LABOR INCOME DIFFERENTIALS WITHIN THE LATIN AMERICAN FREE TRADE AREA (LAFTA)

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This article considers the major results of a study of relative wage structures in the LAFTA region. It first discusses the nature and methodology of the study, which was undertaken for ECIEL. Data on the size of labor income differences are introduced, and an attempt is made to determine the causes of such differences, and to relate them to various wage differentials. The main findings of the study are then summarized, with discussions of inter-country, intra-country, and occupational labor income differentials and their causes. Finally, the results of the study are updated to the end of 1970, and some conclusions are derived regarding the inter-temporal behavior of wages in LAFTA.

In this article the principal results derived from a study of wage structures in the LAFTA region are considered. This study was undertaken in a collaborative fashion within the framework of the Program of Joint Studies for Latin American Economic Integration, known under its Spanish acronym: ECIEL.[2]

The essay first provides basic information on the study, to allow the reader to grasp the essence of its nature and methodology. It then ponders the causes of labor income differences, relating them to the sizes of the various wage differentials. This is followed by a summary of the main findings of the study, focusing consecutively on inter-country, intra-country and occupational labor income differentials. Finally, the results of the study are updated and some conclusions are derived regarding the inter-temporal behavior of wages in LAFTA.

BASIC INFORMATION ON THE ECIEL WAGE STUDY

In order to make the study feasible, its scope had to be limited in several respects. First, research was restricted to the manufacturing sector. Nine representative industries were in turn selected within manufacturing, with emphasis given to three of them: metallurgy, textiles and pharmaceuticals.

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Second, special attention was given to the modern sector within the industries selected. The largest and most efficient firms were surveyed, especially those that were exporting or were considered potential exporters.

Third, not all occupations were covered. As an average twenty positions per firm were surveyed, with special consideration being given to twelve key positions. These were selected to represent the various administrative and plant positions in manufacturing.[3]

The measurement of wage differentials was based on two kinds of wage concepts: wages, defined as take-home pay, and labor income, defined on a labor cost basis. In both, special attention was given to a comparable and comprehensive treatment of fringe benefits. The wage surveys also collected information on the levels of education, experience and degree of responsibility or initiative required to perform satisfactorily in the administrative and plant positions covered.

Other pertinent data were also gathered. These ranged from the size of the firm to the cities in which the firms were located; from the number of employees per occupation to the timing of the labor contracts. All these were also helpful in attaining a more precise measurement of the wage differences, as well as in providing the complementary information which would aid in their analysis.

The methodology followed in the study was aimed at insuring precise comparisons among countries and within each country in the LAFTA area, as well as the isolation of the effects of each of the principal factors on wages. This required that the survey through which the data would be gathered be sufficiently comprehensive in terms of both coverage and the number of observations. Such conditions, as well as the greater reliability expected, determined that the survey be addressed to the firms (employers) rather than to the wage earners themselves.

After considering several alternatives, most of the statistical experiments of the study were undertaken using regression methods with dummy variables. Not only were the effects of each of the variables measured separately, but their interaction was also estimated by the use of slope dummies. On certain occasions the data set was partitioned into subsets to insure that certain variables were isolated or controlled.[4]

Main Causes of Wage Differentials

To discuss differentials in wage income in the LAFTA region is really to consider the wider problem of total income differences. Although the distribution of labor income is more concentrated than that of total income, basic income differences to a large degree reflect inequalities in the income received from labor. This is because labor income usually constitutes over half of total income. Moreover, entrepreneurial income is to a large extent the result of work. Thus, labor income differentials can provide a good indication of total income differences.

[3]For the development of similar concepts of job representativeness see John Dunlop's ideas on job clusters in "The Task of Contemporary Wage Theory", in John T. Dunlop (ed), *The Theory of Wage Determination* (McMillan, 1957), pp. 3–27.

[4]For further details see Jorge Salazar-Carrillo, *The Structure of Wages in LAFTA Countries, Anticipos de Investigacion, No. 1*, ECIEL, Rio de Janeiro, forthcoming.

Wage differentials have diverse origins. They seem to arise from differences in the country or region of residence, in skills and in the industry or firm of employment (e.g. modern or traditional).[5]

Beneath these factors lie the real causes of variation in labor income. They are short-run disequilibrium situations, degree of job unattractiveness or disutility, labor productivity, training and moving costs and other labor supply conditions, and imperfections in the product and labor markets.

Some of these are rather impervious to labor policy, like short-run disequilibria or compensating wage differentials, the latter reflecting how workers perceive the relative disutilities of performing certain tasks. It would be practically impossible to eliminate these sources of wage differentials or labor income inequality and thus they generally have to be accepted.

Others are more tractable, but may imply a decision as to their importance as a source of income inequality on the one hand, and as a signalling device for market adjustments on the other. This is basically the case when wage differentials mainly arise from labor productivity variations or supply factors. Wage differences due to differences in labor productivity, for instance, may act as the mechanism through which the labor supply structure adjusts to the corresponding structure of labor demand. If adjustments take place in this fashion, they may partly justify the differences found in labor incomes. However, it may be that some of these productivity differences are so ingrained that they will never correct themselves, in which case the policy maker may be justified in trying to suppress the resulting wage differentials, in order to reduce labor income inequality.

The case is quite different when market imperfections are considered. Here wage differences do not contribute to the functioning of the market mechanism by signaling scarcities in certain skills, industries or countries. Rather, the differentials may strictly contribute to inequality in the distribution of labor income, involving some high quasi-rents to particular kinds of labor.[6]

Thus, policies to reduce or eliminate market imperfections should be welcome not only as an improvement in allocative efficiency, but also in terms of a reduction of income inequality.

Relative Importance of These Causes in LAFTA

In the study of wages in the manufacturing sector of LAFTA countries, various kinds of wage differences (according to region, skill, industry and firm) have been controlled as much as possible so as to isolate one factor at a time. Those more difficult to control, referring to the various skill components of the

[5]These can be broken down more finely, for example, in terms of establishment (size, origin of capital, etc.) or skill (education, etc.) characteristics. In the case of skill differentials the wages may vary as a result of real or artificial differences. For example, under certain cirumstances higher education might result in better pay even though no clear improvement in productivity is related to it. The higher earnings in this case can be explained in terms of the credentials effect resulting from more education.

[6]If it were not for imperfections in markets, (especially labor), wage differentials, except those arising out of short-run factors, could be explained in terms of training and transfer costs and job unattractiveness.

employees or to the characteristics of the firms, were handled by means of regressions (with intercept and slope dummies).

As mentioned above, the basic data were obtained from wage surveys at the firm level.[7] Uniform sets of occupations and industries were covered in the survey. The information obtained referred to various wage concepts, and the skill, establishment and regional characteristics related to them.

On the basis of such a data base, the main types of differentials were measured, namely, inter-country (region), inter-skills, inter-industry and inter-firm. It is important to speculate on the extent to which these differentials indicate the relative importance of their various underlying causes. It would be quite useful to be able to separate the effects of each of the causes in some clear fashion, but this is quite difficult. In particular, it would be useful to get an impression of the relative importance of those causes that can be affected by policy, especially the crucial ones: transfer and training costs on the one hand and market imperfections on the other.[8]

Relative Importance of the Various Differentials in LAFTA

Before considering further the extent to which the different causes create labor income differences in LAFTA, it is necessary to review the magnitude of the various differentials, and to compare them to one another.

TABLE 1

Estimated Real Wages per Hour in the Textile Industry for Each LAFTA Country, November 1966[a]

	1st Quartile Absolute ($)	2nd Quartile Absolute ($)	3rd Quartile Absolute ($)
Argentina	0.56	0.77	1.06
Bolivia	0.34	0.42	0.51
Brazil	0.32	0.50	0.77
Chile	0.63	0.96	1.46
Colombia	0.63	0.96	1.46
Ecuador	0.27	0.46	0.79
Mexico	1.07	1.25	1.46
Paraguay	0.63	0.96	1.46
Peru	0.69	1.10	1.77
Uruguay	0.79	1.07	1.44
Venezuela	0.63	0.96	1.46
LAFTA Average	0.58	0.82	1.16

[a]Converted into dollars by using unpublished purchasing power parity rate provided by the Economic Commission for Latin America, for November 1966.

[7]Although most of the firms were modern, there was sufficient variation in their size and other characteristics, among and within countries, to allow for some analysis of inter-firm wage differentials.

[8]These are the two principal elements of wage differentials once the short-run and job disutility conditions are excluded. Other labor supply conditions and labor productivity basically influence the differentials through market imperfections and transfer and training costs.

TABLE 2

ESTIMATED REAL WAGES PER HOUR IN THE PHARMACEUTICAL INDUSTRY FOR EACH LAFTA COUNTRY, NOVEMBER 1966[a]

	1st Quartile Absolute ($)	2nd Quartile Absolute ($)	3rd Quartile Absolute ($)
Argentina	0.68	0.77	0.86
Bolivia	0.62	0.78	0.98
Brazil	0.39	0.58	0.87
Chile	0.62	0.78	0.98
Colombia	0.75	1.13	1.71
Ecuador	0.54	0.66	0.81
Paraguay	0.50	0.62	0.76
Peru	0.35	0.68	1.30
Uruguay	0.63	0.79	1.00
Venezuela	1.07	1.59	2.35
LAFTA Average	0.62	0.84	1.16

[a]Converted into U.S. dollars by using the unpublished purchasing power parities calculated by the Economic Commission for Latin America, for November 1966.

TABLE 3

ESTIMATED REAL WAGES PER HOUR IN THE METALLURGICAL INDUSTRY FOR EACH LAFTA COUNTRY, NOVEMBER 1966[a]

	1st Quartile Absolute ($)	2nd Quartile Absolute ($)	3rd Quartile Absolute ($)
Argentina	0.80	1.08	1.63
Brazil	0.45	0.54	0.73
Chile	0.39	0.62	1.12
Colombia	0.54	0.86	1.54
Ecuador	0.16	0.30	0.79
Mexico	1.95	2.11	2.24
Paraguay	0.29	0.42	0.67
Peru	0.29	0.54	1.28
Uruguay	0.61	0.82	1.24
Venezuela	0.79	1.14	1.86
LAFTA Average	0.63	0.84	1.31

[a]The conversion rates used are unpublished purchasing power parity rates provided by the Economic Commission for Latin America, corresponding to November 1966.

Beginning with the *inter-skills differentials*, there seems to be evidence that these are very wide within the region.[9]

In terms of net wages or take-home pay, and for the various occupations and industries covered in the study, the wages of a worker who finished seven or eight years of education and with about two years of experience are generally twice those of a worker with three to four years of education and about two months experience (see Tables 1 to 3). Of course, the greater the dispersion in the skills being compared the wider the divergence in wages. On the other hand, the ratio of

[9]See Elliot J. Berg, "Wage Structures in Less Developed Countries," in Anthony D. Smith, editor, *Wage Policy Issues in Economic Development* (London, McMillan, 1969).

TABLE 4

COLUMBIA AND URUGUAY: WAGE DIFFERENTIALS ACCORDING TO SKILLS BY INDUSTRY, WITH JANITOR AS BASE, NOVEMBER 1966[a]

	Colombia			Uruguay			
	Textiles	Metallurgy	Pharmaceutical	Textiles	Pharmaceutical	Metallurgy	Household Appliances
Production Occupations							
Janitor	100	100	100	100	100	100	100
Foreman	201	200	200	247	173	323	225
Truck Driver	145	146	149	182	160	161	136
Machine Operator	125	132	158	[b]	[b]	[b]	[b]
Lathe Operator	171	162	273	145	[b]	182	153
Maintenance Electrician	159	156	244	106	[b]	144	133
Quality Controller	147	162	[b]	[b]	[b]	[b]	[b]
Engineer Trainee	[b]	[b]	[b]	722	[b]	488	396
Administrative Occupations							
File Clerk	210	208	199	133	120	121	100
Typist	164	181	207	150	181	147	121
Invoice Clerk	252	290	244	163	131	129	121
Accounting Clerk	269	230	228	198	132	189	191
Cashier	361	514	302	262	177	259	211

[a]According to minimum salary paid by occupation.
[b]No observations available.

TABLE 5

VENEZUELA: WAGE DIFFERENTIALS ACCORDING TO SKILLS BY INDUSTRY[a]
(Janitor = 100)

Occupation \ Industry	Textile	Pharmaceuticals	Metallurgy	Vegetable Oils	Electric Products	Paper	Cement	Rubber	Automobile
Administration									
File Clerk	118	134	273	142	97	179	190	111	169
Typist	129	174	185	113	125	144	184	142	137
Invoice Clerk	170	174	150	168	137	123	173	128	210
Accounting Clerk	156	212	256	208	221	183	166	176	240
Cashier	392	246	257	299	162	461	303	237	312
Mean Wage, Administrative Positions	193	188	244	186	148	236	203	159	214
Production									
Janitor	100	100	100	100	100	100	100	100	100
Industrial Machine Operator	125	101	166	132	121	173	169	156	142
Lathe Operator	230	298	244	161	186	269	198	184	199
Electrician	148	254	163	184	265	255	203	162	202
Engineer Trainee	335	532	685	1052	581	485	608	397	647
Driver	143	177	166	141	173	176	194	129	242
Foreman	210	254	360	226	227	307	260	208	312
Mean Wage, Production Positions	184	245	269	285	236	252	247	191	263

[a]Based on minimum salaries paid by occupation.

wages paid to skilled employees to those of unskilled employees (e.g. janitors) was found to be a little over two (see Table 4).

The differences discussed above are those in the starting or minimum wages for the various skills.[10] The ratio may be higher for particular positions. For example, if the engineering trainee is considered as the skilled position in the comparison, the skilled–unskilled ratio would be close to five in Venezuela (see Table 5). If the minimum wages of an engineering trainee are considered, in the case of Colombia (see Table 4) these would be seven times the starting wages of an unskilled laborer. When compared to the ratio of average earnings of the highest paid professional position to minimum wage earnings in the United States, it is seen that skill differentials are much greater in LAFTA.[11]

Considering now *inter-country* (regional) wage differentials, these also appear to be very wide.[12] Taking the country with lowest wages as a base, the country with the highest wages had wages which were usually three times those in the base country (see Table 6).

Surprisingly, these wage differences appear to be of a similar order of magnitude to the inter-skill differentials within each country. If the wage differentials are considered in real rather than money terms, the relative inter-country range (the ratio of wages in the country where they were the highest to those in the country) shrinks somewhat, becoming less than 2.5 (see Table 8).

In the case of inter-country differentials it is important to make the comparisons in real terms, because the *purchasing power of the various LAFTA currencies is quite varied.* In fact, as can be surmised from the narrowing of the intercountry differentials, those countries with higher wages usually have a higher cost of living as well, and vice versa. When wage differences inside a particular country are considered, obviously, the same currency is used, and the disparities between money and real wage differences are not as acute. However, there still may be some, depending mostly on the prices paid for consumption goods by different skill groups and on the geographical distribution of firms and industries within regions differing in their consumer price levels.

As to *inter-industry differentials* within the LAFTA countries, they were found to be much smaller. Thus, these are relatively unimportant contributors to labor income differentials. Usually the relative inter-industry ranges found in the study are of the order of 20 percent. For evidence on such differentials consult Tables 9, 10 and 11.

The last type of wage differentials to be considered is that *among firms.* On the results reported previously, size was used as a proxy for variation in firm characteristics and was kept as a controlled variable. When the effects of this variable on wages are measured in isolation, they are found to be significant, but

[10]To obtain a more realistic impression of the existing differences it should be noted that in some of these countries the same skilled to unskilled wage ratio is nearly doubled once the maximum wages of the skilled categories are compared ith the starting or minimum wages of the paricular unskilled position taken as a base.

[11]See V. N. Kothari, "Disparities in Earnings among Different Countries," *Economic Journal,* LXXX (Septemer, 1970).

[12]In the case of Colombia, where intra-country regional differentials were calculated, these were found to be significantly wider than the wage differences among industries and among firms, even though they referred fundamentally to the largest cities (see Table 7).

TABLE 6

INDEX OF MONEY WAGES IN THE MANUFACTURING INDUSTRY FOR LAFTA COUNTRIES, NOVEMBER 1966[a]

	Index (LAFTA Average = 100)
Argentina	104
Bolivia	58
Brazil	83
Chile	98
Colombia	99
Ecuador	52
Mexico	138
Paraguay	78
Peru	117
Uruguay	78
Venezuela	179

[a]This index is the result of combining and aggregating the individual industry indices for textiles, pharmaceuticals and metallurgy. Imputations were made for the missing industries in Mexico and Bolivia.

TABLE 7

COLOMBIA: ESTIMATED HOURLY WAGES, BY CITIES AND OCCUPATIONAL GROUPS, NOVEMBER 1966
(In Colombian pesos)

	Administration	Production	Total
Bogotá	16.24	10.13	13.28
Barranquilla	12.23	7.10	9.03
Medellín	19.91	10.26	14.71
Other cities	15.12	7.62	9.95

TABLE 8

INDEX OF REAL WAGES IN THE OVERALL INDUSTRIAL SAMPLE FOR LAFTA COUNTRIES, NOVEMBER 1966

	Index (LAFTA Average = 100)
Argentina	80
Bolivia	101
Brazil	54
Chile	75
Colombia	99
Ecuador	58
Mexico	159
Paraguay	79
Peru	91
Uruguay	100
Venezuela	120

TABLE 9

ESTIMATED REAL WAGES, PER HOUR, ACCORDING TO SKILLS, IN THE TEXTILE, PHARMACEUTICAL AND METALLURGICAL INDUSTRIES FOR LAFTA COUNTRIES, NOVEMBER 1966 [a]

	Textile	Pharmaceutical	Metallurgical
First Quartile	0.57	0.54	0.81
Second Quartile	0.84	0.87	1.04
Third Quartile	1.29	1.77	1.55

[a]Converted into U.S. dollars by using the unpublished purchasing power parities calculated by ECLA for November 1966.

relatvely small, as can be seen in Tables 12 and 13. It should be pointed out that this refers only to the limited ranges of variation in size of firm tested in the regression experiments.

Inter-firm differentials might have been larger if other firm characteristics, rather than size, had been used (origin of the firm's capital, technological mdicators, etc.), if some sort of overall or composite index of firm attributes had been attempted, or if size had varied more. All this notwithstanding, it should be stressed that it was found that inter-firm differentials were higher than inter-industry differentials. However, they could not begin to compare with the size of the other two types of differentials considered above.

It is clear that the inter-skill and inter-country differentials are the most important contributors to the skewness in the distribution of labor income within LAFTA. In comparison inter-industry and inter-firm wage differences are rather small.

From the relative importance of the various wage differentials it is possible to infer which of the underlying causes has the greatest impact. For this purpose the analysis developed and conclusions derived in the theoretical part of the study will be utilized.[13] There it was seen that inter-country wage differentials do not just reflect the transfer costs involved. Rather, as their size makes evident, they result basically from barriers to labor mobility and other market imperfections, like lack of information, etc.[14]

However, it should be recognized that although inter-country differences are rather large among the nations at the extremes of the wage indices presented in Tables 7 and 8, for particular subsets of countries they are much narrower. Although in the latter case the size of the differentials would seem to approximate transfer costs among the countries involved, this probably does not appear mainly as a consequence of labor mobility or market forces. Rather, it probably reflects similar production, labor supply and market conditions in some of the LAFTA countries.

[13]See Jorge Salazar-Carrillo, *op. cit.*, Ch. 3.

[14]Part of these wage differentials would be of a compensating kind. A higher real wage in a neighboring country may not prove an attraction to labor from a particular country up to the extent that it entails greater job disutilities. In other words, workers' preferences normally dictate that they would rather toil in their own country than accept a higher real wage in another one, as long as the difference is not above a certain range.

TABLE 10

COLOMBIA AND URUGUAY: ESTIMATED INTER-INDUSTRY WAGE DIFFERENTIALS FOR OCCUPATIONAL GROUPS, TAKING THE TEXTILE INDUSTRY AS BASE, NOVEMBER 1966

	Administrative Occupations		Production Occupations	
	Colombia	Uruguay	Colombia	Uruguay
Textiles	100	100	100	100
Pharmaceutical	110	110	114	102
Metallurgy	90	115	95	89
Household Appliances	n.a.	96	n.a.	86

TABLE 11

VENEZUELA: ESTIMATED INTER-INDUSTRY WAGE DIFFERENTIALS FOR OCCUPATIONAL GROUPS, NOVEMBER 1966
(Textile = 100)

Industry	Key Administrative Occupations Differential	Key Production Occupations Differential	All Key Occupations Differential
Textiles	100	100	100
Pharmaceutical	126	162	135
Metallurgy	120	130	118
Vegetable oils	150	159	140
Household appliances	100	159	137
Paper	100	117	100
Cement	100	127	114
Rubber	101	159	133
Automobile assembly	118	137	117

TABLE 12

URUGUAY: ESTIMATED INTERFIRM WAGE DIFFERENTIALS BY INDUSTRY

	Textiles	Pharmaceuticals	Metallurgy	Household Appliances
	Wage Indexes (Firm 1 = 100)	Wage Indexes (Firm 1 = 100)	Wage Indexes (Firm 1 = 100)	Wage Indexes (Firm 1 = 100)
Firm 1	100	100	100	100
Firm 2	73	78	55	90
Firm 3	67	100	74	112
Firm 4	100	100	72	100
Firm 5	63	100	70	—
Firm 6	80	158	54	—
Firm 7	—	100	52	—
Firm 8	—	127	—	—

TABLE 13
VENEZUELA: ESTIMATED INTERFIRM WAGE DIFFERENTIALS BY INDUSTRY
(Firm 1 = 100)

Firm in each industry	Textiles	Pharmaceuticals	Metallurgy	Vegetable Oils	Household Appliances	Paper	Cement	Rubber	Automobile Assembly
	Wage Index	Wage Index	Wage Index	Wage Index	Wage Index	Wage Index	Wage Index	Wage Index	Wage Index
Firm 1	100	100	100	100	100	100	100	100	100
Firm 2	100	151	77	100	100	100	181	129	100
Firm 3	100	167	100	50	100	128	—	100	100
Firm 4	—	142	100	—	100	—	—	—	—
Firm 5	—	139	100	—	—	—	—	—	—
Firm 6	—	100	60	—	—	—	—	—	—
Firm 7	—	124	—	—	—	—	—	—	—
Firm 8	—	123	—	—	—	—	—	—	—
Firm 9	—	100	—	—	—	—	—	—	—

The wide labor income differentials due to varying skills reflect a combination of high training costs with market imperfections.[15] As in the previous case it is impossible to say precisely to what extent each basic cause contributes to the wide inter-skill differentials found. Market imperfections, including monopoly elements, may give rise to important quasi-rents for certain skills. However, it would appear that these wage differences respond mostly to variations in the training costs required to acquire the skills. It should be recognized that part of the skill differences may come about as a consequence of hereditary and personality factors that cannot be acquired, such as family background, intelligence, motivation, etc. However, these factors appear to be highly correlated with the skills subject to acquisition.

Income distribution policy within LAFTA should take into consideration these points as well as some of those dealt with in previous pages. In particular, the very large differences existing among LAFTA countries have relevance for integration policies in the area, as they have to take into consideration the distribution of income not only within but also among the countries forming an integration scheme.

Integration policies can consider this problem in two ways. One would constitute direct attempts to redistribute income among the countries involved. A possibility suggested by this study would be to facilitate the movement of labor among the integrating countries as a form of alleviating the very significant labor income differences found.[16] Other means of facing the problem are of an indirect

[15]To what extent these differences result from skills pertinent to performance and to what extent they are due to a credentials type effect is almost impossible to determine. The fact is that, partly because either the real (skills) or artificial (credentials) labor force attributes are not equally distributed, differences in pay are quite large.

[16]As a result of these policies real take-home pay would probably increase faster in low wage countries like Bolivia and Ecuador, and slower in high wage countries like Venezuela and Mexico.

nature, as provisions for slower convergence to a common external tariff and a more lenient foreign investment code for the lower income countries.

As to the wide inter-skill differentials, which represent the other major source of labor income inequality in the LAFTA area, they have special implications for educational and training policies. Most of these differentials would seem to respond to differences in training costs; however, because other factors are involved, some of which are very difficult to influence (family status, intelligence, motivation, etc.) it is doubtful whether these policies can compress such differences to an acceptable range. Thus, more general income distribution measures, through fiscal policy, would have to be brought into play.

There are limits to the extent to which labor income differentials should be reduced. Such differences have an allocative function also, as long as they do not reflect market imperfections. The wage differentials that originate as a result of the latter should be minimized, of course. However, those that are not related to some sort of monopoly power should be handled with care, unless the government is prepared to use manpower policy as a replacement for market signaling. Obviously there are risks in following such course.

A Closer Look at Wage Differentials within LAFTA Countries

From a review of the results of the study some useful generalizations can be derived at a more detailed level. One is that labor skills or job content differences among firms and industries appear to be significant, but not that great, especially when referring to the same occupation. This can be concluded from the fact that the various intra-country wage differentials measured in the study do not change radically after adjustment for job content, even though the rewards to at least some of those skills are high.

The qualitative variables used for determining labor skills (education, initiative and experience) do seem to vary much more among occupations. Thus, wage differentials by occupational category (skilled–unskilled, etc.) are changed substantially after adjustment by education, initiative and experience.

Of these three education and initiative seem to be the more powerful determinants of wages. This has usually been the case for education and thus is not surprising. However, this result is interesting for the variable initiative, indicating the importance of elements like motivation, alertness, and responsibility in determining the intrinsic productivity of labor. It should be recognized that some of these conditions are difficult to change, except at an early age. However, others may be influenced by certain types of training programs. This area undoubtedly merits further research.

In contrast, the generally weak relationship found between experience and wage is also food for thought. It should be noted that this is especially so in the case of production workers and that it may result from several factors:

(a) A sudden quick expansion in the manufacturing sector, delving into the relatively young and inexperienced part of the labor force.
(b) A preference for on-the-job training by manufacturing firms.
(c) The fact that previous experience may not be that relevant for the tasks to be performed in manufacturing, which is of recent establishment in most of the countries examined.

In general, the positive relationship between qualitative variables and wages found in the various countries suggests that the labor markets are complying with their tasks of balancing demand and supply for different skills. Higher skills are more highly compensated, and therefore, wages are acting as signaling device in general. However, other indications seem to support the idea that labor markets leave something to be desired in allocating labor horizontally (among firms for example). From the situation in the countries examined it would appear that market imperfections are an important determinant of the labor misallocations encountered in Latin American countries. Other important factors are the institutional forces shaping the operation of these markets. As a result labor markets are not as efficient in Latin America as in advanced countries, with larger differentials being required for adjustments to take place.

The variation of the skilled–unskilled wage ratios and of the inter-firm labor income differences among the countries examined appears to be related to the growth performance of these economies in the second part of the 1960s. Mexico appears to have the widest wage structure, followed by Colombia and then Venezuela. Uruguay shows the narrower inter-skill and inter-firm differentials. This jibes with the hypothesis that the higher demand pressures being exerted by an expanding economy will result in higher wage premiums for scarce skills and for workers in those industries which are growing faster, given constant conditions of labor elasticity.

Finally, administrative wages were generally found to be higher than those of production workers, with Venezuela being an exception. This may explain the educational deficiencies long experienced by Venezuela, in which technical, professional and clerical skills have been relatively scarce. As to comparisons between the salaries of *skilled production workers* and those of administrative workers, no conclusive results emerge from the different country studies. It seems that with the exception of Venezuela, these countries have administrative wages which are too high, maybe as a result of the influence of the government sector or because of monopoly elements. This perpetuates the problem that most Latin American countries seem to be experiencing of a glut of white-collar workers in the face of scarcities of many kinds of blue-collar workers.

Inter-Country Wage Differences: Further Conclusions

It is remarkable that in the industries examined two thirds or more of the variation in real wages is explained by skill and establishment variables, plus the inter-country effect. Not only is this a large part of total variation, but its relative constancy is also surprising.

Actually most of the explanation of wage variation can be attributed to the skill and country variables as the establishment effect contributed only marginally to explanation. In similar attempts at explaining wage variation the degree of explanation usually found has been smaller. Giora Hanoch, for example, has stated that between personal (skill) and establishment variables 45–50 percent of the total variation is usually explained.[17] The rest can be attributed to random

[17]See Giora Hanoch, "Personal Earnings and Investment in Schooling" (Ph.D. Thesis, University of Chicago, 1965).

factors and institutional elements, and is very difficult to pick up systematically. The interaction between the qualitative requirements and the country variables do have an important effect on the explanation of wages and thus in the wage comparisons across LAFTA countries. This indicates that the returns or implicit prices for each skill factor (in this case education, experience and initiative) vary across countries. Thus, the wage differentials are not uniform throughout the range of these variables, and would also differ for varying combinations of these qualitative requirements. Therefore, the comparisons had to be based on various such combinations of education, experience and initiative in order to attain an acceptable degree of precision.

Another important result of the study is the fact that inter-country wage differentials do change substantially after wages are adjusted by the skill factors. This stems from the interplay of wages with the qualitative factors, and determines the importance of isolating or netting out the effects of these factors before measuring the real wage differences among countries.

In particular, wage dispersion is generally lessened after adjustment by the skill factors. This suggests that usually high wages are connected with high skill requirements and vice versa, within the LAFTA area. As a result the inter-country wage spread is narrowed after adjustment by labor skills. It should be noted, in addition, that the extent to which the differences in labor incomes are narrowed varies by industry, especially as to which countries' wages become higher or lower after adjustment.

After real wages have been adjusted by the skill factors, they can be compared on an industry-by-industry basis for specified combinations of such factors. In this fashion wage differentials according to skills can be computed for each industry and country. When this is done, no definite pattern of skill differentials emerges, with these varying by country and industry, and most of them hovering about a ratio of two.[18]

From the real wage levels calculated in the study, after adjusting by skills and controlling the industry variables, some inferences can be made about labor migration among the LAFTA countries. The main one is that labor should have flown from Bolivia, Ecuador and Paraguay to Argentina, Uruguay, Peru and Chile in the Southern Cone of South America. This is mostly borne out by the little that is known about the movement of persons occurring in the area. A greater attraction, in terms of real wages, is exerted by the countries in the Northern part of the LAFTA region. However, their distance from the low wage areas appears to have neutralized their attractiveness to a large extent. If labor movement is liberalized in Latin America, the flow of workers from Bolivia, Ecuador and Paraguay to other countries in the Southern or Northern part of the Hemisphere will probably be intensified, with more persons reaching Venezuela, Mexico and perhaps Colombia.

Finally with respect to the real wage comparisons, the inclusion of size of firm, a type of establishment variable, improves the explanation but not by much. On the other hand, the rankings and relative wages change substantially after the introduction of this variable in the analysis. The inclusion of size of firm brings

[18]See Jorge Salazar-Carrillo, *op. cit.*, Chapter 3.

about some rather odd alterations in the comparisons in some industries, and in general with respect to Bolivia. However, in the inter-country comparisons it would appear important to include such a variable, as it is pertinent to consider the effect of firm characteristics on wages.

Labor Cost Differentials in LAFTA

For several purposes it is useful to consider to what extent intra-LAFTA comparisons in terms of labor costs differ from those based on wages or take-home pay. After using the same exchange rates to convert wages and labor costs into a common currency, it was evident that the results were quite different, in terms of both rankings and wage relatives.[19] In particular it was found that there is less dispersion within LAFTA when labor costs are considered.[20]

Also the Southern Cone countries appear to have better fringe benefits and social security provisions, which can be considered substitutes for straight wages, and thus their relative position is improved in the labor cost comparisons.[21]

Introducing size of firm in the measurement of labor cost differentials has a stronger justification when the latter are used as a crude measure of comparative advantage. This is so because, dynamically, as an industry matures and grows, the size and other characteristics of its firms change, and the labor costs they face generally increase as a result. Therefore, considering the export possibilities of the various countries it is important to consider what its labor costs would be for firm sizes other than those existing at the moment of the survey.

Results are importantly altered when labor cost differentials are calculated after the effects of firm size have been isolated. As in the wage or take-home-pay comparisons the rankings and wage relatives are changed quite a bit and the dispersion is distinctly narrowed.

The inter-country comparisons show that labor costs are usually directly related to income per capita in LAFTA. The poorest countries (which also happen to be the smallest in terms of population) have the lowest labor costs and would appear to have the better export prospects, at least in labor intensive goods. However, Brazil and Colombia do not have much higher labor costs and would appear to have some advantages, relative to the former countries, with regard to technological advancement and marketing know-how, while having a larger market and perhaps lower capital costs. Thus, the export prospects for these two countries would appear to be even better. However, the labor cost advantages are not uniform across industries implying that there is room for specialization within the LAFTA area.

[19]Compare Chapters 3 and 4 in Jorge Salazar-Carrillo, *op. cit.*

[20]Labor costs include fringe benefits and social provision concepts that are not part of take-home pay.

[21]An interesting result that holds both in terms of wages and labor costs is that the LAFTA average is not significantly different in the three industries that have been especially examined in the study. In the face of large inter-industry labor income differentials inside each country, this suggests that there is no clear general pattern of high and low paying industries in the area.

Wage Differentials for the Same Occupation inside LAFTA

As has been pointed out above, an attempt was made to isolate the effects of the other principal factors determining labor income differentials, when the impact of each of them was being measured. In particular, when inter-country wage differentials were estimated, skill, industry and firm effects were neutralized as much as possible. However, among the skill variables, the occupational characteristics of the workers and employees included in the survey were allowed to vary.

This was done under the hypothesis that the wage variation introduced by occupational characteristics would be quite small, after the influence of other skill variables (education, experience, etc.) had been removed, and that it would not significantly affect the inter-country wage differentials. If this were true, the measurement of the latter would not be altered that much if the effect of occupation was also isolated.

When this hypothesis was tested, it was found that the inter-country wage differentials, after and before controlling for occupation, were largely coincident in terms of rankings and wage relatives. A larger dispersion was noted after occupation was controlled for. This results from the fact that the number of observations is reduced when only wages for the same occupation are considered across countries, which makes difficult the control of the other skill and establishment variables.

It should be added that the results were quite consistent for the various occupations considered. This was particularly true within the groups of administrative and production occupations. The rankings, and particularly the pattern of high, middle and low labor income countries, were particularly similar among the administrative occupations. The coefficients of concordance, which test such consistency, were 0.69 for all occupations put together, and 0.78 and 0.76 respectively for production and administrative occupations.[22]

Finally, an interesting conclusion that came out of contrasting the inter-country wage differentials for administrative and production occupations within LAFTA is that the wages of administrative workers are low relative to those of production workers in Argentina and Uruguay, when compared with the rest of the LAFTA countries. Just the contrary seems to be true in the case of Chile.

Updating Some of the Results

The wage structures that have been summarized here refer to the end of 1966 and the beginning of 1967. It would be useful to consider the LAFTA labor income levels at a more recent date. Because wage structures change slowly, it can be expected that the conclusions stated in previous sections would still be valid at the end of 1970 and the beginning of 1971, the period to which the figures presented in Tables 14 and 15 refer.

The more recent results show some important changes when compared with the earlier one. The overall labor cost indices appear in Table 14. Clearly, Mexico, Venezuela and Brazil had the highest labor costs within LAFTA at the end of

[22]All significant at the 1 percent level.

1970, with Mexico in particular being quite above the LAFTA average. These results are not surprising, except in the case of Brazil. The latter had money wages which were comparatively low at the end of 1966. The fast industrial growth since experienced by Brazil appears to have generated increasing tightness in the labor markets in that country, giving rise to sharp increases in money wages. Another factor to be considered, given that official exchange rates are used for conversion purposes in the comparisons presented in Table 14, is the relative appreciation of the Brazilian cruzeiro with respect to the other LAFTA currencies.

TABLE 14

OVERALL INDEX OF LABOR COSTS FOR A SAMPLE OF INDUSTRIES IN THE LAFTA COUNTRIES, IN DECEMBER 1970
(LAFTA Average = 100)

	Index
Argentina	109.9
Bolivia	65.7
Brazil	135.9
Chile	95.1
Colombia	79.5
Ecuador	40.2
Mexico	214.4
Paraguay	70.9
Peru	43.9
Uruguay	93.2
Venezuela	151.4

TABLE 15

OVERALL INDEX OF REAL WAGES FOR A SAMPLE OF INDUSTRIES IN THE LAFTA COUNTRIES, IN DECEMBER 1970
(LAFTA Average = 100)

	Index
Argentina	85.3
Bolivia	67.6
Brazil	119.9
Chile	109.6
Colombia	70.6
Ecuador	63.2
Mexico	153.7
Paraguay	91.2
Peru	111.0
Uruguay	86.8
Venezuela	140.4

If the low end of the scale is considered, the position of Ecuador has not varied much since the end of 1966. The same could be said of Bolivia, which seems to have had significantly higher labor costs than Ecuador. The relatively low standing of Peru, in between the previous two countries, is somewhat surprising. A large devaluation of the Peruvian currency (the sol) in 1968 might provide most of the explanation. A curbing of the unions, and increasing government control of money wages, might also help explain what seems to have been a much slower increase of manufacturing wages in Peru from the end of 1966 to the end of 1970.[23]

As pointed out above when comparing incomes or wages among countries it is important to make the comparisons in real terms, as the purchasing power of such incomes or wages probably varies substantially across nations. Thus, for a similar wage, differing prices for the wage goods may bring about significant differences in real levels of living. To accomplish such real comparisons the income data have to be converted into a common currency unit by means of

[23]Other noticeable changes during this period are the relative decrease of the Colombian and the relative increase of the Uruguayan labor incomes.

purchasing-power–parity exchange rates, rather than by official exchange rates, as was done before in Table 14.[24]

The overall index of real wages for LAFTA countries at the end of 1970 or the beginning of 1971 is presented in Table 15.

The difference between Mexico, Venezuela and Brazil, the countries with the highest labor costs, and the rest of the countries narrows in the real wage index. This would appear to suggest again that wages and wage goods prices move in the same direction across countries, and thus counterbalance each other.

As in the labor costs index, Ecuador and Bolivia had the lowest real wage levels in LAFTA at the end of 1970. Peru was not among the countries at the low end of the scale, as in the case of labor costs.[25] In terms of real wages Peru's position was much higher, suggesting a relatively low cost of living there, as well as lower social security deductions.

The main alterations in the real wage comparisons since the end of 1966 appear to have again occurred in the case of Brazil, and to a lesser extent in Colombia. It would appear that in relative terms real wages have grown substantially in the first country, while dropping significantly in the latter. Real wages also seem to have fallen somewhat in the case of Argentina.

[24]Those derived in another ECIEL study were used, at the end of 1970. See Jorge Salazar-Carrillo, *Price, Purchasing Power and Real Product Comparisons in Latin America*, Brookings Institution, forthcoming.

[25]In fact, Colombia had supplanted it in that position in the real wage index.