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WOMEN IN THE PHARMACEUTICAL SECTOR -  
A CASE STUDY OF THE EXPERIENCE OF PUERTO RICO\*

Summary

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TABLE OF CONTENTS

	<u>Page</u>
1. Preface	1
2. Introduction	2
3. Part I Political and economic features special to Puerto Rico	2
The pharmaceutical (drug) industry to Puerto Rico	2
4. Part II Economic parity	4
5. Conclusions and recommendations	6
6. Short and long term policy recommendations	6
7. Details regarding appendices	8

## 1. PREFACE

The contribution of women to the industrialization process of their countries is a vital element in overall economic and social development. Women are increasingly participating in and contributing towards the industrialization process - be it in the small-scale and informal production sector where their contribution is largely unrecorded but indispensable in supplying rural and urban community needs - be it in the modern industrial sector where the overwhelming majority of women are limited to a small number of low skill and poorly rewarded jobs. Women's contribution to manufacturing is however not limited to production work only. Women are also involved as entrepreneurs and in production related activities namely in government administration, industrial research, quality control, marketing etc. However, training opportunities for women in industrial production skills are insufficient and are largely limited to traditional occupations. Vocational guidance and career counselling to women students is generally inadequate. Specific measures are required to increase the number of trained and qualified women. The emergence of high technologies is rapidly changing the conditions of the international production system and the skill content in manufacturing activities is undergoing significant changes. Human resource development will increasingly provide the competitive edge in industry. Export oriented industries are among the first to be effected. The significance of this development for women is obvious. If women are to partake in this process on an equal footing with men, careful analysis of their present contribution is needed and the prerequisites for their future participation have to be determined.

The Nairobi Forward-looking Strategies for the Advancement of Women called for key measures to promote the participation of women in the industrialization process, both as agents and beneficiaries of development. The General Conference of UNIDO in December 1985 in its resolution GC.1/Dec.29 stressed the important role of UNIDO in the implementation of the Nairobi Forward-looking Strategies as they relate to Industrialization and the need to facilitate the integration of women in its programmes. As part of its preparatory work for the Third Consultation on the Pharmaceutical Industry, UNIDO commissioned a case study on women in the Pharmaceutical Sector. Puerto Rico was selected as a country with a high technology industrial sector that has many characteristics of a developing country while being politically and economically fully integrated into the economy of the United States. Statistical data and information were therefore readily available to substantiate the study.

This paper gives a summary of the study prepared by a UNIDO consultant, Suphan Andic, "Women in the Pharmaceutical Sector-An Assessment of the Experience of Puerto Rico". The full text of the Report can be made available by the Secretariat of UNIDO upon request. The views expressed in this study and in this summary paper are those of the author and do not necessarily reflect the views of the Secretariat of UNIDO.

## 2. INTRODUCTION

The purpose of this study is to highlight and exemplify the experience of women in a high technology environment as it exists in Puerto Rico

The data comes from a country with a high-technology industrial sector, and a record labour force participation for women. It analyzes support and initiatives for the female labour force. Part one assesses past and present situations; and part two presents a qualitative study of women's economic participation, taking into account sociological, political and ideological factors through informal interviews. It enters into an exploratory avenue, trying to relate women's employment to specific factors and indicates implications for potential policy measures elsewhere in the world keeping in mind Puerto Rico's political and economic integration within the United States of America.

## 3. PART ONE

Political and economic features special to Puerto Rico

The total economic and political union with the United States of America gives Puerto Rico a state-like status. All statutes, regulations and laws apply; e.g. minimum wage, equal opportunity, environmental protection, etc. But it benefits from federal income tax and fiscal autonomy. Industrialization, specifically manufacturing, has been the key to development over the last 35 years. This successful development raised labour skills (education-training-employment), and this in turn raised the wages. Then came the capital-intensive high-tech industries. This study assesses the role of women in the pharmaceutical industry's progress.

The pharmaceutical (drug) industry in Puerto Rico

It is one of the largest and most significant of the chemical and allied products sector. Every major US producer is represented because of tax exemptions. Nevertheless it underlies stringent US rules. These large scale operations with an average number of one hundred and sixty employees offer 40% skilled jobs. They provide stable employment, longer work hours if wanted, and fringe benefits. The first significant plant was established in 1960. The pharmaceutical industry then absorbed 60% of the job losses in the tobacco and textile industries, profiting of already skilled labour. Its employment multiplier is 4.62; with an income multiplier of 2.86.

Some facts on women in the drug industry. The overall employment figures increased from 134,260 (24.6%) in 1960 to 268,596 (36.6%) in 1980. The rise in the manufacturing sector consists of only 67%, while the average employment figures rise by 100%; for male employment only 12%! 73.4% of the job gains from 1970-80 are for women, with a share of 38% share in the total employment of the pharmaceutical industry. All this information is taken from the female Employment and Chemical Industry figures. This is justified as the pharmaceutical industry makes up 80% of this sector.

Prior to the massive industrialization process, women received low wages at low productivity jobs. After very high increases of their numbers, women made important inroads into "male" fields; one fifth of the managers are female. Sectors with marked increase are also the professional and technical, precision and crafts, etc.; a marked decline is experienced for the purely operational sector.

In 1980 women are better educated than men; a female change of attitude to the labour market shows results, and men as "breadwinners" may have to start working earlier.

In the pharmaceutical industry however women with a high school graduation have only a slight majority over men. In upper levels women are better educated than men. The pharmaceutical industry employs the best educated men of any sector; whereas very highly educated women tend to prefer other sectors, they go in large numbers to other fields. In general the large operations in the pharmaceutical industry require a high skill and education level from their candidates. Hourly earnings in this industry are very high, US\$ 7.36; second only to the tiny oil industry. But male earnings remain higher and rise slightly higher than female earnings; even though a higher increase in women's salaries since 1970 can be registered.

These comparisons omit individual components through generalization, such as length of time per year on the job, different average age in different sectors, seniority. Some crucial factors among them low starting salaries for women in high positions- because they are new, less experienced, and the lower proportion of college educated women in the pharmaceutical industry need to be mentioned to explain the lower wages. For more details please refer to appendices I and II of the study and to the following tables 9 and 11.

Table 9  
PROPORTION OF FEMALE EMPLOYMENT IN OCCUPATION\*  
Puerto Rico: 1960, 1970, 1980  
(%)

	1960			1970			1980			
	Total	Mfg.	Chem.	Total	Mfg.	Chem.	Total	Mfg.	Chem.	Pharm.
All Occupations	24.6	40.0	14.9	30.9	44.3	29.7	36.6	43.3	34.9	40.5
Exec., Adm., Mgr.	9.5	9.5	12.5	15.0	8.9	10.4	26.2	17.5	17.2	18.9
Prof'l & Tech'l	47.2	10.6	20.7	48.2	16.9	22.8	55.1	25.2	26.9	30.3
Sales	18.0	6.5	10.5	22.4	10.2	22.4	27.7	16.7	13.5	12.7
Clerical	52.1	41.5	43.3	58.8	53.8	65.1	65.4	58.6	66.0	71.8
Service	55.3	10.6	4.2	45.0	11.6	6.9	40.7	8.1	7.8	10.5
Precision & Crafts	3.2	9.1	1.8	6.2	17.8	5.6	9.0	22.8	14.0	15.2
Operat'ives	39.0	56.8	15.3	41.1	59.3	38.9	39.5	58.2	46.8	54.3
Laborers	1.7	8.7	-	5.1	18.8	13.2	10.4	32.6	43.0	49.9

Source: U.S. Census 1960, Table 110 ; 1970, Table 145; and 1980, Table 122 & 5% sample .

Table 11  
**EMPLOYED PERSONS IN THE DRUG INDUSTRY BY OCCUPATION  
 AND LEVEL OF EDUCATION**  
 Puerto Rico: 1980  
 (% Distribution)

	Years of Schooling				
	<u>1-8</u>	<u>9-11</u>	<u>12</u>	<u>13-15</u>	<u>16+</u>
<b>Males: All Occupations</b>	9.2	11.7	41.0	18.3	19.8
Exec., Adm., Mngr.	-	2.6	12.8	17.9	66.7
Prof. & Techl.	-	-	25.0	27.1	47.9
Sales	-	7.7	7.7	23.1	61.5
Clerical	5.6	11.1	33.3	38.9	11.1
Service	38.2	14.7	35.3	8.8	2.9
Precision & Crafts	5.3	12.8	53.2	13.8	14.9
Operatives	10.9	16.0	54.6	16.8	1.7
Laborers	11.1	22.2	37.0	22.2	7.4
<b>Females: All Occupations</b>	7.1	11.9	48.5	19.8	12.7
Exec. Adm. Mngr.	-	-	22.2	11.1	42.9
Prof. & Techl.	-	4.8	38.1	14.3	42.9
Sales	-	-	50.0	-	50.0
Clerical	4.3	2.2	39.1	39.1	15.2
Service	25.0	50.0	-	25.0	-
Precision & Crafts	-	-	41.2	23.5	35.3
Operatives	7.7	15.5	58.5	14.8	3.5
Laborers	18.5	22.2	40.7	18.5	-

Source: U.S. Census, 1980, 5% Sample

#### 4. PART TWO

##### Economic parity: other forces than labour market rules have increased female levels of participation in the pharmaceutical industry

a) Legislative actions reflecting and crystallizing new social attitudes towards women. Since 1919 protective actions for women had been in effect; these time regulations barring women workers from night shifts had been repealed in 1975. Other laws in the 70's forbade discrimination, in line with the US Civil Rights Act of 1964; the Equal Employment Opportunity (EEO) allows no restrictions against women and does away with terms like "too haru

work"(see below).All these are applicable for private employers over 15 people. Furthermore Title IX of the Education Amendment which funds public institutions may withdraw support from employer-related programs, if these do not respect Equal Employment Opportunity (EEO). The federal compliance program will withdraw federal contracts if these regulations are not respected.

All of this together creates Equal Opportunity Employers in Puerto Rico, and forces are at work to gradually remove the last barriers of discrimination. In other societies these forces may not be as powerful or as effective. Past legislation with good intentions effectively barred women from full participation, higher responsibility, i.e. higher wages.

b) No specific requirements exist to train the female labour force. The categorization of jobs "suitable for women" has been abolished. Fringe benefits are open to all, for women there is in addition the maternity leave. Training programs within companies, employment service on-the-job training and training for specific industrial needs are all readily available.

c) Industry practices in recruitment, training and promotion were collected informally. Top level management is nearly exclusively male, female inroads exist. Overall 30% of the labour force is female. The sectors in which women become managers are finance, control, forecast and treasury. In essence companies are gender blind while recruiting; they want the best person for the job.

Experience shows that women assimilate well in teams, they are better trainers and trainees. They further no negative absenteeism rate increase and return after their maternity leave. Women do not suffer from more stress than men, but they heed medical opinions better. In higher positions they work better than men and show more assertiveness. Some women shun night shifts, taking a loss of up to \$1.00 per hour, while others find it good. Companies have been restructuring work accordingly, at the same time being helped in reducing the accident rate.

Women are reluctant to work in all male teams. Out of a social(female) perception this is not appropriate. Companies need to redesign these jobs.

Other social perceptions are significant. Female applicants stay away from the trades, and companies do not go out to hire them. A lack of assertive training exists; there is a need to make women conscious, aware and confident of their capabilities.

Companies further constant training , with an upward push within their ranks. Thus company-own training, on-the-job training and cross-training for job enrichment often lead to promotion within the plant. Companies offer educational cost reimbursement programs with all the workers being eligible. They can take time off for this. Summer internships are offered to students. Training seminars fly in specialists to the plants. Finally the individual personality of the worker plays an important role.



## 5. Conclusions and recommendations

The changes so far in Puerto Rico's pharmaceutical industry involve six times more women employed, today 38% of the labour force. Women's occupations changed drastically and significantly in the chemical industry. They made "inroads" into "traditionally male" occupations, in line with the high skills requirements of the pharmaceutical industry. Encouraged by policy measures at society and company levels, women labour supply responded quite vigorously to changing industrial demand patterns. But their income falls short of male incomes by 20%, so does the proportion of college degree holders although minimally. Plants are training intensive, in-plant mobility is encouraged; this together with a necessary restructuring of certain jobs and Equal Employment Opportunity (EEO) provided women with top-level employment. However, more positive action is required. Equal Employment Opportunity (EEO) should be implemented more strictly and effectively. There is a need to change the attitude of judging women prior to their performance. They should not need to prove themselves before recruitment (unlike men). Education and consciousness creation are the priorities, for the latter, public relations companies should further new attitudes and display the new circumstances involving women in the society today.

Obstacles lie in embedded perceptions of both men and women as to the functions of women in society, the type of work for women and the social atmosphere found on place and/or needed for women labourers.

Actions are necessary to redress deficiencies at the workplace(short term) and on societal level(long term). In the long term the aim must be to eliminate barriers, assure educational levels, guarantee human capital accumulation. Expectations must be raised by eliminating sex-role socialisation that affects value association, which in turn is passed on to the next generation(children) -perpetuating skill and personality traits.

## 6. Short and long term policy recommendations

### a) Short term

- The pharmaceutical industry in Puerto Rico is extremely training intensive, it needs to continue emphasizing on-the-job training, and encourage in-plant mobility. Vocational and literacy training are needed (mathematics, English, Spanish).
- Occupational segregation must be addressed directly; Equal Employment Opportunity (EEO) must raise job demands and give an impetus to supply. Career aspirations and possibilities need to be transformed. Training in technology is necessary, as well as more incentive legislation.
- Important changes need to be made through restructuring and redesigning jobs to eliminate barriers such as "physical strength"; and training to raise female assertiveness. Appropriate labour information must be provided as well as counseling useful to women.

b) Long term

- Accent human capital formation (training can make up for the differences in male/female skill acquisition) and improve the overall education system; ("those that are being trained are not sufficiently trainable"!); Between 1977 to 1980, 90% of the job gain went to individuals with 12+ schooling years; job losses correspond to individuals with less than 9 years. Manufacturing has become technology intensive. Only high-tech industries are raising their employment. The pharmaceutical industry counts among the top 10 of such industries.
- Build up a data base: Assessment of women's involvement in the development process and particularly in their employment and upward mobility in industry requires supplementary and detailed micro data base. Serious efforts should be made by the national statistical services to compile labor force and employment data by sex, occupation, earning, industries, demographic characteristics, hours and weeks worked, etc. and to carry out surveys of individual industries where women's participation is considered to be of special significance in their economic progress.
- Introduce legal reforms regarding civil rights (in some developing countries this may not be enforceable). Countries differ in socio-political texture; religious implications shape the role of sexes in society, different historical developments have created very specific situations. Each society should alter the values responsible for the constraints in order to achieve an egalitarian aim.

These recommendations are derived from the Puerto Rico situation; which represents an economy on the way to development, and shows socio-political traits common to many developing countries; but with all the advantages from the membership in the USA.

The single most important recommendation of this study is that men and women should have all the avenues open for acquiring skills and applying for whichever jobs they choose.

## 7. APPENDICES

The appendices refer to the one which form the part of the main study.

### Appendix I

Due to change, the classification of occupations is not strictly comparable over the years.

### Appendix II

Methodologies to evaluate equal pay for equal work:

#### a) Without econometrics

first step—the male/female labour force ratio  
second step—adjust it by occupational characteristics  
third step—adjust for hours per year worked for occupation/sex  
fourth step—adjust for level of schooling  
fifth step—adjust with median age of men/women, per occupation, per hours worked.

Thus all factors other than sex are included, and we should receive the real difference in earnings between men and women. Example: 1970 an overall difference in earnings of 40% is reduced at the second step to 15%,  
" " " " " " " " at the fifth step to 8%!

#### b) The econometrics approach:

Explaining the male/female earnings gap through differences in the amount of human capital (schooling, experience, skills, etc.). It does NOT account for sociological data such as marital status, nb. of children, hours worked, degree of efficiency of Equal Employment Opportunity (EEO), institutional or cultural factors.

It becomes very complex if a large number of variables is being used. Its strengths are that it gives results for any given occupation or sum of occupations; it identifies the importance of individual factors not related to sex. Thus appropriate measures can be taken.

#### c) Index of occupational segregation:

It varies with relative size and sex composition. Complete segregation is 100; complete integration is 0. To determine "traditional" fields of employment, the male/female proportion of the total labour force is compared to their proportion of jobs held within any occupation. A typical male occupation is where 5% more male workers (than in the total labour force) are employed; the same applies to female occupations. If female employment increases, one speaks of a decline of segregation in a typically male field, or of an occupational dispersion.

An equal distribution or an integrated occupation lies within 5% of the share in the total workforce.

### Appendix III

Recruiting, training and mandatory benefits in Puerto Rico: laws, organisations for women, etc; a listing.

### Appendix IV

Topics of discussion for the informal questionnaire, relating to women's employment in Puerto Rico's drug industry.