cement plants, power projects, heavy electricals, pharmaceutical plants, steel plants, the processing and canning of fruits, vegetables and fish, solar energy, coal beneficiations, transport vehicles, communications equipment and so on. Relevant information will have to be collected and repackaged in respect of consultancy and engineering organizations in developing countries who are specialized in particular areas or sectors and also in respect of those who are able to undertake comprehensive consultancy assignments covering a number of diverse areas or disciplines. The degree of expertise and experience the consultancy organizations possess in terms of highly professional qualified staff, contracts with diverse sources of information and technology, links with research and development institutions, universities, chambers of commerce and industry, equipment manufacturers', financial and developmental institutions, etc., as well as the types of consultancy and engineering assignments they have already successfully completed and the assignments they have in hand, etc. would be important factors in assessing and determining their maturity and competence to handle different types of consultancy assignments. In the first instance it will be necessary to design a standard format for collecting such information regarding consultancy and engineering organizations existing in different developing countries. The designated national focal points should be the medium through which the format is distributed to consultancy organizations and the responses obtained should also be initially screened by them. On the basis of the information received through the focal points, the UNIDO Secretariat should compile directories of consultancy organizations in selected sectors which are of interest and concern to several developing countries.

For strengthening consultancy organizations and promoting effective services among the developing countries some specific steps will have to be taken:

(i) important areas in which consultancy and engineering services need to be developed and shared will have to be identified. These could include sectors such as electric power, alternative sources of energy, steel, petrochemicals, fertilizers, transport, etc.;

(ii) promotion of effective relations between consultancy organization and research and development institutions, equipment manufacturers, input suppliers etc.;

(iii) formation or strengthening of associations of consultancy organization at the national, regional and interregional levels for raising professional standards through the establishment of codes of conduct, exchange of experience and improved communication channels;

(iv) promoting twinning or networking arrangements among consultancy organizations of similar specializations and objectives, thus intensifying activity and enlarging experience in the same area such as, for example, designing thermal power plants or fertilizer plants;

(v) there could also be effective co-operation between consultancy organizations specializing in complementary fields such as plant design and plant erection. This could take the form of joint ventures;

(vi) gaps in capability existing in consultancy organizations in developing countries may be filled through co-operation among developing countries or through co-operation with consultancy organizations in developed countries, if necessary;

(vii) there is scope for geographical or substantive specialization in particular areas in view of the varying requirements of different countries as well as general scarcity of resources.

Co-operation among developing countries in promoting and strengthening consultancy and engineering services could be brought out through different mechanisms such as the following:

A group of manufacturing enterprises in different countries could jointly promote consultancy services in certain key areas of common interest. For example, a group of fertilizer manufacturing companies in different countries could jointly set up a consultancy and engineering organization that will be capable of providing a complete array of services including pre-investment feasibility and market studies, advise on the selection of process technology and

equipment as well as assistance in trouble shooting, quality control, maintenance, etc. Manpower and funds required for setting up the consultancy organizations could be drawn from the promoter enterprises. There will have to be a common board of management which would approve the work programme and make allocation of funds for different projects. Such consultancy organizations should provide their services not only to the promoter enterprises but also to prospective new clients and entrepreneurs in other developing countries who either lack such services altogether or are deficient in them. Such joint ventures could also assist other countries in establishing or strengthening their own consultancy and engineering capabilities through technical assistance, etc.

On a similar pattern, in certain key areas such as generation and transmission of power, authorities or boards concerned with power generation and transmission of a number of interested developing countries could come together and establish a specialized consultancy and engineering organization that could assist developing countries in making surveys, designing power plants, negotiating with technology and equipment suppliers, erecting the plants, overseeing their management and maintenance, etc. A multinational consultancy agency can thus be established with financial and technical participation by a group of interested countries which could provide services on a commercial basis to all interested developing countries.

Yet another mechanism could be inter-country complementary specialization whereby a few selected developing countries which have achieved a high level of sophistication in consultancy and engineering services in particular areas such as iron and steel, transport equipment, agricultural machinery, pharmaceuticals, plant design, plant erection, etc. could join together in a co-operative network for assisting one another as well as other developing countries by providing them with such specialized services not only to develop their own indigenous capabilities but also to assist them in negotiations with developed countries for the purchase of technology, plant and equipment, etc.

It is also necessary to establish or strengthen networking among consultancy and engineering organizations of different developing countries which are specialized in certain key areas, for providing consultancy expertise and sharpening existing skills.

Twinning arrangements for pooling complementary capabilities of local consultancy firms with sister organizations from another developing country for joint work on a project-to-project basis can also be promoted for strengthening indigenous capability. In this manner the development of a local industrial consultancy can lead to sectoral co-operation among developing countries. In other words, concerned organizations for two or more developing countries could join hands, each providing a part of the input to make a package of technology, consultancy, engineering and project design services as well as equipment and construction materials. UNIDO could include several other specific activities in its work programme to strengthen domestic consultancy and engineering services in the developing countries as well as to promote and intensify co-operation among them for mutual benefit. Some possible activities are:

(i) undertake a comparative study of legislative and other policy measures adopted by a few selected developing countries for strengthening national capability in consultancy and engineering services and evolve guidelines for other countries wishing to create or strengthen a similar capability;

(ii) organize sectoral workshops on consultancy and engineering services in respect of critical project areas such as power projects, fertilizer plants, plant and equipment for utilization of solar energy, manufacture of essential drugs, cement plants, etc. Participants in the workshops should be drawn from leading consultancy and engineering organizations as well as the manufacturing enterprises in selected developing countries. The output of the workshops should be to suggest practical steps to strengthen the consultancy infrastructure in the selected sectors through exchange of experience and expertise, networking arrangements, complementation arrangements, identification of possibilities for joint projects and programmes, etc.

Mechanism for Regulating Technology Inflow

The indiscriminate importing of technology from industrialized countries is one of the factors which has retarded indigenous technological research and development efforts. Only a few developing countries have evolved effective mechanisms for systematically monitoring and regulating the inflow of foreign technology in the national interest. It has been found that most of the technology being imported into the developing countries is developed by the transnational corporations which is not necessarily suitable to the particular needs of the developing countries. Also, such technology is often passed on to the developing countries on terms that are not conducive to their long-term interests. It is therefore necessary for all developing countries who are desirous of importing technologies to establish a mechanism for undertaking a thorough screening of technology contracts. It must be ensured that the technological services required are clearly specified and technology packages unpackaged to admit indigenous technological and material inputs wherever feasible; that adequate provision is made for training of local manpower; that payment terms are not unreasonable and that unnecessarily restrictive clauses in regard to further dissemination of technologies, patents, export to third countries, etc., are not introduced. It is equally necessary to monitor the actual uses of imported technology in order to keep track of the state of technology development in priority sectors.

It would be useful to organize an international meeting of experts and policy makers from selected developing countries with considerable experience in regulating technology imports to discuss and compare national experiences regarding the effectiveness of existing technology regulating

mechanisms and legislation with a view to evolving a model legislation and mechanism for the regulation of technology imports for the benefit of all developing countries. Alternatively this can be an agenda item for future TIES meetings.

It would also be a useful exercise for UNIDO to undertake a compilation of information of technologies acquired by developing countries in identified priority sectors. Information already collected through TIES will need to be rearranged sector-wise. The TIES network will also have to be considerably strengthened so that relevant information on the source of technology, type of technology and the terms and conditions on which technology in the priority sectors has been acquired by the developing countries is collected from as many developing countries as possible and disseminated on a selective basis. A comparative study of the quantum and terms of payment for different types of technology and their effect on the project economics in different developing countries could be a particularly revealing exercise.

Commercialization of Technology

Another factor which has been inhibiting technology flow among the developing countries is the inadequate attention paid by developing countries to the commercialization of their research findings. Technology, to be of commercial value needs to be moved from the drawing board through the various stages of production and testing to the final industrial process. Unless its technical viability and commercial feasibility are demonstrated a new research finding can be of little more than academic value. Commercialization requires development of capability in different areas such as process and product design, plant design, manufacturing operations, quality control, etc. The record of the developing countries in successfully commercializing the processes developed by their research institutions has not been particularly encouraging. Often the research findings made in developing countries are commercialized in developed countries and then transferred back to the developing countries, thus creating a triangular arrangement for technology transfer among developing countries. For quickening and facilitating technology flow from one developing country to another, developing countries must commercialize their own technology by acquiring the necessary capability in plant design, by setting up pilot demonstration plants, and prototypes, etc. It is customary among many engineering and chemical industries in some of the larger developing countries to set up pilot demonstration plants and prototypes before large-scale commercial production or series production is undertaken. It would be useful to compile an inventory of such pilot plant facilities available in developing countries. Developing countries which have done successful research and development in particular areas which are of common interest to other developing countries should be assisted in establishing pilot plants which could be used as common facility centres by other interested developing countries. Some of the areas in which pilot plant prototypes should be established are the following:

- Pilot plant for gasification of coking coal;
- Prototype of engine working wholly or partly on biogas and other fuels from biogas;
- Pilot plant for production of solar cells;
- Pilot plant for production of vaccines with the aid of genetic engineering.

Registry news

POLAND JOINS TIES

The Ministry of Foreign Trade, through the Director of the Department of International Economic Organizations, Mr. Boguslaw Sosnowski, has informed UNIDO that it will actively join TIES.

VENEZUELA REPORTS ON FIRST SEMESTER 1982 ACTIVITIES

On the occasion of the second meeting of the Co-ordination Committee of the ANDEAN Technological Information System on Technology Transfer, the Superintendencia de Inversiones Extrajeras (SIEX) has prepared an information paper, from which the following is abstracted:

SIEX, through the Division of Technology Transfer, is the organ responsible for the execution of Decision 24 of the ANDEAN Pact1/ in Venezuela. In addition to this legal framework which assigns technology importation regulatory powers to SIEX, it also performs an important advisory role with respect to the acquisition of technology by the private and public sector, prior to the conclusion of the negotiation. In the execution of its work, SIEX is guided by another decision of the ANDEAN Pact, namely Decision 84, which determines the priority to be given to the local technological capacity.

In order to execute their assigned tasks, SIEX has a multi-disciplinary staff of engineers, lawyers and economists. It can be observed from SIEX's experience over the past years that the intervention of SIEX in the negotiation process has not only limited itself to a reduction in technology payments but as well in areas such as the introduction of guarantees on technology efficiency, the introduction of the most favourable country clause, reduction of duration of know-how agreements to less that two years, introduction of detailed training programmes, introduction of promises towards the development of local trademarks.

1/ Common Code for Treatment of Foreign Capital and on Trademarks, Patents, Licenses and Royalties.

Statistics first semester 1982:

	ISIC Classification										
Country:	1	2	3	4	5	6	7	8	9	Total	%
Austria			1							1	1.33
Belgium			1							1	1.33
Bermuda								1		1	1.33
Brazil			1							1	1.33
Curaçao					1					1	1.33
Spain			1							1	1.33
U.S.A.		1	32		2	5		1	1	42	56
France			6							6	8
Netherlands			1							1	1.33
Great Britan								1		1	1.33
Italy			4							4	5.33
Mexico			1							1	1.33
Panama					1	1				2	2.6
Germany (F.R.)			5							5	6.67
Sweden			1							1	1.33
Switzerland			4			1		1		6	8
TOTAL	-	1	58	-	4	7	-	4	1	75	

From these statistics it may be observed that most technology transfer contracts were concerned with manufacturing industries (ISIC, 3).

The manufacture of soap and cleaning preparations, perfumes, cosmetics and other toilet preparations appear to be the most dominant in this sector (15 contracts).

The most frequent collaboration type registered during the first semester 1982 has been Technical Assistance (36%), Technical Assistance associated with Trademarks and/or Patent agreements (33.3%) and Trademark (21.3%). From the 75 contracts approved and registered 6 were concluded by the public sector for a total value of $17,363,191.00. Most of these contracts were related to Technical Assistance as can be observed from the following table.

Contracts registered by State Enterprises[2/]

First semester 1982:

ISIC	Origin	Total Value ($)	Object
2100	U.S.A.	6,167,441	Technical assistance
3720	U.S.A.	5,400,000	Technical assistance
3841	Italy	4,496,000	Technical assistance
3841	Italy	724,610	Technical assistance
6100	U.S.A.	200,000	Preparation of computerized simulation models
8200	U.S.A.	375,000	Advisory and consultancy services

2/ Excluding the oil sector.

ARGENTINA REPORTS ON FIRST QUARTER 1982 ACTIVITIES

The analysis given below refers to the first quarter of 1982. Add to that period the first nine months of 1981, and the effects of law 22.426 can be gauged for its first year of operation. The present report is thus supplementary to that published in the TIES Newsletter issue of May 1982.

Following the same methodology as was used in that report, the analysis covers the number of agreements recorded and registered, the total estimated sums payable, royalties and duration, including retroactive agreements.

Number of agreements and estimated sums payable

The number of agreements recorded and registered in the first quarter of 1982 was 91, being 19 per cent fewer than those for the same period of the previous year. Of those contracts 76 (84 per cent) related to independent bodies and 15 (16 per cent) to associated enterprises.

The total estimated sum payable for the full term of contracts was $US 80,111,750.00, being 248 per cent less than in the first quarter of 1981. It should be mentioned that in that quarter the conclusion of agreements for the nuclear plan, representing a sum of $US 123 million, was a very influential factor.

Of the amount quoted above, 58 per cent related to independent bodies and the remaining 42 per cent to associated enterprises.

	1st Quarter 1981 (law 21.617)		1st Quarter 1982 (law 22.426)	
	No. of Agreements	Estimated sum payable	No. of Agreements	Estimated sum payable
Independent ≤ 49%	76%	68%	84%	58%
Associates > 49%	24%	32%	16%	42%

The table above shows a relative increase in estimated amounts payable by associated enterprises in the first quarter of 1982.

Royalties, duration and retroactive agreements

For the analysis of royalties and duration, in addition to the differences between the first quarters of 1981 and 1982, account must be taken of the way in which these variables fluctuated in the first twelve months that law 22.426 was in operation.

The average royalty agreed on in the first quarte of 1982 was 4.01 per cent. This is slightl above the figure for the same period of 1981 (3.6 per cent), and for the year 1981 (3.7 per cent).

The upward trend of royalties can be seen from cases where it exceeds 5 per cent (the ceiling laid down by law 21.617).

First quarter 1982

1 royalty rate agreement 15%
1 " " " 10%
1 " " " 7.5%
2 " " " 6%

5 agreements

As will be seen, in 5.5 per cent of the cases the royalty exceeded 5 per cent.

In the year 1 April 1981 to 31 March 1982, the number of agreements registered and/or recorded was 510 and the results were as follows:

Average royalty: 4 per cent.

1 royalty rate agreement 35%
1 " " " 15%
3 " " " 10%
1 " " " 9%
1 " " " 8%
1 " " " 7.5%
3 " " " 7%
7 " " " 6%
1 " " " 6.5%
1 " " " 5.5%

20 agreements

The 20 agreements represent 4 per cent of the contracts (a percentage which coincides with that for the first nine months that the law was in operation). It should be emphasized that of the total number of agreements, approximately 50 per cent are stipulated royalties, and the remainder fixed amounts.

It will be seen that, although royalties above 5 per cent are not in a majority, cases do occur which are wholly untypical (for example, royalties of 35 per cent, 15 per cent etc.) which distort the sectoral averages subsequently used to evalute contracts between associated enterprises; it should also be borne in mind that the basis on which the agreements analyzed was calculated is not homogeneous, that is to say, that the real royalty rate where there is a common base rate may be even greater than that shown.

As regards duration, results for the first quarter of 1982 were as follows:

1	agreement(s):	20 years
1	"	12 years
10	"	10 years
2	"	6 years
1	"	5.5 years
15	agreements	

These contracts represent 16 per cent of the quarter.

As regards the year April 1981 to March 1982 (510 contracts) the results are as follows:

2	agreement(s):	52 years
1	"	20 years
7	"	15 years
1	"	12 years
1	"	11 years
37	"	10 years
1	"	9 years
1	"	8 years
2	"	6 years
1	"	5.5 years
56	agreements	

The contracts referred to represent 11 per cent of those in existence in the first year in which law 22.426 was in operation. This means that there is a growing trend among contracting parties to agree on longer periods of validity rather than greater royalties.

As part of our consideration of duration, we should include retroactive agreements, that is, those which carry an effective date prior to the date of their submission to the Office for the Transfer of Technology. There were nine such cases in the first quarter of 1982, or 10 per cent of the quarterly figure. Some of them are for periods longer than five years.

There were five cases of indefinite duration in which fixed amounts were agreed on (i.e. the indefinite term would continue to be accepted).

In conclusion (as in the previous report) it may be said that in the first quarter of 1982, as in the first year in which law 22.426 was in operation, the tendency of the contracting parties was to lengthen the duration of contracts rather than to increase royalties.

INFORMATION SYSTEM BEING SET UP AT THE PHILIPPINE TECHNOLOGY TRANSFER BOARD

The Technology Transfer Board of the Philippines is in the process of setting up an information system designed to provide an efficient mechanism for data gathering, processing and analysis specifically of the terms and conditions of technology transfer contracts registered with the Board.

Mr. Victor Corado Simoes of the Portuguese Registry, who worked as a consultant with the TTB, has made significant contributions to this project. Working under the joint UNIDO project concerning the strengthening of the Technology Transfer Board of the Philippines, Mr. Simoes went on mission to the TTB as a UNIDO consultant on information systems. The first part of his mission was in July 1981 in order to study the existing structure, needs and requirements of the Board, and after which he presented an initial recommendation for the adoption of a manual information system. The second part of the mission took place a year later, and its purpose was primarily intended to evaluate and assess the implementation of the manual information system recommended earlier as well as study possibilities of further expanding it to a computerized system.

So far, the TTB of the Philippines is implementing a manual information system. Existing contract documents have been microfiched for data storage and microfiching facilities are available for use. At present, the TTB is exploring with UNIDO the possibilities of establishing a computerized system.

DIRECT FOREIGN INVESTMENT AND TECHNOLOGY TRANSFER IN PORTUGAL DURING 1981

1. Behaviour of Authorized Direct Foreign Investment

1.1 Overall Analysis

The Direct Foreign Investment (DFI), authorized by the FII in 1981 amounted to about 11,600,000 contos from which approximately two million are due to authorizations granted to capital increases by means of reserve incorporation of assets re-evaluation (one conto equals 1,000 escudos). As a result of the formal accounting nature of these operations (whose effect is only relevant at the level of the stock of foreign capital), we shall not take into account the amounts payable arising from these operations throughout this analysis.

There is therefore a total of authorized DFI in 1981 showing a growth of 49.4 per cent when compared to the previous year:

1980	1981
6,253.0	9,345.0

Total foreign currency imports also showed a significative change - from 75 per cent in 1980 to 83 per cent in 1981 indicating that part of the authorized direct foreign investment in 1981 will bring about a foreign currency import of approximately 7.7 million contos.

Capital increase operations are those which present the most important values either in what concerns their relative position compared to other types of authorized operations, or as long as the growth rhythm continues; this situation already occurred during the previous year. Some of these capital increase operations concern projects dealing with foreign currency imports amounting to 50 per cent or more of the total value (expansion investment).

The manufacturing industry kept approximately the same position in 1981 which means that it stood for a little less than 50 per cent of the authorized total. The

fact that the electro-mechanical and electronics industries increased their percentage from 21 per cent of the 1980's total DFI to 25 per cent in 1981 should be noted.

In addition, the service sector reinforced its position by exceeding 40 per cent, whereas it had only achieved 37 per cent in 1980. This can be explained by the significant growth of investment in tourism (9 per cent in 1981 as against 5 per cent in 1980), and also a growth on real estate operations and in business services.

In spite of the fact that the two main free trade associations of Europe have been the source of the majority of DFI inflows to Portugal, they have suffered a reduction in significance, decreasing from 65 per cent in 1980 to 58 per cent in 1981. This drop can be mainly explained by the reduction in Swiss investment which did not exceed 12 per cent when compared to 20 per cent to the previous year.

Two countries (U.S.A. and France), achieved approximately half of the authorized DFI, thus representing a rather high concentration level which had not been registered since 1978. This situation seems to deserve more attention than the strong position of EEC and EFTA.

1.2. Analysis by Type of Operation

The most important operation types, from a national point of view, namely the creation of new companies and expansion investments, continued to rank at a predominant position in 1981, amounting to about 63 per cent of the total DFI.

Authorized DFI

As far as foreign currency imports are concerned, expansion investments absorbed almost half of the authorized values followed by the creation of new companies amounting to 21 per cent. We should also mention the fact that the relative importance of foreign currency imports has reinforced its position in almost every operation type.

The relative importance of the creation of new companies suffered a substantial decrease in 1981 (19 per cent against 31 per cent in 1980) as a result of a reduction of about 10 per cent in the value of authorizations at current rate of exchange for escudos.

This phenomenon is mainly due to the retraction in current investments which was translated into a 22 per cent decrease when compared to the previous year.

Expansion investment was the type of operation that showed the better rhythm in 1981, translated into a growth rate of 78 per cent in escudos; (an exception has been made regarding item headed "Others"). Curiously enough, the evolution of large projects was the same as for the "current" ones. As a result of the strong development in this area, expansion investment corresponded to 44 per cent of authorized DFI in 1981 against 37 per cent in the previous year. Stabilization investment (that is capital increases with a foreign currency import content of less than 50 per cent) went through a growth of about 11 per cent in comparison to the previous year and which led to a deterioration of its relative position. A situation which had already occurred in former years. Thus, the total stabilization investment in the DFI total did not exceed 13 per cent, whilst in 1980, it had amounted to 17 per cent.

The position regarding the acquisition of companies in the total of authorized investment continued to be rather low, similar to the previous year (12 per cent).

1.3 Large DFI Projects

The authorized DFI related to investment projects, under contractual regulations established by Article 5 of Decree Law 348/77 of August 24th, amounted to a total of 2 million contos, representing an increase of about 42 per cent compared to the previous year.

Some of the above concerned authorizations refer to investment agreements already signed in previous years, such as the Renault project and the creation of Inlan-Indústria de Componentes Mecânicos Lda. (both in the automobile sector), and Somincor in the mining and quarrying sector. Others resulted from new investments under contractual regulations, such as the formation of DBA Portuguesa-Sociedade de Equipamentos de Automóveis, Lda. a HOTELGAL-Sociedade de Hotéis de Portugal, SARL.

The capital of DBA Portuguesa is almost wholly owned by DBA Société Anonyme (99.9 per cent) and the project's total investment will go up to about 600,000 contos.

HOLTELGAL will build and exploit two de luxe hotels in Portugal, with foreign holdings being 67 per cent of total equity and with DITCO S.A. being the main foreign partner. The most important amongst the Portuguese partners is Petrogal, a public oil company which will thereby diversify its activities. The foreseen volume of investments is about 1,850,000 contos at 1981 prices.

2. Technology Transfer Analysis

During 1981, there were 811 registered transfer of technology agreements (T/T); this figure corresponds to an increase of about 32 per cent when compared to the previous year. Among the registered agreements 87 per cent were new ones and 11 per cent were renewals, the latter presenting a slight rise in position due to the fact that the licensing agreements which had been registered under article 33 of Decree Law 348/77 of August 24th needed renewal.

Mention should be made that the transfer of technology agreements connected to new Direct Foreign Investment Projects (DFI) amounted to 19. The distribution by types of agreement had a rather similar structure to the 1980 one: 29 per cent of the total were licensing agreements and 71 per cent were service agreements.

The most frequent types of service agreements continued to be those regarding technical

assistance to equipment and studies, the former being responsible for 28 per cent of the agreements total and the latter for 13 per cent.

Going through an analysis of the distribution of agreements by transferee companies it can be seen that the 811 transfer of technology agreements correspond to 354 transferees; there is, however, a difference between the distribution of licensing and service agreements. The latter have shown a larger concentration in a more restricted number of companies (a 2.62 agreements/company relation) than the former (1.38).

As far as the types of transferee companies involved are concerned, there was a change in the 1980 positions. The foreign capital companies took the lead, gathering 36 per cent of the total agreements; the national private companies had their part reduced to 34 per cent; the public bodies followed with 30 per cent. Concerning the relationships between the transferor and the transferee, there was an increase in agreements signed between obligated companies (14 per cent in 1980 and 18 per cent in 1981). This fact was mostly due to those licensing agreements where the transferors relationships were predominant.

In analyzing the sectoral distribution of transfer of technology agreements it is important to note that the majority of agreements (72 per cent) continued to be oriented towards the manufacturing industry which, nevertheless has had a decrease in its relative position when compared to previous years.

The sector which occupied the most important position in terms of numbers of agreements continued to be the chemical industry (23 per cent), followed by the electrical and electronics industries (13 per cent), textiles and clothing industries (12 per cent) and the paper industry (10 per cent). These 4 sectors had already been the most important ones in 1980; the positions of the last two have however changed places among themselves.

The distribution of transfer of technology agreements by countries of origin of the technology, placed the EEC and EFTA countries at the same position they held in previous years which is to say that they were Portugal's most important technology suppliers, (80 per cent of the total). The 5 most important countries as far as technology supply is concerned were: France, which reinforced her position as leader (21 per cent); the United Kingdom (15 per cent), the Federal Republic of Germany (14 per cent), the United States of America (10 per cent) and Switzerland (9 per cent). These countries represented 70 per cent of the registered agreements in 1981.

As regards the duration of transfer of technology agreements, 77 per cent of the licensing contracts, without exception, are valid for 5 years for less and only 13 per cent go over or are valid for 10 years. The FII's intervention took place in 22 per cent of the registered agreements leading to the almost total elimination of the agreements without a stated duration or with an undetermined one and to a general reduction in the agreements' time. As far as the different forms of counter-payment are concerned, we can see that in 84 per cent of the licensing agreements the payments were made by means of royalties; in service agreements, in 55 per cent of the cases, there are established amounts and in 45 per cent the payments are made by means of fees.

The most usual basis for calculation of royalties was, as in previous years, the value of the net sales, this type of payment was practiced in 74 per cent of the agreements.

The FII reduced taxation on royalties in 24 per cent of the licensing agreements, thus bringing about an average decrease of 2.2 per cent in the changed agreements.

The most frequent restrictive clauses - which are almost exclusive to the transfer of technology licensing agreements - were the following: post-expiration clauses (46 per cent of the licensing agreements), restrictions of the transfer (39 per cent) and the obligation to call forth foreign legislation (37 per cent).

The FFI's intervention was particularly concentrated on the elimination of the clauses which have been considered as the most important ones by the Institute: restrictions to exports (reducing the number of agreements of this type to about 50 per cent of the previous figure), obligation to cease innovations and restrictions to production.

D.F.I. STOCK IN PORTUGAL

The following text is a summary of an enquiry into enterprises with foreign capital (EFCs) in Portugal, carried out by the Foreign Investment Institute (FII). This survey is aimed at constituting a first step towards a general assessment of the importance of direct foreign investment (DFI) in the Portuguese economy. The analysis is focused on the main characteristics of DFI, namely sectoral orientation, countries of origin, dates of investments, level of foreign holdings in EFCs and location of companies in Portugal. Summarizing its main findings we may say that the penetration of EFCs into national economic activity, measured by the sales volume, is about 15 per cent; the relevance of EFCs is above average in mining and quarrying (almost 1/3 of the sales in this sector has its origin in EFCs) and in the manufacturing industry, (about 20 per cent).

International comparisons, especially with other OECD countries, show that the overall level of foreign investment in the Portuguese economy is not high. Nevertheless, a sectoral breakdown enables the identification of some activities where the importance of EFCs is high, even by OECD patterns, like the pulp and paper industry (23 per cent) and the electromechanics and electronics (24 per cent of the total sales). This kind of comparison must, however, be done with some care, due to various factors such as technological characteristics, existence of natural resources, stage of the product cycle, international trade relations, etc.

Switzerland, the United States of America and the United Kingdom are the main home countries of capital owned by non-residents, being responsible by 45 per cent of total DFI. At the same time it should be pointed out that the EEC is responsible for half of the stock of foreign direct investment in the surveyed companies.

Comparing the geographical pattern of the origins of DFI in Portugal with the available date on the overall international investment, some differences can be identified: the relative importance of European investment in Portugal is higher than worldwide; by contrast, the opposite happens with American and Japanese investment. This finding leads to the conclusion that the geographical proximity and cultural identity are an influence to the direction of investment flows; however, other factors must be taken into account such as, inter alia, the existing trade movements, the sectoral structure of the economies where the investments originate, the historical ties, the existence of tax conventions and the integration movements.

An historical perspective of the setting up of EFCs shows a sharp increase in the last two decades due to national and international reasons: almost 2/3 of the EFCs were set up (as firms with foreign holdings) in the 1960s and the beginning of the 1970s. With regard to the level of foreign holdings, it should be stressed, that 3/4 of EFCs have at least 50 per cent of foreign capital. However, this figure presents some differences at a sectoral level, being higher in the trade activities and lower in the manufacturing industry.

As far as location of foreign investment is concerned, it is concentrated according to expectations in the most developed areas of the country, namely in the regions around Lisbon and Setúbal (80 per cent) and also, though with minor significance, along the coast of Northern Portugal around Oporto (9 per cent). From the sectoral standpoint, the manufacturing industry and trade concentrates the bulk of DFI in Portugal: 75 per cent of the enterprises, 86 per cent of the DFI and about 90 per cent of the sales of EFCs.

Considering the last two indicators, the most important sectors in manufacturing are: chemicals (13 per cent and 12 per cent), electro-mechanical and electronics (13 per cent and 17 per cent) and food industry (7 per cent and 10 per cent, respectively). Wholesale trade occupies the first place in service activities (31 per cent of DFI and 36 per cent of the sales of EFCs).

Technology acquisition

The following article, which we are sure will be of particular interest to the TIES members, is being reprinted in its entirety as it appeared in World Development, Vol. 10, No. 6, pages 513 to 521, 1982, published by the Pergamon Press Ltd., Oxford, U.K.

THE CHANGING REMITTANCE BEHAVIOUR OF UNITED STATES MANUFACTURING FIRMS IN LATIN AMERICA

1. Introduction

Remittance policies have been one of the critical issues in the financial behaviour of US manufacturing firms operating in Latin America. When, in addition to the steady outflow of dividends, charges against income such as interests, royalties, technical fees, and pricing of intrafirm trade were taken into account, the generalized impression that subsidiaries were following a remittance-oriented approach (Brooke and Remmers, 1973, p. 177) gained renewed support among Latin American analysts and policy makers in the early 1970s. At the same time, available evidence on local borrowing by these firms provided further support to the argument that with a small inflow of direct investment US affiliates were able to finance their local expansion while remitting a high proportion of their profits - through different channels - out of the region. The incidence of these practices upon the balance of payments led several governments to impose restrictions upon financial remittances.

Royalties and technical fees payments from subsidiaries to their parent companies have been affected by important policy changes in Brazil, the Andean Pact member countries, Argentina and Mexico. Dividends and intra-firm interest payments also have been regulated in different ways.

As restrictions have been particularly strong in the case of one channel for profit repatriation, i.e. royalties and technical fees, the overall record of remittances has to be examined to see the extent to which the subsidiaries have actually used other less controlled means like dividends and interest payments for their remittance needs. Different channels for profit repatriation are discussed in Section 2 with the purpose of assessing the remittance behaviour of US manufacturing subsidiaries in Latin America.

As this behaviour falls short of what could be expected of subsidiaries consistently following the remittance-oriented approach taken in the 1960s, it is very important to review the investment behaviour of US manufacturing firms. The evidence available on fixed investments by these firms in Latin America is discussed in Section 3 and some reasons are suggested to explain the investment record in the 1970s. On the basis of what has happened in relation to remittances, earnings and investments, some concluding remarks are made in Section 4.

2. Remittances and Earnings

(a) Royalties and technical fees

Royalties and technical fees were widely used by the subsidiaries operating in Latin America. Royalty payments were usually calculated on the whole output of the subsidiary, independently of the specific technology received from the parent company. Such remittances normally could be repatriated even in cases in which losses were declared by the subsidiary and had usually no time limit.

In addition, in some Latin American countries royalty payments were taxed at a lower rate than dividends and were treated, of course, as a cost item in the balance sheet (Chudnovsky, 1981).

Government regulations implemented in the 1960s and 1970s have changed the framework for using technological payments as a means of profit remission. Brazil was the pioneer in regulating intra-firm technological payments in Latin America. Since 1962 (Law 4131 on foreign investment) payments by subsidiaries to their parent companies for licenses on industrial property rights have not been authorized.

Regulatory efforts in this field gained momentum in the 1970s. Intra-firm technological payments were prohibited by Decison 24 (1971) of the Andean Pact, and in Colombia, Peru and Venezuela such payments are admitted only in the case of technical services. In Mexico, the Registro Nacional de Transferencia de Tecnologia has refused to authorize intra-firm payments for licenses on patents and trademarks since 1974, although payments for technical assistance to the parent companies are permitted. In Argentina, between 1974 and 1977, and in Brazil until 1978 (in the case of payments for technical assistance), royalties and technical fees paid by subsidiaries were considered to all effects as profits.

On the basis of the US balance-of-payments data, it is possible to detect the main trends with respect to remittances from US manufacturing subsidiaries operating in Latin America since 1966. As shown in Table 1, the most striking change is with respect to royalties and technical fees. The upward trend in global royalty payments in current dollars came to an end in 1975. Since that year royalties and fees were actually reduced in absolute terms1/ clearly indicating the effects of regulatory efforts.

However, as the timing and scope of the regulations have not been the same in every country, some contrasting experiences can be pointed out in the four countries which accounted for 80 per cent of Latin American royalty payments (Table 1). While in Brazil intra-firm technological payments have been relatively insignificant throughout the period of analysis, this has not been the case in the other countries. The growing trend in the use of royalties and fees in Mexico and Venezuela came to an end in the mid-1970s when the governmental bodies in charge of regulating technology transfer started to tighten their control on these payments.2/ Although the growth of these payments has been limited as a result of this intervention, the Mexican payments are still much higher than those made by Brazil. This is probably due to the fact that in Mexico payments for technical assistance are permitted, while in Brazil such payments have been highly controlled and subject to income taxes similar to those for dividends.

In the case of Argentina the effects of control in technology payments are visible since 1971 when the first law on the subject was enacted and particularly since 1974 as a result of Law 20794 - in force until 1977 - under which royalties remitted by subsidiaries to their parent companies were considered to all effects as profits.

It is clear that the reduction in total Latin American intra-firm technological payments to the US have been due mainly to the regulations enforced in the 1970s in Mexico, Argentina and in the Andean Pact countries.3/ Notwithstanding this fact, royalty payments could have been replaced by other remittance channels. Therefore it is worth examining the question of transfer pricing and the record of dividends and interest payments.

(b) Transfer pricing

Low tariffs on imported capital and intermediate goods, the existence of two foreign exchange markets (one for financial operations and another for commercial ones), the need for declaring low profits and some government restrictions on financial remittances have all been factors favouring the use of the transfer pricing mechanism in Latin America, especially in over-invoicing imports.

Starting with an investigation made in Colombia (Vaitsos, 1974), further studies in other Andean countries and in Mexico, Argentina and Brazil (Vaitsos, 1974; Chudnovsky, 1974; Wionczek et al., 1974; Katz, 1974; Frenkel, 1978) have shown the importance of import over-invoicing in transactions between parent companies and their affiliates in Latin America. However, most of the studies refer to the pharmaceutical industry and are based largely on evidence collected for the late 1960s and early 1970s, i.e. at the time when large remittances were typical in Latin America.

Restrictions on royalty remittances and lack of control by Latin American governments in the area of transfer pricing might have favoured the use of this mechanism in the late 1970s as well, though no evidence is available to document such recent practices.

(c) Dividend and interest payments

Dividend and interest payments have been also regulated by some governments,4/ though less strictly than royalties. It is then not surprising to detect an acceleration of their growth in current dollars for Latin America as a whole (Table 1) in the years after the control of technology payments became more effective and generalized, i.e. in 1975-1979 and particularly in 1979. This acceleration has been mainly influenced by large remittances from Brazil in recent years - where the system of controlling technology payments started long ago - and from Mexico. Although as a consequence of this acceleration, overall

1/ Notes are at the end of this article.

2/ Notes are at the end of this article.

3/ Notes are at the end of this article.

4/ Notes are at the end of this article.

Table 1. *Remittances and earnings from US manufacturing firms in Latin America (million dollars)*

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
(1) Royalties and fees														
Latin America, of which	90	95	112	105	116	116	124	135	147	153	127	123	132	134
Argentina	15	16	19	17	18	15	15	12	9	n.a.	8	8	20	8
Brazil	10	7	8	8	7	7	9	9	9	n.a.	8	15	3	−2
Mexico	33	42	49	47	52	51	58	73	85	97	76	63	78	92
Venezuela	7	9	1[illegible]	10	11	15	15	18	12	n.a.	8	10	5	9
(2) Dividends and interests*														
Latin America, of which	108	141	164	171	205	208	230	275	343	359	491	424	543	853
Argentina	26	38	39	53	46	27	n.a.	n.a.	22	2	23	49	79	146
Brazil	15	33	45	38	51	44	46	45	34	76	126	130	191	306
Mexico	33	36	39	48	64	70	65	74	74	111	157	77	113	175
Venezuela	14	14	13	19	20	28	40	75	40	53	47	45	62	60
(3) Overall earnings†														
Latin America, of which	362	319	485	539	580	570	724	886	1078	1313	1133	1225	1794	1887
Argentina	73	45	92	109	83	65	n.a.	n.a.	8	n.a.	156	69	10	391
Brazil	84	61	116	136	163	175	244	313	284	n.a.	459	395	662	243
Mexico	108	120	154	170	173	156	218	285	344	446	98	265	546	736
Venezuela	35	43	53	60	60	67	76	87	99	n.a.	137	178	163	59
(4) Pay-out ratios‡ $\frac{(1)+(2)}{(3)} \times 100$														
Latin America, of which	52	74	57	51	55	57	50	46	46	39	55	45	38	51
Argentina	56	100	63	64	77	65			100		20	83	100	39
Brazil	30	66	46	34	36	29	22	17	15		29	37	29	100
Mexico	61	65	57	56	67	68	56	52	46	47	100	52	35	36
Venezuela	60	53	45	48	52	64	72	100	53		40	31	41	100

Sources: For 1966-1974, US Department of Commerce, Revised Data Series on US Direct Investment Abroad, 1966-74. For 1975-1979, *Survey of Current Business*, August issues.

n.a. = data not available, generally to avoid disclosure of data of individual companies. For 1975 no breakdown of royalty payments at country level was available except for Mexico.

* Including earnings of unincorporated affiliates.

† Includes reinvested earnings, royalties and fees, dividends and interests.

‡ When reinvested earnings were negative, pay-out ratios became 100%. When one of the items was not available, pay-out ratios were not estimated.

Table 2. *Actual expenditures on plant and equipment by US foreign manufacturing subsidiaries (million dollars)*

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Latin America, of which	365	484	581	615	622	664	820	1043	1268	1477	1491	1464	1674	2131
Argentina	60	93	64	95	124	90	59	86	95	118	65	81	91	132
Brazil	91	142	200	206	189	269	442	572	710	798	738	736	747	881
Mexico	100	105	177	155	168	142	157	183	243	249	348	263	276	509
Venezuela	37	44	45	62	55	237	56	165	86	136	168	225	328	400

Source: Survey of Current Business, several issues

remittances have been augmented in absolute terms, it is relevant to examine the record of remittances in relation to overall earnings and to investments.

(d) Overall earnings and pay-out ratios

The evidence on overall earnings shown in Table 1 clearly suggests a steady growth in the 1970s. Such growth has been particularly influenced by high profits in Brazil in 1976-1979 and in Mexico in 1978-1979.

As overall earnings have grown faster than overall remittances, pay-out ratios were modified. This can be clearly seen in the average pay-out ratios (i.e. royalties and fees, dividend and interest payments as percentage of overall earnings) which decreased from 57 per cent in 1966-1970 to 45 per cent in 1975-1979. These changes in the pay-out ratios clearly suggest that the lower technology payments in absolute terms were only marginally compensated by higher payments through dividends and interests. In relative terms overall remittances were also lower when compared with the investments made by US manufacturing firms in the regions. While, in 1966-1970, royalties, dividend and interest payments by US manufacturing subsidiaries in Latin America represented on average 49 per cent of the investments in fixed assets made by these firms, in 1975-1979 they accounted for 40 per cent of such investments.

Contrary to what could be expected from some neoclassical explanations of dividend remittances these relatively lower remittances are not an indication of more reduced earnings.5/ Government policies on some remittance channels have not considerably affected the conditions for making profits and subsidiaries were able to augment their earnings. Such overall earnings have been increasingly reinvested in the region especially in the late 1970s.

This general trend is particularly visible in the case of Mexico and Venezuela where pay-out ratios have been generally lower in the more recent period - except in 1976 in Mexico and in 1979 in Venezuela - than in the previous period when there was no government control of technological payments.

5/ Notes are at the end of this article.

The Brazilian experience is quite different. Pay-out ratios in that country were the lowest in Latin America. Still, a decreasing trend is apparent in the period 1967-1974 and it is only in the more recent years that they have started to increase again, especially in 1979.

Data available for Argentina suggest a pattern of almost continuous profit repatriation that does not fit with the general trend for Latin America and is probably due to the particular political and economic situation in that country.

It is evident that the more restrictive framework for technological remittances has been implemented in an environment which has been conducive to making profits, as can be deduced not only from the pioneer case of Brazil, but also from the more recent experiences in Mexico and Venezuela. Such profits have been used for reinvestment in the region, especially to finance the higher expenditures in fixed assets.

3. Investment Patterns

US manufacturing investment in Latin America has been mainly attracted by the opportunities opened up by the process of import-substituting industrialization. Subsidiaries have concentrated their activities in producing first consumer good and more recently intermediate and capital goods mainly for the domestic market. Export activities have been gradually gaining importance in some particular subsidiaries, usually at the insistence of the host governments, but, in contrast to assets by US firms, but it also sheds light on the efficacy of government measures to control remittances.

Although the Argentine case is too atypical to be used as an example, it seems that mere government control of some channels without changes in the investment environment is not sufficient to modify the remittance-oriented approach followed by US subsidiaries in the country. Nonetheless, government regulations on intra-firm royalty payments have at least permitted an increase in local taxation on remittances.

It is apparent that in the case of Brazil the TNCs' positive reaction to the growing opportunities for investment in the first half of the 1970s explains the reduction in the pay-out ratios experienced in those years. It is in a framework conducive to reinvestment that the Brazilian policy of controlling royalty payments has been particularly effective.

In the cases of Mexico and Venezuela government control of such remittances has also coincided with growing opportunities for investment by the TNCs in those countries. As a result of both developments, a change from a remittance-oriented approach towards a more investment-oriented approach in the US subsidiaries is also visible.

It can be argued that, even without government control in the technology field, the subsidiaries would have changed their financial behaviour and reduced their remittances in order to have more profits to reinvest in these countries, especially because the international recession in the 1970s has reduced productive investment opportunities elsewhere.

Although no data are available to document cases in which growing investment opportunities in the manufacturing sector in Latin America have appeared in countries with little government control of royalty payments, this seems a plausible hypothesis. However, even in such cases government control in the technology field would have been necessary to eliminate a bias in favour of royalties as a remittance channel which only leads to fiscal losses for the host country.

4. Concluding Remarks

An examination of the remittances made by US manufacturing firms operating in Latin America has clearly shown that intra-firm technology payments have been reduced in absolute terms since 1975. This has been a consequence of government regulations in the Andean Pact, Mexico and Argentina which gained momentum in the 1970s.

Despite the growth of dividends and interest payments in current dollars in the second half of the 1970s, profit remittances - channelled either by royalties or by dividends and interests - have undergone a decline, from 49 per cent in 1966-1970 to 40 per cent in 1975-1979, when estimated as percentage of investments in fixed assets by US manufacturing firms in Latin America.

While the global record of repatriated dividends and interest payments does not suggest a shift from royalties to other normal means of remissions, the lack of more recent evidence on transfer pricing manipulation is not sufficient to exclude the use of this channel for the purpose of repatriating profits. In that connection, it is important to bear in mind that government control is practically non-existent in the area of transfer pricing and that the higher investment in fixed assets might have induced the use of transfer pricing in importing capital equipment from the parent companies.

Relatively lower remittances have not resulted from lower earnings. On the contrary, earnings have been growing faster than remittances and resulting pay-out ratios have been reduced from 57 per cent in 1966-1970 to 45 per cent in 1975-1979. This general trend is particularly visible in Mexico and Venezuela. It started much earlier in Brazil, where pay-out ratios have been the lowest in the region, though a reversal of the trend is apparent in recent years. The continuous profit repatriation record of Argentina does not fit in the general trend, probably due to the political situation of the country.

Reinvested earnings of US subsidiaries in Latin America have been used to finance investments in fixed assets. Such investments by US manufacturing firms in the region have increased for several reasons such as: political changes in some host countries; specific policies aimed at fostering the industrializa-

tion process especially in connection with capital goods' manufacturing; less attractive prospects in traditional investment destinations and intensive competition faced by existing firms from TNCs based in Europe and Japan.

This new trend is clearly reflected in the growth of investment in plant and equipment, not only in the outstanding Brazilian case but also in the cases of Mexico and Venezuela.

It is in the context of a more attractive investment environment and of a more restrictive fr mework for remittances that the shift from a remittance-oriented behaviour to a more investment-oriented approach by US firms clearly makes sense.

Regarding government policies on this particular issue, it seems fair to conclude that the relative success of some host countries in controlling some remittance channels can be explained by both the efficiency of the controlling system and the modifications in the investment conditions. It is doubtful that in the absence of the more general changes in the investment environment, government control on only some channels of profit repatriation would have effectively modified the remittance policies followed by subsidiaries (as shown in the case of Argentina). However, even in that case regulations on intra-firm technology payments would have been necessary to eliminate the favourable fiscal treatment that such payments were so far receiving.

Beyond the relative government success in limiting some remittance channels, it is important to acknowledge that a higher overall foreign control of the Latin American manufacturing sector has taken place in the 1970s. Latin American industry is now more integrated into the TNCs' mode of operation, and economic policies vis-à-vis the TNCs, including their policies on remittances, are going to be more constrained by the increasing size of their investments.

Notes

1/ It is worth bearing in mind that the change in the pattern or royalty remittances in the 1970s is specific to Latin America. Intra-firm royalty payments from all US affiliates abroad grew at similar rates in the 1960s and 1970s while royalty payments from subsidiaries located in non-Latin American developing countries grew much faster in the 1970s than in the 1960s (UNCTAD, 1980).

2/ The Mexican Registry started its operations in 1973 while the Venezuelan Superintendence on Foreign Investment (SIEX) was created in 1974.

3/ The scarce data available for Colombia and Peru suggest a trend similar to Venezuela regarding technology payments.

4/ Dividends have been controlled in different ways: from ceilings on profit repatriation (e.g. in Decision 24 of the Andean Pact a ceiling of 14 per cent - later modified to 20 per cent - of the registered capital was included) and an additional withholding tax on dividends (e.g. Brazilian Decree 76186 of 1975) to administrative measures by the Central Banks to delay foreign exchange authorizations for profit repatrations. Intra-firm interest payments have been regulated in the Andean Pact Decision 24 (article 16) and in the Argentine law on foreign investments (No. 21,382 of 1976, article 20) and have to be registered in the Central Bank of Brazil. The approach followed in these regulations is to approve interest payments, provided that the terms are similar to those applied for inter-firm loans. However, the way in which these specific regulations have been implemented is not known and has probably been influenced by global external borrowing policies followed in those countries.

5/ For example, after studying the behaviour of controlled foreign corporations (CFCs) in developed countries Kopits (1972, p. 341) concluded that 'the higher the net earnings of CFC's or lower the growth of their desired capital stock, the larger is their dividend pay-out to United States parents'. While dividends and net earnings can be easily estimated from companies' information, this is not the case with the desired capital accumulation. Such a variable, in the Kopits' model, depends on the price and quantity of output, on the user cost per unit of capital services, deflated by the price of capital goods, and on the elasticity of output with respect to capital input. If actual expenditures in fixed assets could be used as a proxy for desired capital accumulation in the Kopits' model, it would be possible to suggest that the higher the investment in fixed assets, the lower the remittances. However, the way in which desired capital growth is calculated prevents such an interpretation.

However, it has been estimated that the share of US accumulated investment in total investments by Development Assistance Committee (DAC) members in Latin America has decreased from 66.1 per cent in 1967 to 59.6 per cent in 1976. In Brazil the share of US investments in the total foreign direct investment in the country declined from 37.7 per cent in 1971 to 30.4 per cent in 1977, while in Mexico the participation of US investment in total foreign investment fell from 79 per cent in 1970 to 69 per cent in 1980. See Calcagno (1980, Tables 7, 13 and 15), UNCTC (1978, Table III-49) and Business Latin America (10 June 1981), p. 182.

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