Low - wage Employment in Portugal:
social dimension and recent evolution

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I – Introduction

The main purpose of this paper is to analyse the incidence and anatomy of low wage employment in Portugal. In order to evaluate the essential characteristics and trend evolution of this phenomenon, we rely on micro data information concerning Portuguese workers. This information has been gathered annually, since 1982, and for the time being, the most recent data available refers to 1992.

The rest of the paper is organised as follows. Section II briefly presents some basic features about the Portuguese labour market in the 1982-1992 period. Section III describes the data source and the methodology used. Section IV presents the most important results of the analysis. Finally, Section V stresses the main findings.

II – Some Features About the Portuguese Labour Market

1. Labour market participation, unemployment, part time and temporary employment

The global evolution of activity rates over the 1982-1992 period and its breakdown by gender, is presented in the following figure.


Figure 1
Activity Rates
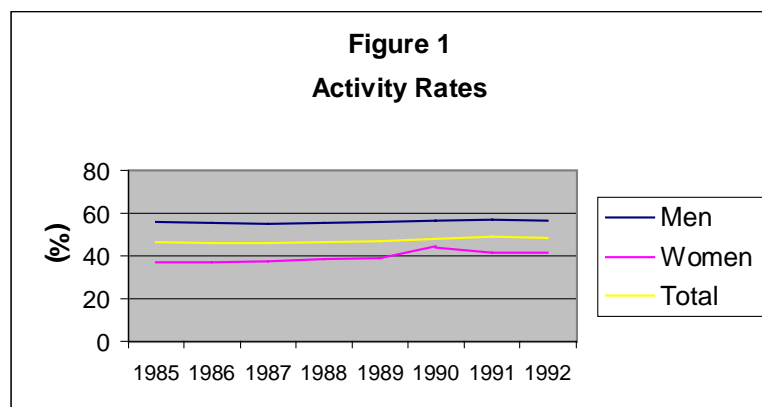
Activity rates by gender show a steady increase of female participation rates over the period under review. This follows a long term trend (started at the beginning of the 70's) mainly explained by changes in life styles, family composition and family and personal strategies towards labour market participation and income generation.

The total activity rate follows a similar, yet less marked, pattern. There is some evidence, however, that participation behaviour is different within different age groups, with decreasing participation of the youngsters of both sexes, due to longer schooling/training programs, as well as for older (i.e. persons aged 55 or more) men (Quaternaire *et al*, 1997), explained by early retirement flows.

Unemployment evolution, total and by gender, are presented in the next figure. Unemployment rates decreased almost by half between 1983 and 1992 (but have been rising since then). Again, a breakdown by gender reveals distinct features for men and women, the later being affected with much higher unemployment rates.
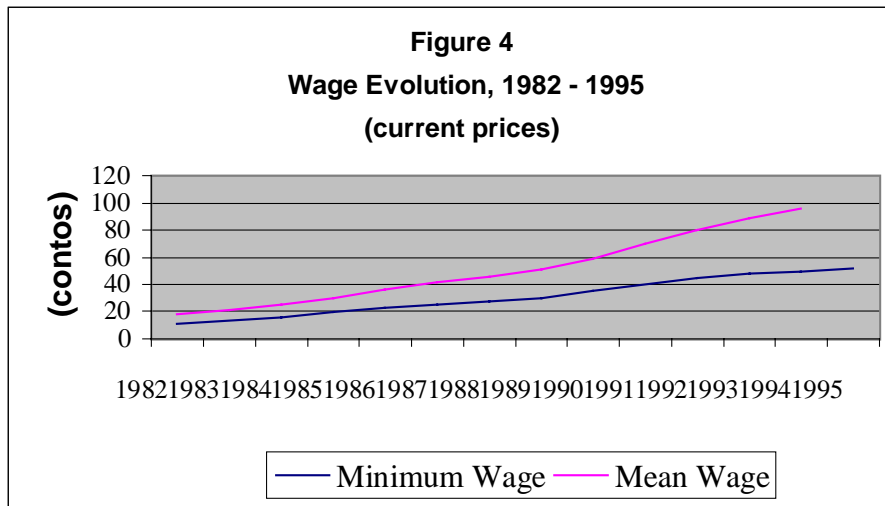
Figure 2
Unemployment Rates
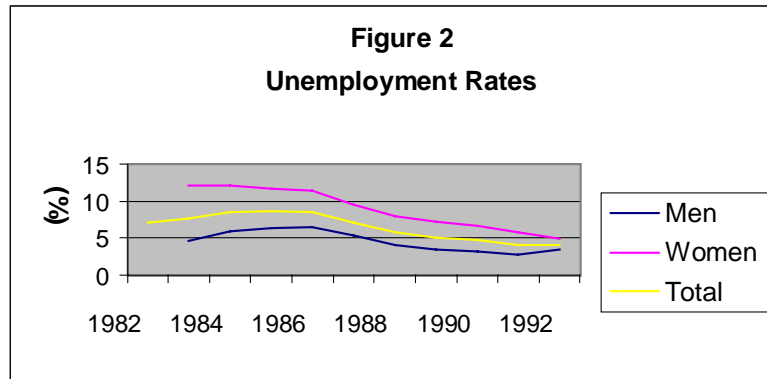
Significantly, temporary employment[1] rates also evidence a strong discrimination against women, as may be seen in the following figure.

Figure 3
**Temporary Employment Rates**

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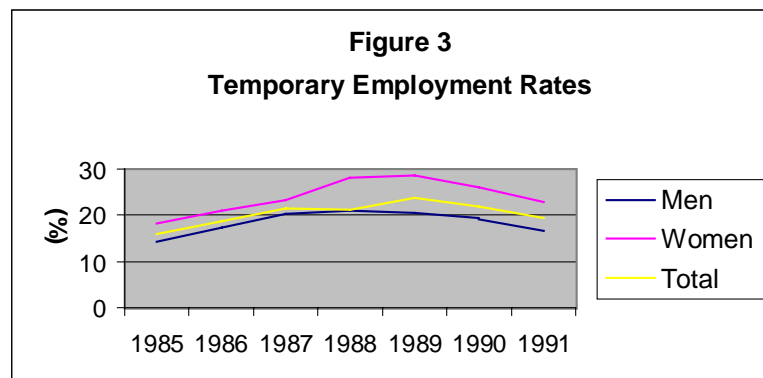
[1] Temporary employment includes all workers without permanent contracts: occasional, temporary or seasonal, or term-contracts.

2. Wage trends and distribution

Nominal wages, both minimum wage, set annually after social bargaining[2], and average base wages[3] increased over the 1982-1992 period, as illustrated in figure 4.

Figure 4
Wage Evolution, 1982 - 1995
(current prices)

However when we take account of inflation and compute real wages, as seen in figure 5, we are confronted with a steady minimum wage and a diverging upwardly trend of mean wages.

Figure 5
Wage Evolution, 1982-1995
(1982 constant prices)

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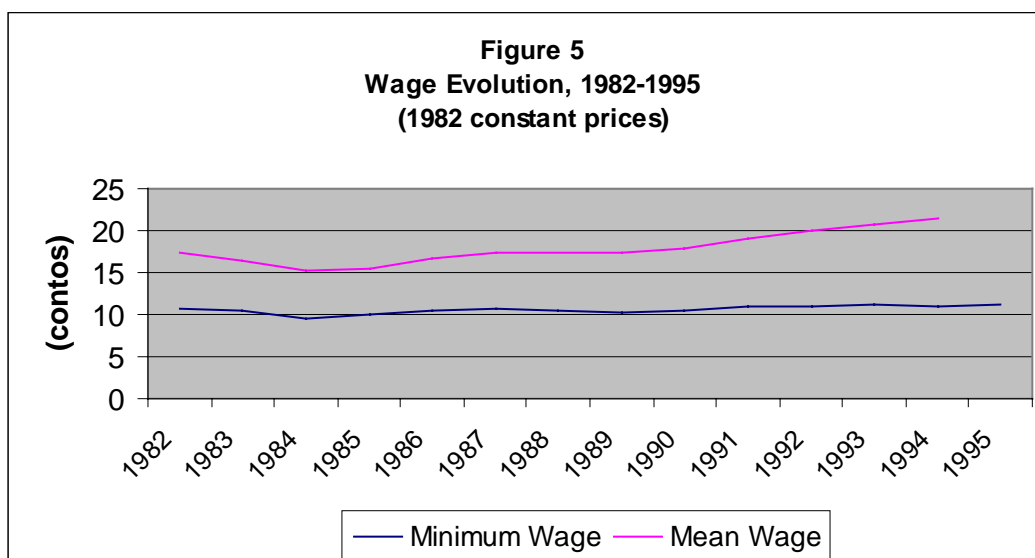
[2] Minimum wages are defined by law and cover three sectors: domestic work, agriculture, and other activities. We take this last as a reference.
[3] Base wage includes normal hours of work payments and others regular and fixed benefits. Wages and other characteristics of workers are collected by the Ministry of Employment and Social Security (MESS) and cover all pay employment except domestic work and public administration.

Wage distribution over the decade shows an increasing degree of inequality, evaluated by the Gini index, the Theil index, or by the share of each quintile, as presented in the following figures.

Figura 6
Gini and Theil Indices, 1982-1992

Figure 7
Relative Quintile Shares
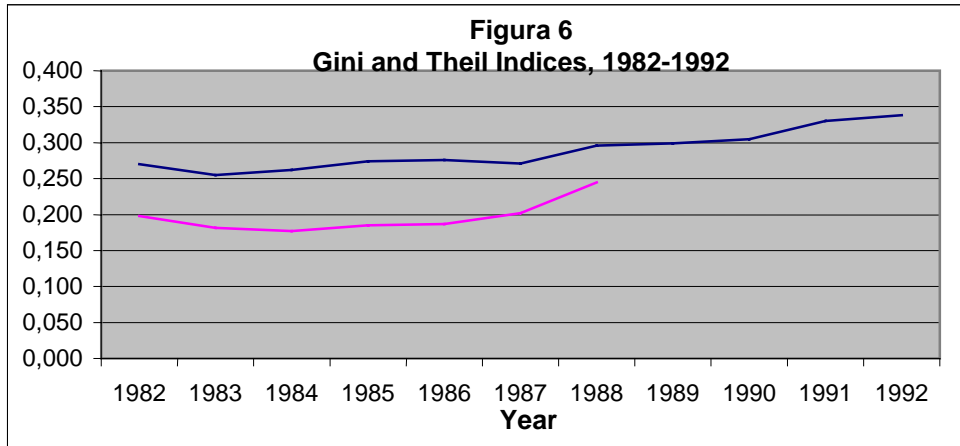
As displayed in figure 7, the increase in wage inequality is mainly determined by the behaviour of the right tail of the wage distribution. From 1982 to 1992 the first quintile lost 1 percentual point of total wage share, and the fifth quintile gained 6.7 percentual points.
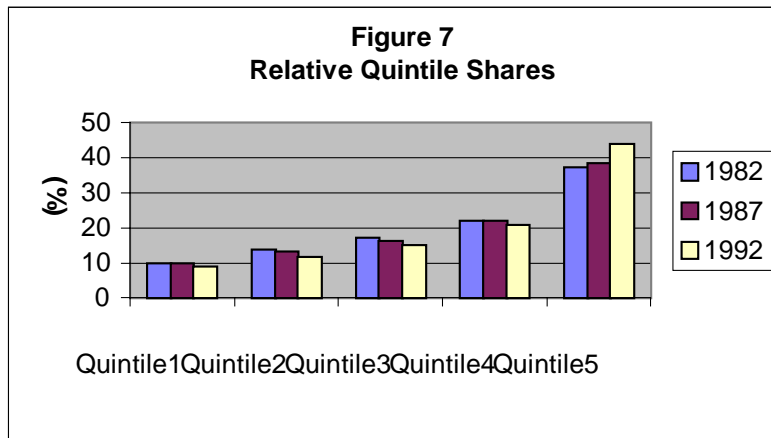
It is also interesting to observe that relative differences in wages widened between qualification levels and school attendance levels, as depicted in the last three figures of this section.

Where qualification levels are concerned, "Executives" are the only categories that in the 1985-1992 period gained ground relative to the average wage level, in contrast with "semi-qualified" and "non-qualified" workers, who suffered the greatest lost.

Figura 8
Wage Disparity by Qualification Levels
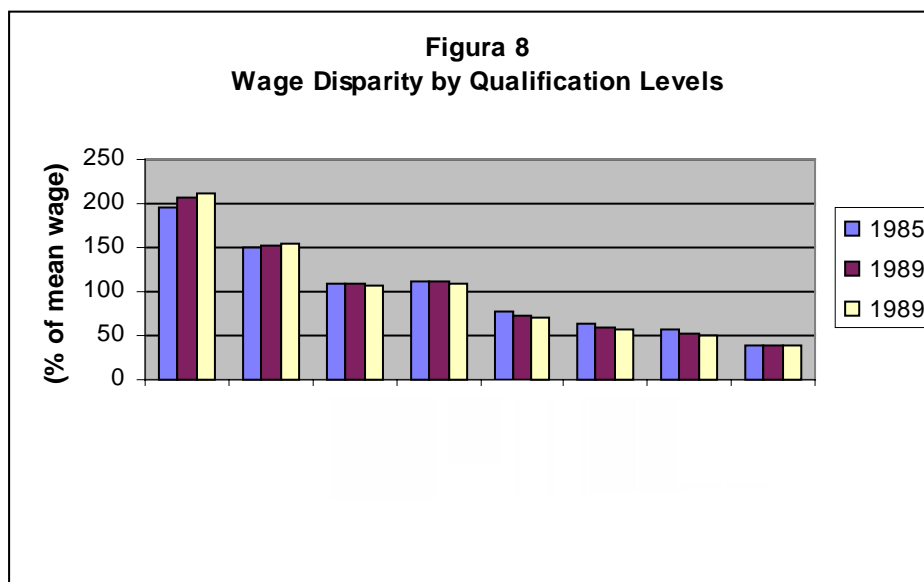
Among each level of qualification, the mean wage of women relative to that of men decreased, as recorded in Figure 9, in all but one of the qualification levels. The mean wage of women relative to that of men ranges between 69 and 92%, in 1992[4].

Figura 9
Wage Disparity Index Between Men and Women, by Qualification Levels

Qualification Level

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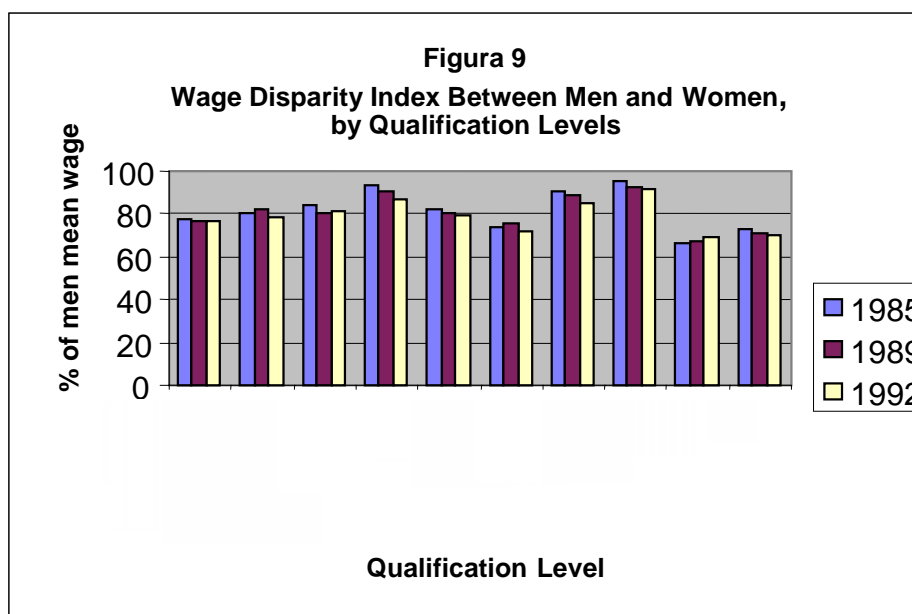
[4] The mean value of women wage relative to that of men are 72,5% in 1982 and 70,1% in 1992. Even if we account for differences in qualification structures of female and male work forces, the mean wage of women has decresead from 79,2% to 77,1% in the same period.

When we consider average wages by education level relative to "Primary basic education" level (4 years of schooling, covering nearly 45% of the working force in 1992) presented in Figure 10, we can observe that "Technical Education", "Medium Education" and especially "University Education" improved their relative positions.

Figura 10
Wage Disparity by Education Levels
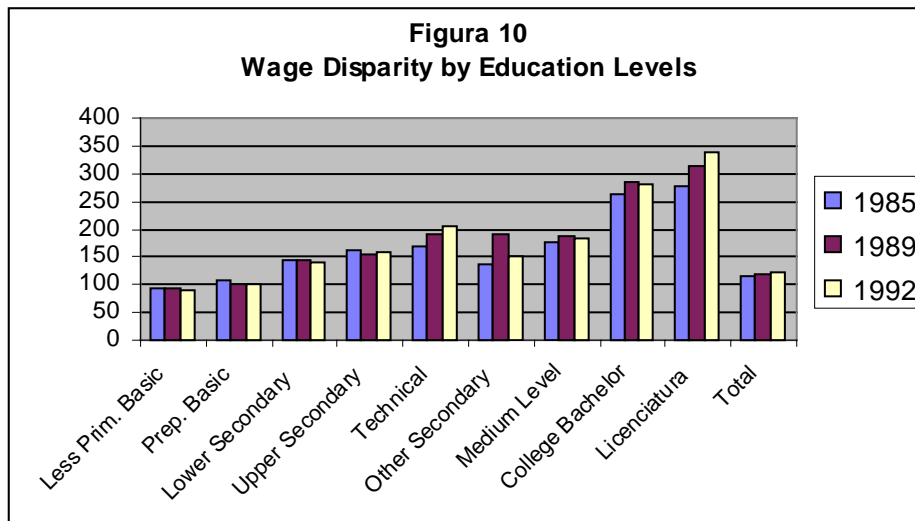
III - Data Source and Methodology

For the analysis of low wage employment we use the more extensive, complete and reliable micro data set available, the "Quadros de Pessoal" (QP) gathered annually by the Ministry of Employment and Social Security (MESS) through a compulsory questionnaire to firms employing salaried workers[5].

We have selected from 1982 and 1992 databases all salaried workers employed full time[6] in firms located in Mainland Portugal.

In this way, information about 1 383 289 workers in 1982 and 1 664 801 workers in 1992 were considered. In order to analyse the low wage population, both individual characteristics such as age, sex, education and qualification levels and tenure, as well as firm characteristics such as region, sector of activity and dimension, were retained.

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[5] This process does not cover public administration and non-market services. It also very poorly covers the agricutural sector, due to particularities of this sector.
[6] Part time workers account for nearly 10% of workers in 1992s QP.

For purpose of wage distribution evaluation and low wage incidence, we consider monthly earnings before taxes (Antunes, 1991) which is the closest notion of actual earned income from work, because it includes normal and overtime payments and all subsidies, bonuses and benefits regularly paid.

There is no agreement as to how to set up a "low wage frontier" or "low wage line", and several cut off methods have been proposed (Bell and Wright, 1996; Sloane and Theodossiou, 1996). In accordance with relative poverty line proposals, we set the low wage line at half the mean monthly earnings in each year. As it is distribution dependent, this line follows the real appreciation of earnings, and registers an increase in real terms of 20,8% over the period under analysis.

Using the workers and firm characteristics mentioned above as decomposition variables, we can determine the low wage incidence and low wage worker profile by defining, for each category i of each characteristic, the incidence of low wages among category i, and its share in low wage population,

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$$H_{it_j} = \frac{LW_{it_j}}{W_{it_j}} x100 \qquad\qquad SLW_{it_j} = \frac{LW_{it_j}}{LW_{t_j}} x100$$

where LW_{itj} and W_{itj} are the number of low wage workers and total workers in category i in year t_j, respectively, and LW_{tj} is the total number of low wage workers in year t_j .

The total incidence of low wages in year t_j can clearly be defined as

$$H_{t_j} = \sum_{all\ i} n_{it_j} H_{it_j}$$

where n_{itj} is the share of category i in total work force in year t_j.

In order to evaluate the evolution of low wage incidence during the decade under analysis, and distinguish its population and within groups components, we use the decomposition formula

$$H_{t1} - H_{t0} = \sum_{all\ i}(n_{it_1} - n_{it_0})H_{it_0} + \sum_{all\ i} n_{it_0}(H_{1t_1} - H_{it_0}) + \sum_{all\ i}(n_{it_1} - n_{it_0})(H_{1t_1} - H_{it_0})$$

This decomposition allows us to identify the main causes of the variation of lower wage global incidence over the 1982-1992 period.

IV – Results

1. Analysis of low wages´incidence

In this section we analyse the incidence of low wages for each of the control variables we study: education, age, qualification, tenure, firm size, region, sectors and manufacturing sub-sectors.

The incidence of low wages is higher for lower levels of education (up to Primary Basic Education) and has grown from around 37% (1982) to 55% (1992). If low levels of education are usually associated with low wages, the registered increase in incidence is as significant as 65% of Portuguese labour have no more than the primary basic education in 1982 and this figure was still high (49%) one decade later.

Figure 11

Incidence of Low Wages   **Education Levels**

□ 1982 ■ 1992
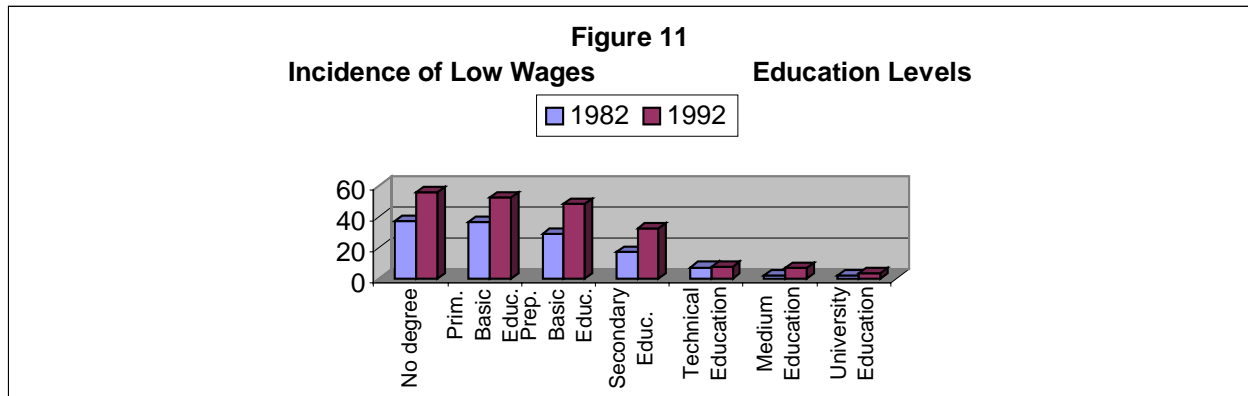
As expected, low wages mainly affect younger workers (below the aged 16) and this situation has not changed in the period analysed. These are, in general, youngsters who left school at an early stage and have low levels of qualification. They represent about 3% of the labour force. Following the earning life curve, the incidence of low wages decrease with age until the middle fifties and grew once more afterwards.

Figure 12

Incidence of Low Wages   **Age**

□ 1982 ■ 1992

9
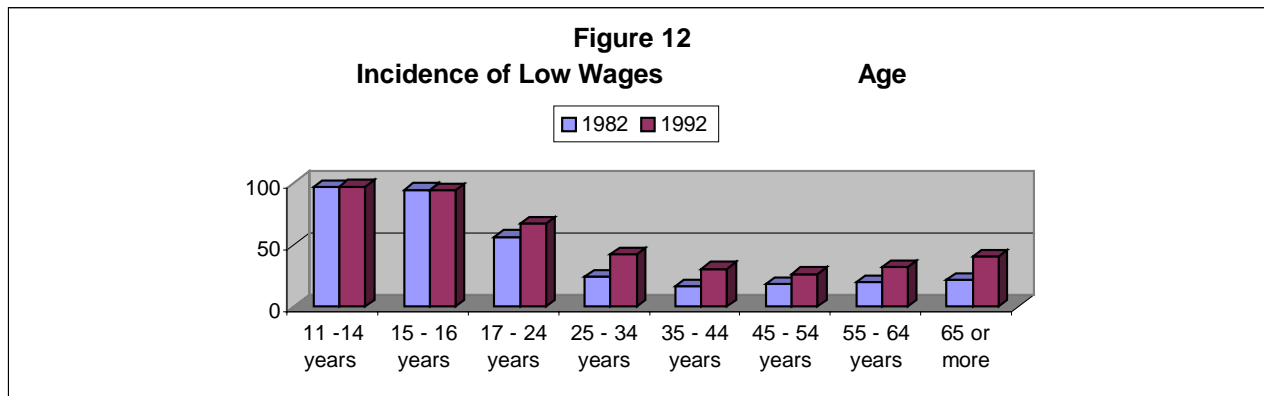
Lower qualifications have a positive correlation with low wages as predicted by human capital theory but the important feature which was that its incidence grew in the decade analysed for all levels of qualification and at a rate bigger for high levels of qualification than for lower ones. It is also worth mentioning that about 40% of Portuguese employment were under-qualified in 1982 and only fell to 39% in 1992.

Figure 13

Incidence of Low Wages   Skill Levels
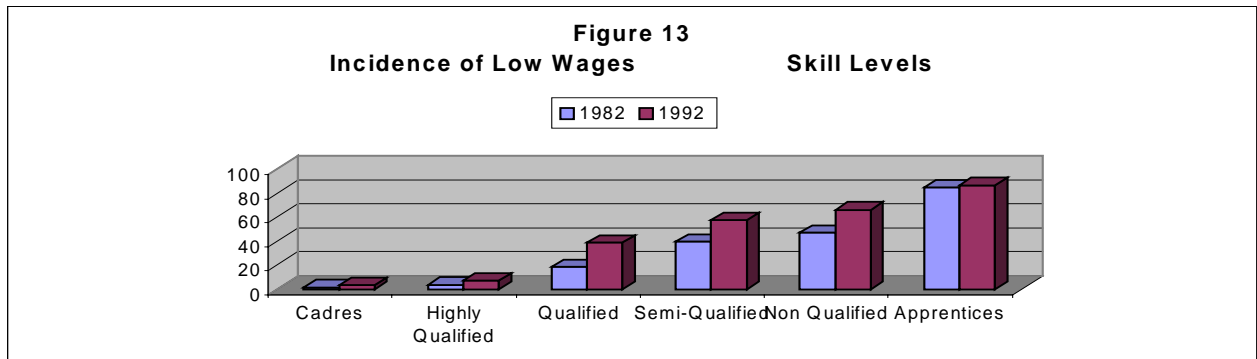
Low wages´incidence decreases with tenure with a significant gap of 20% between the less than 4 and 5-9 years of tenure. Obviously this has to do with the development of some kind of qualification, namely the specific one.

The Incidence also decreases with firm size. It is particularly serious for firms with less than 9 workers, and has worsened. Almost 60% of employment had low wages in 1982 and in 1992 this figure rose to 75%.

Low wages represent more than 45% (1982) of employment in the North and Alentejo regions, but these figures conceal different realities. The northern part of Portugal employed 33% of the labour force and had a high level of industrialization, although characterized by labour intensive industries with low levels of technological progress. The Alentejo is the least developed region of Portugal, with a high level of desertification (it accounts for only 2% of the labour force) and a very incipient level of industrialization. Lisbon & the Tagus Valley concentrate more than 50% of Portuguese employment and is also the most developed region. It is therefore natural that it registered the lowest incidence of low wages, although it increased proportionately more than in the other regions, between 1982 and 1992.

Figure 14

Incidence of Low Wages   **Region**

□ 1982 ■ 1992
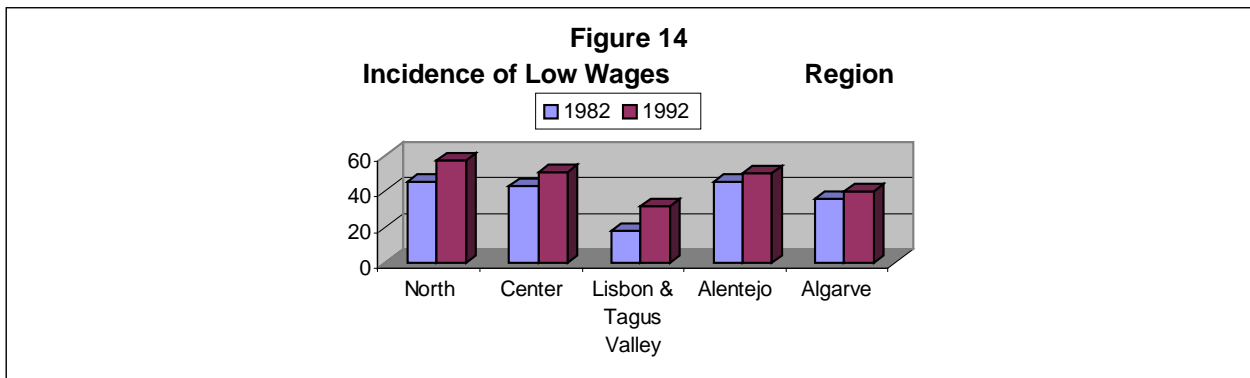
Agriculture, Forestry & Fishing is the sector most severely affected by low wages (69% - 1982; 76% -1992). This sector is characterized by a very low level of technological progress, small sized firms, most of which of family organization and a very low qualification level of firm managers. Although registering an incidence below that of Agriculture, Forestry & Fishing; Trade, Restaurants & Hotels (32% - 1982; 50% - 1992) and the Personal Services (39% - 1982; 53% - 1992) have similar characteristics.

Figure 15

Incidence of Low Wages   **Sectors**

□ 1982 ■ 1992
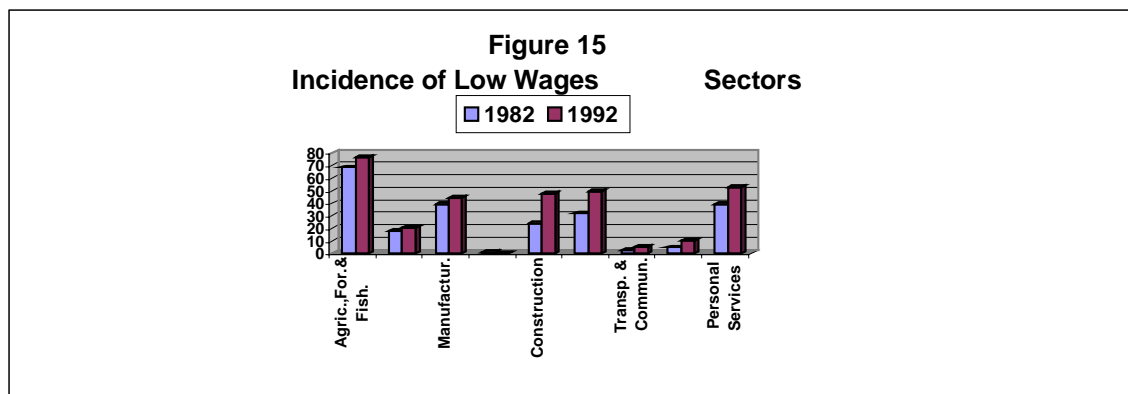
The value of low wages´incidence for the manufacturing sector conceals a variety of realities in the manufacturing sub-sectors. In fact, there are some sub-sectors with an incidence of more than 60%-1982 (Textiles, Clothing & Footwear, Wood & Furniture), some with values 5 percentual points under and above the average incidence for manufacturing as a whole (Paper & Printing and Food Industries) and the rest with an incidence around 10%. The large gap between the first and last group can be explained by significant differences in the type of labour employed (unqualified vs qualified; low vs high level of education) and sector characteristics (high vs low labour/capital ratios, low vs high firm size).

Many of the Building sector´s employees come from the Portuguese ex-colonies in Africa. They work for very low wages and suffer from poor working conditions. This fact and the expansion of the sector in this decade explains the increase of incidence from 24 to 47%.

The sectors and manufacturing sub-sectors which show a weak incidence are, in general, capital intensive with a high degree of technological progress and concentration.

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From our results we may conclude that low wage incidence grew in this decade irrespective of the variable analysed. The analysis of incidence evolution will be given a more careful approach in sub-section 3. Nonetheless, some particular features should be mentioned here. Incidence has increased more for lower than for higher levels of education, but the reverse happens for qualification levels, which may mean that qualification is highly valued than education.

Finally, a comment on the differences between incidence values across variables for men and women. The value for women is, on average twice the figure observed for men with some exceptions for a Full College Degree, the less than 17 years old and Executives and Highly Qualified workers where womens´incidence is lower than men´s. In an opposite direction, incidence for women is more than four times that of men in the case of for workers between 25 – 44 , 20 or more years of tenure and working in firms with 500 or more employees.

This picture is still valid in 1992 although thewomens´position where wages are concerned has registered a slight improvement since the ratio Women/Men incidence has fallen from 2.37 in 1982 to 1.89 in 1992. Moreover women with low wages earned an average wage which is 52% of the average wage in the economy in 1982. This percentage rose to 64% in 1992 while men´s values for the same years were respectively 52 and 46.

It is also interesting to note that low wages affect more women than men but men belonging to low wages´group have a wage which on average is less than that of women in the same position.

2. Distribution of low wages by control variable levels[7]

Low wages are concentrated in lower levels of education (77/**57**% for workers with Primary Basic Education or less), age (48/**40**% for ages 11 - 24), tenure (61/72% for under 5 years) and small firm´s size (52/**59**% for firms with less than 50 workers). The distribution by qualification levels, except for the two first levels, is almost uniform (around 20% for all the levels).

The distribution by regions shows that 64.54/**66**% of the low wages are in the North and Center regions. This figure, as well as, the low figures for the Alentejo and Algarve (5.09/**6.9**%) are a result of the high/low employment respectively in the above mentioned regions.

A similar conclusion can be reached if distribution by sectors is analysed. Distribution is concentrated (51/**77**%) in sectors, such as Manufacturing and Trade, Restaurants & Hotels with higher employment (66 /**66**%). It is interesting to note that, while the percentage of low wages in the first of these sectors decreased, it increased for the other sector due to a larger increase in incidence (18 against 5 percentile points). Public Utilities, Transports & Communications and Banking, Insurance & Others are on the opposite side of the distribution as they have the lowest values of employment and incidence. Low wages belonging to Agriculture, Forestry & Fishing, construction and Personal Services account for only 19/**20**% in spite of the high levels of incidence registered for those sectors due to the low levels of employment (17/**18**%).

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[7] Values for 1992 in bold.

In the manufacturing sector the comparative high value (31/**30**%) of low wages belonging to this subsector is a consequence of the employment/incidence relationship already mentioned in the last paragraph.

3. Evolution of incidence in the period 1982/1992

Incidence of low wages grew in this decade, as we have already mentioned, along as inequality of earning distribution as can be seen in figure 16.

Figure 16
Lorenz Curves, 1982 and 1992
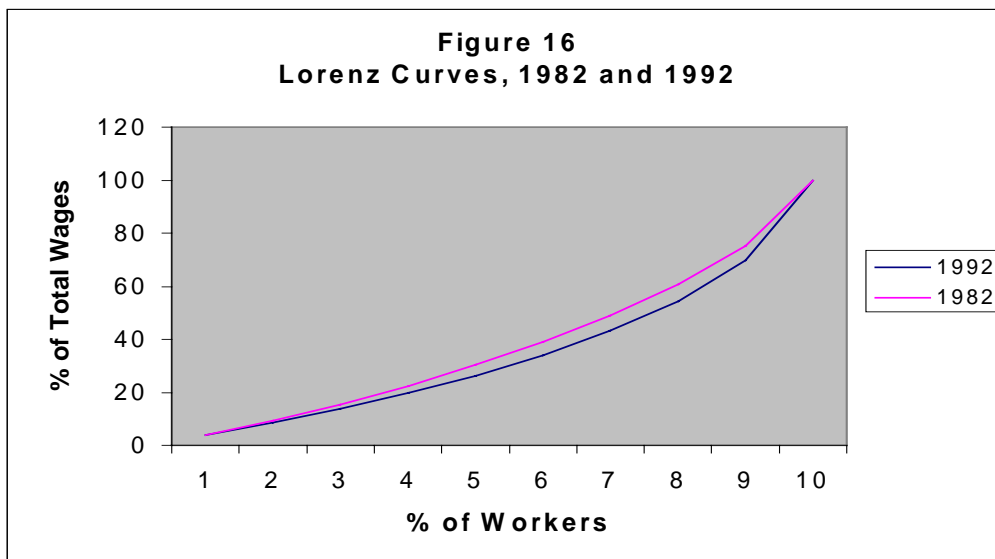
Here we mean to undertake a searching analysis of the evolution, looking to the decomposition of the incidence on its intra-group, employment structure change and interaction effects.

From figures in the table below, we can see that the variations intra-group were major contributors to the increase in incidence, whatever the variable considered.

Table 1

	Employment´s structure Change effect (%)	IntraGroup effect (%)	Interaction effect (%)
Education	-11.87	108.93	2.89
Age	9.05	91.66	-0.71
Qualification	-1.53	105.45	-3.93
Tenure	23.99	74.52	1.49
Firm Size	31.26	62.35	6.39
Region	22.80	81.23	-4.03
Sector	15.63	84.27	0.09

However, there was a significant contribution of the employment's structure change against that increase in the case of education levels, which means that an improvement in the education level of the labour force had a positive effect, *coeteris paribus*, by reducing the weight of low wages in the economy. The same is true, with a weaker effect, for the upgrading in employees´qualification. As the improvement in education (about 17 percentile points decrease in the percentage of workers with less than 4th Class) has been wider than the improvement in qualification (about 2 percentile points decrease in the percentage of workers under qualified) the investment in education and training seems a good strategy to reduce the weight of low wages.

The increase in the percentage of young people joining the labour market and their low tenure has contributed to the increase in incidence.

The decline of employment at Lisbon & Tagus Valley had a large positive effect on incidence but was insufficient to counterbalance the negative employment structure effect in other regions, namely the North.

As expected the employment structure change in favour of firms with less than 250 employees had a negative effect on incidence.

Where sectors are concerned the 16% contribution of the employment structure change to the growth of incidence is due to the employment's increase in Textiles, Clothing & Footwear; Trade, Restaurants & Hotels and Personal Services which, as mentioned early, are labour intensive sectors employing workers with low levels of education and qualification and have a large proportion of small sized firms.

The interaction effect is rather low and contributed to the decline of incidence for age, qualification, and region.

V – Conclusion

The analysis of the wage structure in Portugal during the 1982-1992 decade revealed an increasing wage inequality and an increasing low wage incidence. In 1992, one out of three men, and two out of three women, had a wage below half the mean wage.

Low wage incidence rose for all categories in each of the decomposition variables, with less educated and less qualified workers loosing ground relatively to better educated/qualified ones. Nevertheless, the evolution registered on education and qualification levels of the Portuguese working force played a significant role in counterbalancing the rise incidence of low wages.

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Appendix 1-A₁

Low Wages by Workers Characteristics (1982)

	Employment Structure (%)			Low Wages´Incidence (%)		
Education Level	MW	M	W	MW	M	W
	100	**100**	**100**	**30.76**	**22.07**	**52.52**
No degree	10.53	10.50	10.60	37.43	26.68	64.08
Primary Basic Education	54.42	54.90	53.20	36.31	25.09	65.28
Preparatory Basic Education	17.09	16.45	18.71	28.8	23.47	40.53
Secondary Education	9.47	9.25	10.03	17.2	13.62	25.49
Technical Education	5.88	6.11	5.33	7.298	5.014	13.85
Medium Education	1.03	1.04	1.02	2.214	1.209	4.787
College Full Degree	1.22	1.42	0.72	2.038	1.755	3.435
Degree unknown	0.35	0.34	0.39	8.886	7.392	12.08
Age						
11 to 14 years	0.52	0.54	0.46	97.07	96.56	98.56
15-16 years	2.89	2.91	2.86	94.77	93.61	97.73
17-24 years	20.60	18.32	26.32	56.58	47.12	73.06
25-34 years	30.01	27.73	35.71	23.78	13.9	42.97
35-44 years	20.92	22.01	18.20	16.49	8.82	39.72
45-54 years	14.94	16.83	10.20	18.12	11.99	43.46
55-64 years	7.11	8.43	3.80	19.44	15.55	41.1
65 years or more	0.81	0.98	0.40	21.64	18.34	41.58
Age unknown	2.20	2.26	2.06	45.8	39.3	63.65
Qualification Level						
Executives	3.35	4.15	1.33	1.469	1.206	3.519
Highly Qualified	8.25	9.68	4.65	3.41	2.931	5.905
Qualified	41.59	44.28	34.84	18.23	11.41	39.91
Semi-qualilied	19.90	15.12	31.86	39.51	22.32	59.94
Non-qualified	10.83	11.26	9.76	47.08	40.66	65.6
Apprentices	10.02	9.38	11.63	84.65	81.95	90.11
Qualification unknown	6.07	6.13	5.94	23.11	16.94	39.06
Tenure						
Less than a year	16.00	16.42	14.96	50.6	42.2	73.67
1-4 years	25.86	25.99	25.54	40.97	32.36	62.9
5-9 years	22.50	21.15	25.90	25.49	14.64	47.65
10-19 years	23.54	23.07	24.73	18.68	9.522	40.05
20-29 years	6.36	7.25	4.14	9.14	5.193	26.45
30 or more years	2.91	3.40	1.71	8.824	4.969	28.05
Tenure unknown	2.82	2.73	3.03	38.91	32.58	53.2

Appendix 1-A$_2$

Low Wages by Other Control Variables (1982)

	Employment Structure (%)			Low Wages´Inci dence (%)		
	MW	**M**	**W**	**MW**	**M**	**W**
Region	**100**	**100**	**100**	**30.76**	**22.07**	**52.52**
North	32.56	30.49	37.75	45.49	33.18	70.38
Centre	11.70	12.07	10.78	43.09	33.53	69.86
Lisbon & Tagus Valley	51.92	53.53	47.89	17.98	12.32	33.84
Alentejo	2.11	2.36	1.46	45.17	39.67	67.44
Algarve	1.71	1.55	2.12	35.91	23.89	57.98
Firm Size						
1-9 workers	10.08	9.65	11.15	59.98	54.24	72.40
10-49 workers	21.65	21.51	22.01	45.31	36.83	66.06
50-249 workers	25.08	23.75	28.40	35.07	22.80	60.74
250-499 workers	9.42	9.03	10.40	25.87	14.50	50.57
500 ou mais workers	33.77	36.06	28.03	10.87	6.06	26.36
Sectors						
Agric., Forestry & Fishing	1.85	2.00	1.48	68.47	63.02	86.91
Mining	0.90	1.19	0.18	17.97	16.56	40.82
Manufacturing	47.14	43.20	56.98	39.01	25.53	64.58
Food Industries	4.80	4.07	6.64	37.31	19.36	64.85
Textiles,Clothing & Footwear	13.96	7.49	30.17	69.25	44.48	84.64
Wood & Furniture	4.06	4.61	2.70	61.89	57.15	82.08
Paper & Printing	2.62	2.72	2.35	25.82	16.18	53.79
Chemicals	3.88	3.82	4.00	13.32	9.16	23.26
Construction Materials	3.98	4.45	2.81	16.76	15.05	23.57
Iron & Steel	1.47	1.87	0.46	10.81	9.95	19.52
Machin., Elect. & Transp. Equipment	11.79	13.65	7.14	17.94	17.90	18.13
Others	0.57	0.52	0.70	48.45	36.35	71.03
Public Utilities	1.29	1.59	0.52	0.79	0.68	1.61
Construction	10.27	13.85	1.31	23.89	23.93	22.74
Trade, Restaurants & Hotels	18.85	17.65	21.86	31.92	25.40	45.09
Transports & Communications	9.05	10.32	5.89	2.36	2.21	3.02
Banking, Insurance & Others	5.55	5.83	4.84	4.71	3.28	9.03
Personal Services	5.10	4.37	6.93	38.90	30.85	51.60
Sector unknown	0.00	0.00	0.00	0.00	0.00	0.00

Appendix 1– B₁

Low Wages by Worker Characteristics (1982)

	Low Wages´ Structure (%)			Average Low Wage (in percentage of average wage)		
	MW	M	W	MW	M	W
Education Level	**100**	**100**	**100**	**52.00**	**51.69**	**52.33**
No degree	12.81	12.69	12.93	55.81	55.81	54.88
Primary Basic Education	64.24	62.43	66.13	51.99	51.72	52.26
Preparatory Basic Education	16.01	17.50	14.44	49.08	48.23	50.17
Secondary Education	5.30	5.71	4.87	52.07	52.16	51.97
Technical Education	1.40	1.39	1.41	55.37	55.16	55.60
Medium Education	0.07	0.06	0.09	52.82	49.93	54.68
College Full Degree	0.08	0.11	0.05	46.57	46.27	47.31
Degree unknown	0.10	0.11	0.09	53.57	52.80	54.59
Age						
11 to 14 years	1.63	2.35	0.86	32.08	32.82	29.96
15-16 years	8.92	12.33	5.32	36.77	37.37	35.31
17-24 years	37.90	39.12	36.61	51.48	51.86	51.05
25-34 years	23.20	17.47	29.22	56.27	57.29	55.64
35-44 years	11.22	8.80	13.76	55.99	57.02	55.29
45-54 years	8.80	9.14	8.44	56.03	57.02	54.90
55-64 years	4.49	5.94	2.97	55.79	56.51	54.29
65 years or more	0.57	0.81	0.32	53.72	54.49	51.65
Age unknown	3.28	4.02	2.49	49.29	49.22	49.12
Qualification Level						
Executives	0.16	0.23	0.09	50.64	50.02	52.31
Highly Qualified	0.91	1.29	0.52	54.14	53.61	55.51
Qualified	24.65	22.90	26.47	55.70	56.38	55.08
Semi-qualilied	25.56	15.29	36.36	56.06	57.03	55.64
Non-qualified	16.58	20.74	12.19	55.07	56.48	52.55
Apprentices	27.58	34.84	19.95	42.87	43.13	42.41
Qualification unknown	4.56	4.70	4.41	52.98	53.43	52.47
Tenure						
Less than a year	26.33	31.41	20.98	47.34	47.95	46.37
1-4 years	34.44	38.11	30.59	50.89	50.93	50.84
5-9 years	18.65	14.03	23.50	56.19	56.98	55.69
10-19 years	14.30	9.96	18.86	57.40	58.38	56.86
20-29 years	1.89	1.71	2.08	57.24	57.97	56.61
30 or more years	0.84	0.77	0.91	57.15	56.87	57.40
Tenure unknown	3.56	4.03	3.07	49.74	49.55	50.00

Appendix 1-B₂

Low Wages by Workers Characteristics (1982)

	Low Wages Structure (%)			Average Low wage (in percent. of average wage)		
Region	**MW**	**M**	**W**	**MW**	**M**	**W**
	100	**100**	**100**	**52.00**	**51.69**	**52.33**
North	48.15	45.84	50.59	51.52	51.07	51.94
Centre	16.39	18.34	14.34	52.10	52.04	52.18
Lisbon & Tagus Valley	30.35	29.89	30.86	52.69	52.37	53.01
Alentejo	3.09	4.25	1.88	51.13	51.24	50.88
Algarve	2.00	1.68	2.34	53.89	53.83	53.85
Firm Size						
1-9 workers	19.66	23.72	15.38	48.63	48.99	48.04
10-49 workers	31.90	35.90	27.69	50.94	51.24	50.54
50-249 workers	28.60	24.54	32.85	52.81	52.75	52.86
250-499 workers	7.92	5.93	10.01	55.19	54.46	55.65
500 ou mais workers	11.93	9.90	14.07	56.35	55.56	56.94
Sectors						
Agric., Forestry & Fishing	4.13	5.72	2.45	48.40	49.46	45.77
Mining	0.53	0.89	0.14	53.33	53.68	51.07
Manufacturing	59.78	50.00	70.07	53.34	35.06	75.77
Food Industries	5.83	3.57	8.20	53.98	54.39	53.79
Textiles,Clothing & Footwear	31.44	15.10	48.62	53.03	54.85	52.44
Wood & Furniture	8.17	11.93	4.22	50.73	50.90	50.23
Paper & Printing	2.20	2.00	2.41	50.57	49.68	51.35
Chemicals	1.68	1.59	1.77	55.49	54.66	56.28
Construction Materials	2.17	3.04	1.26	53.63	54.41	51.67
Iron & Steel	0.52	0.84	0.17	50.85	50.25	53.98
Machin., Elect. & Transp. Equipment	6.88	11.07	2.46	48.79	47.68	54.03
Others	0.90	0.86	0.95	51.66	49.93	53.30
Public Utilities	0.03	0.05	0.02	51.78	53.03	47.72
Construction	7.97	15.02	0.57	53.79	53.79	53.85
Trade, Restaurants & Hotels	19.56	20.31	18.77	56.82	51.60	52.50
Transports & Communications	0.69	1.03	0.34	54.49	54.41	54.72
Banking, Insurance & Others	0.85	0.87	0.83	52.68	52.72	52.65
Personal Services	6.45	6.11	6.81	49.00	46.45	51.40
Sector unknown	0.00	0.00	0.00	52.00	51.69	52.33

Appendix 2 – A$_1$

Low Wages by Workers Characteristics (1992)

	Employment Structure			Low Wages´In cidence		
	(%)			(%)		
Education Level	MW	M	W	MW	M	W
				45.15	**33.72**	**63.75**
No degree	4.19	4.43	3.80	55.66	44.96	75.97
Primary Basic Education	44.68	46.85	41.14	52.56	38.93	77.83
Preparatory Basic Education	30.49	28.65	33.49	48.10	35.99	64.96
Secondary Education	11.78	10.48	13.91	32.46	24.41	42.33
Technical Education	3.63	4.24	2.63	7.85	5.42	14.21
Medium Education	1.42	1.31	1.60	6.68	4.72	9.29
College Full Degree	2.55	2.88	2.02	3.54	3.27	4.18
Degree unknown	1.25	1.16	1.40	30.00	20.84	42.41
Age						
11 to 14 years	0.91	0.75	1.19	97.30	96.37	98.26
15-16 years	2.97	2.71	3.40	94.50	92.76	96.77
17-24 years	21.48	18.44	26.42	67.49	58.55	77.64
25-34 years	27.90	26.48	30.19	42.08	30.09	59.18
35-44 years	21.86	22.61	20.63	30.55	19.87	49.59
45-54 years	13.71	16.53	9.13	26.16	18.00	50.18
55-64 years	5.68	7.43	2.84	31.57	26.86	51.66
65 years or more	0.57	0.70	0.34	40.67	36.40	54.91
Age unknown	4.92	4.35	5.85	59.61	46.06	75.98
Qualification Level						
Executives	4.63	5.88	2.58	3.07	2.60	4.85
Highly Qualified	9.00	10.58	6.44	7.08	5.86	10.32
Qualified	41.29	44.67	35.78	38.75	29.40	57.75
Semi-qualilied	17.73	13.43	24.73	57.63	37.68	75.27
Non-qualified	9.79	9.73	9.90	66.31	58.38	78.98
Apprentices	11.31	9.07	14.97	86.78	82.80	90.70
Qualification unknown	6.24	6.64	5.60	29.49	23.64	40.80
Tenure						
Less than a year	24.24	23.06	26.16	58.96	48.62	73.78
1-4 years	32.34	30.72	34.97	56.11	44.83	72.23
5-9 years	11.27	11.24	11.33	37.99	25.88	57.55
10-19 years	17.43	18.66	15.44	24.89	15.12	44.11
20-29 years	8.61	9.57	7.04	21.29	12.16	41.51
30 or more years	1.98	2.57	1.01	15.09	10.56	33.73
Tenure unknown	4.13	4.18	4.05	47.51	37.55	64.22

Appendix 2 – A$_2$

Low Wages by Workers Characteristics (1992)

	Employ ment Structure			Low Wages´Incidence		
	(%)			(%)		
	MW	**M**	**W**	**MW**	**M**	**W**
Region				**45.15**	**33.72**	**63.75**
North	38.96	37.21	41.81	57.03	44.25	75.52
Centre	15.00	15.41	14.33	50.50	37.42	73.47
Lisbon & Tagus Valley	39.15	40.01	37.74	31.27	21.97	47.31
Alentejo	3.64	4.20	2.72	49.99	41.64	70.97
Algarve	3.25	3.16	3.40	39.81	29.97	54.72
Firm Size						
1-9 workers	15.38	14.94	16.10	74.96	70.58	81.57
10-49 workers	26.55	26.41	26.78	57.11	47.24	72.95
50-249 workers	26.32	24.84	28.73	44.39	28.11	67.28
250-499 workers	8.80	8.51	9.29	36.53	20.78	60.00
500 or more workers	22.94	25.31	19.09	15.51	7.71	32.34
Sectors						
Agric., Forestry & Fishing	1.68	1.89	1.33	76.25	70.63	89.22
Mining	0.69	1.02	0.13	20.82	19.43	38.03
Manufacturing	44.34	40.12	51.21	44.33	40.12	51.21
Food Industries	4.07	3.93	4.30	45.54	31.96	65.72
Textiles,Clothing & Footwear	17.53	8.69	31.90	77.72	53.80	88.33
Wood & Furniture	3.60	4.45	2.21	70.63	66.22	85.08
Paper & Printing	2.37	2.70	1.83	34.03	25.01	55.72
Chemicals	2.79	3.16	2.20	22.64	14.97	40.58
Construction Materials	3.19	3.61	2.52	32.65	23.82	53.19
Iron & Steel	0.87	1.25	0.24	21.83	19.25	43.54
Machin., Elect. & Transp. Equipment	9.44	11.85	5.52	31.34	28.61	40.85
Others	0.48	0.48	0.49	56.48	45.47	73.83
Public Utilities	1.11	1.54	0.41	0.17	0.15	0.27
Construction	8.69	13.17	1.40	47.45	47.36	48.82
Trade, Restaurants & Hotels	21.65	20.34	23.79	49.60	40.10	62.81
Transports & Communications	7.05	8.90	4.04	5.36	5.47	4.96
Banking, Insurance & Others	7.61	8.12	6.78	10.33	6.53	17.73
Personal Services	7.18	4.89	10.90	52.68	41.62	60.75
Sector unknown	0.00	0.00	0.00	12.50	0.00	16.67

Appendix 2 – B$_1$

Low Wages by Other Control Variables (1992)

	Low Wages Stru cture (%)			Average Low Wage (in percentage of average wage)		
	MW	**M**	**W**	**MW**	**M**	**W**
Education Level	**100**	**100**	**100**	**51.03**	**45.85**	**64.33**
No degree	5.16	5.91	4.52	70.76	66.93	81.61
Primary Basic Education	52.01	54.09	50.23	62.82	56.96	80.90
Preparatory Basic Education	32.48	30.57	34.13	53.84	47.65	66.72
Secondary Education	8.47	7.59	9.23	4.36	38.00	53.96
Technical Education	0.63	0.68	0.59	31.79	29.59	39.81
Medium Education	0.21	0.18	0.23	26.10	21.08	36.95
College Full Degree	0.20	0.28	0.13	17.87	16.20	23.04
Degree unknown	0.83	0.72	0.93	34.44	29.57	45.23
Age						
11 to 14 years	1.97	2.14	1.83	92.64	91.02	94.39
15-16 years	6.23	7.46	5.16	90.94	89.67	92.68
17-24 years	32.10	32.01	32.18	73.31	68.99	79.63
25-34 years	26.00	23.63	28.03	53.67	49.13	63.73
35-44 years	14.79	13.32	16.05	44.39	40.79	55.23
45-54 years	7.94	8.82	7.19	40.45	37.99	54.94
55-64 years	3.97	5.92	2.30	46.13	44.64	57.45
65 years or more	0.51	0.76	0.30	51.15	49.10	60.47
Age unknown	6.50	5.94	6.98	58.00	50.17	73.18
Qualification Level						
Executives	0.31	0.45	0.20	19.99	18.74	25.64
Highly Qualified	1.41	1.84	1.04	37.02	35.32	42.29
Qualified	35.44	38.95	32.41	55.50	52.95	64.67
Semi-qualilied	22.63	15.01	29.20	69.12	59.53	82.34
Non-qualified	14.38	16.85	12.27	75.13	72.20	81.51
Apprentices	21.75	22.27	21.30	84.34	80.75	88.27
Qualification unknown	4.08	4.66	3.58	37.34	33.82	47.83
Tenure						
Less than a year	31.66	33.26	30.28	61.29	55.79	72.92
1-4 years	40.19	40.85	39.62	59.93	54.28	7194%
5-9 years	9.48	8.62	10.23	50.04	45.31	62.19
10-19 years	9.61	8.37	10.68	43.02	39.64	54.46
20-29 years	4.06	3.45	4.58	40.52	37.82	51.98
30 or more years	0.66	0.80	0.54	36.88	35.97	46.07
Tenure unknown	4.35	4.66	4.08	50.87	45.62	64.33

Appendix 2 – B₂

Low Wages by Other Control Variables (1992)

	Low Wages´Stru cture (%)			Average Low Wage (in percentage of average wage)		
	MW	**M**	**W**	**MW**	**M**	**W**
Region				**51.03**	**45.85**	**64.33**
North	49.21	48.83	49.53	60.56	54.16	74.80
Centre	16.79	17.10	16.51	58.55	52.69	75.72
Lisbon & Tagus Valley	27.11	26.07	28.01	42.42	38.38	53.31
Alentejo	4.03	5.19	3.03	53.81	49.80	70.39
Algarve	2.87	2.81	2.92	54.42	49.05	66.44
Firm Size						
1-9 workers	25.54	31.27	20.61	76.31	73.69	81.10
10-49 workers	33.58	37.00	30.64	64.75	60.82	74.21
50-249 workers	25.88	20.71	30.32	55.24	49.41	69.95
250-499 workers	7.12	5.24	8.74	49.71	44.01	65.02
500 ou mais workers	7.88	5.79	9.69	36.03	33.35	46.48
Sectors						
Agric., Forestry & Fishing	2.70	3.96	1.86	76.12	72.19	88.42
Mining	0.32	0.59	0.08	48.40	48.14	53.35
Manufacturing	52.97	43.70	60.96	50.95	46.06	64.31
Food Industries	4.11	3.73	4.44	57.87	52.60	71.04
Textiles,Clothing & Footwear	30.17	13.87	44.20	79.69	68.34	87.57
Wood & Furniture	5.63	8.74	2.95	75.55	72.98	85.38
Paper & Printing	1.78	2.00	1.60	45.17	41.68	58.32
Chemicals	1.40	1.40	1.40	41.21	37.70	53.70
Construction Materials	2.31	2.55	2.10	54.70	50.43	70.46
Iron & Steel	0.42	0.71	0.17	49.16	48.22	61.19
Machin., Elect. & Transp. Equipment	6.55	10.05	3.54	51.13	47.87	65.42
Others	0.60	0.64	0.57	65.76	58.67	81.04
Public Utilities	0.00	0.01	0.00	29.08	28.11	35.11
Construction	9.13	18.50	1.07	61.80	61.72	63.05
Trade, Restaurants & Hotels	23.79	24.19	23.44	55.58	49.74	67.49
Transports & Communications	0.84	1.44	0.31	34.92	34.32	37.25
Banking, Insurance & Others	1.74	1.57	1.89	28.00	25.89	33.80
Personal Services	8.37	6.04	10.38	57.53	48.70	65.97
Sector unknown	0.00	0.00	0.00	41.23	0.00	48.20

Appendix 3

Decomposition of incidence´s variation between 1982 and 1992

	Employment´s structure change effect (%)	IntraGroup effect (%)	Interaction effect (%)
Education Level			
No degree	-237.20	191.88	-115.52
Primary Basic Education	-353.62	884.25	-158.26
Preparatory Basic Education	385.81	329.93	258.55
Secondary Education	39.80	144.52	35.31
Technical Education	-16.47	3.22	-1.24
Medium Education	0.87	4.60	1.75
College Full Degree	2.71	1.84	2.00
Degree unknown	8.00	7.45	19.00
Age			
11 to 14 years	38.80	0.12	0.09
15-16 years	7.65	-0.78	-0.02
17-24 years	49.46	224.76	9.54
25-34 years	-50.35	549.23	-38.74
35-44 years	15.41	294.14	13.14
45-54 years	-22.16	120.08	-9.83
55-64 years	-27.65	86.20	-17.25
65 years or more	-5.33	15.49	-4.69
Age unknown	124.53	30.41	37.55
Qualification			
Executives	1.88	5.37	2.05
Highly Qualified	2.58	30.23	2.77
Qualified	-5.41	853.34	-6.09
Semi-qualilied	-85.48	360.51	-39.20
Non-qualified	-48.75	208.25	-19.91
Apprentices	109.26	21.35	2.75
Qualification unknown	3.96	38.74	1.09
Tenure			
Less than a year	416.80	133.80	68.86
1-4 years	265.56	391.51	98.13
5-9 years	-286.32	281.29	-140.41
10-19 years	-114.18	146.20	-37.96
20-29 years	20.57	77.25	27.34
30 or more years	-8.29	18.26	-5.89
Tenure unknown	51.17	24.22	11.31

Decomposition of incidence´s variation between 1982 and 1992

	Employment´s structure change effect (%)	IntraGroup effect (%)	Interaction effect (%)
Region			
North	291.22	375.74	73.88
Centre	142.23	86.69	24.46
Lisbon & Tagus Valley	-229.67	690.03	-169.76
Alentejo	69.26	10.15	7.39
Algarve	55.22	6.68	6.00
Firm Size			
1-9 workers	318.03	151.00	79.43
10-49 workers	221.88	255.51	57.78
50-249 workers	43.58	233.75	11.58
250-499 workers	-15.89	100.41	-6.55
500 or more workers	-117.69	156.68	-50.24
Sectors			
Agric., Forestry & Fishing	-12.10	14.43	-1.38
Mining	-3.94	2.58	-0.63
Manufacturing			
Food Industries	-27.33	39.55	-6.03
Textiles,Clothing & Footwear	246.73	118.27	30.18
Wood & Furniture	-28.69	35.50	-4.05
Paper & Printing	-6.39	21.47	-2.03
Chemicals	-14.40	36.12	-10.07
Construction Materials	-13.26	63.31	-12.57
Iron & Steel	-6.47	16.15	-6.60
Machin., Elect. & Transp. Equipment	-42.15	158.00	-31.48
Others	-4.47	4.61	-0.74
Public Utilities	-0.14	-0.80	0.11
Construction	-37.64	241.90	-37.12
Trade, Restaurants & Hotels	89.49	333.27	49.56
Transports & Communications	-4.73	27.15	-6.01
Banking, Insurance & Others	9.72	31.16	11.59
Personal Services	80.77	70.28	28.61
Sector unknown	0.00	0.01	-0.01