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Unemployment Indices for Cyprus: A Comparative Study

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Unemployment Indices for Cyprus: A Comparative Study

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Abstract

The objective of this study is to compare the existing unemployment variables for Cyprus using quarterly data spanning the period 1999q1 to 2006q4. Two of the measures, the Registered Unemployment Rate and the measure taken from the Labour Force Survey, come from the Cyprus Statistical Service. The third measure, the Harmonized Unemployment Rate, is published by the European Statistical Service.

The Labour Force Survey rate (LFS rate) and the Harmonized rate are closely related by construction and, indeed, the two series are very highly correlated. Compared to the Registered rate both of them report greater levels of unemployment, particularly for females and young people over the period 2002-2005. The LFS rate reports a higher number of long-term unemployed persons than the Registered rate. It is noteworthy that the LFS and Registered rates report similar numbers of short-term unemployed persons.

Our results suggest that the LFS and the Harmonised rates are more inclusive indicators of overall unemployment than the Registered rate and that reliance on Registered unemployment only may lead to inappropriate policy formation.

Δείκτες Ανεργίας της Κύπρου: Συγκριτική Μελέτη

Λούης Χριστοφίδης, Άντρος Κούρτελλος και Κωνσταντίνος Βραχίμης

ΠΕΡΙΛΗΨΗ

Ο σκοπός της μελέτης αυτής είναι να συγκρίνει τις μεταβλητές ανεργίας που είναι διαθέσιμες στην Κύπρο χρησιμοποιώντας δεδομένα που εκτείνονται από το πρώτο τρίμηνο του 1999 μέχρι το τέταρτο τρίμηνο του 2006. Δύο δείκτες προέρχονται από την Κυπριακή Στατιστική Υπηρεσία, ο Δείκτης Εγγεγραμμένης Ανεργίας και ο δείκτης που προέρχεται από την Έρευνα Εργατικού Δυναμικού. Ο τρίτος δείκτης, ο Δείκτης Εναρμονισμένης Ανεργίας προέρχεται από την Ευρωπαϊκή Στατιστική Υπηρεσία.

Τα αποτελέσματα της έρευνας δείχνουν ότι δύο δείκτες, αυτός από την Έρευνα Εργατικού Δυναμικού και ο Εναρμονισμένος δείκτης ανεργίας εκ κατασκευής είναι στενά συνδεδεμένοι. Σε σύγκριση με το δείκτη Εγγεγραμμένης ανεργίας, οι δυο προαναφερθέντες δείκτες παρουσιάζουν ψηλότερα επίπεδα ανεργίας ιδίως για τις γυναίκες και τις νέους. Ο δείκτης από την Έρευνα Εργατικού Δυναμικού παρουσιάζει μεγαλύτερο αριθμό μακροχρόνια ανέργων σε σχέση με το Δείκτη Εγγεγραμμένης Ανεργίας. Εν αντιθέσει, ο Δείκτης Εγγεγραμμένης Ανεργίας και ο δείκτης από την Έρευνα Εργατικού δυναμικού παρουσιάζουν παρόμοιο αριθμό ατόμων στην κατηγορία των βραχυχρόνια ανέργων.

Τα αποτελέσματα μας δείχνουν ότι ο δείκτης από την Έρευνα Εργατικού Δυναμικού και ο Εναρμονισμένος Δείκτης Ανεργίας είναι πιο αντιπροσωπευτικοί και αποτυπώνουν την πραγματικότητα καλύτερα από τον Δείκτη Εγγεγραμμένης Ανεργίας.

CONTENTS

I. INTRODUCTION

After decades of exclusive reliance on measures of unemployment based on Registration, Cyprus now has two further measures. The two new measures report unemployment rates that grow much faster than the Registered rate over the period 2002-2005. In the latter part of 2006 they begin to converge again. There is, therefore, a need to examine and try to understand these series.

The objective of this study is to compare these three unemployment variables with a view to making recommendations as to their use for policy and modelling efforts. In a later study we will evaluate the performance of these variables in certain economic models. To our knowledge, no previous study in Cyprus has been conducted on these issues. The data are taken from different sources and cover the period between the first quarter of 1999 and the last quarter of 2006. The variables to be compared are Registered unemployment and Labour Force Survey (LFS) unemployment, constructed by the authorities in Cyprus, and Harmonized unemployment, released by the European Statistical Service. Numbers of unemployed as well as unemployment rates are considered. Seasonally unadjusted as well as adjusted data are examined.

This study examines in detail the relationship between the three different measures. First, the sources and the construction of each measure are discussed. Second, the graphs of the variables are presented. Third, the correlation between the variables is calculated in order to test if these variables move together. This analysis is carried out not only for total unemployment but also for different demographic categories. These categories include the two genders and two age groups. The study also examines the duration of unemployment. We conclude that the two new measures, which are increasingly relied on for policy analysis, are more inclusive and representative of the unemployment experience.

The study is organized as follows: Section 2 describes the data and their sources. Section 3 compares the relationships between them. Section 4 compares the unemployment rate in Cyprus with that in the US, Japan and the EU25. Section 5 concludes and summarizes the findings. The Appendix provides further information on the data used and descriptive statistics.

II. DATA DESCRIPTION

The three different unemployment indices are derived from two sources: the Cyprus Statistical Service (CYSTAT) and the European Statistical Service (EUROSTAT).

Registered Unemployment

The oldest unemployment measure is drawn from CYSTAT. The number of individuals unemployed is available from the inception of the Republic of Cyprus in 1960. Registered unemployment is announced on a monthly basis. The number of unemployed persons is taken from District Labour Offices, which report to the Ministry of Labour and Social Insurance. Registered unemployment is defined as the number of persons registered as unemployed and looking for work at offices on the last day of each month. This number includes persons who receive unemployment benefit from the Social Insurance Scheme as well as those not entitled to any benefit. Each month, CYSTAT announces the actual number of unemployed persons and the unemployment rate in the working population as a whole. Moreover, the number of unemployed persons is broken down by gender, age group, educational level, duration of unemployment, district, occupational category, and sector of economic activity. CYSTAT announces only the number of unemployed persons in each subcategory and not the disaggregated unemployment rate because the corresponding number of the employed population in each category is not calculated by CYSTAT. The data released is not seasonally adjusted. Data for this measure can be retrieved from CYSTAT webpage: http://www.mof.gov.cy/mof/cystat/ and from the CYSTAT annual publication "Labour Statistics".

Labour Force Survey Unemployment

The second measure of unemployment is extracted from the Labour Force Survey conducted by CYSTAT. This survey is conducted in all European Union Member States and in Candidate Countries, following a European Union decision. In Cyprus, the Survey was first carried out in the second quarter of 1999 and was carried out on a yearly basis in the second quarter of each year until 2004. It should be noted that the data for 1999 are probably subject to unusually large errors due to mistakes in the design of the first survey. The last available data at the time the analysis was conducted were for 2006q3. Since the second quarter of 2004 the study has been conducted on a quarterly basis. The objective of the survey is to study the labour force structure, the state of employment and unemployment in different population groups and the behaviour of the employed labour force (hours of work, existence of a second job, etc). The survey covers, on average, a sample of 3500 private households across Cyprus in both urban and rural areas. The unemployment data provided in the survey

include the total unemployment rate and the unemployment rate across the gender and age groups. In addition the duration of unemployment is reported. For all these measures the percentage rate and the actual number of persons in each category are reported. The data are not seasonally adjusted. Data can be retrieved from the annual publication "Labour Force Survey" and from: http://www.mof.gov.cy/mof/cystat.

Harmonized Unemployment

The third measure of unemployment is taken from the EUROSTAT Euro-Indicators. The term "harmonized" is used because EUROSTAT handles national micro-data concerning individuals and households in a unified way throughout the European Union. Data for Cyprus exist on a monthly basis from January 2001 onwards. Five different unemployment rates are reported: the total unemployment rate, the male and female unemployment rate, the unemployment rate for employees aged from 15 to 24 and the unemployment rate for employees from 25 to 75. The Harmonized Unemployment Rate is estimated based on results from each country's Labour Force Survey. Because the Labour Force Survey is not conducted on a monthly basis, EUROSTAT extends/interpolates the quarterly data into monthly. The missing data are estimated using the most recent trends of the series. Seasonally adjusted as well as seasonally unadjusted data are released. See http://ec.europa.eu/eurostat.

Table 1: Categories of Unemployment

Category	LFS [b,d]	Harmonized [c,d]	Registered [d]
Unemployment Rate [a]	Q	Q,M	Q,M
25 years old and above	Q	Q,M	Q,M
Under 25 years old	Q	Q,M [e]	Q,M
Duration of Unemployment [a]			
Less than 6 months	Q	--	Q,M
Between 6 and 11 months	Q	--	Q,M
Twelve months or more	Q	--	Q,M

[a] Data exist for both males and females.

[b] Data exist for the second quarter of 1999, 2000,2001,2002,2003 and from 2004q2 to 2006q1.

[c] Data exist from 2000m1.

[d] LFS data and the Harmonized index are provided both in thousands of persons and as a percentage. However, data on Registered unemployment are provided only in thousands of persons (except for the Total Unemployment Rate).

[e] Data for unemployed persons under 25 years old are reported only four times a year, once in each quarter (the 2nd, 5th , 8th, and 11th month).

CYSTAT series are not provided on a seasonally adjusted basis; Eurostat does provide some seasonally adjusted series. Beginning with the seasonally unadjusted series provided by the two agencies, we have created on as comparable a basis as possible our own seasonally adjusted series and present and discuss these as well. We seasonally adjusted the Registered and Harmonised data using X12. To seasonally adjust the Labour Force Survey variables, we use the TRAMO/SEATS seasonal adjustment procedure developed by Gomez and Maravall (1994 and 1996). This was necessary because the X12 procedure does not deal with variables with missing data (recall that LFS data were only available annually until 2004), whereas the TRAMO/SEATS procedure can handle variables with missing data.

Registered and LFS unemployment is provided in fine detail by age and we have grouped categories to retain comparability with data from other sources. We created two age groups, namely 15-24 and 25+. Eurostat provides data for age groups 15-24 and 25-74. These categories are very comparable.

III. THE BEHAVIOUR OF THE VARIABLES

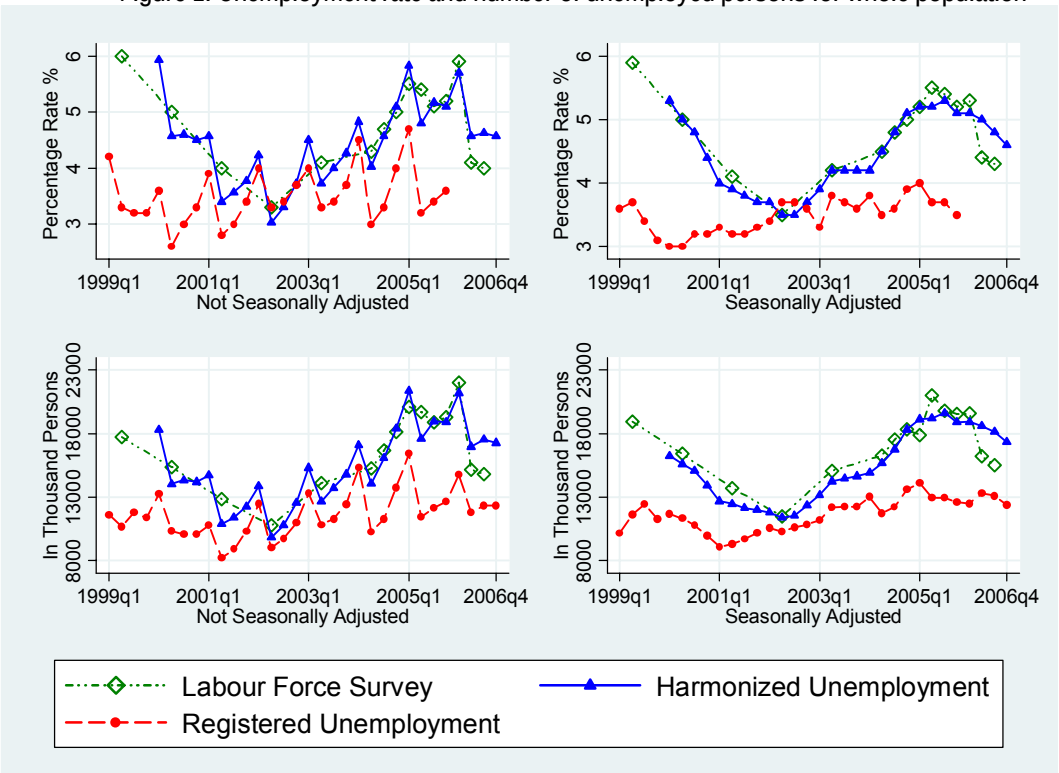
III.1 Graphs

This section presents a graphical analysis of unemployment from the three different sources. The analysis will cover total unemployment and its subcategories. The graphs include the rate of unemployment for each category as well as the actual number of individuals in each category. This is because the registered unemployment variables, except for the total unemployment rate, are reported in actual numbers. In addition, the variables will be presented in their seasonally adjusted and seasonally unadjusted versions. This is important because unemployment in Cyprus exhibits a strong seasonal component: a number of tourist establishments restrict or stop their operations during the winter months, laying off personnel who then register as unemployed.

Figure 1 presents the total unemployment rate, the only rate for which data exist from all three sources. The LFS and Harmonized rates are almost identical but the Registered rate is lower than the other two measures. At the beginning of the period, the LFS unemployment rate was 6%. It declined until 2002, after which point it increased steadily, returning to its 1999 level in 2006q1 and declining thereafter. From 2004q2 onwards, when the LFS survey began to be conducted on a quarterly basis, it

has captured the seasonal effect of unemployment also existing in Harmonized and Registered unemployment; unemployment in the first and last quarter, rates are typically higher than in the other two quarters, resulting in a U-shaped pattern every year. When the unemployment rates are seasonally adjusted the pattern is smoother. The LFS and Harmonized measures show substantial cyclical patterns. However, the Registered unemployment rate is very inert and does not capture this effect. For the whole period the Registered unemployment rate fluctuated around 3.5% and only during the last two years has it increased slightly, reaching 4%.

Figure 1: Unemployment rate and number of unemployed persons for whole population

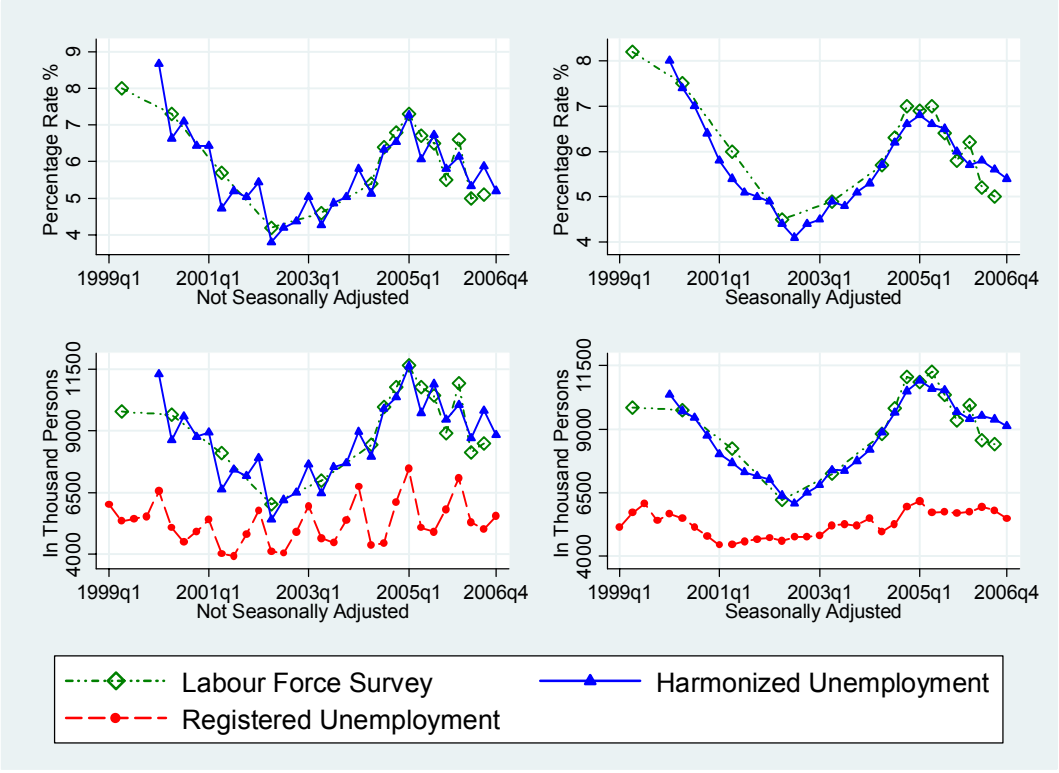


Figures 2 and 3 break down unemployment by gender. Generally, the patterns which exist for the whole population are also found in both genders. The LFS and Harmonized unemployment measures decreased from 1999 until 2002 and increased afterwards till 2006 when they began to decline again. Registered unemployment was constant for a number of years but it increased slightly to a peak in 2005q1, declining thereafter.

The female unemployment rate in 1999 was 8% and it was halved by 2002. After 2002 these unemployment rates increased, reaching 7% in 2005q1. The female Registered

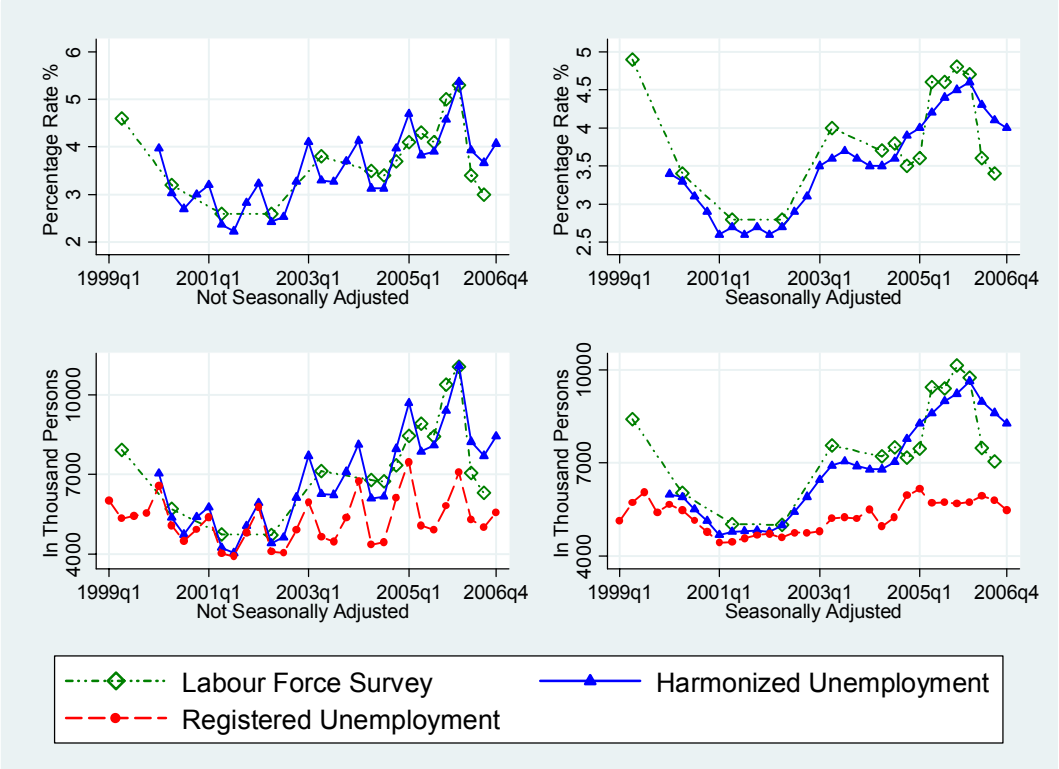
unemployment rate is not available, but as can be inferred from the number of unemployed women, it followed the same path as the total unemployment rate. The number of Registered unemployed women fluctuated around 5500 persons for most of this period. By contrast, the LFS and Harmonized measures show that the corresponding number of female unemployed started from approximately 10000 persons in 1999, declined to 6500 in 2002, increased back to 10000 in 2005q1 and declined to about 9000 by 2006q4. Seasonality is strongest in the Registered figures, a fact which carries over to the gendered data.

Figure 2: Unemployment rate and number of unemployed persons for female population



Male unemployment is shown in Figure 3. The LFS and Harmonized unemployment rates for males show that unemployment in this category increased steadily from just over 3% in 2000 to nearly 5% in 2005q4. The number of Registered unemployed males remained constant from 1999 until 2003 at around 5000 persons but increased afterwards, reaching the 7000 mark in the first quarter of 2004, 2005 and 2006. The number of male Registered unemployed exhibits the same seasonal behaviour as the total and female registered population. It would appear that the increase in the total Registered unemployment rate is attributable to an increase in unemployment among both genders.

Figure 3: Unemployment rate and number of unemployed persons for male Population



In Figures 4 and 5 the unemployment rate and the number of unemployed persons for employees aged 25 years and above and under 25 years old (i.e. 15-24) are shown. The three measures for the first age group are highly correlated and follow the general pattern in total unemployment. For the younger age group (15 to 24 years old), the patterns are very different. The LFS and Harmonized unemployment rates for this age group are considerably greater than the Registered unemployment rate. In 1999, the seasonally unadjusted LFS unemployment rate was 12% and it declined to 8% by 2001. It remained roughly stable until 2004. From 2004q2 onwards it increased sharply, reaching 14% by 2005q3. It declined thereafter to 2006q3. The Harmonized unemployment rate followed the movements of the LFS unemployment rate reasonably closely. By contrast, the number of registered unemployed in this age group (recall that a rate is not available) has remained remarkably constant, at just under 2000 persons throughout this seven-year period.

Figure 4: Unemployment rate and number of unemployed for Population 25 years and above

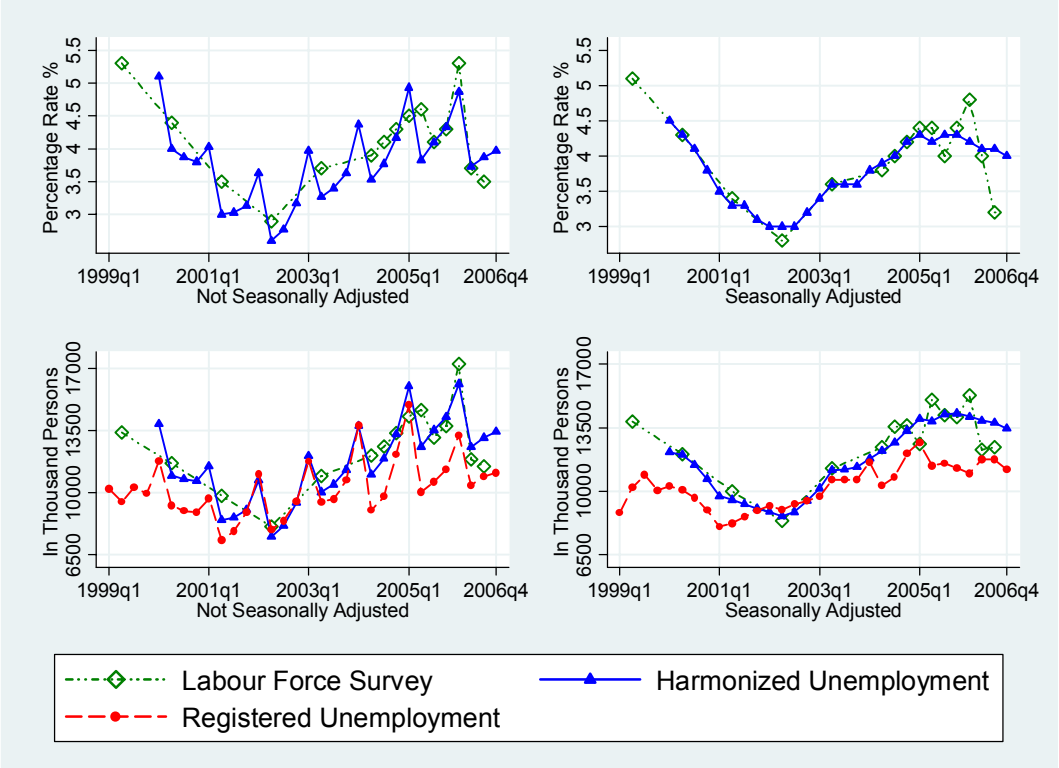
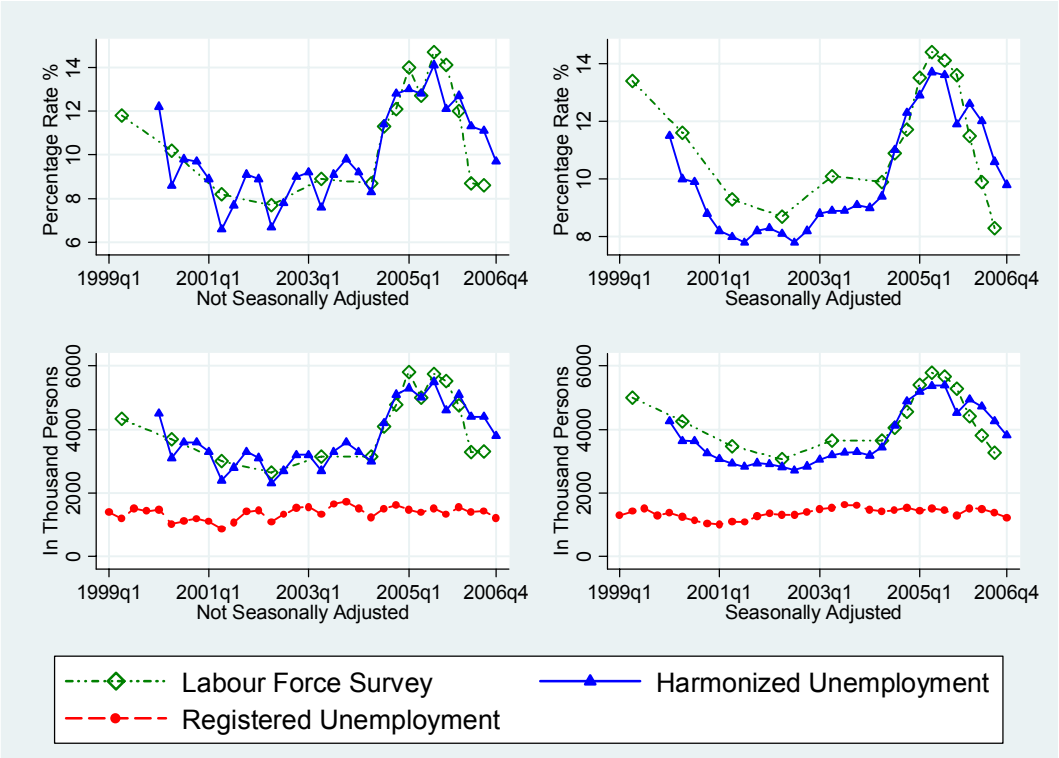


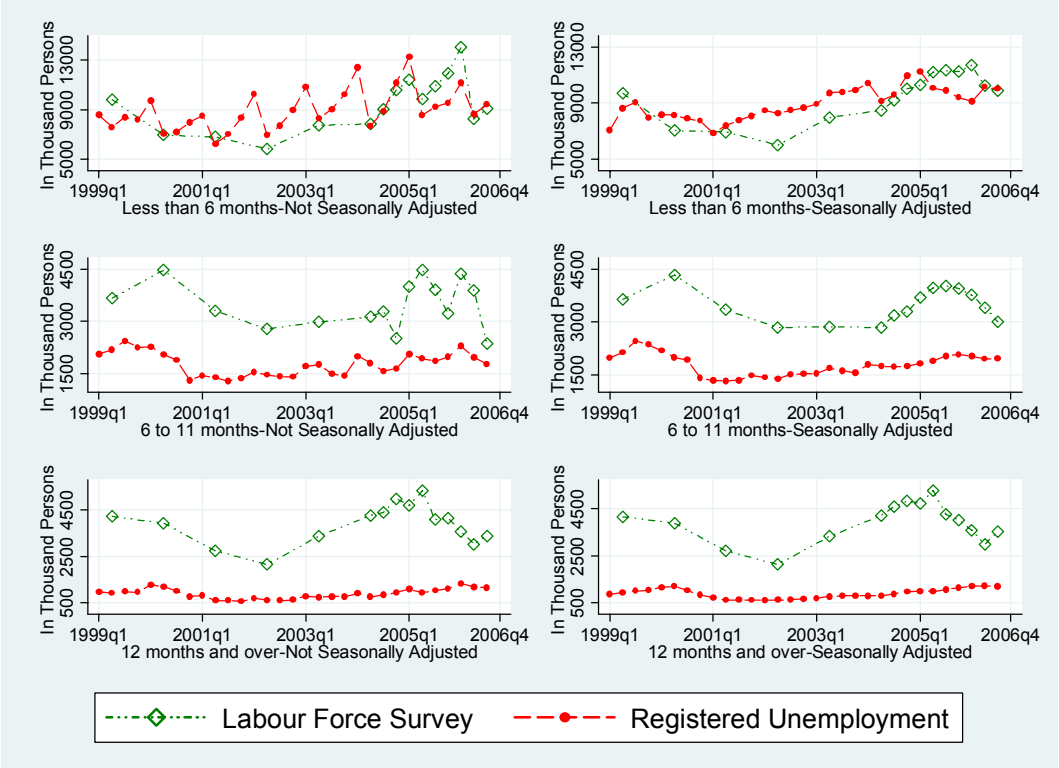
Figure 5: Unemployment rate and number of unemployed persons for Population under 25 years old



Figures 6, 7 and 8 describe how long workers remain unemployed. This data exists only for the Registered and LFS measures. Data on Registered Unemployment are recorded on a monthly basis and data from the LFS are recorded on a quarterly basis. The Registered unemployment, monthly, data are transformed into quarterly by taking the simple average across the three-month period. The duration of unemployment is presented in three categories: (i) less than six months, (ii) six to eleven months, and (iii) twelve months and over. These measures exist for the whole population and across genders.

Figure 6 shows how total unemployment is divided across the three duration periods. The top two panels deal with unemployment for less than six months: From 1999 until 2004, a period during which the Labour Force Survey was conducted on a yearly basis in quarter two, the seasonally unadjusted measures of unemployment for less than six months coincide in the second quarter. From 2004q2 onwards, when the Labour Force Survey began to be conducted on a quarterly basis, it also captures the seasonal effect present in registered unemployment. From 2004q2 until 2004q4, the two measures are almost identical, from 2005 onwards they are highly correlated but the LFS measure shows more unemployment than the data based on Registration. Of course, seasonal adjustment, which takes account of the highs in unemployment during q1 and q4, shifts the entire Registered series upwards. This changes once LFS is also conducted quarterly for some time. The two measures behave differently for the other two spells of unemployment, i.e from 6-11 and twelve months and over. For both groups, the LFS measure is always considerably greater than the registered unemployment measure. LFS unemployed persons who remained unemployed from 6 to 11 months, fluctuated between 3000 and 4500 persons, during the whole period. For the same group, the number of registered persons remained stable, throughout the period around 1500 persons. The difference is even greater for the third category of unemployment duration. The number of persons who remained unemployed for 12 months or more, based on the LFS measure, ranged from 2500 to 4500 persons. In contrast, the registered number of persons in this group remained constant at 500 persons over the whole period.

Figure 6: Duration of Unemployment for whole population



The duration of unemployment for the two genders is similar to the behaviour of the total population examined above. For both genders the LFS and Registered unemployment measures for unemployment of less than six months are highly correlated. The LFS number of unemployed females in 1999, was 5000 persons, but it increased steadily to about 7000 by 2006. Registered unemployment for female population in 1999 was 4000 persons and rose to roughly 6000 by 2005q1. The number of female workers that remained unemployed from six to eleven months fluctuated around 2000 and 1000 persons for the LFS and Registered unemployment measures respectively. On average 2500 and 500 female workers remained unemployed for over a year, based on the LFS and Registered unemployment measures respectively. This pattern is similar to the pattern followed in the total population.

The duration patterns of male unemployment are also similar to those of total unemployment. Both measures show about 5000 males who remained out of a job for less than six months in 1999. This number increased steadily to 7000 persons by 2006, based on the LFS measure. Registered unemployment remained stable at less than 5000, throughout the whole period. The two measures show that the number of

people who remained unemployed from six to eleven months fluctuated around 1500 and 1000 persons for the LFS and registered unemployed measures respectively. An increase is noted for the last two years in the LFS measure. Over the whole period the LFS and Registered unemployment measures show that about 1500 and 500 employees remained unemployed for more than a year.

Figure 7: Duration of Unemployment for female population

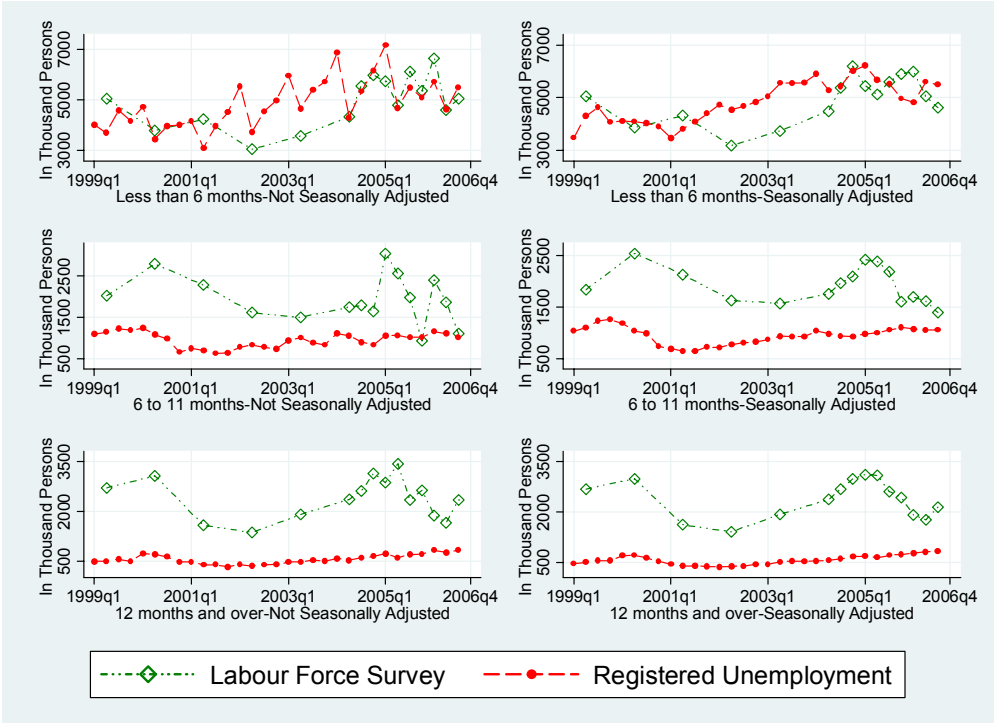
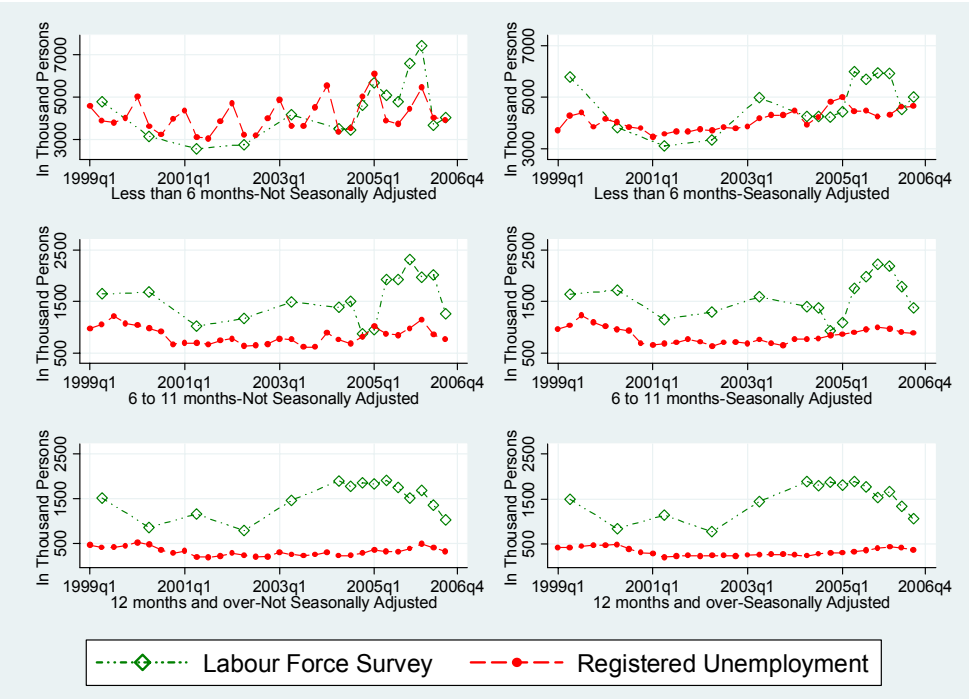


Figure 8: Duration of Unemployment for male population



The graphical analysis in this section points out several important differences between the new measures and the old measure which is based on Registration. The new measures generally show higher unemployment. The more detailed graphical analysis revealed that this is due to the fact that the Registration figures show considerably less female and young (under 25) unemployment. A consistent pattern is also found in the duration data, where Registration figures show considerably less unemployment that lasts for six months or more. This is true for both females and males but particularly the former. These patterns may suggest that new entrants into the labour force (the young and returning female participants) stay unemployed longer but, since they do not qualify for unemployment insurance, they do not register, particularly if they judge that registration is unlikely to facilitate job-finding. If this interpretation is correct, then the new measures are more indicative of the extent of unemployment in Cyprus.

III.2 Correlations

The graphs in the previous section provide an easy, but informal, way of examining the behaviour of the three series through time and the extent to which they are related. In this section, more formal measures are provided. Each table shows, for each category, the pairwise Pearson correlation coefficient between the different measures; a star indicates if it is significantly different from zero at the 5% level. Also indicated by a dagger, is whether the Spearman rank correlation coefficient (not shown) between the two series is significantly different from zero at the 5% level. In most cases these measures agree.

As can be seen from all the tables, the LFS and Harmonized measures are highly correlated and, in most cases the Pearson correlation coefficient is significant at the 5% level (this is expected because the Harmonized measure construction is based on the Labour Force Survey). These statements hold for both seasonally and not seasonally adjusted data.

The Pearson correlation coefficient between the Registered unemployment rate and the other two measures is generally positive but small compared to the relationship between the LFS and Harmonized measures. Indeed, Table 2 shows that the total Registered unemployment rate is positively but weakly correlated with the LFS measure (0.169) and the Harmonized unemployment rate (0.075). The pairwise correlations are generally significant and, as a rule, the Spearman rank correlation coefficient gives the same conclusion. When the series are not seasonally adjusted,

the correlations are more substantive because the series share the seasonal components. Consistent with the findings in Section III.1, the correlations between Registered unemployment and the new measures is weaker for women and for those under 25 years of age.

Tables 3, 4, and 5 show Pearson correlation coefficients between Registered unemployment and that reported in the LFS data by the duration of unemployment. Table 3 deals with the entire population, while Tables 4 and 5 refer to females and males respectively. For the entire population in Table 3, all correlations are positive and relatively large. For females, in Table 4, the correlation coefficients are noticeably smaller and, indeed, for the seasonally adjusted data on unemployment duration between 6-11 months it is negative (-0.125). These statements also hold for men, in Table 5, except that the negative correlation occurs for those in the longest unemployment duration category (-0.139). These findings are generally consistent with those in section III.1, since the strongest correlation is found for unemployment durations under 6 months.

We conclude that both the graphical analysis of section III.1 and the Pearson correlation coefficients in Section III.2 suggest that the divergence between the new measures of unemployment and Registered unemployment is most pronounced for females, the young, and those experiencing long term unemployment (who are likely to be females and the young).

Table2: Pearson Correlation Coefficient Between Unemployment Variables

Total Unemployment Rate-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.169	1	
HARM	0.906 *†	0.075	1

Total Unemployment Rate-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.355	1	
HARM	0.885 *†	0.465 *	1

Total Number of Unemployed Persons-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.619 *	1	
HARM	0.880 *†	0.844 *†	1

Total Number of Unemployed Persons-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.787 *†	1	
HARM	0.919 *†	0.823 *†	1

Female Unemployment Rate-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.917 *†	--	1

Female Unemployment Rate-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.890 *†	--	1

Number of Unemployed women-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.489	1	
HARM	0.935 *†	0.505 *†	1

Number of Unemployed women-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.645 *†	1	
HARM	0.902 *†	0.600 *†	1

Note: * Denotes that the Pearson correlation coefficient is significantly different from zero at the 5% level

† Denotes that the Spearman rank correlation coefficient (not shown) is significantly different from zero at the 5% level

Table 2 (continued): Pearson Correlation Coefficient Between Unemployment Variables

Male Unemployment Rate-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.879 *†	--	1

Male Unemployment Rate-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.984 *†	--	1

Number of Unemployed males-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.613 *	1	
HARM	0.874 *†	0.861 *†	1

Number of Unemployed males-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.711 *†	1	
HARM	0.907 *†	0.800 *†	1

Unemployment Rate for persons less than 25 years old-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.794 *†	--	1

Unemployment Rate for persons less than 25 years old-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.836 *†	--	1

Number of persons less than 25 years old-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.310	1	
HARM	0.811 *†	0.392 *	1

Number of persons less than 25 years old-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.587 *†	1	
HARM	0,853 *†	0.497 *†	1

Note: * Denotes that the Pearson correlation coefficient is significantly different from zero at the 5% level

† Denotes that the Spearman rank correlation coefficient (not shown) is significantly different from zero at the 5% level

Table 2 (continued): Pearson Correlation Coefficient Between Unemployment Variables

Unemployment Rate for persons 25 years old and above-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0.805 *†	--	1

Unemployment Rate for persons 25 years old and above-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	--	1	
HARM	0. 853 *†	--	1

Number of persons 25 years old and above-Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.625 *†	1	
HARM	0.887 *†	0.876 *†	1

Number of persons 25 years old and above-Not Seasonally adjusted

	LFS	REG	HARM
LFS	1		
REG	0.746 *†	1	
HARM	0.896 *†	0.886 *†	1

Note: * Denotes that the Pearson correlation coefficient is significantly different from zero at the 5% level

† Denotes that the Spearman rank correlation coefficient (not shown) is significantly different from zero at the 5% level

Table 3: Pearson Correlation Coefficient Between Variables by Duration of Unemployment for Whole Population

Duration of Unemployment: Less than 6 months-Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.628*†	1

Duration of Unemployment: 6 to 11 months-Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.608*†	1

Duration of Unemployment: 12 months and over-Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.289	1

Duration of Unemployment: Less than 6 months-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.781*†	1

Duration of Unemployment: 6 to 11 months-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.652*†	1

Duration of Unemployment: 12 months and over-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.268	1

Note: * Denotes that the Pearson correlation coefficient is significantly different from zero at the 5% level

† Denotes that the Spearman rank correlation coefficient (not shown) is significantly different from zero at the 5% level

Table 4: Pearson Correlation Coefficient Between Variables by Duration of Unemployment for Female Population

Duration of Unemployment: Less than 6 months-Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.449	1

Duration of Unemployment: 6 to 11 months-Seasonally adjusted

	LFS	REG
LFS	1	
REG	-0.125	1

Duration of Unemployment: 12 months and over-Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.318	1

Duration of Unemployment: Less than 6 months-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.732 *†	1

Duration of Unemployment: 6 to 11 months-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.211	1

Duration of Unemployment: 12 months and over-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.314	1

Note: * Denotes that the Pearson correlation coefficient is significantly different from zero at the 5% level

† Denotes that the Spearman rank correlation coefficient (not shown) is significantly different from zero at the 5% level

Table 5: Pearson Correlation Coefficient Between Variables by Duration of Unemployment for Male Population

Duration of Unemployment: Less than 6 months-Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.439	1

Duration of Unemployment: 6 to 11 months-Seasonally adjusted

	LFS	REG
LFS		
REG	0.652*†	

Duration of Unemployment: 12 months and over-Seasonally adjusted

	LFS	REG
LFS	1	
REG	-0.139	1

Duration of Unemployment: Less than 6 months-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.768*†	1

Duration of Unemployment: 6 to 11 months-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	0.451	1

Duration of Unemployment: 12 months and over-Not Seasonally adjusted

	LFS	REG
LFS	1	
REG	-0.072	1

Note: * Denotes that the Pearson correlation coefficient is significantly different from zero at the 5% level

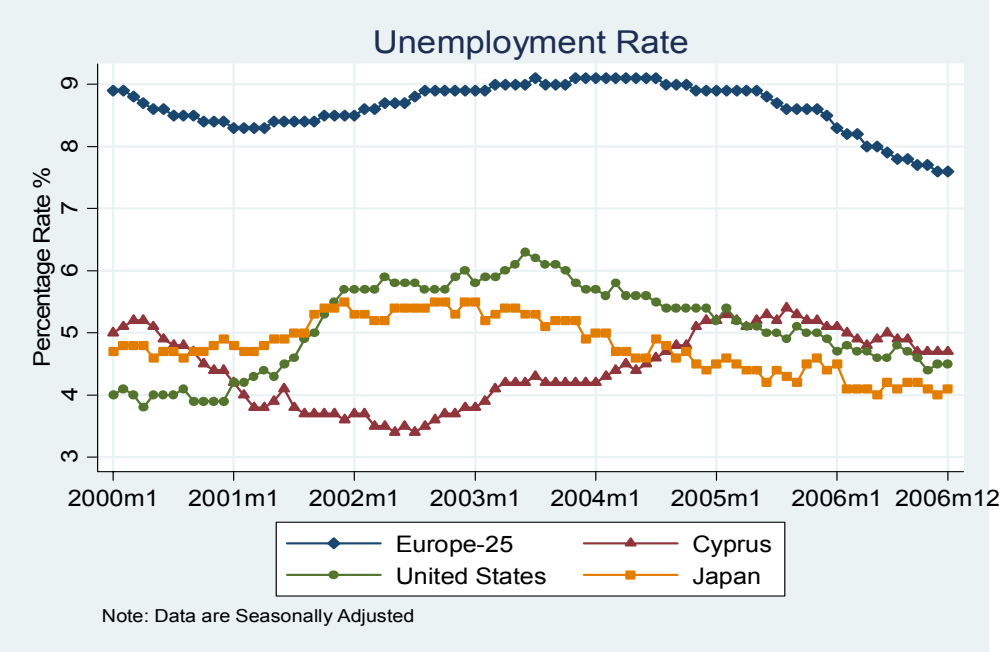
† Denotes that the Spearman rank correlation coefficient (not shown) is significantly different from zero at the 5% level

IV: COMPARISON OF HARMONISED UNEMPLOYMENT IN CYPRUS AND OTHER AREAS

The conclusion that the new measures capture in a more inclusive way the unemployment experience in Cyprus suggests that a comparison with other countries may be useful. This section compares the development of the unemployment rate in Cyprus with the rates prevailing in major economic powers. These include the European Union (25 member states), the United States and Japan. The data are taken from the EUROSTAT Harmonized index and cover the period January 2000 to December 2006. In addition to the total unemployment rate, data also exist for the unemployment rate by gender and age.

As shown in Figure 9 the unemployment rate in Cyprus in 2000 was 5% and it gradually decreased to less than 4% by 2002. From 2002m8 onwards, however, the unemployment rate steadily increased, reaching a high of more than 5% by 2005m8. In the European Union the unemployment rate remained constant at around 9% from 2002m7 to 2005m5. In the United States, the unemployment rate during 2000 was 4%, increasing to 6% for the next two years. From 2004 until the end of the period unemployment declined, returning to its 2000 levels. In Japan, during 2000 the rate remained constant at just below 5%; it increased to just below 6% over the next two years and declined for the next few years reaching the level of 4%. Thus, relative to all to other comparison groups, the Harmonized rate in Cyprus has been increasing up until 2005m8, following the same downward trend over the last eighteen months. There is no question that the relative position of the Cyprus and other Harmonized rates has worsened, a change that occurred over the period 2002m8 to 2005m8. This three-year period deserves further study.

Figure 9: Total Unemployment Rate in Cyprus and in major Economic Powers



The same trend is visible in the unemployment rate for both genders and the unemployment rate by age. As can be seen from Figure 10, the unemployment rate for males in Cyprus was lower than those prevailing in the rest of the European Union and the US over the whole period. By the end of the period, the Cyprus unemployment rate for males overtook the unemployment rate in Japan in several months and was very close to that prevailing in the US. The unemployment rate for females in Cyprus (Figure 11) started out higher than the rates in the US and Japan, fell below them in 2002 and 2003, but is now clearly higher. It continues to be lower than the female unemployment rate in the EU but the gap is now smaller.

Figure 10: Male Unemployment Rate in Cyprus and in major Economic Powers

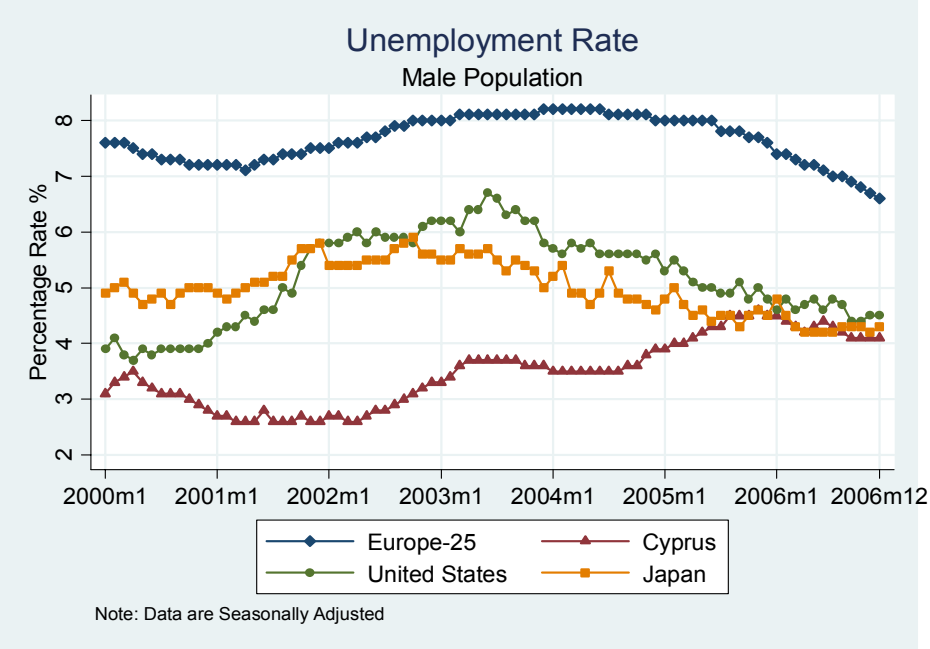


Figure 11: Female Unemployment Rate in Cyprus and in major Economic Powers

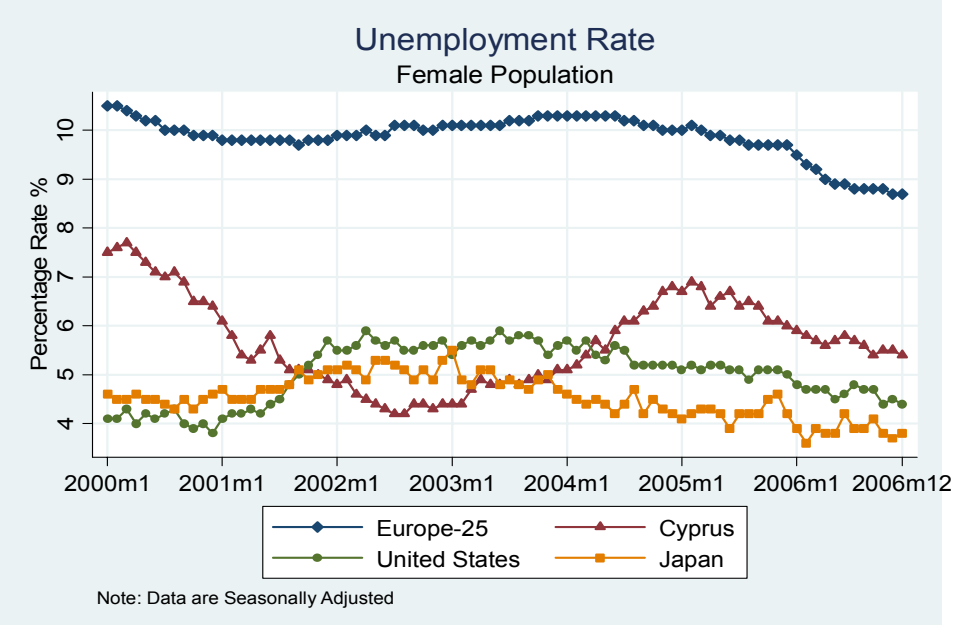
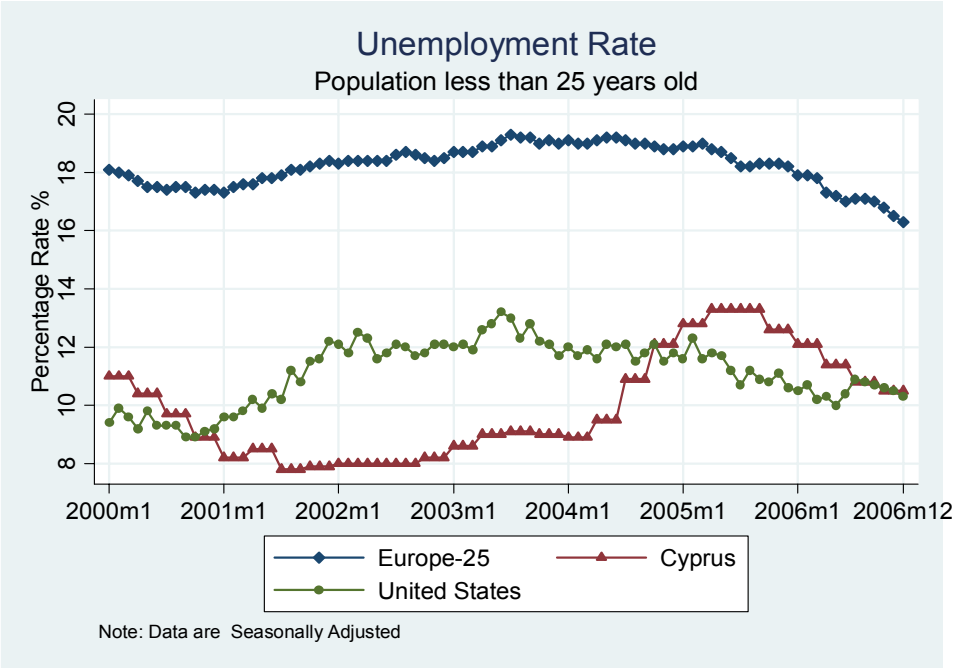
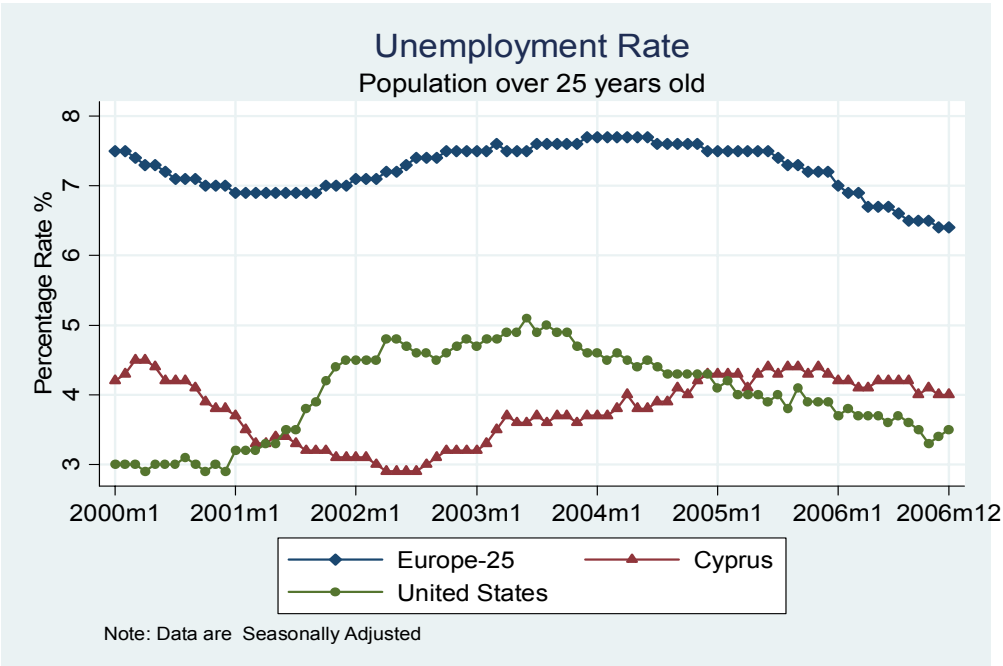


Figure 12: Unemployment Rate in Cyprus and in major Economic Powers



The unemployment rate for the Cypriot population under 25 years of age (Figure 12) followed a strikingly increasing path during this period. As is shown in Figure 13, at the beginning of the period unemployment stood at 10% and it declined to about 8% by the end of 2002. From 2003 onwards, the rate increased, reaching nearly 14% in 2005m4. The corresponding rate in United States fluctuated around 12% for the whole period. The increase in the Cyprus unemployment rate for older workers (Figure 13) was more modest but, again, large enough to place it over that prevailing in the US. Data for Japan are not available for the two age groups.

Figure 13: Unemployment Rate in Cyprus and in major Economic Powers



Thus, relative to other major comparison groups, the unemployment rate for all groups, but particularly for females and the young, increased very dramatically after 2002. The increase for individuals under 25 years of age is striking and is not at all reflected in the data for Registered unemployment. This series (Figure 5) is essentially constant at just under 2000 persons.

V. CONCLUSION

The new measures of unemployment in Cyprus (the LFS and Harmonized rates) rose substantially (from about 3.5% to about 5.5%) during the period 2002-2005 while Registered unemployment rose only slightly (from just over 3% to just under 4%). The difference between the new measures and Registered unemployment is concentrated among women and the young. The reasons why the unemployment measures for these two demographic groups diverge should be the subject of further study. Certainly women re-entering the labour force after family formation and the young may not qualify for unemployment benefits and may not bother to register with District Labour Offices, particularly if they judge that doing so is not likely to facilitate job-finding. But why this phenomenon, if true, should be especially pronounced during the period 2002-2005 needs to be explained. It is possible that since the period 2002-2003 was one of slower than average real GDP growth, the capacity of the economy to absorb returning or new entrants (women and the young) was compromised, leading to an increase in the survey-based measures of unemployment. In this paper, we record this puzzle and call for further study of it.

Harmonised unemployment also rose relative to the US, Japan and the EU25. It would appear, therefore, that the answers to this question should be sought in Cyprus.

The fact that the divergence between the new series and measures based on Registration is not fully understood does not warrant dismissal of the issue. The survey measures (unless wrong!) record frustrated intentions and wishes which are not reflected in Registered unemployment. Reliance on the latter measure may, therefore, lead to complacency and inappropriate policies. All three measures should be taken into account.

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APPENDIX: VARIABLE DEFINITIONS AND DESCRIPTIVE STATISTICS

Variable	Number of Observations	Mean	Standard Deviation	Minimum Value	Maximum Value
lfs_t_per_nsa	15	4.8	0.8	3.3	6
lfs_t_act_nsa	15	16719	3045	10756	21993
lfs_tu25_per_nsa	15	10.9	2.4	7.7	14.7
lfs_to25_per_nsa	15	4.1	0.7	2.9	5.3
lfs_tu25_act_nsa	15	4154	1066	2651	5812
lfs_to25_act_nsa	15	12565	2155	8105	17243
lfs_tless6_act_nsa	15	9335	2211	5814	14050
lfs_t6to11_act_nsa	15	3491	685	2364	4482
lfs_tover12_act_nsa	15	3893	858	2160	5338
lfs_f_per_nsa	15	6.1	1.1	4.2	8
lfs_f_act_nsa	15	9270	1582	6030	11651
lfs_fless6_act_nsa	15	4921	1015	3042	6649
lfs_f6to11_act_nsa	15	1950	589	924	3045
lfs_fover12_act_nsa	15	2400	614	1371	3433
lfs_m_per_nsa	15	3.8	0.8	2.6	5.3
lfs_m_act_nsa	15	7449	1819	4726	11061
lfs_mless6_act_nsa	15	4414	1366	2567	7403
lfs_m6to11_act_nsa	15	1541	433	877	2310
lfs_mover12_act_nsa	15	1494	378	788	1905
lfs_t_per_sa	15	4.8	0.7	3.5	5.9
lfs_t_act_sa	15	17160	2561	11495	21031
lfs_tu25_act_sa	15	4358	895	3066	5782
lfs_to25_act_sa	15	12734	1851	8374	15275
lfs_tu25_per_sa	15	11.4	2.0	8.3	14.4
lfs_to25_per_sa	15	4.2	0.6	2.9	5.4
lfs_tless6_act_sa	15	9416	1774	6008	11725
lfs_t6to11_act_sa	15	3477	476	2841	4332
lfs_tover12_act_sa	15	12726	1856	8361	15259
lfs_f_per_sa	15	6.2	1.0	4.5	8.2
lfs_f_act_sa	15	9317	1420	6213	11271
lfs_fless6_act_sa	15	4933	886	3185	6201
lfs_f6to11_act_sa	15	1925	354	1399	2545
lfs_fover12_act_sa	15	2384	561	1410	3113
lfs_m_per_sa	15	3.9	0.7	2.8	4.9
lfs_m_act_sa	15	7644	1574	5013	10130
lfs_mless6_act_sa	15	7560	958	3109	5995
lfs_m6to11_act_sa	15	1567	385	929	2218
lfs_mover12_act_sa	15	1487	382	769	1886
h_t_per_nsa	28	4.5	0.7	3.0	5.9
h_t_act_nsa	28	15327	3079	9833	21367
h_tu25_per_nsa	28	10	2.0	6.6	14.1
h_to25_per_nsa	28	3.7	0.6	2.6	5.1
h_tu25_act_nsa	28	3728	921	2300	5500
h_to25_act_nsa	28	11614	2252	7533	16133
h_f_per_nsa	28	5.7	1.1	3.8	8.7
h_f_act_nsa	28	8577	1606	5400	11633
h_m_per_nsa	28	3.5	0.8	2.2	5.4
h_m_act_nsa	28	6747	1782	4033	11100
h_t_per_sa	28	4.5	0.6	3.5	5.3
h_t_act_sa	28	15334	2755	11405	19623
h_tu25_per_sa	28	10	1.9	7.8	13.7

Variable	Number of Observations	Mean	Standard Deviation	Minimum Value	Maximum Value
h_to25_per_sa	28	3.8	0.5	3	4.5
h_tu25_act_sa	28	3733	867	2715	5384
h_to25_act_sa	28	11618	1934	8624	14292
h_f_per_sa	28	5.7	1.0	4.1	8
h_f_act_sa	28	8577	1448	6081	10917
h_m_per_sa	28	3.5	0.6	2.6	4.6
h_m_act_sa	28	6755	1582	4686	9624
reg_t_per_nsa	28	3.5	0.5	2.6	4.7
reg_t_act_nsa	32	11626	1824	8204	16429
reg_tu25_act_nsa	32	1362	203	862	1729
reg_to25_act_nsa	32	10265	1692	7341	14958
reg_tless6_act_nsa	32	8941	1593	6211	13264
reg_t6to11_act_nsa	32	1788	329	1291	2440
reg_tover12_act_nsa	32	897	216	563	1329
reg_f_act_nsa	32	6356	1072	4190	8955
reg_fless6_act_nsa	31	4831	967	3097	7168
reg_f6to11_act_nsa	31	947	181	624	1240
reg_fover12_act_nsa	31	564	141	339	837
reg_m_act_nsa	32	5271	892	3915	7474
reg_mless6_act_nsa	31	4103	764	3048	6096
reg_m6to11_act_nsa	31	833	166	615	1215
reg_mover12_act_nsa	31	324	96	200	528
reg_t_per_sa	28	3.5	0.3	3	4
reg_t_act_sa	32	11636	1315	9068	14115
reg_tu25_act_sa	32	1364	164	1007	1623
reg_to25_act_sa	32	10273	1199	8045	12699
reg_tless6_act_sa	32	8948	1101	6870	11249
reg_t6to11_act_sa	32	1790	309	1331	2467
reg_tover12_act_sa	32	897	210	597	1223
reg_f_act_sa	32	6360	897	4593	7931
reg_fless6_act_sa	31	4836	775	3461	6231
reg_f6to11_act_sa	31	945	167	646	1265
reg_fover12_act_sa	31	563	139	368	838
reg_m_act_sa	32	5277	507	4441	6163
reg_mless6_act_sa	31	4113	389	3469	4995
reg_m6to11_act_sa	31	835	152	630	1230
reg_mover12_act_sa	31	324	88	208	485

Note: Variable names are in code. The fist part of the name states the source of the unemployment measure (reg, h and lfs stand for registered unemployment harmonized unemployment and LFS unemployment respectively). The second part states the subcategory of unemployment (t, m, f, o25, u25, tless6, t6to11, tover12, mless6, m6to11, mover12, fless6, f6to11, fover12 stand for total population, males, females, unemployed age 25 and above, unemployed under the age of 25, duration of unemployment under six months for the whole population, duration of unemployment from six to eleven months for the whole population, duration of unemployment 12 months and over for whole population, duration of unemployment under six months for the male population, duration of unemployment from six to eleven months for the male population, duration of unemployment 12 months and over for male population, duration of unemployment under six months for the female population, duration of unemployment from six to eleven months for the female population, duration of unemployment 12 months and over for female population). The third part of the name states the type of the variable (per, act, stand for percentage and actual number respectively). The last part of the name states if the variable is seasonally adjusted or not (sa and nsa stand for seasonally and not seasonally respectively).

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