

DISPERSION OF PRE-TAX BASIC PAY RATES IN MALTA

by E.P. DELIA*

This paper records the dispersion pattern of the *basic pay rates* of wage and salary earners in Malta in census years 1957 and 1967. Studies of labour's *aggregate remuneration rates* i.e. basic rates plus bonuses, overtime payments and non-financial fringe benefits, cannot be carried out; statistical data are inadequate in quality and in quantity. For the same reason it is not feasible to analyse the personal or the household income dispersion within a set time period or over time i.e. to graph the time profile of personal or household incomes.

The compilation of data about income and wealth composition and ownership has only recently been initiated in Malta; this late start in collecting such statistical information, crucial for socio-economic planning, seems common to many developing countries. It is hoped, therefore, that this paper's modest contribution would be of interest to researchers engaged in worldwide comparative studies of labour 'income', however defined, and also to those 'development economists' active in constructing socio-politico-economic indices for evaluating the existence or otherwise, of a trade-off between distribution and productivity policy targets in less developed countries.

The dispersion 'basic rate' patterns of different work categories are introduced through a series of coefficients expressing the relation between centile values and the median i.e., P_i/P_{50} . Both the percentile and the median values refer to a particular sub-group.¹ The structural economic composition of the Maltese economy in

*Assistant Lecturer, Department of Economics, University of Malta.

¹See (2). An alternative method expresses the same relationship in terms of the median of the universe, i.e. P_i^s/P_{50}^u where

P_i^s = percentile value in a sub-group

P_{50}^u = median of the universe.

This method is selected after conflicting results were obtained from the estimated values of the Gini coefficient, log variance and the coefficient of variation. Besides a series conveys more information than a summary statistic.

the two census years is first briefly outlined; an appreciation of the changes in the underlying socio-economic conditions should contribute towards a proper evaluation of the observed basic rates pattern.

MALTA'S ECONOMIC SECTORS: 1957, 1967

Post-war Malta's economy is characterised by the relatively high provision of tertiary services, mainly in the form of facilities to Britain's naval and military forces. In the fifties local employment is, in the greater part, directly provided by the U.K. Defence Establishments, by the Malta Government's (public) sector, and by a commercial sector catering for the imports of consumables for the natives and the foreign troops and their families stationed in the island. The manufacturing sector and tourism are conspicuous by their absence; consequently, also restricted was the 'production-profit motive'.²

Britain's decision to gradually dismantle its bases in Malta created the urgency to restructure Malta's economic sectors with the intent of gearing them to production for world-wide consumers' markets. Diversification of economic activity, spelled out in a series of quinquennial development plans starting in 1959, was to be attained through the extension and the improvement of ship-repair facilities, the setting-up of eight manufacturing industries, tourism and, to a minor extent, the reorganisation of the agricultural sector.

The census years under study, therefore, represent two points in time each one within a different type of economy; 1957 immediately precedes while 1967 reflects the partial effects emerging out of a transformation process leading to 'market-oriented activities'.³

²It is important to distinguish between 'Production Profit' and 'Commercial Profit' (Importer's profit). Commercial profit is based primarily on commissions representing a percentage of total sales per time period; this 'service' income would reflect the tastes of local consumers for foreign-produced goods and services and arises out of the marketing stage in the production-sales process. Production profit, on the other hand, arises out of the initial stages in the process; it is influenced both by the import cost of raw material and transport and by the export cost of the finished product to the distributing outlets, if the good is sold abroad.

³The term refers to conditions where supply of commodities arises to meet actual or potential consumers' demand. It is contrasted to a 'military-oriented' economy where decisions regarding quantities and prices reflect demand arising out of political (strategic) expediency rather than consumer-market conditions.

A static impression of economic activity in the two years could be formed by analysing the composition of the active labour force and the relative sectoral contribution to Gross National Product⁴ (tables 1 and 2). These data are assumed to reflect the gradual

Table 1

WORKING POPULATION OF THE MALTESE ISLANDS

1957, 1967

EMPLOYMENT SECTOR	1957		1967	
		% OF LABOUR FORCE		% OF LABOUR FORCE
Agriculture & Fishing	8410	9.50	6950	7.04
Construction & Quarrying	5420	6.13	10320	10.46*
Manufacturing Industries	8670	9.80	19660	19.92
Electricity and Gas	100	0.11	790	0.80
Commerce	11120	12.57	12790	12.94
Transport, Storage & Communication	3780	4.28	4030	4.08
Business, Recreational and Personal Services	7560	8.55	10430	10.55
Government Services	16970	19.14	18580	18.44
U.K. Defence Depart- ments (Civil)	19560	22.84	7350	7.45
(H.M. Forces)	3550	3.19	2420	2.45
Total Gainfully Occupied	85140		93310	
Unemployed	3284	3.71	5387	5.46
Labour Force	88424		98697	

Source: Department of Labour

*The increase in labour engaged in construction and quarrying indicates the initial effects of a real-estate boom the Maltese Islands went through in the years 1966-1969.

⁴Gross National Product is preferred to Gross Domestic Product in order to account for the favourable net transfer payments item which cannot be considered negligible in the Malta case.

Table 2

INCOME BEFORE TAX	1957		1967	
	£M	% OF GNP	£M	% OF GNP
	MILLION		THOUSAND	
PERSONS				
Income from Employment:				
(a) U.K. Service Departments	8.6	22.57	4937	8.20
(b) Private Industry:				
Agriculture & Fisheries	0.2	0.52	221	0.37
Construction	1.6	4.19	1954	3.25
Manufacturing	1.3	3.41	6697	11.12
Transport	0.9	2.36	1579	2.62
Wholesale & Retail	1.4	3.67	1280	2.13
Other Services	0.3	0.79	2531	4.20
(c) Government:				
Construction	1.3	3.41	933	1.55
Government Enterprises	0.8	2.89	1554	2.58
General Government	3.3	8.66	7603	12.63
(d) Employers' Contribution to Social Security	0.2	0.52	659	1.09
Income from Self Employment	11.3	29.52	15793	26.23
Rents, Interests and Dividends	5.4	14.17	7335	12.18
Current Grants from Public Authorities	1.2	3.15	—	—
COMPANIES:				
Undistributed Income of Companies	0.5	1.31	3684	6.12
PUBLIC AUTHORITIES:				
Profits of Government Enterprises	0	0	720	1.19
Rents Received	0.2	0.52	320	0.53
Interests and Dividends	0.8	2.09	2405	3.99
Less Current grants to Persons	-1.2	-3.15	—	—

Source: Central Office of Statistics

underlying changes in the social outlook of the working and entrepreneurial labour categories, which, complemented by imported know-how, are essential to compete in international commodity markets; in the past, the commercial importer had to consider the limited domestic market and to establish a sales strategy suited to local demand conditions. Such an insulated approach to trade, together with labour's attitude of disregarding the time factor in the production of a service – common in the U.K. Defence Establishments in peace time – are expected to change as the sectoral structure of the economy is altered.

Note the sharp decline in employment and income contributed by the U.K. Defence Establishments: from an aggregate 26.03% in 1957 to 9.9% in 1967, and from a direct contribution of 22.6% to 8.2% to GNP. The respective relative share of the manufacturing outlets demonstrates an opposite pattern: 9.8% to 19.92% in employment and 3.41% to 11.12% in share to GNP.

Over the period emigration was unavoidable; it proved to be a short-term stabilising factor in the labour market. Table 3 presents data for migration movements for the two years and comparison with unemployment information is introduced by estimating the 'emigration unemployment equivalent' obtained by accounting for emigrants, male and female, aged fifteen to sixty in terms of labour force.

Table 3

MIGRATION FLOW 1957, 1967

YEAR	EMIGRATION	RETURNING MIGRANTS	NET	% OF LABOUR FORCE*
1957	3585	1671	1914	2.76
1967	3971	36	3935	2.97

*Statistic is obtained by expressing the number of emigrants aged 15-60, males and females, as a percentage of the labour force. No adjustment is made to account for fact that, as a rule, at that time Maltese housewives did not undertake paid activities outside their homes, farmers' wives excepted. End of year data are used.

BASIC PAY-RATE DISPERSION: 1957, 1967

The series of coefficients applied has the merit of abstaining from the use of the mean values which are influenced by the relatively few frequencies at the topmost 'income' classes, distribution being positively skewed. The method also indicates whether two distribution curves intersect and the region of intersection.

The percentile values are estimated from smooth S-shaped functions drawn to fit the frequency data available; the results would thus be comparable to various studies carried out for other countries.⁵ Data are obtained from the 'Report on Economic Activities - Malta Census 1967' (Central Office of Statistics, Malta 1971). The report refers to respondents indicating their 'wages and salaries' earned in census *week*; these 'earnings' are interpreted as the basic pay rates of respondents. Certain activities, being seasonal (e.g. farm-hands), would not imply a corresponding annual remuneration rate. This aspect demands emphasis, for generally studies about earnings distribution are restricted to those employees continuously engaged full time for an arbitrarily stipulated weekly amount of time for a specified period, say, a year.⁶ Although it could be argued that most of the reported returns apply to a regular activity i.e. on an annual continuum, yet in some cases, mainly female workers, the earnings could represent a periodic financially-remunerated activity.⁷

Frequency distribution data for 1957 and 1967 are available on a five-category basis; information available is therefore somewhat 'risky' to utilise for interpolating the degree of dispersion. Moreover, the class-intervals are uneven and the top-most class is open-ended.⁸ The highest income category is bounded; the class-mark suggested, though not directly utilised, would produce a Pareto alpha equal to 7. Fortunately, an additional break-up of wage-salary rates is available for 1967 comprising nine income classes and a different sectoral break-up. The information obtained from this second table was used as a guide and in part projected to estimate intra-class dispersion within the five-category 1957, 1967 frequency distribution classification.

⁵ Compared to results obtained from a continual, linear S-shaped curve, the interpolated results in the tables below tend to *underestimate* the values of the *highest* percentiles and *overestimate* the values of the lowest percentile, the diversion depending upon the shape of the smooth cubic function.

⁶ See (1).

⁷ Such cases are mainly restricted to the agricultural sector where housewives assist their husbands, or hire their services for a few days, during short periods of the year, say, sowing or harvest time. Occasional work could also be assumed to prevail in the 'personal service' sector.

⁸ The 5-class classification of 'earnings' is as follows:

Under £M3; £M3-4; £M4-10; £M10-15; £M15 and over, and additional 9-class classification, available for 1967, includes:
 £M0-3; 3-4; 4-6; 6-8; 8-10; 10-15; 15-20; 20-30; 30 and over.

Table 4

DISPERSION OF PRE-TAX BASIC PAY RATES OF MALE AND FEMALE WAGE AND SALARY EARNERS, 1957

CATEGORY	MALES									MEDIAN (£M)	NUMBER OF EMPLOYEES
	P ₅	P ₁₀	P ₂₅	P ₇₅	P ₉₀	P ₉₅	P ₉₆	P ₉₉			
1. All occupations	.3333	.5088	.7544	1.2281	1.3333	1.3860	1.5439	1.6140	7.125	48,615	
2. Professional, Technical or Related	.4624	.5836	.7818	1.1818	1.4909	1.6970	1.9700	2.4848	8.25	2,702	
3. Administrative, Executive and Managerial	.4143	.5286	.7371	1.357	1.9286	2.557	3.486	3.9143	8.75	1,101	
4. Clerical and Sales	.3793	.5136	.7562	1.2125	1.3136	1.4820	1.8356	1.9198	7.423	7,355	
5. Farming and Fishing	.2207	.4089	.7177	1.3765	1.647	1.7529	1.8118	1.8470	5.313	549	
6. Quarrying and Mining	.5818	.6433	.7818	1.218	1.3455	1.3909	1.4273	1.4364	6.875	993	
7. Transport	.5370	.6196	.7678	1.2593	1.3889	1.4444	1.5556	1.7037	6.75	3,834	
8. Crafts, Other Industrial and Construction	.2736	.4713	.7279	1.2547	1.4057	1.4717	1.4906	1.4943	6.625	25,853	
9. Public and Personal	.3208	.5283	.7279	1.2547	1.4993	1.4717	1.5279	1.698	6.625	6,228	
FEMALES											
1. All occupations	.4444	.5600	.8889	2.2767	3.3333	3.778	4.1656	4.2767	2.25	9,928	
2. Professional, Technical or Related	.3118	.6237	.7936	1.258	1.4834	1.6344	1.7088	1.8925	5.813	2,228	
3. Administrative, Executive and Managerial	—	—	—	—	—	—	—	—	—	—	
4. Clerical and Sales	.2623	.3934	.6065	1.5738	2.1312	2.3607	2.5246	2.6053	3.813	1,686	
5. Farming and Fishing	—	—	—	—	—	—	—	—	—	—	
6. Quarrying and Mining	—	—	—	—	—	—	—	—	—	—	
7. Transport	—	—	—	—	—	—	—	—	—	—	
8. Crafts, Other Industrial and Construction	.4444	.5000	.8889	1.3333	1.8819	2.8036	3.778	4.1111	2.25	1,216	
9. Public and Personal	.4444	.5000	.8889	1.3333	2.1389	3.0000	3.8889	4.2222	2.25	4,721	

Note: (i) $P_i = P_i/P_{95}$ above corresponds to Michal's P_{95} in (2).

(ii) There are 5 income classes in every work category.

Source: REA, Table 5D.

Table 5

DISPERSION OF PRE-TAX BASIC PAY RATES OF MALE AND FEMALE WAGE AND SALARY EARNERS, 1967

CATEGORY	MALES										MEDIAN NUMBER OF (\$M) EMPLOYEES	
	P ₅	P ₁₀	P ₂₅	P ₇₅	P ₇₀	P ₉₅	P ₉₈	P ₉₉				
1. All occupations	.3958	.5347	.8472	1.0972	1.625	1.9028	2.4444	2.5833			9.00	55407
2. Professional, Technical or Related	.4811	.6138	.8197	1.4709	2.2011	2.5820	2.8783	3.0265			11.813	4156
3. Administrative, Executive and Managerial	.3317	.4390	.6777	1.6293	2.2049	2.556	2.8098	2.9268			12.813	1666
4. Clerical and Sales	.4487	.5962	.8205	1.1410	1.5997	2.2056	2.5385	2.9487			9.75	7097
5. Farming and Fishing	.3696	.5652	.8144	1.2609	1.5652	1.7217	2.826	3.2609			5.75	788
6. Quarrying and Mining	.6417	.7667	.8167	1.156	1.2833	1.290	1.3243	1.5000			7.50	566
7. Transport	.5564	.6692	.8196	1.1203	1.4211	1.7143	2.2256	2.4662			8.313	6301
8. Crafts, Other Industrial and Construction	.4160	.5520	.7680	1.1520	1.344	1.616	1.888	2.144			7.813	23898
9. Public and Personal	.4444	.5694	.7981	1.111	1.4583	1.7639	2.2222	2.528			9.00	10935
FEMALES												
1. All occupations	.2778	.4028	.5833	1.639	2.222	2.6667	3.222	3.5000			4.50	15165
2. Professional, Technical or Related	.2981	.4583	.7222	1.257	1.5481	1.6869	1.9444	2.1389			9.00	2978
3. Administrative, Executive and Managerial	.2927	.4390	.6698	1.6342	2.390	3.415	4.9756	5.707			5.125	117
4. Clerical and Sales	.3810	.5386	.7967	1.2857	1.6667	1.9643	2.4762	2.8095			5.25	3008
5. Farming and Fishing	.4167	.6042	.8333	1.3333	2.250	2.833	3.500	4.00			3.00	125
6. Quarrying and Mining	.4805	.7746	.8542	1.4149	1.7297	1.7085	2.9365	3.737			4.683	125
7. Transport	.3571	.5179	.7500	1.2857	1.857	2.250	2.6071	2.7143			3.50	3046
8. Crafts, Other Industrial and Construction	.4167	.6042	.8333	1.500	2.333	2.771	3.167	3.2917			3.00	5804
9. Public and Personal												

Note: See notes (i) and (ii) to Table 4 above.

Table 6

DISPERSION OF PRE-TAX BASIC PAY RATES OF MALE AND FEMALE WAGE AND SALARY EARNERS 1967

CATEGORY	MALES											MEDIAN (£M)	NUMBER OF EMPLOYEES
	.4531	.625	.8394	1.2416	1.7188	2.1875	3.4375	4.0625	8.00	55407			
1. All Occupational Groups	.500	.585	.760	1.350	1.840	2.420	2.74	2.86	12.50	4156			
2. Professional, Technical or Related	.3333	.4476	.6191	1.6191	2.3048	2.6476	2.895	3.0667	13.125	1666			
3. Administrative, Executive and Managerial	.5211	.6620	.8169	1.3662	1.7107	2.0282	2.6197	3.1268	8.875	7097			
4. Clerical and Sales	.3148	.4907	.7778	1.148	1.3148	1.4344	2.5185	3.1482	6.75	788			
5. Farming and Fishing	.6667	.7910	.8833	1.1167	1.2167	1.2667	1.3166	1.500	7.50	566			
6. Quarrying and Mining	.5873	.7216	.8486	1.1429	1.5079	1.8095	2.4127	3.1429	7.875	6301			
7. Transport and Communication	.3030	.4394	.7576	1.1364	1.3788	1.6364	2.000	3.8182	8.25	10693			
8. Crafts	.5172	.6724	.8621	1.1034	1.2586	1.5517	2.1724	2.4483	7.25	8434			
9. Construction	.3833	.550	.8167	1.15	1.450	1.8667	2.700	3.366	7.50	4771			
10. Other Industrial	.5714	.6917	.8271	1.187	1.5639	1.7744	2.2256	2.9474	8.313	10935			
11. Public and Personal													
FEMALES													
1. All Occupational Groups	.5152	.6182	.7576	1.5152	2.3030	2.9697	3.4546	4.00	4.125	15165			
2. Professional, Technical or Related	.300	.4357	.7286	1.3143	1.60	1.7286	2.1744	2.8386	8.75	2978			
3. Administrative, Executive and Managerial	.5102	.6205	.7722	1.8202	3.9713	4.8538	5.4538	7.1156	4.533	117			
4. Clerical and Sales	.3954	.5581	.7674	1.3023	1.5814	1.9070	2.3721	2.6977	5.375	3008			
5. Farming and Fishing	.6539	.7846	.9231	1.2308	1.5946	2.1539	3.2308	4.00	3.25	125			
6. Quarrying and Mining	.4625	.725	.80	1.2	1.5225	1.85	2.65	3.50	—	—			
7. Transport and Communication	.6071	.7286	.8571	1.2143	1.5	1.6786	2.0714	2.3571	3.50	1506			
8. Crafts									—	—			
9. Construction	.4211	.7368	.7719	1.2281	1.5088	1.7544	2.3158	2.667	3.563	1495			
10. Other Industrial	.50	.875	.7917	1.4167	1.9167	2.3333	2.8333	3.25	3.00	5804			
11. Public and Personal													

Note: (i) There are 9 income classes in every work category.

Source: R.E.A. Table 5C.

The coefficients are self-explanatory. Comments are therefore limited to two observations which should be constantly remembered when data for the two years are compared.

First, the use of common nomenclature for the two censuses contributes to the amalgamation of distinct economic activities, the determining element distinguishing between activities being the motivation that gives rise to demand for labour services. For instance, the term 'executive' would refer in 1957 mainly to executive posts with the Malta Government or/and the British Defence Departments; in 1967, however, managerial posts with private manufacturing and tourist enterprises would be included. So whereas in 1957 executive posts and salaries were not geared to what is defined above as 'production profit', in 1967 some of the executive jobs and their related salaries correspond to output and sales. Job security, a fringe benefit for the Government executive, would not be automatically transferred to the private company executive.

In addition, conditions of work would differ as between the two sectors, Public and Private. So, while the nominal salary could be lower in Government employment, fringe benefits, apart from job guarantee, could favour the incumbent of a public post, for example, a non-contributory after-service pension scheme, or a lessmentally-strenuous type of work. The Private executive, however, could count upon other types of non-taxable benefits, say, business-cum-pleasure trips abroad. Knowledge of fringe benefits in a gradually transforming Maltese economy is becoming essential before a satisfactory evaluation of the *net* remuneration distribution could be attempted in the future.⁹

Secondly, data collected in the census suggest that the length of the working week was at the time negatively correlated to the income bracket – the higher the salary, the fewer the officially declared hours worked.¹⁰ It is observed that in the relative ab-

⁹ Government intervention in industry, either to assist those firms in financial difficulties or to control the basic economic activities within the community, could influence overall wage and salary scale if financial remuneration schemes in Government controlled companies are set on the pattern of pay structure within the Government 'administration' sector. Such a pattern could be established in Malta within the next quinquennium.

¹⁰ Vid. REA, Tables 4D and 4E. Hours per week, in 1967, varied from an aggregate (male and female) of 38.82 in the 'Community and Business Service' sector to 49.60 in 'Food Manufacturing'. Length of work week

sence of unionised labour, in the private manufacturing, service, and construction/quarrying activities in the census years, the hourly remuneration rates were not established prior to the hiring of labour services; rather what was determined was a weekly wage with hours of work differing among the production units. Following the introduction of a basic forty-hour week (a policy started in 1972 and gradually being introduced in the organised-labour sector) changes in job remuneration would automatically imply changes in hourly rates.

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for males varied from an average minimum 40.54 in the 'Community and Business Service' sector to 50.05 in 'Personal Services' sector and 50.17 in Manufacturing sector.

It should be observed that the 'official hours of work' need not be the actual hours: for a manual worker the time spent on a job would represent the full time devoted for an activity for which he is paid — 'official' and 'actual' hours should be taken to be the same. But for an executive, more time could be devoted to solving or anticipating job problems than that indicated by the official work schedule. In this case, 'official' and 'actual' work effort would differ.