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Palestinian Unemployment in the International Context: A Comparative Study[1]

البطالة الفلسطينية في إطار المنظور الدولي: دراسة مقارنة

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Abstract

This paper discusses the measurement of unemployment in Palestine as a developing economy under conflict and argues the relevance of international comparisons of unemployment based on international standards. We analyze the dynamics of the labour market and study the behaviour of different labour force components over time in both Palestine and the UK to track the changes on their labour force status. The analysis are based on the econometric methods introduced by Christopher and Heckman (1982, 1983) and used by Riddle and Jones (1999, 2003) and others in studying the unemployment pool and testing the equivalence of the behaviour of non working groups. We used the micro data of the labour force survey in Palestine and the UK to produce comparative analysis between Palestine and one of the developed countries. The analysis introduced an empirical evidence on the behavioural equivalence between unemployed persons in Palestine and some sub-categories of persons outside labour force according to the ILO

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classifications such as discouraged people, those who do not work and not seeking job but available for work and those who are waiting the results of submitted job applications. But in the UK all these sub-categories are behaviourally equivalent of those outside labour force according to the ILO classification. This result questions the relevance of comparing unemployment in Palestine with developed labour markets using the international standards. Therefore it would be wise to re-visit the standard classification before producing international comparisons on unemployment in Palestine on the basis of international classification.

Key Words: unemployment, Markov transitional matrix, labour market history, ILO, job search theory, likelihood ratio test.

ملخص

تقدم هذه الورقة دراسة بشأن البطالة في فلسطين من المنظور الدولي من خلال تحليل ديناميكة سوق العمل بهدف اختبار جدوى المقارنات الدولية المستندة إلى المعيار الدولي لإحصاءات العمل الصادر عن منظمة العمل الدولية، حيث تناقش الورقة سلوك القوى العاملة عبر الزمن من خلال متابعة تصنيف الأفراد من حيث علاقتهم بسوق العمل والتغيرات التي تطرأ عليها. اعتمدت الدراسة في منهجيتها على الطرق الإيكونومترية التي طورها (Christopher Heckman 1983, 1982) واستخدمها Riddle and Jones (1999, 2003) وآخرون في دراسة مستودع البطالة وفحص تكافؤ سلوك المجموعات الجزئية لغير العاملين. كما تم الاعتماد على تحليل البيانات الخام لمسح القوى العاملة الفلسطيني ومسح القوى العاملة البريطانية من أجل إجراء المقارنات بين فلسطين وإحدى الدول المتقدمة. قدمت التحليلات التي أجريناها في هذه الورقة دليلاً تجريبياً على أن هناك تكافؤاً في سلوك العاطلين عن العمل في فلسطين مع بعض المجموعات الجزئية التي تصنفها منظمة العمل الدولية خارج القوى العاملة، مثل اليائسين، والذين لا يعملون ولا يبحثون عن عمل ولكنهم مستعدون للعمل إذا عرض عليهم، والذين لا يبحثون عن عمل بانتظار نتائج طلبات العمل التي قدموها، في حين أن كل هذه المجموعات تتكافأ في سلوكها مع الأفراد خارج سوق العمل في بريطانيا، مما يضع تساؤلاً كبيراً على امكانيات مقارنة البطالة بين فلسطين ودول متقدمة من حيث تنظيم سوق العمل وبيئته القانونية. لذلك من المفترض أن يعاد النظر في قابلية تطبيق معيار الأمم المتحدة كما هو لقياس البطالة في فلسطين، وضرورة أن يتضمن بعض الفئات التي تصنف تقليدياً في فئة الأفراد خارج القوى العاملة.

1. Introduction

Unemployment rate is the most widely used indicator of the well-being of a labour market and an important measure of the state of an economy. To facilitate comparisons of unemployment rates over time and across countries, the International Labour Organization (ILO) has set forth guidelines since 1954 for categorizing individuals into three labour market states (employment, unemployment and out of labour). These guidelines have now been adopted by most developed and a large number of developing countries, which has allowed the ILO to compile a sizeable number of labour market statistical series across countries and over time. According to these guidelines, a person is unemployed if the person is (a) not working, (b) currently available for work and (c) seeking work.

Practical implementation of these guidelines is, however, generally difficult. While employed persons are relatively easily classified in most countries, the issue of classifying non-employed persons as either unemployed or out of the labour force, especially according to criteria (c), is not uncontroversial; *(see OECD 1987, 1995)*. For instance, the requirement of a job search is attractive because it requires active demonstration of attachment to the labour force, but it also classifies a large number of non-searchers as out of the labour force. Some economists argue that availability and willingness to work are sufficient to distinguish workers in the labour force from the non-attached (Byrne and Strobl 2002). Moreover, the requirement of active job search may be meaningful in industrialized countries such as the UK where the bulk of workers are engaged in paid employment, and where there are clear channels for the exchange of labour market information. However, this may not be the case in many developing countries such as Palestine, where job search behaviour is less meaningful in the absence of a sound labour market information system and institutional setup. The Palestinian labour market is considered less developed and less organized. It is a market functioning under occupation and political conflict; largely tied to the Israeli economy, and formal and informal sectors are not well defined. The taxation system is not functioning routinely and the newly

Palestinian labour law is not yet in practice[2] In this context, the nature and evolution of underutilization of labour, discouragement, availability and willingness to join the labour market do not lend themselves to easy description. Heiberg and Ovensen (1993) showed that underutilization of labour in Palestine refers to involuntary lack of work, and voluntary lack of labour activity should not be considered a welfare loss, but might be caused by reasons other than unavailability of full time work. Furthermore, searching for a job is meaningless for Palestinian workers who used to work in Israel and are on temporary layoff due to closure as they do not know when and how the closure will be lifted, and if they will be able to resume their previous job. Therefore, the key concepts of job search theory such as availability, willingness to join the labour market, retirement, discouragement, and job search intensity are still vague concepts that might not measure the degree of intention to belong to the labour market *(Shabaneh 2005)*. In fact, labour market dynamics provided some insights about the relevance of this argument. In particular, Flinn and Heckman (1983) claimed that the transition from non-employed states into employment does not have strong association with job search intensity, but what determines the flows of individuals across these states depend on a number of factors about individuals, concerning environment and labour history. Shabaneh (2007) provided empirical evidence that the level of development and organizational structure have a strong impact on the behaviour and distribution of population by labour force status, and the institutional set up seems to have an impact on the basic concepts of labour market symptoms used in classifying persons against the ILO labour force framework such as wanting a job, discouragement, retirement reporting tendency, and full time studentship. In addition, Burdett and Taylor (1994) showed that an individual's labour market history can be described by a semi-Markov process, of which a special case is the Markov process if probability

(2) A recent study conducted by the Palestinian Central Bureau of Statistics suggested a new boundary of defining the informal sector. See PCBS 2004. Informal Sector in the West Bank and Gaza Strip, Ramallah-Palestine.

density function of transition (exit rate) is an exponential distribution function.

2. Literature Review

The literature viewed the measurement of unemployment from economic (theoretical) and organizational (operational) angles. Job search theory is the departure theoretical framework that came out as a consequence of information imperfection and uncertainty that affects labour force behaviour. It proved both suitable and unifying choices-theoretic basis for macroeconomics. The classic income-leisure choice model is a good tool for formulating the decision to seek employment, and its extension to the analysis of other topics such as investment in education, training, retirement, labour force participation of married women and other related issues enriched the collection of hypotheses concerning household behaviour *(Bradley, 1991, Ashenfelter and Layard, 1986)*. But job search itself is a complex concept, it is an outcome of the interaction of personal, household and community determinants. Therefore, it could be questioned whether search theory can explain all dynamics of the pool of unemployed persons. In fact, some economists viewed unemployment as a stock *(e.g Byrne and Strobl, 2002, Dinkelman and Pirouz, 2002, Riddle and Jones, 1999)*; in which changes depend on whether the inflow is greater than outflow within the dynamics of individuals flow among the three distinct labour markets states.

Dinkelman and Pirouz (2002) introduced an analytical framework for the transition of individuals across labour market states that indicates the degree of membership of an individual in the labour market. In an environment of mass unemployment, it may be a rational strategy to not search, if the chances of locating a job offer are low and if the costs involved in searching are high. This approach suggests that searchers are more closely attached to the labour market than non-searchers, and attachment may be described by the type and quality of labour market information about job opportunities available to jobless individuals. Even within groups of searchers, there may be different degrees of search intensity, which gives rise to different types of labour market

information. Jones and Riddell (1999) argued that considering search intensities with reference to search methods is one way to think about degrees of labour force attachment. But still, job search theory might serve in explaining the behaviour of unemployed and why some people are unemployed *(Bradley 1991).* It is also generally recognized that behaviour of individuals is very diverse, and it is unlikely that any simple categorization into two labour force states will adequately capture this diversity; there is substantial heterogeneity within the group conventionally classified as out of labour force, particularly in the less developed labour markets (Jones and Riddle, 1999).

At the organizational level, the international labour standards and definitions have undergone a series of revisions in the international conferences of labour statisticians (ICLS) convened by ILO; employment statistics and its measurement were discussed in the 6^{th}(1947), 8^{th}(1954) and 13^{th}(1982) ICLS conferences. Underemployment was considered on the agenda of the 9^{th}(1957), 10^{th}(1962), 11^{th}(1966), 13^{th}(1982) and 16^{th}(1998) ICLS conferences, while the measurement of unemployment was discussed in the 2^{nd}(1925), 6^{th}(1947), 8^{th}(1954) and 13^{th}(1982) ICLS conferences, and resolutions were issued in the 13^{th} and 16^{th} ICLS conferences. Although the earliest efforts to establish international statistical standards of the measurement of unemployment can be traced back to 1895, the definition of unemployment currently recommended by the ILO has its roots in a resolution by the eighth ICLS conveyed in Geneva in 1954. The revision of the 13^{th} ICLS was based on the concerns derived from national practices of measuring economic activity in developing countries, in industrialized market economies, and in centrally planned economies, as well as the concerns to ensure relevant international comparisons to update the 1954 and 1966 resolutions(3).

As for the one-hour criteria for the classification of the economically active population, ILO employment is broadly defined in the labour force framework, engagement in an economic activity for as little as one hour

(3) The resolution 1954 is concerned with the statistics on economically active population, and 1966 is related to the social, economic and cultural rights.

in the reference week is sufficient for being classified as employed. The reason behind this controversial criteria is to make this definition as extensive as possible, in order to cover all types of employment that may exist in a given country, including short-time, casual and stand-by work, and to ensure that an aggregate level of total labour input corresponds to total production. But while the conference considered revising the definition and scope of underemployment to encourage a greater number of countries to measure underemployment in their regular statistical programs, it stressed the fact that this measure should be seen as an integral part of the framework for measuring the labour force established in the international standards to ensure that the new measure would not violate comparability and the structure of the time series. The ILO justifies the interrelated definitions of employment and unemployment in the one-hour criterion by the fact that raising the minimum number of hours worked in the definition of employment would have the effect that unemployment would no longer only refer to a situation of total lack of work. However, it recognized on the basis of empirical findings that the resulting employment data should be further classified by hours of work. In addition, it implied on a more general level that developing countries should be careful in strictly applying the standard ILO definition of unemployment to calculate unemployment rates. Some other steps were actually taken by the ILO in the same direction to provide more meaningful measures of economic activity states. *(ILO 1988, Hussmanns, 1990, proceedings of 14th ICLS in 1987, Strobl and Byrne, 2002).* But Shabaneh (2007) observed that the comparisons based on the ILO classification for the purpose of international comparisons between developed and developing countries might not be relevant as its classification does not seem to produce symmetric counterparts. Therefore; a particular measure might be needed to capture employment and unemployment in the less developed countries, on the basis of labour market dynamics and labour market history analysis.

3. Theoretical Background

This paper investigates the labour market history of different population categories in regard to labour force attachment in two labour markets, namely Palestine and the UK utilizing Markov transition matrix techniques and event history analysis. At any moment in time an individual may be defined as occupying one of the three labour market states namely employed (EM), unemployed (UN) or outside labour force (OL). From time to time, people change their states for any reason, but what determines the flows of individuals among these states depend on a number of factors about individual and surrounding environment (x) and labour history (z). Assume an individual with characteristics (x,z) enters state (i) at time (t), and let $Q_j(t,x,z)$ denote the probability that the individual will enter the state (i) and then move to state (j) in no later than time period (t), and assume that P_{ij} is the probability of moving from (i) to (j), then: $Q_j(t,x,z)=P_{ij}(T\leq t)=P_{ij}F_{ij}(t,x,z)$, where $\sum P_{ij}=1$. Now assume a distribution function $G_{ij}(t,z)=F_{ij}(t,y,x,z)$ for all x, z, and t. This assumption implies that the individual's labour market history to date plays no direct role in determining the probability laws affecting the flows. The only aspect that plays a role, by assumption, are the fixed characteristics of the individual, which implies that individual's labour market history can be described by a relatively simple stochastic process, in particular P_{ij} and $G_{ij}(t;z)$ describe the probability laws determining the flows of an individual between the states, and therefore the individual's labour market history can be described by a semi-Markov process, of which a special case is the Markov process if P_{ij} and $G_{ij}(t;z)$ describe the probability laws determining the flows of an individual between the states, and given $G_{ij}(t;z)$ is an exponential distribution function. *(Burdett and Taylor, 1994).*

3.1 Empirical Framework

The empirical framework presented here draws on the notion made by Flinn and Heckman (1983) about whether or not the categories "unemployed" and "out of labour force" are behaviourally distinct labour

force states. It is based on the econometric methods initiated by Flinn and Heckman (1982) and (1983) to the empirical analysis of individual labour market histories. This approach was reported to be relevant to a number of situations. Earlier, Ellwood (1979) indicated that this type of approach is relevant, particularly in the study of labour market dynamics of youth in developed countries, where a range of non-market options are available and where state compensation laws effectively limit the eligibility of unemployment. Strobl and Byrne (2002) reported that this approach is also relevant to the less developed markets where there is high labour mobility and higher unemployment rate. Flinn and Heckman (1983) tested the hypothesis that the classification of unemployed and out of labour are behaviourally similar in a three-state transition matrix. They showed that distinct behavioural equations govern transitions from out of labour to employment, and from unemployment to employment. This approach was later extended by Jones and Riddell (1999), and applied by Strobl and Byrne (2002) utilizing a Markov transition model with four states. They classified population of the working age into four main categories, namely employed persons (*EM*), unemployed (*UN*), not attached (*NA:* not working, not seeking, not available due to home duties, retirement, permanent illness or disability, full time studentship), and marginally attached (*MA:* not working, available, not seeking). We make additional extension by decomposing the marginally attached into four sub-categories, namely, discouraged persons *(DS),* want to work not seeking job *(WN),* not seeking because they wait response to application submitted *(DW),* and do not want to work for other reasons *(DO)*.

The proposed classification was constructed on the basis of distinguishing the behaviour of the labour force that could have potential policy implications. Therefore we ordered the categories in terms of their membership to the labour market. This approach extends the literature in two dimensions; firstly, we consider desegregation of labour force states and test for significant distinctions between different states based on an identification criterion for the level of desegregation and secondly, we consider the development across labour markets in order to include an international dimension in the analysis.

With this Markov model labour market dynamics are given by a 4x4 transition matrix P where each element P_{ij} represents the probability of a person to be in state (i) moving (or remaining in) state (j) by the following period of time.

$$P = \begin{pmatrix} P_{EMEM} & P_{EMUN} & P_{EMMA} & P_{EMNA} \\ P_{UNEM} & P_{UNUN} & P_{UNMA} & P_{UNNA} \\ P_{MAEM} & P_{MAUN} & P_{MAMA} & P_{MANA} \\ P_{NAEM} & P_{NAUN} & P_{NAMA} & P_{NANA} \end{pmatrix}$$

As Riddell and Jones (1999) note, a necessary and sufficient condition for individuals in (MA) and (UN) to be behaviourally equivalent states is that the probability of transiting from (MA) to (EM) equals that of transiting from (UN) to (EM), and the probability of moving from (MA) to (NA) is identical to that of moving from (UN) to (MA):

$$P_{UNEM} = P_{MAEM} \qquad (1)$$

$$P_{UNNA} = P_{MANA} \qquad (2)$$

If these conditions jointly hold, then individuals who searched within the reference time period according to the definition in the labour force survey, and those who did not search exhibit the same transitional behaviour. It is also the case that among the non-searching non-employed, the marginally attached are not behaviourally distinct from those deemed to be out of labour force. For this to be true, the following must hold

$$P_{MAEM} = P_{NAEM} \qquad (3)$$

$$P_{MAUN} = P_{NAUN} \qquad (4)$$

This method was used to test the transitional behaviour of the marginally attached and the behaviour of each of the mentioned sub-categories by imposing certain restrictions on the content of the marginally attached cells in matrix (***P***).

We test the marginally attached as one category and then test each sub-category within the marginally attached group to explore the differences in the transitional behaviour amongst these categories across standard definitions in the two labour markets.

In order to construct the transitional matrices to conduct the likelihood ratio test, we used the year 2003 as the period for quarterly comparisons. We calculated all quarterly transitions during the year to get a large enough sample size. This means for example that ($p_{23)}$ in the matrix (***P)*** represents the probability of transition from state two which is unemployment to state three which is marginally attached. This probability is calculated on the basis of all quarterly transitions occurring from unemployment to the marginally attached category during 2003. As for the yearly panel, we used overlapping interviews from the first and fourth quarters of 2003 as it is considered relatively a stable year from an economic point of view.

4. Results

4.1 Overview of transitional probabilities

The Palestinian labour market seems to have the highest turnover and mobility rate. Total quarterly state-keeping rate in Palestine is much lower than it is in the UK. The most dynamic state is unemployment, but there are substantial differences between the two labour markets. Over the four year period 2000-2003, the quarterly unemployment state-keeping rate in Palestine was 48.6% as opposed to 52.6% in the UK. It is quite clear that the state-keeping rates are considerably higher in Palestine in the short-run (i.e., from quarter-to-quarter) than the UK. This might be referred to a number of reasons among which is seasonality. But there are many other reasons such as the lack of organization, high dependence on family business which substitutes for unemployment, and irregular employment which is a temporary state to find a job. In fact, the difference between quarterly and yearly state-keeping rates is greater among the vulnerable states, particularly irregular employment, unpaid family members, discouraged workers and those not searching who want

to work, which reflect the institutional setup and structure of the Palestinian labour market.

Using the standard ILO classification, it is worth noting that fluctuation over time periods in the state-keeping rate in the short run among quarterly waves in Palestine is much higher than in the UK. The standard deviation of the average state-keeping rate for unemployed persons in Palestine is 8.0 as opposed to 2.4 in the UK. At the category level, while the highest standard deviation was observed for unemployment in both Palestine and the UK, the lowest standard deviation is for those out of labour in Palestine and for employed persons in the UK.

Figure (1): Average quarterly and yearly state-keeping rate by country.

Figure 1 shows that at the medium term level (yearly panel), the medium term average state-keeping rate is lower than the short-term rate. In addition, the more stable categories are those out of labour for traditional reasons in addition to those working in the public sector. There is substantial difference between developed and developing labour markets related to the organizational setup of the market. For example, regular employees in the private sector in Palestine have less ability to

keep their states compared with their British counterparts. Palestinian students, however, are more likely to remain in their states compared with their British counterparts. In addition, irregular employees in the private sector have much lower state-keeping rate in Palestine compared with the UK.

This difference applies as well to the destination state for irregular employees across countries. Most Palestinians who originated in irregular employment are likely to make transitions either to unemployment or employment, but mostly to unemployment at the medium term. In the UK, while the irregular employees are more likely to keep their state at the short term level, their transition is to employment at the medium term.

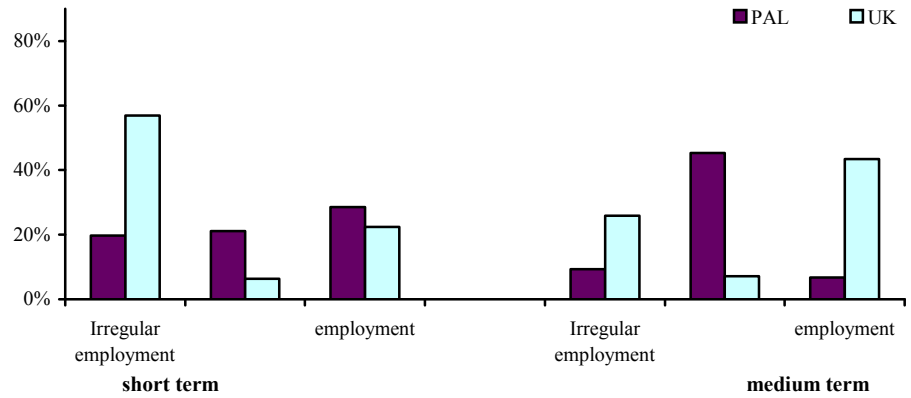

Figure (2): Average transitional rate from irregular employment at the short and medium term level by country and destination state.

It is worth-noting that at the sub-category level, those classified in the grey area between unemployment and out of labour for traditional reasons (home-making, study, retirement or illness) are the most dynamic groups. This comprises discouraged persons, those who want a job but are not seeking, those who do not want a job because they are waiting for a response to a submitted application, and those do not want to work and

are not seeking a job for other reasons. This applies as well to the vulnerable employment categories, namely unpaid family members and irregular employees in the private sector. The level of stability for these groups is negatively associated with the level of development of the labour market. Regular employees in the private sector maintain their position in the labour market in the short run and medium run in the UK, while the main destination state of their Palestinian counterparts, is the same in the short run, but is unemployment in the medium term. Persons classified in the well established states usually keep their positions in the short and medium terms.

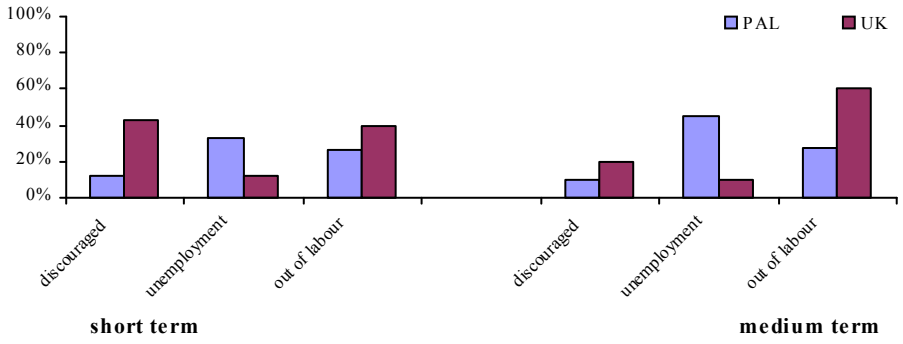

Figure (3): Average transitional rate from discouraged category at the short and medium term level by country and destination state.

This applies to both markets for own account workers, those employed in other sectors, public sector and those out of labour for traditional reasons, namely retirement, sickness, home makers or students, with the exception of British students, who have a better opportunity to move into work in the medium term compared to their Palestinian counterparts. As for vulnerable workers particularly unpaid family members, they have different transitional behaviour. While in the UK they keep their main destination at the short and medium term levels in Palestine they keep their state in the short term and go out of labour at the medium term level.

The major behavioural difference between developed and less developed markets in the short and medium terms is observed in two groups: vulnerable workers, particularly irregular employees in the private sector, and those in the grey area between unemployment and out of labour, namely, discouraged, wanting not seeking and waiting for response to applications. Figure 4 summarizes the main destination state of these four groups. In the short run, people in the first group move to regular employment or stay in their state in Palestine whereas they stay in the same state in the UK. But in the medium term, they move in the UK to regular employment or stay as irregular employees, while moving basically to unemployment in Palestine. As for the second category, we find that discouraged persons and those wanting work but not seeking move to unemployment at both short and medium terms in Palestine, while in the UK, they stay in the same category.

Finally, those who were classified as out of labour for other reasons, keep their state in the short term in both countries. In the medium term, however, they move to unemployment in Palestine and to out of labour in the UK.

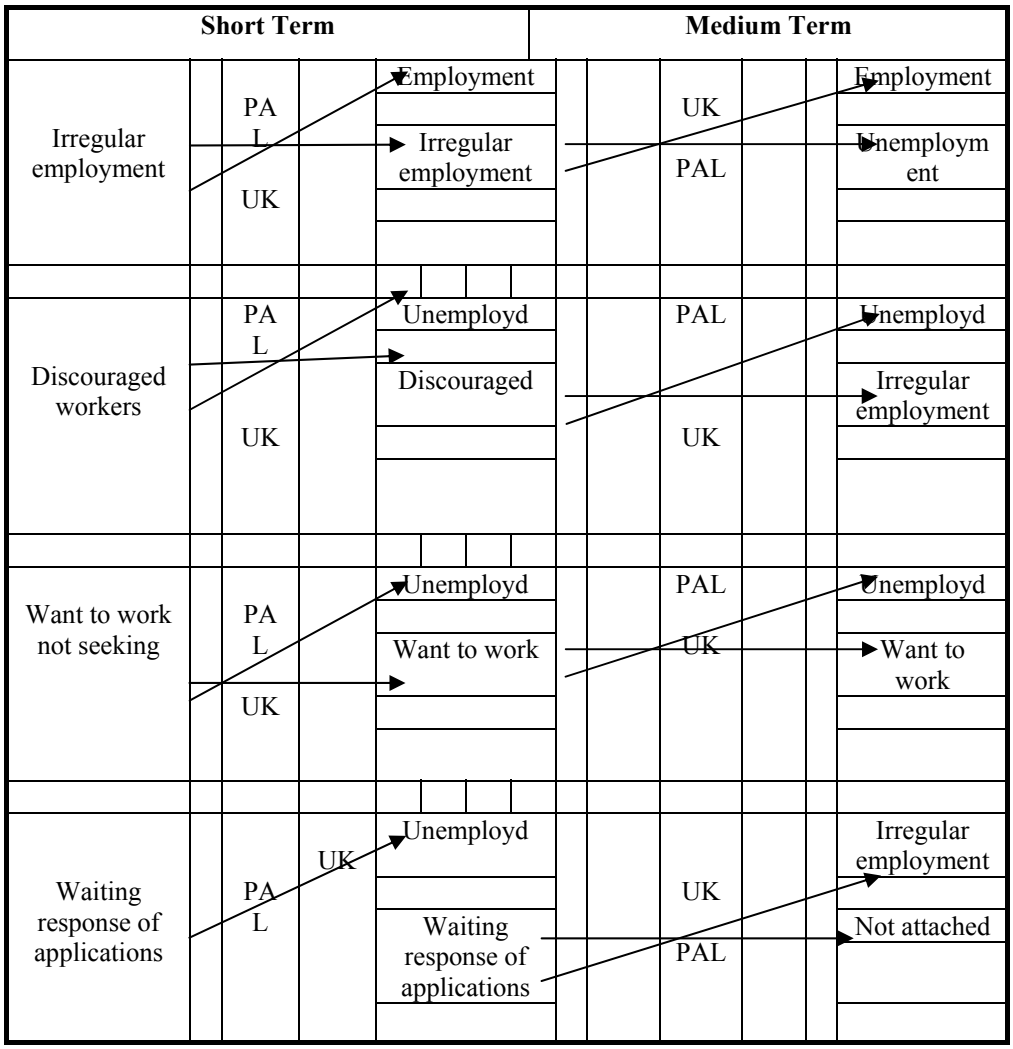

Figure (4): Main destination state for selected origin states at short and medium term level by country.

4.2 Testing unconditional transition probabilities

The transition rates clearly indicate that EM and NA are the most stable states, while individuals who were classified as either UN or MA were relatively less likely to remain so, particularly in the case of individuals originating in MA. This latter effect is more pronounced for Palestine compared with the UK.

It is also clear that:

$P(UN \rightarrow EM) > P(MA \rightarrow EM) > P(NA \rightarrow EM)$

$P(UN \rightarrow UN) > P(MA \rightarrow UN) > P(NA \rightarrow UN)$

$P(NA \rightarrow NA) > P(MA \rightarrow NA) > P(UN \rightarrow NA)$

which assumes, according to Riddell and Jones (2002), that MA is an intermediate state between UN and NA in terms of labour force attachment. This applies to both markets, with slight changes in the magnitude of the transitional probabilities. But this is not obvious when it comes to the sub-categories of the marginally attached, namely discouraged persons, those wanting not seeking job and those not seeking waiting response to submitted applications.

To test if there is significant difference in the mean transition rate from one state to another, we calculated a number of selected transitions using the quarterly data for both Palestine and UK. We were interested to see if the transitions to certain destination states vary by origin state. In particular, the following pairs of transitions were tested, the null hypothesis being that the mean transition for each pair of transitions is equal:

(UN-EM, MA-EM), (UN-NA, MA-NA), (MA-EM, NA-EM), (MA-UN, NA-UN), (UN-EM, DS-EM), (UN-NA, DS-NA), (DS-EM, NA-EM), (DS-UN, NA-UN), (UNEM, WN-EM), (UN-NA, WN-NA), (WN-EM, NA-EM), (WN-UN, NA-UN), (UN-EM, DO-EM), (UN-NA, DO-NA), (DO-EM, NA-EM), (DO-UN, NA-UN), (UN-EM, WT-EM), (UN-NA, WT-NA), (WT-EM, NA-EM), (WT-UN, NA-UN). For each transition, we calculated 15 quarterly observations in both Palestine and

UK from the data files representing the period 2000-2003. We used the paired samples T-test which compares the means of two variables. It computes the difference between the two variables for each case, and tests to see if the average difference is significantly different from zero. This test assumes that both variables should be normally distributed, and the null hypothesis is that there is no significant difference between the means of the two variables. The paired sample T-test is an example of a repeated measures design. One problem of this approach is the loss in degrees of freedom (n-1). We thus get a trade off between greater power and fewer degrees of freedom. In the end, the higher the two groups of scores are correlated, the greater is the advantage of using a repeated measures design.

Table 6 shows that there are significant differences in the mean transition for all categories at the short term level despite the fact that the magnitude of T-statistic of equality of the transitional probability of marginally attached and unemployment to the other states is smaller in Palestine compared with the UK. At the same time, the value of the T-statistic of equality of the mean transitional probability of marginally attached and out of labour to the other states is smaller in the UK compared with Palestine. In addition, Table 7 shows that this applies to the main subpopulations by age and gender, with the exception that Palestinian males classified as marginally attached are closer to unemployed, while females are closer to out of labour in terms of transitional behaviour.

T-statistics produced to the aggregated data indicate that discouraged Palestinians, persons wanting not seeking job and those waiting for a response to submitted applications are closer to unemployed, while those out of labour for other reasons have a distinct transitional behaviour which is different from all other categories. This situation is different in the UK, where all categories have distinct transitional behaviour except discouraged persons who have transition probability closer to out of labour. This applies also for sub-populations by age and gender (Table 9).

4.3 Testing equivalence across the standard ILO classification

To draw more general conclusions regarding the behaviour equivalency and the difference between the states, we adopt a likelihood-based approach. As in Jones and Riddell (2002) and Byrne and Strobl (2004), our approach is to estimate a multinomial model of the determinants of the transition probabilities from (MA) and test whether one can pool the individuals originating from (MA) with those from (UN). This is conducted in three steps, we first estimate restricted multinomial models, using the same covariates as in our logit models, of individuals either remaining in their origin state, which is either (MA) or (UN). Subsequently we estimate an unrestricted model which includes a dummy variable for those originating in M and with covariates with this dummy variable(4). The unrestricted model thus allows for a different intercept and different impacts of the covariates on the transitions for the two origin states in question. To determine the equivalence of the two origin states using this approach we employ a likelihood ratio test of the restricted versus the unrestricted model. This allows us to test (1) and (2). A similar approach is then used to test whether we can pool (MA) and (NA) in terms of their transition probabilities into the appropriate three destination states. Of course, one of the problems with using the multinomial logit model to test for equivalence in the context here is its strong underlying assumption that there is independence between the possible outcomes (independence of irrelevant alternatives). For robustness for each equivalence test we also tested, as did Jones and Riddell (1999), the restrictions (1) and (2) and (3) and (4) separately using binary logit models. We also employed the Hausman test of independence of irrelevant alternatives (IIA) and the results supported our analysis.

Then we extend this test to cover a more detailed classification of labour force attachment by changing the definition of the marginally attached group to be one of the categories, namely, vulnerable

(4) In all specifications the dummy variable takes on the value of one for the marginally attached and zero otherwise.

employment, marginally attached, semi marginally attached and not attached. This presentation produces a 4x4 transition matrix, and we test each time if one of the four mentioned categories could be pooled with another category. The results are presented in Table 10(5). We tested if the pairs (RE,VE), (VE,UN), (UN,MA) and (MA,NA) are behaviourally equivalent using the Riddell-Jones test.

The results indicate clear variation of the transitional behaviour of counterpart categories in the developed and developing countries. The transitional behaviour of the vulnerable employment is equivalent to the regular employment in the UK for both males and females at both short term and medium term levels. This test was rejected for males in Palestine. The test of the equivalence of transitional behaviour among individuals classified as vulnerably employed and unemployed was rejected in Palestine for both males and females at both short and medium term level. This test was accepted at different levels of p-value in the UK. MA and UN were proved to be of equivalent transitional behaviour in Palestine for both males and females at both short and medium terms levels, but the test was accepted for British males in contrast to their female counterparts.

Finally, the test of equivalence of marginally attached and not attached was rejected in Palestine for both males and females at both short and medium term levels. In the UK, it was rejected at the short and medium term level for males, while it was accepted for females.

The above analysis indicates a number of important findings concerning the dynamics of labour force behaviour across countries. The transitional behaviour varies by country, sex and time. There is a need to disaggregate in the ILO classification, to have better understanding of transitional behaviour. Labour force behaviour shows that the categories located in the grey area of the ILO classification are more controversial in regard to international comparisons. For example, while marginally attached is closer to unemployed in the less developed markets, it is close

(5) Given that our main focus is on the equivalence tests we do not report the full estimates of the model here.

to not attached in the more organized situations. In addition, the small number of observations in each category limited our ability to conduct more detailed tests.

5. Conclusions

This paper provided empirical evidence that there is heterogeneity among both working and non-working categories in their transitional behaviour. The behavioural gap between workers and vulnerable workers in the less developed countries is greater than the corresponding gap in the developed countries. There is also heterogeneity among the developed and developing countries in the behaviour of the counterpart categories; the gap in the difference increases among those in the grey area between unemployed and out of labour. Also transitional behaviour shows some differences by sex and period of transition (short term versus medium term). While the analysis showed that the six categories could not be fully pooled, there are some cases where transitional equivalence could be pointed out. Therefore, comparisons based on the ILO classification for the purpose of international comparisons between developed and developing countries might not be relevant.

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Table (1): Percentage of quarterly panel state-keepers by aggregated LF classification and wave.

Period	Palestine				United Kingdom			
	E	U	O	T	E	U	O	T
Q1-Q2-2000	88.7	32.1	91.1	87.4	97.4	55.8	90.3	94.2
Q2-Q3-2000	85.3	33.8	90.1	86.2	97.4	55.1	88.5	93.8
Q3-Q4-2000	60.5	46.9	91.6	77.8	96.8	50.6	89.3	93.5
Q4-00-Q1-01	76.7	46.8	91.9	82.6	97.2	54.5	91.1	94.1
Q1-Q2-2001	82.1	42.4	89.5	82.8	97.1	53.6	90.8	94.0
Q2-Q3-2001	80.0	46.1	92.7	84.9	97.5	55.1	88.4	94.1
Q3-Q4-2001	80.5	51.1	90.9	84.1	97.0	49.8	88.8	93.5
Q4-01-Q1-02	79.7	57.1	92.8	85.5	97.0	52.8	91.2	94.2
Q1-Q2-2002	70.8	57.8	93.6	83.4	97.3	54.6	90.5	94.3
Q2-Q3-2002	71.7	58.2	90.8	82.2	97.4	52.8	88.3	93.8
Q3-Q4-2002	78.4	46.7	90.7	81.9	97.0	47.6	88.4	93.3
Q4-02-Q1-03	76.3	55.8	92.4	84.3	97.2	52.3	91.2	94.3
Q1-Q2-2003	82.1	46.8	90.0	83.0	97.3	50.9	90.5	94.2
Q2-Q3-2003	80.5	53.0	91.4	84.6	97.4	53.8	88.6	94.0
Q3-Q4-2003	80.5	54.0	92.7	85.3	97.0	49.6	89.0	93.5
Mean	**78.3**	**48.6**	**91.5**	**83.7**	**97.2**	**52.6**	**89.7**	**93.9**
Std. Deviation	**6.7**	**8.0**	**1.2**	**2.3**	**0.2**	**2.4**	**1.2**	**0.3**

E: employed, U: unemployed, O: out of labour (MA+SA), T: total.

State-keeper (stayer) is the individual who does not change his/her labour force state over two successive quarterly waves

(:) not available

Std Deviation is calculated over the period 2000-2003.

Table (2): Average percentage of yearly panel state-keepers over two parallel waves of successive years of LFS by disaggregated LF classification: second quarter.

Category	Palestine 2001-2003		United Kingdom 2001-2003	
	Mean	SD	Mean	SD
Regular employment				
Regular wage employee in private sector	44.2	9.8	88.7	3.7
Employer in private	35.8	7.6	69.4	27.7
On own account in private sector	50.3	5.1	72.5	22.2
Other sector employee	62.0	7.4	74.7	9.6
Government employee & training program	81.6	5.0	89.5	3.6
Irregular employment				
Irregular wage employee in private sector	18.7	12.1	41.8	13.4
Unpaid family worker in private sector	33.3	6.9	34.2	16.5
ILO unemployed	39.3	6.3	37.4	8.8
Marginally attached				
Inactive – discouraged	6.1	4.6	27.5	7.7
Inactive-want	0.0	0.0	14.7	8.7
Inactive- not seeking wait response job app.	1.2	2.2	1.8	4.3
Semi attached (Inactive-don't want –other)	35.2	8.8	28.6	17.6
Not attached				
Inactive-don't want –student	82.2	4.3	56.0	15.0
Inactive-don't want -family care	88.1	2.1	75.0	5.7
Inactive-don't want -old, ill, retired	70.6	4.7	89.7	5.3
Total	**67.0**	**1.1**	**82.3**	**3.5**

State-keeper (stayer) is the individual who does not change his/her labour force state over two yearly parallel waves (that is a panel of one year). The second quarter was selected for comparing yearly panel due to data availability and to overpass seasonal effects.

Table (3): Matrix of average transition rate of quarterly panel by disaggregated LF classification.

Category	RE	IE	EM	OA	OS	GE	UF	UN	DS	WN	IS	IF	IR	DO	DW	Total
Palestine																
RE	53.9	2.9	1.9	6.8	1.9	2.1	3.9	15.4	1.1	0.7	2.0	1.9	1.0	4.1	0.5	**100**
IE	28.5	19.7	3.3	8.4	0.1	1.0	4.5	21.1	1.9	1.5	2.7	2.0	1.6	3.4	0.3	**100**
EM	6.2	9.1	42.6	25.0	0.4	0.6	2.1	7.3	0.5	0.3	0.3	0.8	1.3	3.2	0.3	**100**
OA	6.5	1.4	13.2	53.5	0.4	1.3	2.7	8.7	1.1	0.5	1.0	2.7	3.5	3.3	0.2	**100**
OS	8.4	0.4	0.2	13.0	62.6	4.8	1.0	3.7	0.3	0.4	1.2	2.1	0.4	1.4	0.1	**100**
GE	2.3	0.1	0.3	1.0	15.0	74.0	0.5	2.1	0.3	0.2	1.3	1.1	0.4	1.4	0.1	**100**
UF	3.6	0.5	1.2	4.1	0.0	8.1	39.2	5.6	0.8	2.2	8.7	22.4	1.2	2.5	0.1	**100**
UN	13.1	2.5	1.5	8.9	0.9	2.1	6.2	42.0	3.7	0.7	3.2	3.6	1.6	9.2	0.8	**100**
DS	8.6	2.3	1.1	8.0	0.4	1.9	6.9	32.6	11.6	2.1	3.0	6.9	2.7	10.1	1.9	**100**
WN	12.3	0.7	1.4	15.9	0.0	0.7	2.9	39.9	5.1	10.9	0.7	0.7	0.7	8.0	0.0	**100**
IS	0.8	0.1	0.1	0.2	0.1	0.6	1.5	1.4	6.4	6.4	77.8	2.5	0.3	1.7	0.0	**100**
IF	0.4	0.0	0.1	0.6	0.1	0.5	3.0	0.6	0.1	6.7	8.0	76.3	2.6	0.7	0.1	**100**
IR	0.7	0.1	0.8	4.0	0.1	0.4	0.8	1.9	0.4	0.8	6.4	17.4	60.0	6.2	0.0	**100**
DO	4.4	0.6	1.3	4.4	0.7	1.3	3.1	11.4	1.7	1.0	5.8	9.8	9.6	44.6	0.3	**100**
DW	15.9	2.2	1.6	6.2	1.6	2.7	4.9	25.6	2.2	2.2	3.0	10.2	2.4	7.8	11.6	**100**
UK																
RE	94.6	0.9	0.1	0.3	0.2	1.3	0.0	1.1	0.0	0.2	0.3	0.3	0.4	0.2	0.0	**100**
IE	22.4	56.9	0.1	1.0	0.5	3.0	0.1	6.3	0.0	1.1	5.2	1.1	1.0	1.3	0.0	**100**
EM	2.3	0.0	92.3	4.2	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.2	0.3	0.2	0.0	**100**
OA	2.1	0.4	2.2	91.7	0.1	0.3	0.2	0.9	0.0	0.2	0.1	0.5	0.7	0.5	0.0	**100**
OS	3.5	0.4	0.0	0.2	89.8	3.5	0.1	0.9	0.0	0.1	0.4	0.4	0.5	0.3	0.0	**100**
GE	2.3	0.2	0.0	0.1	0.3	95.3	0.0	0.5	0.0	0.1	0.3	0.3	0.4	0.2	0.0	**100**
UF	8.7	1.8	1.2	4.6	0.1	1.2	62.8	3.2	0.1	0.8	2.0	6.8	3.3	3.4	0.0	**100**
UN	15.5	6.0	0.1	2.0	0.8	5.0	0.2	52.6	0.4	2.4	4.6	4.2	3.8	2.3	0.1	**100**
DS	2.4	0.7	0.2	0.8	0.1	0.8	0.3	12.3	42.9	7.5	1.4	10.4	14.8	5.3	0.0	**100**

Continue Table (3)

Category	RE	IE	EM	OA	OS	GE	UF	UN	DS	WN	IS	IF	IR	DO	DW	Total
WN	7.0	3.0	0.1	2.0	0.5	2.4	0.5	15.1	1.4	33.5	4.8	13.2	9.7	6.6	0.1	**100**
IS	7.9	5.4	0.0	0.4	0.4	2.5	0.3	9.7	0.1	1.3	68.7	0.7	0.7	1.7	0.1	**100**
IF	1.7	0.5	0.0	0.5	0.1	0.9	0.3	3.3	0.1	1.2	0.5	86.3	2.5	1.8	0.0	**100**
IR	0.7	0.2	0.0	0.3	0.0	0.2	0.1	1.5	0.1	0.7	0.2	1.1	93.9	1.0	0.0	**100**
DO	4.9	2.3	0.2	1.9	0.5	2.9	0.5	6.1	0.4	3.6	2.9	10.2	10.4	53.2	0.1	**100**
DW	7.9	3.3	0.0	1.3	0.7	5.3	0.0	27.6	0.7	8.6	11.8	5.3	7.9	5.3	14.5	**100**

RE: Regular wage employee in private sector	IE: Irregular wage employee in private sector
EM: Employer in private sector	OA: On own account in private sector
OS : Other sector employee	GE: Government employee & training program
UF: Unpaid family worker in private sector	UN: ILO unemployed
DS Inactive – discouraged IS: Inactive-don't want –student	WN: Inactive-want IF: Inactive-don't want -family care
IR: Inactive-don't want -old, ill, retired	DO: Inactive-don't want –other
DW: Inactive- not seeking wait response job app.	(:) not available

Table (4): Matrix of average transition rate of yearly panel by disaggregated LF classification.

Category	RE	IE	EM	OA	OS	GE	UF	UN	DS	WN	IS	IF	IR	DO	DW	Total
Palestine																
RE	32.2	6.5	0.6	8.7	1.2	2.4	2.5	24.9	3.1	0.1	3.0	3.3	0.5	10.3	0.6	**100**
IE	6.7	9.3	1.3	6.7	0.0	1.3	1.3	45.3	8.0	0.0	1.3	6.7	4.0	8.0	0.0	**100**
EM	5.2	0.6	34.8	29.7	1.3	1.3	1.9	12.9	1.3	0.0	0.0	0.6	3.2	7.1	0.0	**100**
OA	6.2	1.3	3.2	46.1	0.3	0.9	2.8	17.4	2.7	0.3	1.3	3.7	4.8	8.9	0.1	**100**
OS	8.2	2.7	0.0	0.9	60.9	5.5	0.5	10.0	0.9	0.0	1.4	4.5	1.4	3.2	0.0	**100**
GE	2.2	0.2	0.0	1.2	1.2	82.7	0.4	3.3	1.3	0.0	2.1	2.5	0.5	2.2	0.1	**100**
UF	3.6	1.1	0.2	3.0	0.0	0.0	28.6	8.6	1.5	0.0	10.5	35.5	1.9	5.6	0.0	**100**
UN	7.3	1.9	1.0	9.3	1.0	2.3	2.1	41.5	8.5	0.0	5.6	3.7	1.2	14.2	0.4	**100**
DS	1.0	2.0	0.0	7.9	0.0	2.0	5.0	44.6	9.9	0.0	7.9	4.0	3.0	12.9	0.0	**100**
WN	4.2	4.2	0.0	16.7	0.0	4.2	0.0	45.8	8.3	0.0	0.0	0.0	4.2	12.5	0.0	**100**
IS	1.0	0.0	0.0	0.2	0.3	0.6	1.0	2.9	0.5	0.0	86.5	4.0	0.2	2.6	0.0	**100**
IF	0.5	0.1	0.0	0.5	0.1	0.2	2.4	0.4	0.1	0.0	1.7	89.1	3.9	0.8	0.1	**100**
IR	0.6	0.0	0.8	4.5	0.3	0.6	0.5	1.8	0.3	0.0	0.4	14.9	67.1	8.1	0.1	**100**
DO	3.6	0.5	0.1	5.9	0.5	2.3	2.0	16.5	4.0	0.0	6.2	5.4	9.9	42.8	0.2	**100**
DW	10.0	0.0	0.0	6.7	0.0	10.0	0.0	16.7	3.3	0.0	13.3	26.7	0.0	13.3	0.0	**100**
UK																
RE	86.0	1.7	0.3	1.1	0.7	4.5	0.1	1.8	0.0	0.2	0.5	0.8	1.6	0.5	0.0	**100**
IE	43.4	25.9	0.3	4.2	1.3	8.4	0.0	7.1	0.3	1.0	3.6	1.3	1.9	1.3	0.0	**100**
EM	7.1	0.0	80.0	9.3	0.0	0.5	0.5	0.0	0.3	0.0	0.0	0.5	1.1	0.5	0.0	**100**
OA	6.3	0.4	5.6	80.8	0.3	1.0	0.5	1.2	0.0	0.0	0.1	1.3	1.7	0.7	0.0	**100**
OS	10.2	1.5	0.0	0.0	74.4	8.6	0.0	1.5	0.0	1.0	0.3	0.5	1.5	0.5	0.0	**100**
GE	5.7	0.6	0.1	0.5	1.1	88.6	0.0	0.5	0.0	0.2	0.5	0.5	1.4	0.4	0.0	**100**
UF	21.6	2.7	0.0	8.1	0.0	5.4	29.7	0.0	0.0	0.0	2.7	27.0	2.7	0.0	0.0	**100**
UN	29.8	4.2	0.4	4.2	1.2	7.7	0.5	30.5	0.5	1.6	2.6	6.9	7.4	2.5	0.0	**100**
DS	5.0	0.0	0.0	5.0	0.0	0.0	0.0	10.0	20.0	15.0	0.0	10.0	25.0	10.0	0.0	**100**

Continue Table (4)

Category	RE	IE	EM	OA	OS	GE	UF	UN	DS	WN	IS	IF	IR	DO	DW	Total
WN	13.9	0.0	0.0	5.6	0.0	5.6	0.0	11.1	1.4	11.1	0.0	26.4	22.2	2.8	0.0	**100**
IS	26.2	5.0	0.0	1.5	0.9	7.9	0.0	7.7	0.0	0.8	45.1	1.4	2.1	1.5	0.0	**100**
IF	5.4	0.7	0.0	1.3	0.6	3.3	0.6	3.9	0.2	1.6	0.8	71.1	7.0	3.3	0.2	**100**
IR	1.8	0.2	0.0	0.6	0.1	0.4	0.1	2.0	0.3	0.4	0.2	1.9	90.8	1.1	0.0	**100**
DO	9.4	2.1	0.4	2.6	1.3	2.6	0.4	3.8	1.3	3.8	1.7	18.3	23.4	28.9	0.0	**100**
DW	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	60.0	0.0	0.0	**100**

EM: Employer in private sector	OA: On own account in private sector
OS : Other sector employee	GE: Government employee & training program
UF: Unpaid family worker in private sector	UN: ILO unemployed
DS Inactive – discouraged IS: Inactive-don't want –student	WN: Inactive-want IF: Inactive-don't want -family care
IR: Inactive-don't want -old, ill, retired	DO: Inactive-don't want –other
DW: Inactive- not seeking wait response job app.	(:) not available

Table (5): Average quarterly transition rate from non-working categories into selected LF categories.

	Employed (E)	Unemployed (U)	Marginally attached (M)	Not attached (N)	Out of labour (M+N)
PAL					
Non-employed states					
Unemployed (U)	35.2	42.0	5.2	17.6	22.8
Marginally attached (M)	15.7	17.4	49.1	17.8	66.9
Not attached (N)	4.2	1.2	2.3	92.2	94.5
Marginally attached					
Want	33.9	39.9	16.0	10.1	26.1
Discouraged	29.2	32.6	15.6	22.7	38.3
Do not want waiting	35.1	25.6	16.0	23.4	39.4
Do not want other reasons	15.8	11.4	3.0	69.8	72.8
UK					
Non-employed states					
Unemployed (U)	29.6	52.6	2.9	14.9	17.8
Marginally attached (M)	13.4	9.5	52.1	25.0	77.0
Not attached (N)	5.3	3.6	2.5	88.6	91.1
Marginally attached					
Want	15.5	15.1	35.0	34.3	69.3
Discouraged	5.3	12.3	50.4	31.9	82.3
Do not want waiting	18.5	27.6	23.8	30.3	54.1
Do not want other reasons	13.2	6.1	4.1	76.7	80.8

M: Marginally attached is composed of inactive did not seek but want to work, inactive discouraged, inactive don't want for other reasons and inactive not seeking waiting response of job application, and (N) represents the rest of inactive population.

Table (6): T-Test statistics of equality for means of quarterly transition rate by country

Transition type	PAL		UK	
	T-statistic	P-value	T-statistic	P-value
PUNEM=PMAEM	9.47	<0.01	44.26	<0.01
PUNNA=PMANA	-12.36	<0.01	-24.50	<0.01
PMAEM=PNAEM	12.46	<0.01	14.71	<0.01
PMAUU=PNAUU	15.85	<0.01	16.42	<0.01

Table (7): T-Test statistics for equality of means of quarterly transition rate by country and selected variables

	Male		Female		Young (16-34)		Old (45-64)	
	T-statistic	P-value	T-statistic	P-value	T-statistic	P-value	T-statistic	P-value
PAL								
PUNEM=PMAEM	7.92	<0.01	4.24	0.001	9.50	<0.01	7.50	<0.01
PUNNA=PMANA	-8.87	<0.01	-2.60	0.021	-8.96	<0.01	-7.07	<0.01
PMAEM=PNAEM	9.17	<0.01	0.55	0.592	10.22	<0.01	12.99	<0.01
PMAUN=PNAUN	11.18	<0.01	1.57	0.139	13.71	<0.01	8.02	<0.01
UK								
PUNEM=PMAEM	28.59	<0.01	24.22	<0.01	16.91	<0.01	23.55	<0.01
PUNNA=PMANA	-6.33	<0.01	18.94	<0.01	-18.42	<0.01	-21.71	<0.01
PMAEM=PNAEM	16.32	<0.01	11.38	<0.01	13.82	<0.01	17.96	<0.01
PMAUN=PNAUU	16.75	<0.01	13.43	<0.01	13.53	<0.01	13.33	<0.01

Table (8): T-Test statistics for equality of means of quarterly transition rate by selected disaggregated LF classification and country.

	PAL			UK		
	T-statistic	**df**	**P-value**	**T-statistic**	**df**	**P-value**
Discouraged persons						
PUNEM=PDSEM	3.23	14	0.01	25.87	14	<0.01
PUNNA=PDSNA	-2.70	14	0.02	-9.60	14	<0.01
PDSEM=PNAEM	10.24	14	<0.01	-0.35	14	0.73
PDSUN=PNAUN	13.45	14	<0.01	7.40	14	<0.01
Want job not seeking						
PUNEM=PWNEM	-1.07	14	0.30	19.99	14	<0.01
PUNNA=PWNNA	3.68	14	<0.01	-23.21	14	<0.01
PWNEM=PNAEM	4.49	14	<0.01	10.59	14	<0.01
PWNUN=PNAUN	4.74	14	<0.01	19.76	14	<0.01
Do not want job for other reasons						
PUNEM=PDOEM	10.14	14	<0.01	41.53	14	<0.01
PUNNA=PDONA	-12.30	14	<0.01	-5.99	14	<0.01
PDOEM=PNAEM	10.06	14	<0.01	11.62	14	<0.01
PDOUN=PNAUN	9.88	14	<0.01	6.92	14	<0.01
Do not want job waiting response						
PUNEM=PWTEM	0.74	14	0.47	4.3	14	<0.01
PUNNA=PWTNA	-3.39	14	<0.01	-3.43	14	<0.01
PWTEM=PNAEM	6.96	14	<0.01	4.56	14	<0.01
PWTUN=PNAUN	8.31	14	<0.01	5.80	14	<0.01

Table (9): T-Test statistics for equality of means of quarterly transition rate by selected disaggregated LF classification and selected background characteristics.

	Male		Female		Young (16-34)		Old (45-64)	
	T-statistic	P-value	T-statistic	P-value	T-statistic	P-value	T-statistic	P-value
PAL								
Discouraged persons/ do not want job waiting response/want job not seeking								
PUNEM=PDSEM	1.85	0.08	1.61	0.13	2.57	0.02	-0.12	0.91
PUNNA=PDSNA	-0.60	0.56	-1.41	0.18	-3.46	<0.01	-2.57	0.02
PDSEM=PNAEM	10.09	<0.01	4.08	<0.01	12.49	<0.01	5.69	<0.01
PDSUN=PNAUN	14.10	<0.01	5.70	<0.01	17.71	<0.01	7.26	<0.01
Do not want job for other reasons								
PUNEM=PWNEM	9.04	<0.01	7.02	<0.01	10.65	<0.01	7.78	<0.01
PUNNA=PWNNA	-10.29	<0.01	-3.95	<0.01	-8.06	<0.01	-6.22	<0.01
PWNEM=PNAEM	7.44	<0.01	1.77	0.10	8.30	<0.01	5.19	<0.01
PWNUN=PNAUN	9.56	<0.01	2.60	0.02	10.46	<0.01	8.96	<0.01
UK								
Discouraged persons/ do not want job waiting response/want job not seeking								
PUNEM=PDSEM	26.25	<0.01	17.61	<0.01	24.65	<0.01	18.93	<0.01
PUNNA=PDSNA	-15.38	<0.01	-16.55	<0.01	-4.86	<0.01	-17.27	<0.01
PDSEM=PNAEM	8.99	<0.01	11.94	<0.01	13.23	<0.01	21.69	<0.01
PDSUN=PNAUN	15.59	<0.01	17.78	<0.01	12.82	<0.01	13.71	<0.01
Do not want job for other reasons								
PUNEM=PWNEM	14.07	<0.01	29.43	<0.01	7.74	<0.01	25.03	<0.01
PUNNA=PWNNA	-12.64	<0.01	-9.48	<0.01	-12.58	<0.01	-20.00	<0.01
PWNEM=PNAEM	5.67	<0.01	9.00	<0.01	11.73	<0.01	14.23	<0.01
PWNUN=PNAUN	7.04	<0.01	2.35	0.03	8.75	<0.01	7.44	<0.01

Table (10): Riddell-Jones likelihood ratio test for the equivalence of selected origin states of quarterly and yearly transitional behaviour.

Test	Quarterly				
	Sample size	**log likelihood (restricted)**	**log likelihood (unrestricted)**	**LRT**	**P**
PAL					
Both sexes					
EM=VE	3498	-1875.90(70)	-1983.92 (24)	216.04	<0.01
VE=UN	1702	-1543.33(70)	-1595.69 (24)	104.72	<0.01
UN= MA	1390	-1232.46(70)	-1273.80 (24)	82.68	<0.01
MA=SA	806	-685.90(70)	-763.84 (24)	155.88	<0.01
SA=NA	7790	-2292.89(70)	-2378.54 (24)	171.3	<0.01
Males					
EM=VE	2830	-1471.88(64)	-1517.69 (22)	91.62	<0.01
VE=UN	1342	-1238.52(62)	-1269.76 (22)	62.48	<0.01
UN= MA	1279	-1103.80(64)	-1151.71 (22)	95.82	<0.01
MA=SA	708	-596.76(66)	-667.84 (22)	142.16	<0.01
SA=NA	2380	-1142.18(66)	-1199.92 (22)	115.48	<0.01
UK					
Both sexes					
EM=VE	25010	-2907.32(56)	-3005.13 (20)	195.62	<0.01
VE=UN	1413	-1200.14(56)	-1249.99 (20)	99.7	<0.01
UN= MA	1107	-920.23(56)	-997.11 (20)	153.76	<0.01
MA=SA	630	-552.78(56)	-582.34 (20)	59.12	<0.01
SA=NA	7019	-1901.60(56)	-1986.01 (20)	168.82	<0.01
Males					
EM=VE	13185	-1335.18 (48)	-1399.17 (18)	127.98	<0.01
VE=UN	845	-650.04 (46)	-672.77 (18)	45.46	0.033
UN= MA	652	-491.60 (48)	-532.50 (18)	81.8	<0.01
MA=SA	208	-178.75 (46)	-198.06 (18)	38.62	0.087
SA=NA	2555	-666.46 (48)	-707.54 (18)	82.16	<0.01

… continue table (10)

Test	Quarterly				
	Sample size	log likelihood (restricted)	log likelihood (unrestricted)	LRT	P
Yearly					
PAL					
EM=VE	1066	-579.76 (70)	-626.62 (24)	93.72	<0.01
VE=UN	593	-536.36 (68)	-565.23 (24)	57.74	0.08
UN= MA	500	-409.21 (68)	-445.97 (24)	73.52	<0.01
MA=SA	292	-221.83 (70)	-253.89 (24)	64.12	0.041
SA=NA	2660	-930.81 (70)	-1002.84(24)	144.06	<0.01
UK					
EM=VE	6223	-1394.87(56)	-1418.19(20)	46.64	0.073
VE=UN	358	-326.37 (54)	-361.90 (20)	71.06	<0.01
UN= MA	298	-272.94 (54)	-295.49 (20)	45.1	0.096
MA=SA	156	-127.75 (54)	-151.93 (20)	48.36	0.052
SA=NA	1763	-707.56 (56)	-759.42 (20)	103.72	<0.01

Number of parameters are in parenthesis

Quarterly test was conducted to all quarterly transitions in 2003 in both UK and Palestine.