

ISLANDS AND SMALL STATES INSTITUTE

Occasional Papers on Islands and Small States

**FACTORS AFFECTING THE SIZE OF FEMALE
LABOUR FORCE IN MALTA**

Kevin Caruana

No: 2/2006

ISSN 1024-6282

This is a discussion paper which the author/s submitted for feedback from interested persons. The author/s are free to submit revised version of this paper for inclusion in other publications. An electronic version of this paper is available at www.um.edu.mt/islands. More information about the series of occasional papers can be obtained from the Islands and Small States Institute, University of Malta. Tel/Fax: 356-21344879, email: islands@um.edu.mt.

Abstract. Malta's female labour supply increased substantially over the last two decades. However, female participation in Malta remains much lower than that of males and is also the lowest compared to other EU countries. Higher female labour market participation is a top priority for the European Union in order to promote equality of opportunity, higher productivity, and a higher standard of living for all. In this respect, the Lisbon Agenda proposes that Member States strive to increase female participation rates to the targets set for 2010. This paper describes the factors that are likely to affect the size of the female labour force and explains the results of a time-series analysis of female labour market participation rates in Malta carried out by the present author. On the basis of these results, the paper derives a number of policy implications relating to female participation in the labour market.

1. INTRODUCTION

Malta's female labour supply increased substantially over the last two decades. However, female participation in Malta remains much lower than that of males and is also the lowest compared to other EU countries. Higher female labour market participation is a top priority for the European Union in order to promote equality of opportunity, higher productivity, and a higher standard of living for all. In this respect, the Lisbon Agenda proposes that Member States strive to increase female participation rates to the targets set for 2010.

This paper describes the factors that are likely to affect the size of the female labour force and explains the results of a time-series analysis of female labour market participation rates in Malta carried out by the present author. On the basis of these results, the paper derives a number of policy implications relating to female participation in the labour market.

This paper contains six sections. Section 2, which follows this introduction, discusses the Lisbon Targets in connection with female labour force participation. Section 3 gives an overview of female labour market participation in Malta, while Section 4 discusses factors that are thought to affect female participation rates over time. Section 5 presents the results of an econometric study by the present author. Section 6 concludes the paper with some policy recommendations.

2. THE LISBON TARGETS FOR FEMALE PARTICIPATION

Increasing overall labour market participation is a top priority to the European Union – in fact, higher labour market participation is a key target of the Lisbon Strategy. When the European Council adopted this strategy in March 2000 it also drew up a broad policy framework aimed at enhancing competitiveness and achieving full employment. Actually, through new and better work opportunities more women are expected to enter and participate in the labour market.

The EU also adopted the ‘open method of coordination’ where each member state is ‘obliged’ to follow the European Employment Guidelines² in a concerted effort to attract and retain more people in the labour market, improve matches between human resources and vacancies, improve labour market flexibility and adaptability to meet the needs of workers and enterprises, and implement effective reforms through better governance (European Employment Task Force, 2002). Each EU country is also committed to present National Action Plans for employment to the EU Commission.

The target for the EU is to increase its overall employment rate to 70 percent, and that of women to at least 60 percent, by 2010. The latter target therefore necessitates a higher female labour market participation rate. Against this scenario, the Maltese National Action Plan for Employment sets a target of raising the overall employment rate for Malta to 56.7 percent and the female employment rate to 40.7 percent by 2010. However, as at the end of 2004, Eurostat figures indicate that Malta’s female employment rate stood at 32.8 percent. Furthermore, given that Malta’s employment rate increases by 7.9 percent within the next five years, the 40.7 percent target would still be a far cry from the EU’s overall target of 60 percent.

Low employment rates render the challenge of increasing female participation more difficult. It may reflect a combination of a shortage in new job opportunities for females (low labour demand) and/or a low female labour supply. This study will take a closer look at these issues with a view to explain some of these effects in the empirical section.

It must also be emphasised that when speaking of labour market participation, the core issue remains the efficient utilisation of human capital. Many studies point out that the EU suffers from a substantial under-utilisation of human resources, which is reflected in a lower GDP per capita for the EU when compared to that of the US. Therefore, it follows that in a situation where Malta's male participation in the labour market compares very well to that registered in other EU countries, higher female participation in line with the Lisbon Strategy would translate into higher per capita productivity levels for the country.

3. AN OVERVIEW OF FEMALE LABOUR MARKET PARTICIPATION IN MALTA

The labour participation rate is defined as the number of persons gainfully employed and actively looking for a job as a proportion of the working age population, the latter often defined to include persons in the 15 to 64 age bracket. The gainfully employed include full-timers as well as those having a part-time job as their primary occupation.

3.1 Female Participation Rates in Malta (1983-2004)

The female participation rate is the ratio of the female labour force to the female working population, aged 15 to 64 years. This is also often referred to as the female activity rate, which is depicted in the figure below for Malta for the period 1983-2004. Figure 1 also shows the male activity rate during the same period.

Figure 1
Partipation Rate by Gender

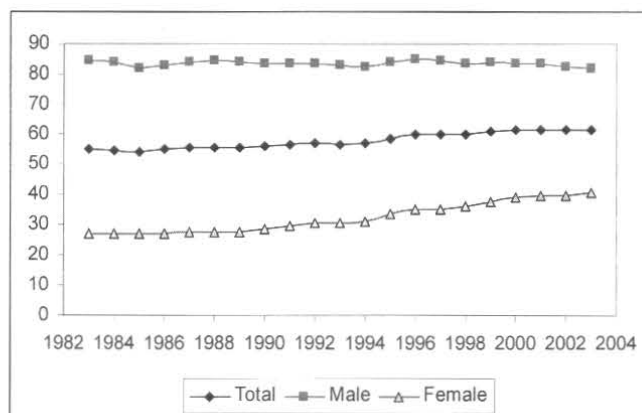
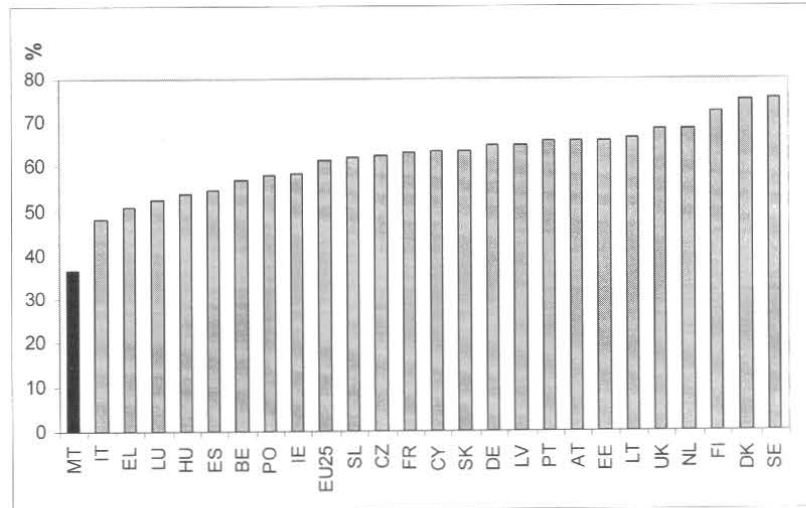


Figure 1 indicates that the gender gap in activity rates has declined, with the gap narrowing mostly in the period 1994 to 2003. In fact, the gender gap in 1994 stood at 51.5 percent whilst that in 2003 stood at 41.6 percent.³

3.1 Female Participation Rates in Malta and Other EU Member States

Eurostat figures⁴ show that the total participation rate for the EU25 in 2003 stood at 69.3 percent, which is 0.3 percentage points higher than that registered in 2002, whilst the female participation rate stood at 61.2 percent. Correspondingly, the Labour Force Survey shows that Malta's 2003 participation rates stood at 58.1 percent and 36.7 percent respectively. Indeed, Malta's female participation rate, at 36.7 percent, was the lowest amongst the 25 EU Member States.

Figure 2
Malta's Female Participation Rate Compared to that of Other
EU Member States (2003)



Source: Eurostat

Nordic countries, including Denmark, Sweden, and Finland have registered the highest female participation rates across the EU25 with rates higher than 70 percent; these countries have also registered a very low gender gap in activity rates compared to that of the EU25, which stood at 16.2 percent. Denmark registered a gender gap of 8.7 percent, 4.6 percent for Finland, and 3.8 percent for Sweden.

The gap in activity rates is relatively higher in a number of Mediterranean countries including Italy (26.4 percent), Greece (26.1 percent), Spain (24.9 percent), and Cyprus (18.9 percent). Malta's gender gap in activity rates stood at 42.8 percent.

4. FACTORS AFFECTING FEMALE PARTICIPATION RATES OVER TIME

A question often asked regarding female labour market participation relates to the reasons as to why women choose to stay out of or enter the labour force. A number of theoretical and empirical studies focus on economic and social variables to explain female labour market participation.

The most important factors affecting the size of the labour force, identified in many studies on the subject are (a) the working age population (see for example Inguanez and Briguglio, 1983), (b) the post-tax wage rates, considered as the opportunity cost of non-market activity and (see Lewis, 1972; Hausman, 1980; Jaumotte, 2003; Inguanez and Briguglio, 1986; Saczuk, 2004; and DGEFCFIN, 2004), (c) cultural attitudes and social norms (see Camilleri, 1997; 2001; Jaumotte, 2003; Inguanez and Briguglio; 1986; Schembri, 1999; Genre et al., 2002; and Saczuk, 2004; Cain, 1966; Mincer, 1962); (d) education and skills (see Vlasblom and Schippers, 2004; Malella and Wilcox-Gok, 2003; and Baldacchino, 2003) (e) possibilities of working time flexibility and part-time employment (see OECD Economics Department, 2004; Camilleri, 2000; DGEFCFIN, 2003; and Chagny et al., 2001) and (f) the business cycle (see Darby, Hart and Vecchi (1998), Genre et al., 2002; Briguglio and Inguanez, 1983; Katarzyna, 2004; Vlasblom and Schippers, 2004).

What follows is a more detailed discussion on the factors just listed, thought to affect the female labour force.

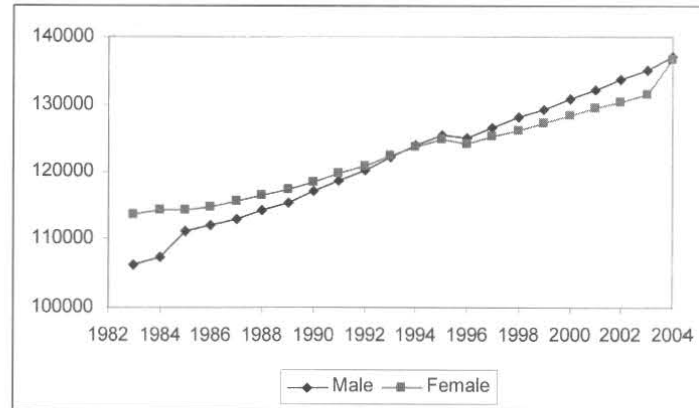
4.1 The Working Age Population

The aggregate labour force is obviously determined by the number of people that are available for employment. In Malta, as in most other countries, there is an age below which persons are not legally allowed to work (age 16). Also, although theoretically persons can work up to a venerable age, normally people retire in their mid-sixties, if not before then on medical grounds. The working age population upper and lower age limit is determined by these considerations. Often the limits are 15 to 64 years. This would represent the highest amount that the labour force can reach, i.e. its 100% potential. The participation rates are normally expressed in terms of this potential. Many studies assume that, everything remaining equal, a 1% increase in the working age population will bring about a 1% increase in the labour supply.

Figure 3 depicts developments in Malta's working age population for the period 1983 - 2004. It can be observed that the Maltese male and female working age population have increased since 1983, except for 1996. Everything else being equal, one would

expect that the labour force of both males and females would have increased during this period as a result of the increase in the working age population.

Figure 3
The Male and Female Working Age Population

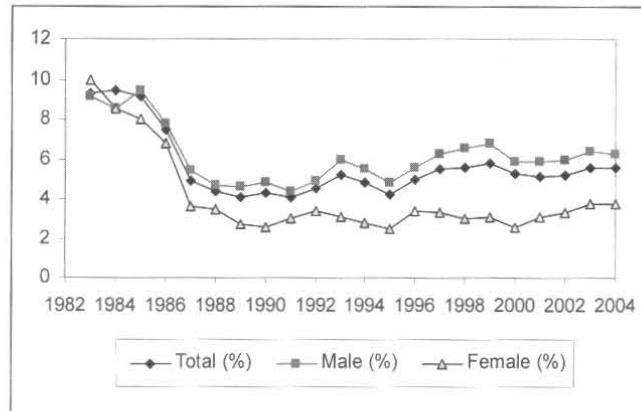


Source: National Statistics Office

4.3 Short term employment opportunities

Cyclical economic changes may capture short term employment opportunities. These are likely to affect female participation decisions because they are related to the probability of finding a job. In this respect, theory refers to the 'discouraged worker' or 'added worker' effects. The former may occur when persons opt out of the labour force if they perceive that the chances of finding employment are remote. The latter may occur as a result of the need for women to seek employment when their husband loses employment. In empirical research, the unemployment rate is usually taken as an indicator of short term employment opportunities, and a negative relation between this variable and the size of the labour force would suggest the existence (or predominance)⁵ of the 'discouraged worker' affect.

Figure 4
Unemployment Rates in Malta



Source: Employment and Training Corporation.

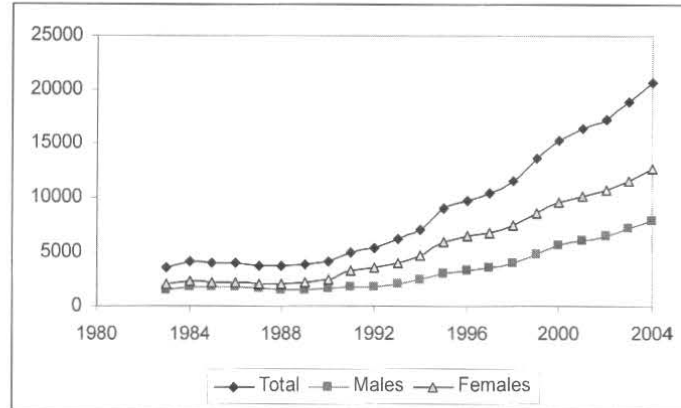
Figure 4 depicts the unemployment rates between 1983 and 2004. It can be seen that between 1983 and 1989 the male and female⁶ unemployment rates tended to decline whilst undergoing noticeable fluctuations throughout the following decade. Gradual increases in both male and female unemployment rates were registered in the period 2000 - 2004. Indeed, the female unemployment rate increased from 2.6 percent in 2000 to 3.8 percent in 2004. That for males increased from 5.9 percent in 2000 to 6.4 percent in 2004.

4.4 Flexibility of Working Time Arrangements

Another important factor determining female participation is flexibility of working time arrangements. Empirical research usually puts forward a number of variables as a proxy for the flexibility of working time arrangements. One of these variables is the possibility for part-time employment - considering that such an arrangement would make it easier for females to combine family commitments and market work.

In Malta the number of females holding part-time jobs as a primary occupation is, as expected, higher than that for males (see Figure 5).

Figure 5
Number of persons in Part-time Employment as a Primary Occupation



Source: National Statistics Office

Females holding this type of job increased to 12,691 in 2004 from 2,047 in 1983. Males holding a part-time job as their primary occupation increased by 6,129 compared to the increase of 10,644 for females during the same period. The popularity of part-time employment is therefore more marked amongst females, thus suggesting that opting for this type of work may indeed make it easier for women to reconcile work and family life. The preference for part-time work amongst females is confirmed in Figure 6, which depicts the ratio of female and male part-time employees to the female and male labour force respectively.

Figure 6
Part-time Male and Female Employees as a Percentage of the Respective Labour Force

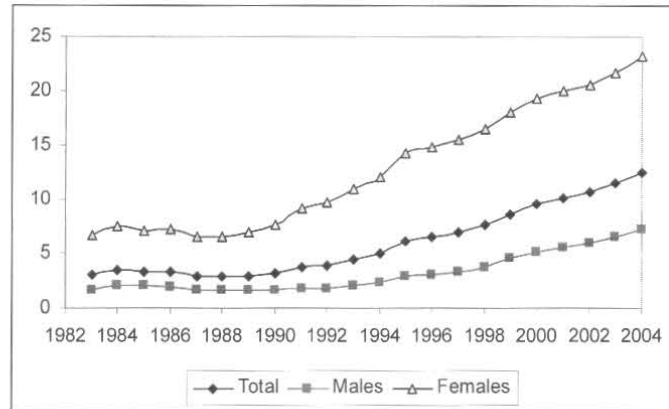


Figure 6 shows an increase in the ratio of women holding a part-time job as their primary occupation to the overall female labour force; from 6.7 percent in 1983 to 23.2 percent in 2004. Correspondingly, the ratio of males holding a part-time job as their primary occupation to the overall male labour force increased from 1.7 percent in 1983 to 7.1 percent in 2004.

4.2 Wage Rates

Labour supply theory suggests that the participation decision of females is intended to maximise utility subject to the budget constraint and time allocation between non-market activity (including housework and leisure) and income earning activities. In this framework, theory predicts that the effect of net wage rates (i.e. wage rates after tax) on labour supply depends on whether labour force participation is a normal or an inferior good. Given that the net wage rate increases the opportunity costs of non-market activity, one can hypothesise that the overall effect of wage rates on female labour force participation is expected to be positive.

It may also be hypothesised that wage rates reflect the education and skill level of the individual. For example, individuals who invested less in human capital accumulation usually earn a low wage whilst higher human capital is associated with higher potential wages.

In Malta, published data on average wage rates is not available for a sufficiently long span of years. This makes it difficult for researchers to utilize this variable in time-series analysis. In addition, computing an index of after-tax wage rates is very difficult.

One way of producing a data series is to divide compensation for employees (available from the *National Accounts* publications) by the number of hired employees (available from labour force statistics). This could then be adjusted by a tax deduction to derive the net average wage rate. However, this will be a very rough approximation given that the two data series are obtained from different sources.

Another approach is to take the minimum wage index. This index is likely to capture the opportunity cost of females least likely to join the labour force, namely those with low level of education. The present author preferred to use the latter index.

Changes in the nominal and real minimum wage rate between 1983 and 2004 are given in Figure 7.

Figure 7
Nominal and Real Minimum Wage Index (1983=100)

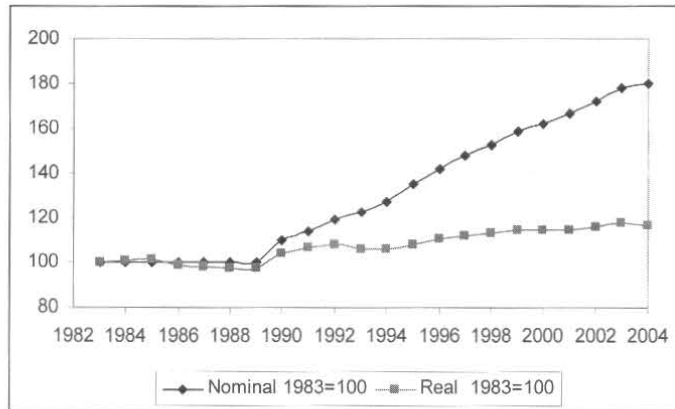


Figure 7 shows that the National Minimum Wage in nominal terms was relatively constant between 1983 and 1989 but tended to increase for the period 1990 to 2004. On the other hand, the real minimum wage (defined as the money wage rates deflated by the retail price index) tended to decline in the periods 1986-1988 and 1992-1994.

Changes in Attitudes

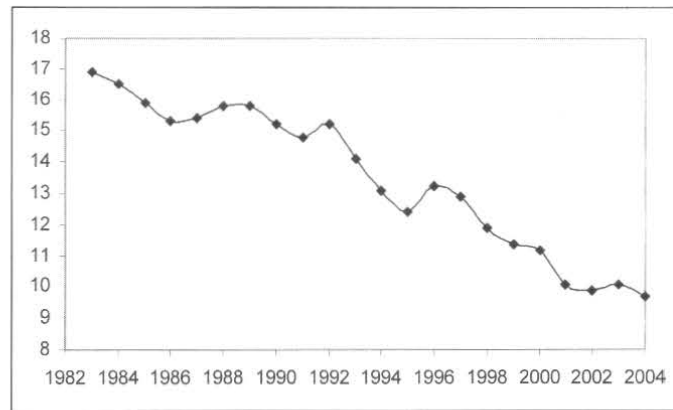
There are a number of attitudinal factors that are likely to affect the decisions of females to join or remain out of the labour force. These factors include educational levels, religion, compatibility between housework and market work⁷ and society's view towards a woman's role as a housewife and mother.

It is not easy to capture these effects in quantitative form. The present author has chosen the crude birth rate as a proxy for these changes. One could argue that female participation and the birth rate are jointly determined in that fertility negatively affects labour force participation and at the same time, the decision by women to participate in the labour market influences decisions on childbearing. In this regard, a number of

studies show that child bearing and rearing is a key reason for a female to leave the labour market.⁸

The crude birth rate is defined as the number of live births per 1000 in the mid-year population. Data on crude birth rates was drawn from the National Statistics Office and is depicted in Figure 8.

Figure 8
The Crude Birth Rate Per Thousand Population



It is clear that throughout the sample period the crude birth rate tended to decrease, with a 16.9 per thousand in 1983, falling to 9.7 per thousand in 2004. This may reflect a change in cultural attitudes and social norms shaping female preferences towards labour market participation and family roles. Indeed, more and more women are opting to participate in the labour force by reconciling their formal labour market activities with family responsibilities, including that of childrearing, such as by undertaking part-time work.

5. RESULTS OF AN ECONOMETRIC STUDY

Caruana (2005) proposed a model which expressed the female participation rate (i.e. number of females in the labour force as a proportion of the population aged 15-64 years) as a function of the working age population, the unemployment rate, the real minimum wage rate, the share of females with a part-time job as a primary occupation to the total female working age population, and the crude birth rate.⁹ The theoretical underpinnings relating to the choice of these variables have been explained above.

Short Term Employment Opportunities

The coefficient on the unemployment rate was found to be negative and statistically significant suggesting that female participation tends to decrease as short run employment opportunities decrease i.e. the 'discouraged worker' effect was confirmed.

Working time flexibility

Working time flexibility, measured by the availability of part time employment, was found to influence female participation rates positively and statistically significantly. This is consistent with theoretical implications: improved work flexibility increases the chances for a woman to undertake both housework and formal paid work.

The Wage Rate Effect

The study found that the relationship between wage rates and labour force participation was positive, though not statistically significant at the 95% confidence level. One possible reason for this is that the data series was not the appropriate one, given that the minimum wage rate index was used. As stated above, lack of data precluded the author from using an average wage rate index, which would have been more appropriate in a study of this nature.

Attitudinal Changes

As already explained, the crude birth rate was chosen as a proxy for attitudinal changes. The results indicate that female labour force participation increases as the crude birth rate decreases. The relationship was found to be statistically significant. Data indicates that for the last 20 years Malta has registered a decline in its crude birth rate, as was the case in most of other European countries.

Main Shortcomings of the Model

It should be noted that the study has a number of limitations and weaknesses. Shortage of data, which has precluded the author from utilising a more appropriate net wage variable. The attitudinal changes variable, namely the crude birth rate, that may not be rich enough to capture all the factors that influence attitudes of females to join the labour force. In addition, there were data problems regarding labour force statistics due to changes in methodology by the National Statistics Office and the Employment and Training Corporation in collecting such data over the sample period.

Other problems were related to the methodology itself. The equation may contain a degree of simultaneous bias. Besides, the non-stationarity of most data series have hindered the author in applying the Error Correction procedure.

6. CONCLUSIONS AND POLICY IMPLICATIONS

The main objective of the study was to find out what were the main factors that influenced the size of female labour force participation in Malta during the period 1983-2004. The analysis was kept at an aggregate level and looked at the effect of a number of economic and social factors. The empirical evidence suggests that there are a number of policy implications relating to female participation, as some of the variables included in the labour supply equation just described can be influenced by policy.

Increasing working time flexibility through more part-time job opportunities could significantly increase female participation in the labour force. An important implication in this regard is that part-time work should be attractive enough for females to undertake this type of job. In addition, part-time work should not be associated with low wages, low social security coverage, and/or job insecurity. A policy implication of all this is that part-time work should be rendered as an attractive option for women to join the labour force. In addition, opportunities for part-time employees to develop new skills and competencies should be enhanced to encourage females to stay longer in the labour market.

The empirical estimates suggest that attitudes of females towards the labour market affect female labour force participation. Changing attitudes in Malta towards the role of females in the family and the labour market have already contributed to a decline in the 'negative' implications that were previously associated with females joining the labour force. A policy implication of this result is that education could play an important role in continuing to influence attitudes to encourage more women to participate in labour supply. Funds made available for the provision of affordable childcare could also significantly lead to higher female participation rates.

Although the empirical study did not find a strong link between net wage rates and labour force participation, the relation appears to be positive, suggesting that as wage rates increase, labour force participation of women increases also. The main policy implications of this result is that better remuneration is likely to attract more women to market work. This carries with it the further implication that income tax rates – which affect the net wage – could be instrumental in this regard. There is some evidence to indicate that the separate tax declaration, which was introduced in Malta during the nineties and which effectively reduced the tax liability for working women, did result in an increase in female labour force participation. Tax incentives could therefore be a useful inducement for more women to join the labour force in Malta.

Ultimately, the policy efforts to increase female labour market participation should be tailored on the EU's Broad Economic Policy Guidelines, the European Employment Strategy, and the Lisbon Strategy. The general orientation of the proposed policy

framework is towards eliminating structural rigidities and fostering a more productive use of human capital.

Indeed, the overall approach supports higher flexibility of labour markets, stronger investment in improving educational attainment and skill development of the labour force, and the modernisation of social protection systems. The overriding priority is therefore to implement those policy measures and reforms that guarantee the desired improvement in overall labour market performance especially that for females, productivity growth, and a better standard of living for all.

REFERENCES

Baldacchino G. (2003). *Factors Affecting Women's Formal Participation in the Malta Labour Market: Results of a Research Project*. Workers' Participation Development Centre, University of Malta: Department for Women in Society, Ministry for Social Policy.

Briguglio L. and Inguanez C. (1986). "Factors Affecting the Size of the Maltese Labour Force," *Economic and Social Studies: Journal of the Faculty of Management Studies*, The University of Malta.

Cain G. (1966). *Married Women in the Labour Force*. Chicago: University of Chicago Press.

Camilleri F. (1996). *Gender Trends in Malta: A Statistical Profile*. Workers' Participation Development Centre, University of Malta: Government Printing Press.

Camilleri F. (1997). *Women in the Labour Market: A Maltese Perspective*. Malta: Mireva Publications.

Camilleri F. (2000). "Just Where is a Woman's Place? Trends and Policies in the Job Market." In *The Maltese Islands on the Move: A Mosaic of Contributions Marking Malta's Entry into the 21st Century*. Malta: Central Office of Statistics.

Camilleri F. (2001). *A Day in Her Life: Insights into the Social and Economic Contribution of Maltese Women*. Workers' Participation Development Centre, University of Malta: Government Printing Press, Malta.

Chagny O., Dopke J., Plane M., Schmidt R. (2001). *Labour Supply and Labour Force Participation in Europe – A Discussion of Some Recent Developments and Projections*. Institut für Weltwirtschaft, Kiel Working Paper, No. 1049.

Darby J., Hart R. A., and Vecchi M. (1998). *Labour Force Participation and the Business Cycle: A Comparative Analysis of Europe, Japan and the United States*. Department of Economics: University of Glasgow, Discussion Paper No. 02.

Genre V, and Gomez-Salvador R. (2002). *Labour Force Developments in the Euro Area since the 1980s*. European Central Bank, Occasional Paper Series, No. 4.

Genre V., Gomez-Salvador R., and Lamo A. (2005). "European Women: Why Don't They Work?" European Central Bank, Working Paper Series, No. 454.

Hausman J. A. (1980). The Effect of Wages, Taxes, and Fixed Costs on Women's Labor Force Participation. *National Bureau of Economic Research, INC*. Reprint No. 144.

Jaumotte F. (2003). "Female Labour Force Participation: Past Trends and Main Determinants." In Malella M. and Wilcox-Gok V. 2003. *Employment Experience as a Predictor of Current Employment*. Department of Economics: Northern Illinois University.

Mincer J. (1962). *Labour Force Participation of Married Women: A Study of Labour Supply. Aspects of Labour Economics*. Princeton, NJ: Princeton University Press.

OECD Economics Department (2004) *Female Labour Force Participation: Past Trends and Main Determinants in OECD Countries*. Paris: OECD.

Saczuk K. (2004). *Labour Force Participation Scenarios for 27 European Countries, 2002-2052*. Central European Forum for Migration Research (CEFMR), Working Paper 5/2004.

Schembri R. (1999). "Female Attitudes Towards Participation in the Labour Force in Malta." A Dissertation in the Faculty of Economics, Management and Accountancy.

Vlasblom J. D. and Schippers J. J. (2004). *Increases in Female Labour Force Participation in Europe: Similarities and Differences*. Tjalling C. Koopmans Research Institute, Discussion Paper Series, No. 04-12.

Footnotes

1. Kevin Caruana is currently employed as an Economics Executive at the Malta Federation of Industry. He possesses an MA (Economics) degree from the University of Malta.

2. These are expressed in the European Employment Strategy (EES), which identifies the common ends of reaching the Lisbon targets without imposing common means

3. NSO figures compiled through the Labour Force Survey show that the gender gap in activity rates in 2004 stood at 41.9 percent; that in May 2005 stood at 43.6 percent.

4. The data used in this report on female activity rates for the EU25 countries originates from Eurostat, which manages the system of the EU's harmonised survey on labour market developments.

5. The "added" and the "discouraged" worker effects may occur simultaneously and a negative sign on the coefficient related to the unemployment rate would indicate that the 'discouraged worker' effect predominates.

6. The unemployment rate figures provided by the ETC take into account individuals registering under Part 1 and Part 2 of the unemployment register.

7. For example the modern kitchen and washroom gadgets reduce the time it takes for cooking and washing. A small family and the presence of child nurseries, render it more possible for a mother to join the labour force.

8. Genre et al. (2005) note that 'causality is more likely to go from fertility to participation because having children is a permanent decision, while participation is reversible, and therefore can adjust in the short run'. On the same lines this study assumes that childbirth is more likely to affect participation rather than the opposite.

9. Using the OLS method the estimated coefficients of the female participation rate equation were estimated as follows:

$$\text{FPR}_t = 2.87 - 0.03 U_t + 0.12 \text{FPT}_t + 0.23 \text{MW}_t - 0.21 \text{CBR}_t$$

(3.83) (-2.92) (3.83) (1.21) (-3.71)

R Squared 0.99 **Durbin Watson Statistic:** 1.7 **Number of Observations:** 21

Where the variables are defined as follows:

FPR = Female Participation Rate at time t

U_t = Unemployment Rate at time t

FPT_t = Share of Females in part-time employment as their primary occupation
to the total female working age population (aged 15-64 years) at
time t

MW_t = Real Minimum Wage at time t

CBR_t = Crude Birth Rate at time t

All variables are measured in logs and the period covered was 1983 to 2003.

Data was obtained from the Employment and Training Corporation (ETC), and the National Statistics Office