

Unemployment, Marginal Attachment and Labour Force Participation
in Canada and the United States*

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Introduction

The Canadian and U.S. economies are closely linked through trade and industrial structure, and have many common features. Although their macroeconomic experiences over the post World War Two period are broadly similar, there are nonetheless some noteworthy differences. One of these is that in recent decades labour markets have evolved quite differently north and south of the border. Whereas Canada experienced substantially more severe recessions in the 1980s and 1990s, since the turn of the century economic downturns hit much harder in the U.S., especially during the Great Recession of 2007-09.

A key insight from earlier work on Canada – U.S. differences in aggregate labour market behaviour was the role of the margin between Unemployment (U) and Out-of-the-Labour-Force (O), with the comparative evolution of unemployment hinging more on this margin than on the U to Employment (E) margin. The Canadian recession of the 1980s was deeper and more long-lived than that of the U.S., resulting in the emergence of a substantial unemployment differential between the two countries. This Canada – U.S. unemployment rate gap persisted throughout the period of economic expansion in during the late 1980s. However, Canada's higher level of unemployment during this decade did not result from poorer employment performance. Indeed, the two countries' employment-population ratios were fairly similar in the early 1980s and grew closer during the subsequent boom in the latter part of the decade. The greater tendency of non-employed Canadians to be classified as unemployed was an important element in understanding this comparative evolution (Card & Riddell, 1993; Riddell and Sharpe, 1998). This gave rise to research that probes the U-O margin in new ways (e.g., Jones & Riddell, 1999, 2006; Card, Chetty and Weber, 2007).

This paper assesses changes in unemployment, marginal labour force attachment and labour force participation in Canada and the U.S. over the past two decades. We use a model with four potential labour market states: E, U, M (marginal attachment), and N (non-attached to the labour force), adopting the standard definitions of E and U, while those not in the labour force are split into M and N

according to a reported desire for work criterion (so that $M+N=0$). Since the inclusion of a desire for work question in the monthly Labour Force Survey (LFS) and Current Population Survey (CPS) in the 1990s, such a classification system can be estimated and tested with Canadian and U.S. data and is a natural means of exploring the role of the U to O margin in understanding the fluctuations of unemployment and participation.

Using aggregate data we decompose changes in the unemployment rate between cyclical peaks into contributions due to changes in the non-employment rate $P(NE)$, the labour force participation rate $P(LF)$ and the probability of unemployment given non-employment $P(U|NE)$. This decomposition yields insights into Canada – U.S. differences in the role of labour force attachment in understanding movements in unemployment and labour force participation since the early 1980s.

With microdata from the CPS and LFS we analyse labour market transitions among the 4 states E, U, M and N and test for equivalence between pairs of states. Given the rotation group structure of the surveys we create 4-month panels with the CPS and 6-month panels with the LFS. We extend our earlier work for Canada (Jones and Riddell, 1999, 2006) to cover the period 1997 to 2015, and continue to find that marginal attachment is a distinct state, with transition behaviour significantly different from that of U and N. A key contribution of the paper is to carry out a similar analysis for the U.S. over the period 1994 to 2015. The central finding that U, M and N are distinct non-employment states also holds for the U.S. As data permit, we also examine subsets of M such as passive job searchers, discouraged workers and those waiting for a job to start in the future.

In both countries a four-state model that distinguishes between marginal attachment and non-attachment provides a deeper understanding of labour force activity than the standard three-state framework. However, we also find noteworthy differences between Canada and the U.S. in the level and cyclical movements in marginal attachment.

Measurement Differences

Both Canada and the U.S. comply with guidelines established by the International Labour Organisation for the measurement of employment, unemployment and labour force participation (Sorrentino, 2000, Exhibit 1). They also use very similar monthly household surveys – the Labour Force Survey (LFS) and the Current Population Survey (CPS) respectively -- to provide timely information on labour force activity. Although the questionnaire structure and content of these surveys are very similar, there are nonetheless some important differences affecting measures of labour force activity in the two countries (Riddell and Sharpe, 1998; Riddell, 1999; Bernard and Usalcas, 2014). In the case of the margin between unemployment and non-participation, these reflect different interpretations of key criteria such as ‘availability for work’ and ‘actively searching for work.’

Measurement differences include:

1. The adult population is defined as those 15 years of age and older in Canada, but 16 years of age and above in the U.S.
2. With the exception of the treatment of full-time students, the U.S. definition of unemployment is more restrictive than its Canadian counterpart. Three groups of individuals are defined as being unemployed in Canada but are measured as out-of-the-labour force in the U.S.: (i) individuals who searched for work in the month prior to the reference week of the survey, but who only used ‘passive’ search methods such as ‘looked at job ads’; (ii) those who did not look for work but reported that they had a job to start within the next 4 weeks – a group we will refer to as ‘short-term future job starts’; and (iii) individuals who reported that they were not available for work because of personal or family responsibilities.
3. Full-time students who report that they are looking for full time work are not considered ‘available for work’ in Canada and are classified as non-participants, but are classified as unemployed in the U.S.

These seemingly “small differences” in concepts and definitions can have a non-trivial effect on measures of aggregate labour force activity; for example, over the period 2007 to 2013 the Canadian unemployment rate was approximately 0.9

percentage points lower than the official measure when measured using U.S. concepts, and the employment rate was about 0.7 percentage points higher (Bernard and Usalca, 2014). Because of the magnitudes of these differences, when feasible we adjust the Canadian LFS data to correspond to U.S. concepts. Thus, most of the paper reports two measures of labour force activity in Canada based on LFS data: the official measures based on Canadian definitions and the adjusted measures based on U.S. concepts.

The rotation group structure of the LFS and CPS also differs. LFS respondents remain in the survey for 6 consecutive months and then exit the survey. In contrast, CPS respondents remain in the survey for 4 consecutive months, exit for 8 months and then return for a further 4 months. This structure implies that respondents participate in the survey for the same four months in two consecutive years. In both surveys respondents are not followed if they move to a different location. For our microdata analysis of labour market transitions we link respondents across the 6 (LFS) or 4 (CPS) months that they remain continuously in the survey and construct 6-month and 4-month panels. Individuals or families that did not remain in the survey for the full period – either because they moved or stopped responding – are thus not included in the analysis of transitions among labour force states.¹

The Margin between Unemployment and Non-Participation: Aggregate Evidence

Conventional measures of aggregate labour force activity make a sharp distinction between unemployment U and non-participation O . However, statistical agencies generally recognize that this distinction is not easily made. Both the U.S. Bureau of Labor Statistics (BLS) and Statistics Canada (STC) regularly report ‘Alternative [or Supplementary] Measures of Unemployment’ that include both more restrictive and

¹ A natural concern here is non-random attrition – for example, if those who move differ in systematic ways (perhaps relating to their labour market transition behavior) from those who remain in the same residence during the time span of the survey. Our assumption, which may or may not be correct, is that non-random attrition is not a major concern over the brief time periods covered by these monthly surveys. Use of balanced 4-month and 6-month panels also has the important advantage that the composition of our samples used to analyse transition behavior does not change over time.

broader measures of unemployment (and thus broader and more restrictive measures of non-participation). Our previous research with Canadian data documents the extent of heterogeneity among the non-employed and specific survey questions that are able to help identify groups on the margin between unemployment and non-participation (Jones and Riddell, 1999, 2006).

In this section we provide evidence on the importance of the margin between unemployment and non-participation to movements in the unemployment rate. To do so we follow Card and Riddell (1993) who note that the unemployment rate $P(U|LF)$ can be written as follows:

$$P(U|LF) = P(U|NE) * P(NE) / P(LF) \quad (1)$$

where $P(.)$ represents probability, $P(U|LF)$ is the conventional unemployment rate (the fraction of the labour force that is unemployed), $P(NE)$ is the non-employment rate (1 minus the employment rate), $P(LF)$ is the labour force participation rate and $P(U|NE)$ is the fraction of the non-employed that is unemployed, a measure of the 'labour force attachment of the non-employed.' Taking logs,

$$\ln P(U|LF) = \ln P(U|NE) + \ln P(NE) - \ln P(LF) \quad (2)$$

Thus movements in the unemployment rate can be decomposed into three components: changes in labour force participation, changes in non-employment, and changes in the labour force attachment of the non-employed.

Table 1 reports the results of this decomposition for Canada (Table 1a) and the U.S. (Table 1b) over the period January 1976 to December 2015. To abstract as much as possible from cyclical movements we examine movements in unemployment between cyclical peaks in each country. We use the NBER business cycle dates for the U.S. and Cross and Bergevin (2012), who follow a similar methodology, for Canada. The beginning and end months (January 1976 and December 2015) were not cyclical peaks, but the other four time intervals correspond to a complete business cycle in each country. One of these cycles is short-lived (January 1980 to June 1981 in Canada and January 1980 to July 1981 in the U.S.) but the remaining three cycles cover approximately the decades of the

1980s and 1990s together with the decade of the 2000s prior to the Great Recession of 2008-9.²

Examining the results of this decomposition for these major business cycles in Canada (Table 1a) reveals that movements in $P(U|NE)$ were a major factor in all three time periods, and the dominant factor in the 1980s and 1990s. For example, during the period from June 1981 to March 1990 the log change in unemployment was 0.014, an increase of 1.4%. Changes in the employment rate and the labour force participation rate contributed to a decline in the unemployment rate. However, these factors driving down unemployment were more than offset by the very large increase in $P(U|NE)$. Similarly, in the 1990s cycle, changes in both non-employment and labour force participation contributed to a rise in unemployment but these two components were more than offset by the large decline in the labour force attachment of the non-employed, resulting in an overall decline of 1.4% in the unemployment rate. Finally, during the period June 2001 to October 2008, when Canada experienced a major resource boom, the unemployment rate declined by a substantial 15%. In this case all three components contributed in the same direction. The decline in the employment rate was the largest contributing factor, followed closely by the decline in $P(U|NE)$.

The U.S. experience reveals some similarities but also noteworthy differences. The cycles of the 1980s and 1990s saw much larger declines in unemployment than the small changes in Canada. Offsetting these substantial declines, the period from March 2001 to December 2007 produced a rise in unemployment of 15%, in contrast to the decline of the same magnitude in Canada. However, a common factor is the importance of movements in $P(U|NE)$ to changes in the unemployment rate. In all three business cycles the change in the labour force attachment of the non-employed was the largest contributing factor. Changes in the

² In 2001 the U.S. experienced a recession associated with the bursting of the dot-com bubble, whereas Canada only experienced a significant slow down in economic activity. Exports to the U.S. declined for three consecutive quarters, but Canadian real GDP fell only in the 3rd quarter. Although not classified as a recession by Cross and Bergevin (2012), we treat June 2001 as a cyclical peak in Canada so that business cycles in the two countries cover comparable periods of time.

employment rate and participation rate also contributed in the same direction, but their impacts on unemployment were smaller, in most cases much smaller.

Tables 2a (Canada) and 2b (U.S.) provide similar decompositions of changes in unemployment rates between cyclical peaks based on annual data. To facilitate cross-country comparisons, we have chosen cyclical peak years that are the same in both countries. Doing so yields three full business cycles: 1979-1989, 1989-2000, 2000-2007, together with the incomplete cycle 2007-2015.³ The findings are very similar to those with the monthly data. In Canada, changes in $P(U|NE)$ make by far the largest contribution to movements in the unemployment rate during the cycles of the 1980s and 1990s, more than offsetting contributions in the opposite direction by movements in employment and participation. In the latter two periods 2000-2007 and 2007-2015 all three components influence the unemployment rate in the same direction, with changes in $P(NE)$ and $P(U|NE)$ making the largest contributions.

The U.S. experience was quite different. During both the 1979-89 and 1989-2000 business cycles unemployment fell much more in the U.S. than in Canada. In the 1980s the dominant forces behind the 9% decline in the unemployment rate were changes in employment and labour force participation. In contrast, the main factor contributing to the 28% decline in unemployment in the roaring 1990s was the fall in $P(U|NE)$. Changes in the labour force attachment of the non-employed were also the main factor contributing to the rise in unemployment over the 2000-2007 period. However, movements in $P(U|NE)$ played only a minor role in the rise in unemployment during and since the Great Recession. The fall of the employment rate was the largest contributing factor during this period of time.

Taking Canada – U.S. differences of equation (2) allows us to decompose difference-in-differences in movements of unemployment in the two countries over the main business cycles of the 1980s, 1990, and 2000s. These results are reported in Table 2c. In the 1980s—the decade in which a persistent Canada – U.S.

³ Note that by choosing 1979 and 1989 as cyclical peaks we are merging the brief January 1980 to June/July 1981 cycle with the longer business cycle that covered mid-1981 to early 1990. Results are not sensitive to this choice.

unemployment gap first emerged—the dominant factor in the relative rise of unemployment in Canada was the increase in $P(U|NE)$ in Canada relative to the U.S. Relative changes in the employment rate and labour force participation played only minor roles. During the 1990s Canada’s unemployment rate declined much less than that of the U.S., and the most important contributing factor was the smaller decline in $P(U|NE)$ in Canada than that experienced in the U.S. However, Canada – U.S. differences in the employment and labour force participation rates also contributed. During the 2000-2007 cycle Canada’s unemployment rate fell while that of the U.S. increased, resulting in a relative change in unemployment of more than 26%. All three factors contributed with Canada’s decline in $P(U|NE)$ relative to the U.S. being the most important factor. The 2007-2015 period was dominated by the Great Recession in the U.S.—a downturn that was much more severe and long-lasting than its Canadian counterpart—but also subsequently by the end of the resource boom in Canada and the concomitant slower employment growth than south of the border. The combination of these factors was little relative change in unemployment, with the rise in $P(U|NE)$ in Canada relative to the U.S. pushing toward an increase in the unemployment rate differential and changes in the relative non-employment rate and labour force participation rates pushing in the opposite direction.

In summary, changes in the labour force attachment of the non-employed have played a major role in the direction and magnitudes of changes in the aggregate unemployment rate in both countries over this 35-year period. Similarly, Canada – U.S. differences in $P(U|NE)$ have been the most important factor contributing to relative changes in unemployment. Although movements in the employment-to-population ratio and the labour force participation rate typically receive the lion’s share of attention, it is clearly important to understand the sources of changes in the fraction of the non-employed that is classified as unemployed. To do so we turn attention to microdata with which we can identify those on the margin between unemployment and non-participation.

Marginal Attachment: An Evidence-Based Approach

In this section we operationalize the notion of marginal attachment and apply this concept to microdata from Canada and the U.S. The conventional approach to classification of labour force states – and in particular to the separation between unemployment and non-participation – is based on *a priori* reasoning about what constitutes sufficient attachment to the workforce to warrant classification as ‘unemployed.’ Two *a priori* beliefs are imbedded in this classification system: (i) a stated desire for work and/or evidence of searching for work are not relevant if the individual is not immediately available for work; and (ii) there needs to be evidence of active search for work in order to demonstrate a serious desire to obtain employment. According to this perspective, in the absence of a demonstrated attempt to find suitable employment, statements such as one “wants a job” or “would like to work if suitable employment were available” are empty. Similarly, “waiting” for suitable jobs to become available is not regarded as demonstrating enough effort to warrant being classified as unemployed.

In our previous research with Canadian data we argue for an “evidence-based” approach to the classification of labour force states. Rather than relying on *a priori* reasoning, this approach uses subsequent labour force status to assess which responses to survey questions (relating, for example, to indicators of availability for work and/or search activity) have empirical content. According to this evidence-based approach, two labour force states are equivalent if they are behaviourally equivalent – i.e., yield subsequent labour force outcomes that are statistically indistinguishable.⁴

One clear finding from our previous work with Canadian data is that a stated desire for work among those who did not recently search for work has substantial predictive power in terms of subsequent labour force status. According to conventional definitions of unemployment and non-participation, the expressed

⁴ Flinn and Heckman (1983) is the key early reference on this approach. They tested whether ‘unemployment’ and ‘non-participation’ represent different non-employment states in the U.S. labour market. Jones and Riddell (1999) extended their framework to a four-state model, arguing that the key behavioral and measurement issues involve those such as ‘discouraged workers’ on the margin between unemployment and non-participation.

desire for work plays no role in measures of labour force activity.⁵ However, applying the evidence-based approach to earlier Canadian data yields strong evidence that marginal attachment – a state composed of non-searchers who express a desire for work – represents a distinct behavioural state, one that lies between unemployment and non-participation in terms of subsequent labour market outcomes. In this section we extend our previous research with Canadian data to the U.S. In addition we update our Canadian research to cover a longer sample period, and carry out a comparative analysis.

For many years, Canada and the U.S. have asked questions about the desire for work among the non-employed who were not searching for work. Those who responded that they ‘wanted work’ were asked additional questions regarding reasons for not searching. However, in the CPS these questions were only asked of those leaving the survey (“outgoing rotation groups”) so it was not possible to determine whether the responses to the desire for work question predicted subsequent labour force status. In the case of Canada, the desire for work question was included in an annual cross-sectional supplement to the LFS – the Survey of Job Opportunities (SJO). Prior to the analysis of Jones and Riddell (1999), who linked responses from the SJO to the subsequent month of the LFS, the predictive content of responses to the desire for work question had not been assessed.

With the revisions to the CPS that came into effect in January 1994 and those to the LFS that came into effect in January 1997, both flagship surveys now contain a monthly question about the desire for work among non-searchers, as well as questions probing the reasons for not searching among those who state that they want work. Based on our previous research with Canadian data over the period 1997-2000 (Jones and Riddell, 2006), we classify LFS and CPS respondents into three main non-employment states: unemployed U (those conventionally measured as unemployed), marginally attached M (non-searchers who state that they want work), and non-attached N (those who neither searched for or desired work). At

⁵ In the LFS and CPS individuals who were not employed (or temporarily absent from work) during the survey week are classified as ‘unemployed’ if they were available for work and had actively searched for work in the previous 4 weeks.

the outset, it is worth noting that the M group is quite large, relative to the pool of those counted as unemployment. Figure US0 graphs the ratio of the “Want Work” group to the Unemployed group for the U.S. since 1994.⁶ The values for this ratio range from around 40% up to around 80%, with substantial cyclical variation.⁷ Illustration of the importance of the want work group in Canada, and related comparative discussion, will be presented in the next draft.⁸

We first discuss U.S. results, followed by our updated results for Canada. Figures US1 – US4 and Table 3 reports results from the CPS matched across months. We concentrate on month-to-month matching using the initial 4 months of consecutive observation of a household, and of individuals within that household, given the 4-8-4 rotation group structure of the CPS. The panels are thus shorter than those for the LFS, and in this paper we do not consider matching individuals on an annual basis given our interest in short-run dynamics.

Figures US 1 to US4 examine the time-series of these average transition rates for the period 1994-2015. For confidentiality reasons, geographic identifiers are not available and matching is not possible across different CPS months between 1995:2 and 1995:9, so all the U.S. series have a gap for these months. The results for transitions into Employment are shown in Figure US1. The mean rate of transition from Unemployment (pUE) varies from 0.15 to nearly 0.4, displays regular seasonal patterns, and clearly varies with the business cycle. There is also evidence of some variation in the transition rate from Marginal Attachment into Employment, both seasonally and cyclically, although the influence of the business cycle is less marked. Unsurprisingly, the rate at which individuals transit from Nonattachment into Employment is low, typically below 0.05. Perhaps the most important conclusion from Figure US1, though, is the clear separation of the three series. In every month since 1994, the three transition rates are ordered as $pUE > pME > pNE$ and the differences are large enough, given the CPS sample size, that equality could be

⁶ Barnichon & Figura (2015) also present evidence back to 1967.

⁷ Vertical lines in this and subsequent graphs denote NBER-dated recessions in this period, i.e., 2001:3-2001:11 and 2007:12-2009:06.

⁸ Figure CAN0 awaiting RDC release.

rejected. That is, Figure US1 is consistent with earlier Canadian work that found U, M and N to be behaviourally distinct states within non-employment, and hence consistent with the view that there is predictive power in both the job search question and the desire for work question posed in the CPS.

This conclusion is buttressed by the Figures US2-US4 that show similarly time-series properties of average monthly transition rates into Unemployment, Marginal Attachment and Nonattachment respectively. As before, the Figures show the mean transition probability into a state (e.g., Unemployment) from each of the other states (e.g., Employment, Marginal Attachment and Nonattachment). Figure US2 shows the flow into U from M as varying between 0.12 and 0.24, and rising strongly in the Great Recession and its aftermath. In Figure US2 there is also cyclical variation in pEU and pNU although, given the scale, these cyclical inflows to unemployment are harder to see in the figure. Note that, although pEU and pNU have similar magnitudes, there is again a sharp separation between M and N as origin states within non-employment.

Figure US3 highlights the flow from U to M that tends to decline somewhat in the Great Recession years but is generally less cyclical than the reverse counterpart. And Figure US4 shows the high average rate of transition from M to N – typically between 0.4 and 0.5 per month – a rate of movement into Nonattachment that is much higher than that from Unemployment (which varies between 0.1 and 0.2). This difference holds for every month since 1994.

Together, these time-series graphs are strongly consistent with past research with Canadian data that suggested the distinct nature of the three non-employment states: Unemployment, Marginal Attachment, and Nonattachment. The large differences in the magnitudes of these flows suggests the merit of considering both job search and the desire for work in understanding the dynamics of labour markets.

We present U.S. evidence on average transition rates at various horizons in Table 3. The first panel records mean rates of transition from one of three non-employment states (Unemployment, Marginal Attachment, Nonattachment) to the four states examined in this paper (Employment, Unemployment, Marginal

Attachment, Nonattachment), which are the averages of the series graphed in Figures US1-US4. The standard errors are uniformly small given the large CPS samples, so equality of these means is easily rejected. One element of the first panel that might not have been evident from the Figures (but could have been deduced) is the relative stability of each non-employment state, month-to-month. For example, the transition rate p_{UU} , the average probability that an unemployed person in one month remains unemployed in the next, which is of course just $1 - p_{UE} - p_{UM} - p_{UN}$, has a point estimate of 0.518. Nonattachment is very stable as might be expected with $p_{NN}=0.923$. But interestingly, Marginal Attachment has a “remain” probability p_{MM} that averages only 0.277, so is the least stable non-employment state. This would appear to be inconsistent with the view that Marginal Attachment is in any sense an absorbing state, perhaps reached after a prior spell of Unemployment once a sense of discouragement with job search has set in. It is, however, consistent with previous Canadian evidence on the relative stability of these non-employment states.

The lower panels of Table 3 show analogous mean transition rates at two longer horizons. Instead of examining adjacent months, as in the first panel, we here report results where, if the origin state is observed in period t , the destination state is observed in period $t+2$ (panel 2) and period $t+3$ (panel 3). Consistent with the point in time approach of the CPS recording structure, we do not here differentiate based on the intervening month or months. As might be expected, the transition rates into Employment rise with a potentially longer search period (although some of this may be a heterogeneity effect due to changes in the composition of the unemployed pool as we move to longer durations). This greater likelihood of obtaining employment effect is clearest moving from a one-month to a two-month horizon. At both longer horizons permitted by the 4-month CPS panels, though, the ranking of $p_{UE} > p_{ME} > p_{NE}$ holds quite clearly, with p_{UE} typically being about double p_{ME} which, in turn, is between three and four times larger than p_{NE} , the mean transition rate from Nonattachment. The diagonal elements in the lower panels (p_{UU} , p_{MM} and p_{NN}) usually decline with a longer horizon.

Turning to analogous Canadian evidence, Figure CAN1 plots the 1-month transition rates from non-employment into employment in each month over the period 1997-2015. There is a clear and substantial separation with $p_{UE} > p_{ME} > p_{NE}$ in every month of our sample period. There is evidence of seasonal variation, as well as cyclical variation – as in the U.S. monthly data. The remaining figures CAN2 – CAN4 show the time series behaviour of hazards into Unemployment, Marginal Attachment and Non-Attachment respectively.⁹

Table 4 reports mean values of month-to-month transition rates for Canada over the sample period January 1997 to December 2015. Based on our 6-month panels of LFS respondents we report transition rates over 1, 2, 3, 4, and 5-month horizons and, as above, we disregard any intervening labour force state information in the construction of these rates.¹⁰ The first panel shows the average hazards between origin states (U, M and N) and destination states (E, U, M and N). For transitions into employment there is a clear difference between U and M as origin states, with the p_{UE} hazard being 0.230, almost twice as large as the transition rate p_{ME} (0.125). Equally noteworthy, there is a clear difference between the M and N categories, with the p_{NE} hazard being only 0.033. These differences are quantitatively large, statistically significant and consistent with previous findings for the more limited sample period 1997-2000 studied in Jones and Riddell (2006).

The remaining columns in the first panel in Table 4 report the adjacent month hazards into the three non-employment states U, M and N. For each destination there are large and statistically significant differences between origin states U and M and between origin states M and N. For example, the mean transition rates into U are 0.575, 0.212 and 0.022 for U, M and N respectively. Similarly substantial differences are evident for the marginal attachment and non-attachment destinations. The diagonal elements are also large, indicating considerable stability in respondents' labour force status from month-to-month. Marginal attachment is the least stable state, with a probability of about one-third of remaining in that state

⁹ Figures CAN1 – CAN4 awaiting RDC release.

¹⁰ This is consistent with the “point in time” approach of the LFS in that no attention is paid to labour market transitions between the reference weeks in adjacent months.

from one month to the next, compared to the almost 60% probability of remaining unemployed and an over 90% chance of remaining out-of-the-labour force. Overall, the pattern of the hazards into non-employment states is consistent with that into employment, with U exhibiting the strongest attachment to the work force and N the least. Furthermore, there is a clear ordering of non-employment states, with $p_{UE} > p_{ME} > p_{NE}$, as well as $p_{UU} > p_{MU} > p_{NU}$ and $p_{NN} > p_{MN} > p_{NU}$, indicating that M is an intermediate state with behaviour between U and N, and distinct from both U and N.

The remaining panels of Table 4 report analogous mean transition rates where origin and destination state are measured 2-5 months apart. Broadly speaking, these estimates reinforce the conclusions from the first panel. All of the transition rates into Employment rise as the horizon lengthens, but the ordering and the separation indicate clear differences in the degree of attachment: even at the longest 5-month gap, the ordering is $p_{UE}=0.451 > p_{ME}=0.250 > p_{NE}=0.080$. It is striking that a self-reported desire for work in month t exhibits such empirical content for the employment probability half a year later.

Aside from the transitions rates into Employment, there are some other noteworthy elements of these lower panels of Table 4. The p_{UM} and p_{MU} rates are relatively invariant at longer horizons, while the diagonal probabilities fall for both p_{UU} and p_{MM} . The “remain” probability also falls at longer horizons for Nonattachment, although this effect is fairly slight.

Heterogeneity in Non-Employment States

The difficulty of distinguishing between unemployment U and non-participation O is illustrated well by the behaviour of various sub-categories of U, M and N. At a point in time, countries differ in how some of these sub-categories are classified, and changes are also made within a country over time. Canada and the U.S. treat some of these sub-groups in a consistent manner, and differ in their treatment of others. For example, both countries classify non-employed respondents who did not search for work during the previous month as Unemployed if they report that they are on temporary layoff from their previous employer and expecting recall within a

specified period of time (usually within 6 months or at a specified date). However, the two countries differ in their treatment of non-searchers who report that they have a job to start within a specified period of time, a group referred to as “future job starts.” In Canada these individuals are classified as Unemployed providing their job is expected to start within 4 weeks. In the U.S. these “short term future job starts” respondents are classified as Out-of-the-labour force, although prior to the 1994 changes to the CPS were treated as Unemployed. As a final example, in both countries “discouraged workers” – those who report that they are not searching for work because they believe that no suitable work is available -- often receive considerable policy attention. Discouraged workers were counted among the unemployed in the U.S. prior to 1967 and in Canada prior to 1975, but subsequently have been classified as non-participants. In our analysis they are a subset of the Marginally attached.

In this section we examine the transition behaviour of various sub-categories of U, M and N. Because of Canada – U.S. differences in how some of these sub-categories are treated, their main non-employment group may differ from one country to the other.

Table 5 details heterogeneity underlying the categories of Unemployment and Marginal Attachment in the U.S. In the CPS, Unemployment can be split into individuals on temporary layoff (with the provisions that the recall be either within 6 months or be at a specified date), and the much larger group of individuals with recorded (active) job search. The temporary layoff group have higher rates of moving into jobs than job searchers and correspondingly lower rates of moving into each of the three non-employment states. Note that since the 1994 CPS revisions there is no longer a future job start category in the CPS in the sense that, even if an individual has a job to start soon, job search remains a requirement to be counted as unemployed. These individuals, previously included among the Unemployed, are now treated as being Out-of-the-labour force.

Table 5 also shows some limited heterogeneity within the Marginal Attachment Group. As noted, in many countries particular attention has been paid to “discouraged workers,” a subset of the non-employed who, while wanting work,

are recorded as not searching for economic reasons (such as “believes no work available”). Our past research for Canada based on transition methods has queried whether this particular attention is warranted, and the U.S. results in Table 5 are broadly consistent with this earlier work. The mean transition rate of discouraged workers into E is very similar to that for the Marginally Attached as a whole and the complement of the discouraged worker subgroup, so it is hard to conclude that there is much distinctive about this subset. The one difference worthy of comment is that the pMU transition rate is higher for the discouraged, offset by a lower value of pMN. Relative to other Marginally Attached workers, discouraged workers are more likely to move into Unemployment (start or re-start job search) and less likely to drop further into Nonattachment.

Table 6 reports mean monthly hazards for subsets of U, M and N based on LFS data for the 1997-2015 sample period. The top panel includes three sub-groups of those conventionally classified as Unemployed: job searchers, temporary layoffs and short-term future job starts. As was the case for the U.S., those on temporary layoff are much more likely to be employed in the following month than job searchers. Indeed, the transition probability differential between these two groups is substantially larger in Canada than in the U.S. Similarly, the 1-month hazards into employment of those who report that they have a job to start within the next month is dramatically higher – more than triple -- that for job searchers. The fact that about 75% of this “short-term future job starts” group is employed in the following month raises serious questions about why these individuals are now classified as non-participants in the U.S.

Within the Marginally Attached category, we follow our previous Canadian research and divide these into four groups according to their reported reasons for not searching for work: (i) Waiting (includes those waiting for replies from employers or recall to a former job); Personal (includes “Own illness or disability”, “Caring for own children or elderly relative”; “Other personal or family responsibilities” and “Going to school”); (iii) Discouraged (those who believe no work is available); and (iv) Other. We also report mean transition rates for the Non-waiting subgroup (i.e. Personal + Discouraged + Other).

Several results are noteworthy. The Waiting group stands out as having the highest probability of being employed in the following month, and the lowest likelihood of exiting the workforce into Non-attachment. In addition, the Discouraged category does not stand out as being strongly attached to the labour force in a behavioural sense. This group has the lowest transition rate into Employment, and exhibits the highest likelihood of remaining Marginally attached. The Personal category also exhibits a relatively low attachment to the workforce and the highest likelihood of entering non-attachment, pMN.

It is difficult to compare the behaviour of the M subgroups in Canada and the U.S. because of differences in responses to the question about reasons for not searching. However, one broadly similar finding is that the discouraged worker category does not stand out as having a strong labour force attachment in a behavioural sense. However, there are Canada – U.S. differences in the behaviour of this group. In the U.S., discouraged workers have transition rates into employment pME that are similar to other sub-categories of marginally attached, whereas in Canada discouraged workers have the lowest pME hazard of any sub-category. In addition, U.S. discouraged workers have a lower likelihood of becoming non-attached and a higher probability of starting or resuming job search (pMU), whereas in Canada discouraged workers are more likely to remain marginally attached.

The bottom panel of Table 6 reports transition rates for two sub-groups of the non-attached: long-term future job starts (those who report that they have a job to start, but not within the time period specified for being classified as “short-term future job starts” and Other non-attached. There is clearly a dramatic difference in labour market behaviour between these two sub-groups. In terms of the likelihood of being employed in the following month (pNE), the long-term future job starts group exceed even unemployed job searchers (pUE). They also have a high probability of entering Unemployment in the following month. In a behavioural sense this group warrants being classified as Unemployed rather than as Non-participants.

Conclusion

Unemployment and labour force participation are core concepts used for the measurement of labour force activity. Yet the distinction between unemployment and non-participation remains murky and controversial. In this paper we examine the potential role of an additional labour force state—the marginally attached—that lies between unemployment and out-of-the-labour force. Based on a behavioural or evidence-based approach to the analysis of labour force activity, we provide evidence for both Canada and the U.S. that marginal attachment represents a distinct labour force state with behaviour that lies between those conventionally classified as unemployed and the non-attached – those conventionally classified as non-participants less the marginally attached. Our evidence indicates that in both Canada and the U.S. the response to questions about the desire for work among those who did not recently search for work provides an appropriate way to distinguish between the marginally attached and non-attached.

We begin by providing evidence on the importance of the margin between unemployment and non-participation to movements in the aggregate unemployment rate. To do so we decompose movements in unemployment into three components: changes in labour force participation, changes in non-employment, and changes in the labour force attachment of the non-employed. We conclude that changes in $P(U|NE)$, the fraction of the non-employed that is unemployed, have played a major role in the direction and magnitudes of changes in the aggregate unemployment rate in both countries over this 35-year period. Similarly, Canada – U.S. differences in $P(U|NE)$ have been the most important factor contributing to relative changes in unemployment. Although movements in the employment-to-population ratio and the labour force participation rate typically receive the lion's share of attention, it is clearly important to understand the sources of changes in the fraction of the non-employed that is classified as unemployed. To do so we turn attention to microdata with which we can identify those on the margin between unemployment and non-participation.

We carry out this analysis by linking respondents across subsequent months of the Canadian LFS and U.S. CPS, using the rotation group features of the two surveys. Doing so allows us to determine whether the non-employment states—unemployment (U), marginal attachment (M) and non-attachment (N)—represent distinct labour force states in terms of their subsequent transitions into destination states employment E, and non-employment states U, M and N. Extending our earlier research for Canada to the U.S. and updating our Canadian research to cover a longer time period, we find that in both countries U, M and N are behaviourally distinct labour force states. One implication of these results is that a measurement framework with three non-employment states—which is readily feasible with available data—provides a richer and more accurate way of monitoring and analysing labour market behaviour than the present system based on two non-employment states.

We also examine subsets of the unemployed, marginally attached and non-attached. Canada and the U.S. classify some of these sub-groups in the same way, and others differently. Discouraged workers – those who report that they want work but were not search because they believe no work is available – often receive considerable policy and public attention. However, we find that this group does not exhibit behaviour that stands out relative to other marginally attached individuals. There are, however, some interesting differences between the two countries in the behaviour of discouraged workers. In contrast, those not searching but who report that they have a job to start in the future display very strong attachment to the labour force – even more than do those conventionally classified as unemployed. In both countries – but especially the U.S. – this group warrants consideration for being included among the unemployed. In addition, our results strongly support the current practice in both countries of including among the unemployed non-searchers who report that they are on temporary layoff from their current employer.

There are two potential limitations of this analysis that we should comment on. First, we assume that the underlying statistical framework is Markovian and that labour market spells shorter than one month are neglected in the analysis. The

stationary Markov assumption—that transition rates only depend on the current state (E, U, M, N) and not, for example, on the length of time already spent in that state—rules out duration dependence in unemployment (e.g., Kroft, Lange & Notowidigdo, 2013; Farber, Silverman and von Wachter, 2015) and related persistence in employment and in other non-employment spells. It also rules out more complicated effects of labour market histories such as those addressed by Kudlyak & Lange (2014). One approach to address this would be to use self-reported interrupted durations to condition on labour market states prior to the CPS or LFS window of observation, although these self-reports (“when did the current search spell start?”) are not available for the desire for work question central to our analysis. An alternative would be to try and differentiate between fresh spells (where the start of a period of Marginal Attached is observed, following a prior observation of some other state), and spells that are interrupted (left-censored) at the start of the CPS/LFS window. A problem is that this could only address short amounts of dependence given the 4/6-month panel structure.

Second, we have used the CPS and LFS information on monthly labour force status, both of which refer to status at a specific reference week within the month (although somewhat conditioned on behaviour in the rest of the month, as in the search within the past 4 weeks requirement). We therefore eschew the use of information on short (0-4 weeks) recent spells of unemployment that Shimer (2012) developed and that others have subsequently used (e.g., Campolieti (2011) for Canada). Shimer’s method, which relies in its leading form on the assumption that individuals move between employment and unemployment (and neither enter nor exit the labour force), allows the researcher to deduce the observable implications in monthly data of an underlying continuous time model of labour market transitions. However, for the study of a 4-state model as in the present paper, the absence of data for equivalent measures of 0-4 weeks of Marginal Attachment and Nonattachment precludes the extension of Shimer’s method to richer analysis of non-employment.

In future work, we plan to address a number of related issues. The methods we have employed can directly address the case for inclusion or exclusion of passive

job searchers within the ranks of the unemployed, a key difference between Canada and the U.S. definitions that has not been confronted with much evidence to date. We also plan to explore gender-based differences, studying whether differences between men and women in the aggregate data, such as in the $P(U|NE)$ decompositions studied above, have counterpart in the microdata analysis of individual transitions. Finally, we will address Canada-U.S. differences in the magnitudes of the non-employment states, examining both their secular trends and their cyclical properties in the past two decades.

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Table 1a: Sources of Changes in Unemployment, Canada, Monthly, 1976 – 2015

Total adult population		Amount contributed by:		
Time Period	Unemployment change (%)	P(NE)	P(U NE)	P(LF)
Jan 1976 - Jan 1980	0.055	-0.053 (-96%)	0.151 (274%)	-0.043 (-78%)
Jan 1980 - June 1981	-0.041	-0.027 (67%)	0.002 (-5%)	-0.015 (38%)
June 1981 - Mar 1990	0.014	-0.044 (-319%)	0.087 (627%)	-0.029 (-208%)
Mar 1990 - June 2001	-0.014	0.029 (-208%)	-0.061 (439%)	0.018 (-131%)
June 2001 - Oct 2008	-0.15	-0.064 (43%)	-0.06 (40%)	-0.025 (17%)
Oct 2008 - Dec 2015	0.136	0.061 (45%)	0.049 (36%)	0.025 (19%)
Males		Amount contributed by:		
Time Period	Unemployment change (%)	P(NE)	P(U NE)	P(LF)
Jan 1976 - Jan 1980	0.061	-0.007 (-12%)	0.074 (123%)	-0.006 (-11%)
Jan 1980 - June 1981	0	0.003 n/a	-0.005 n/a	0.001 n/a
June 1981 - Mar 1990	0.071	0.082 (116%)	-0.038 (-54%)	0.027 38%
Mar 1990 - June 2001	0.04	0.0125 (311%)	-0.139 (-345%)	0.054 (134%)
June 2001 - Oct 2008	-0.141	-0.034 (24%)	-0.1 (71%)	-0.007 (5%)
Oct 2008 - Dec 2015	0.167	0.087 (52%)	0.051 (31%)	0.029 (17%)
Females		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE)	P(U NE)	P(LF)
Jan 1976 - Jan 1980	0.048	-0.077 (-159%)	0.227 (472%)	-0.102 (-213%)
Jan 1980 - June 1981	-0.073	-0.043 (59%)	0.012 (-15%)	-0.041 (56%)
June 1981 - Mar 1990	-0.079	-0.115 (145%)	0.141 (-178%)	-0.105 (133%)
Mar 1990 - June 2001	-0.071	-0.038 (53%)	-0.008 (11%)	-0.025 (36%)
June 2001 - Oct 2008	-0.194	-0.082	-0.065	-0.047

Oct 2008 - Dec 2015	0.133	(43%)	(33%)	(24%)
		0.041	0.072	0.021
		(30%)	(54%)	(16%)

Table 1b: Sources of Changes in Unemployment, U.S.A, Monthly, 1976 – 2015

Total adult population		Amount contributed by:		
Time Period	Log Change in Unemployment	P(N)	P(U N)	P(LF)
Jan 1976 - Jan 1980	-0.226	-0.086 (38%)	-0.097 (43%)	-0.043 (19%)
Jan 1980 - July 1981	0.134	0.022 (17%)	0.108 (81%)	0.003 (2%)
July 1981 - July 1990	-0.269	-0.095 (35%)	-0.133 (49%)	-0.041 (15%)
July 1990 - Mar 2001	-0.246	-0.041 (17%)	-0.194 (79%)	-0.01 (4%)
Mar 2001 - Dec 2007	0.151	0.044 (12%)	0.089 (59%)	0.018 (29%)
Dec 2007 - Dec 2015	0	0.082 n/a	-0.135 n/a	0.053 n/a
Males		Amount contributed by:		
Time Period	Log Change in Unemployment	P(N)	P(U N)	P(LF)
Jan 1976 - Jan 1980	-0.23	-0.055 (24%)	-0.17 (74%)	-0.005 (2%)
Jan 1980 - July 1981	0.174	0.065 (38%)	0.095 (55%)	0.013 (7%)
July 1981 - July 1990	-0.209	-0.021 (10%)	-0.194 (93%)	0.007 (-3%)
July 1990 - Mar 2001	-0.264	0.025 (-9%)	-0.31 (117%)	0.021 (-8%)
Mar 2001 - Dec 2007	0.171	0.068 (39%)	0.081 (48%)	0.022 (13%)
Dec 2007 - Dec 2015	0.019	0.123 (632%)	-0.163 (-837%)	0.059 (305%)
Females		Amount contributed by:		
Time Period	Log Change in Unemployment	P(N)	P(U N)	P(LF)
Jan 1976 - Jan 1980	-0.255	-0.097 (38%)	-0.062 (24%)	-0.096 (38%)
Jan 1980 - July 1981	0.11	-0.002 (-2%)	0.121 (111%)	-0.009 (-9%)
July 1981 - July 1990	-0.355	-0.127 (36%)	-0.129 (36%)	-0.099 (28%)
July 1990 - Mar 2001	-0.251	-0.077	-0.128	-0.046

		(31%)	(51%)	(18%)
Mar 2001 - Dec 2007	0.154	0.028	0.113	0.013
		(18%)	(73%)	(9%)
Dec 2007 - Dec 2015	-0.021	0.056	-0.122	0.045
		(-271%)	(588%)	(-217%)

Table 2a: Sources of Changes in Unemployment, Canada, Annual, 1976-2015

Adult population		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE)	P(U NE)	P(LF)
1979-1989	0.000	-0.084 n/a	0.139 n/a	-0.055 n/a
1989-2000	-0.098	0.024 (-24%)	-0.144 (147%)	0.023 (-23%)
2000-2007	-0.125	-0.056 (45%)	-0.045 (36%)	-0.024 (19%)
2007-2015	0.140	0.056 (40%)	0.060 (43%)	0.024 (17%)
Males		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE)	P(U NE)	P(LF)
1979-1989	0.085	0.072 (85%)	-0.008 (-9%)	0.021 (24%)
1989-2000	-0.070	0.124 (-177%)	-0.254 (363%)	0.060 (-86%)
2000-2007	-0.075	-0.019 (25%)	-0.054 (72%)	-0.003 (4%)
2007-2015	0.159	0.078 (49%)	0.054 (34%)	0.027 (17%)
Females		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE)	P(U NE)	P(LF)
1979-1989	-0.109	-0.168 (154%)	0.221 (-203%)	-0.162 (149%)
1989-2000	-0.152	-0.040 (26%)	-0.090 (59%)	-0.022 (15%)
2000-2007	-0.179	-0.084 (47%)	-0.044 (25%)	-0.051 (28%)
2007-2015	0.118	0.038 (33%)	0.058 (50%)	0.021 (18%)

Table 2b: Sources of Changes in Unemployment, U.S., Annual, 1976-2015

Adult population		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE)	P(U NE)	P(LF)
1979-1989	-0.090	-0.080 (89%)	0.033 (-37%)	-0.043 (48%)
1989-2000	-0.281	-0.039 (14%)	-0.234 (83%)	-0.009 (3%)
2000-2007	0.140	0.039 (28%)	0.085 (61%)	0.017 (12%)
2007-2015	0.142	0.095 (67%)	-0.005 (-3%)	0.051 (36%)
Males		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE)	P(U NE)	P(LF)
1979-1989	0.019	0.048 (249%)	-0.047 (-243%)	0.018 (94%)
1989-2000	-0.288	0.022 (-8%)	-0.330 (115%)	0.021 (-7%)
2000-2007	0.187	0.072 (38%)	0.093 (50%)	0.022 (12%)
2007-2015	0.139	0.139 (100%)	-0.058 (-42%)	0.058 (42%)
Females		Amount contributed by:		
Time Period	Change in Unemployment (%)	P(NE))	P(U NE)	P(LF)
1979-1989	-0.231	-0.139 (60%)	0.028 (-12%)	-0.120 (52%)
1989-2000	-0.275	-0.073 (26%)	-0.160 (58%)	-0.043 (15%)
2000-2007	0.093	0.021 (23%)	0.062 (67%)	0.010 (11%)
2007-2015	0.145	0.065 (45%)	0.035 (24%)	0.045 (31%)

Table 2c: Sources of Changes in Unemployment, Canada – U.S. Differences, Annual, 1976-2015

Adult population		Amount contributed by:		
Time Period	Log Relative Change in Unemployment	P(NE)	P(U NE)	P(LF)
1979-1989	0.090	-0.003 (-4%)	0.105 (117%)	-0.012 (-13%)
1989-2000	0.183	0.062 (34%)	0.090 (49%)	0.032 (17%)
2000-2007	-0.265	-0.094 (36%)	-0.130 (49%)	-0.041 (15%)
2007-2015	-0.002	-0.040 (2092%)	0.065 (-3436%)	-0.027 (1444%)
Males		Amount contributed by:		
Time Period	Log Relative Change in Unemployment	P(NE)	P(U NE)	P(LF)
1979-1989	0.065	0.023 (36%)	0.039 (60%)	0.002 (4%)
1989-2000	0.218	0.102 (47%)	0.077 (35%)	0.039 (18%)
2000-2007	-0.262	-0.091 (35%)	-0.147 (56%)	-0.024 (9%)
2007-2015	0.020	-0.061 (-309%)	0.112 (566%)	-0.031 (-157%)
Females		Amount contributed by:		
Time Period	Log Relative Change in Unemployment	P(NE)	P(U NE)	P(LF)
1979-1989	0.121	-0.029 (-24%)	0.193 (159%)	-0.042 (-35%)
1989-2000	0.123	0.033 (27%)	0.070 (57%)	0.021 (17%)
2000-2007	-0.272	-0.105 (39%)	-0.106 (39%)	-0.061 (22%)
2007-2015	-0.027	-0.026 (99%)	0.023 (-87%)	-0.024 (89%)

Table 3: Average Transition Rates, U.S.A, 1994 – 2015

		Transition to:			
1-Month	Transitions from:	Employment	Unemployment	Marginal Attachment	Nonattachment
	Unemployment	0.243 (0.003)	0.518 (0.004)	0.092 (0.001)	0.147 (0.001)
	Marginal Attachment	0.119 (0.002)	0.167 (0.002)	0.277 (0.002)	0.437 (0.002)
	Nonattachment	0.037 (0.000)	0.015 (0.000)	0.024 (0.000)	0.923 (0.001)
2-Month	Transitions from:	Employment	Unemployment	Marginal Attachment	Nonattachment
	Unemployment	0.324 (0.004)	0.416 (0.005)	0.089 (0.001)	0.171 (0.001)
	Marginal Attachment	0.158 (0.002)	0.157 (0.002)	0.218 (0.002)	0.466 (0.002)
	Nonattachment	0.050 (0.001)	0.017 (0.000)	0.025 (0.000)	0.908 (0.001)
3-Month	Transitions from:	Employment	Unemployment	Marginal Attachment	Nonattachment
	Unemployment	0.324 (0.004)	0.425 (0.005)	0.088 (0.001)	0.163 (0.002)
	Marginal Attachment	0.166 (0.002)	0.163 (0.002)	0.233 (0.002)	0.439 (0.002)
	Nonattachment	0.050 (0.001)	0.017 (0.000)	0.025 (0.000)	0.908 (0.001)

Table 4: Average Transition Rates, Canada, 1997 – 2015

1-Month		Transition to:			
Transitions from:	Employment	Unemployment	Marginal Attachment	Nonattachment	
Unemployment	0.230 (0.006)	0.575 (0.007)	0.059 (0.004)	0.136 (0.005)	
Marginal Attachment	0.125 (0.008)	0.212 (0.011)	0.322 (0.012)	0.341 (0.013)	
Nonattachment	0.033 (0.001)	0.022 (0.001)	0.013 (0.001)	0.932 (0.001)	
2-Month		Transition to:			
Transitions from:	Employment	Unemployment	Marginal Attachment	Nonattachment	
Unemployment	0.327 (0.009)	0.461 (0.009)	0.058 (0.004)	0.155 (0.006)	
Marginal Attachment	0.163 (0.010)	0.202 (0.011)	0.229 (0.012)	0.407 (0.013)	
Nonattachment	0.051 (0.001)	0.026 (0.001)	0.018 (0.001)	0.906 (0.002)	
3-Month		Transition to:			
Transitions from:	Employment	Unemployment	Marginal Attachment	Nonattachment	
Unemployment	0.383 (0.010)	0.394 (0.01)	0.055 (0.005)	0.167 (0.007)	
Marginal Attachment	0.201 (0.013)	0.196 (0.013)	0.197 (0.013)	0.406 (0.017)	
Nonattachment	0.063 (0.002)	0.027 (0.001)	0.017 (0.001)	0.893 (0.002)	

4-Month**Transitions from:**

	Transition to:		Marginal Attachment	Nonattachment
	Employment	Unemployment		
Unemployment	0.422 (0.013)	0.348 (0.012)	0.054 (0.006)	0.176 (0.010)
Marginal Attachment	0.231 (0.017)	0.192 (0.015)	0.175 (0.014)	0.403 (0.020)
Nonattachment	0.072 (0.002)	0.028 (0.001)	0.017 (0.001)	0.883 (0.002)

5-Month**Transitions from:**

	Transition to:		Marginal Attachment	Nonattachment
	Employment	Unemployment		
Unemployment	0.451 (0.018)	0.313 (0.017)	0.053 (0.008)	0.183 (0.014)
Marginal Attachment	0.250 (0.023)	0.189 (0.022)	0.153 (0.020)	0.408 (0.026)
Nonattachment	0.080 (0.004)	0.029 (0.002)	0.017 (0.002)	0.874 (0.004)

Table 5: Average Transition Rates for Sub-groups of Unemployed and Marginally Attached, U.S.A, 1994-2015

<i>1-Month from Unemployment and subgroups</i> Transitions from:	Transition to:			
	Employment	Unemployment	Marginal Attachment	Nonattachment
Unemployment (overall)	0.243 (0.003)	0.518 (0.004)	0.092 (0.001)	0.147 (0.001)
Temporary Layoffs subgroup	0.477 (0.005)	0.389 (0.005)	0.041 (0.001)	0.092 (0.002)
Job Searchers subgroup	0.211 (0.003)	0.535 (0.004)	0.099 (0.001)	0.155 (0.001)
<i>1-Month from Marginal and subgroups</i> Transitions from:	Transition to:			
	Employment	Unemployment	Marginal Attachment	Nonattachment
Marginal Attachment (overall)	0.119 (0.002)	0.167 (0.002)	0.277 (0.002)	0.437 (0.002)
Discouraged subgroup	0.125 (0.003)	0.269 (0.003)	0.288 (0.003)	0.318 (0.004)
Other subgroup	0.118 (0.002)	0.156 (0.001)	0.275 (0.002)	0.450 (0.002)

Table 6: Average Transition Rates for Sub-groups of Unemployed and Marginally Attached, Canada, 1997-2015

LFS transition rates, Sub-groups of U, M, N		Transition to:			
<i>1-Month from subgroups of Unemployed</i>		Employment	Unemployment	Marginal Attachment	Nonattachment
Transitions from:					
Temporary Layoffs		0.453 (0.026)	0.429 (0.026)	0.045 (0.011)	0.074 (0.013)
Job Searchers		0.193 (0.006)	0.609 (0.008)	0.063 (0.004)	0.135 (0.006)
Future Job Starts		0.736 (0.036)	0.140 (0.029)	0.030 (0.014)	0.094 (0.023)
 <i>1-Month from subgroups of M. Attached</i>		 Transition to:			
Transitions from:		Employment	Unemployment	Marginal Attachment	Nonattachment
Waiting		0.277 (0.025)	0.264 (0.025)	0.309 (0.026)	0.149 (0.021)
Personal		0.095 (0.011)	0.175 (0.015)	0.295 (0.018)	0.436 (0.019)
Discouraged		0.069 (0.014)	0.223 (0.022)	0.417 (0.026)	0.290 (0.024)
Other		0.111 (0.022)	0.249 (0.030)	0.295 (0.031)	0.344 (0.034)
NonWaiting (=Personal+Discouraged + Other)		0.092 (0.008)	0.201 (0.011)	0.325 (0.013)	0.382 (0.014)
 <i>1-Month from subgroups of Nonattached</i>		 Transition to:			
Transitions from:		Employment	Unemployment	Marginal Attachment	Nonattachment
Long-term Future Starts		0.259 (0.031)	0.245 (0.030)	0.046 (0.014)	0.451 (0.035)
Rest of Not Attached		0.032 (0.001)	0.021 (0.001)	0.013 (0.001)	0.935 (0.002)

Figure US0: Want Work / Unemployment Ratio

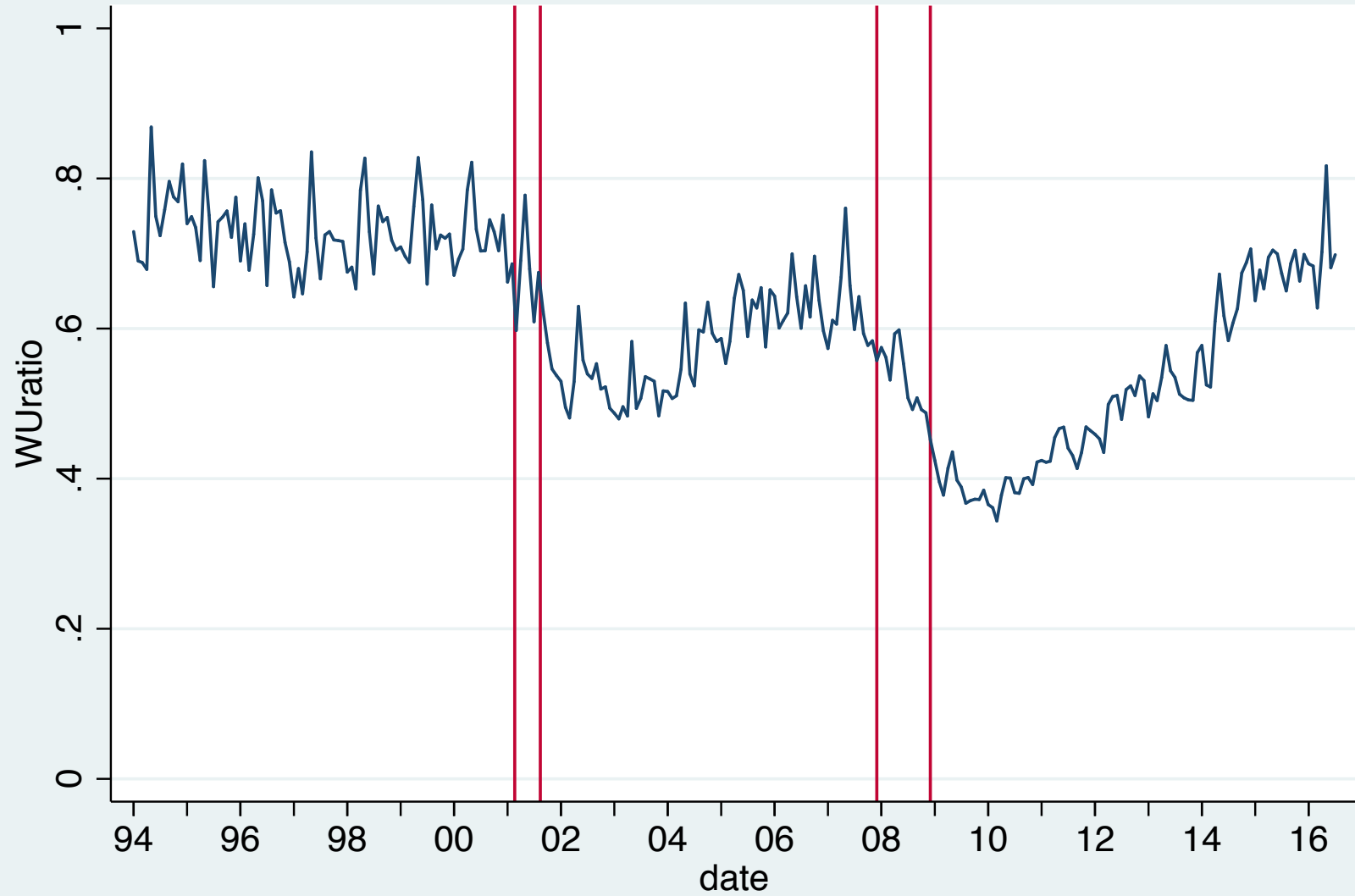


Figure US1: Transition Rates into Employment

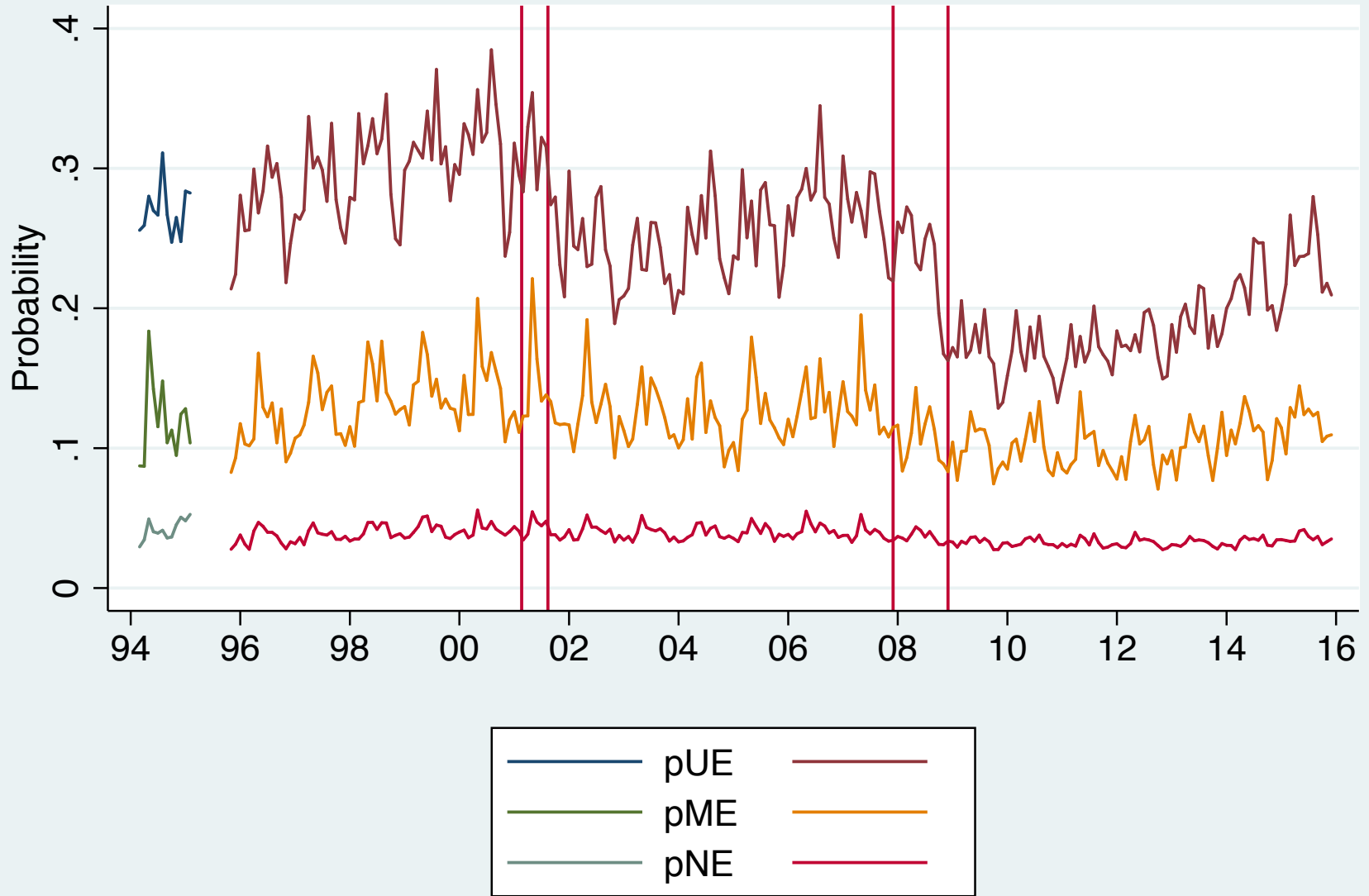


Figure US2: Transition Rates into Unemployment

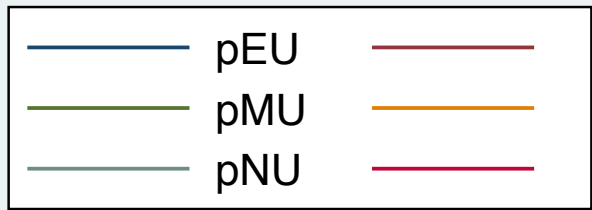
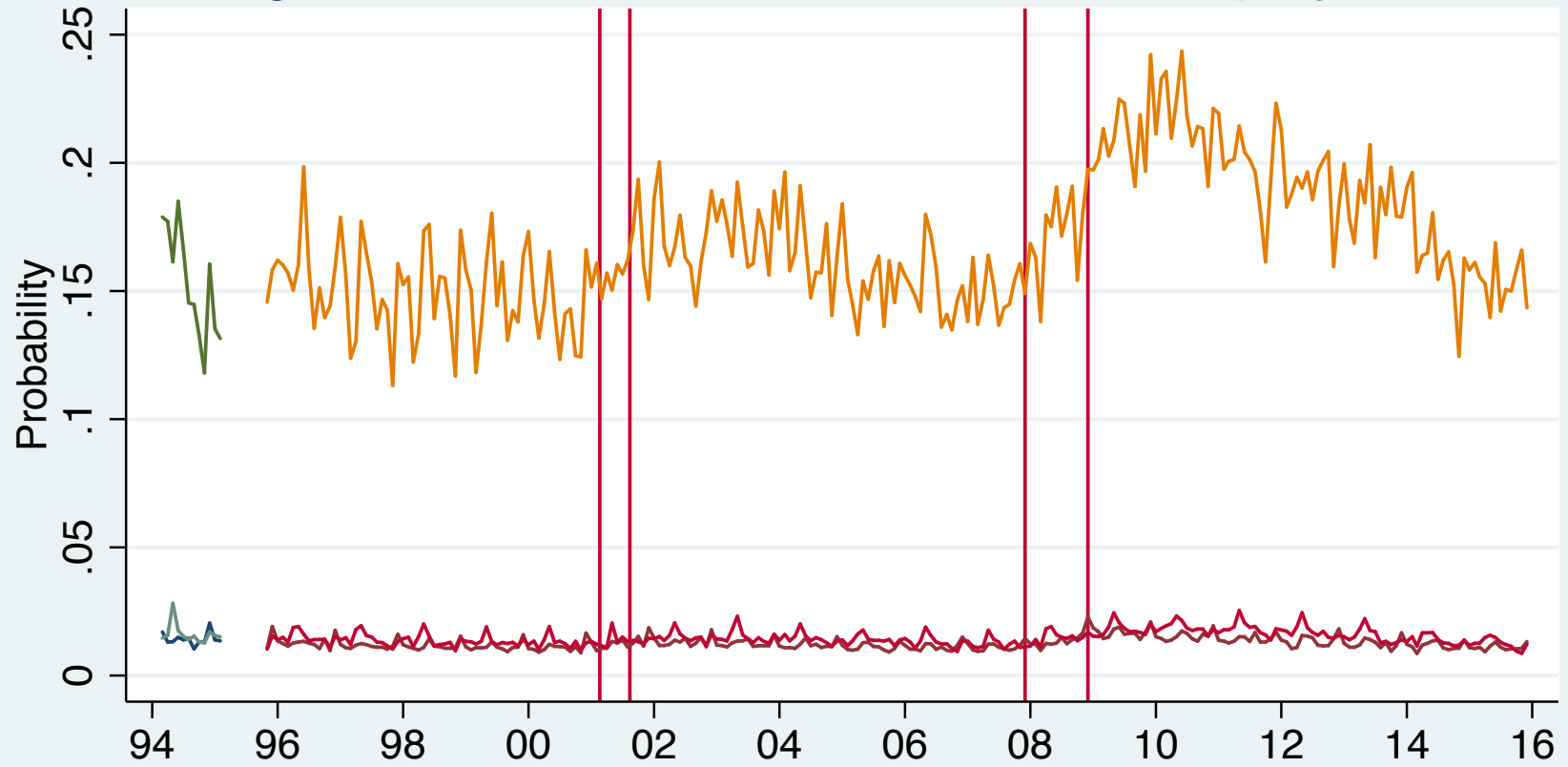


Figure US3: Transition Rates into Marginal Attachment

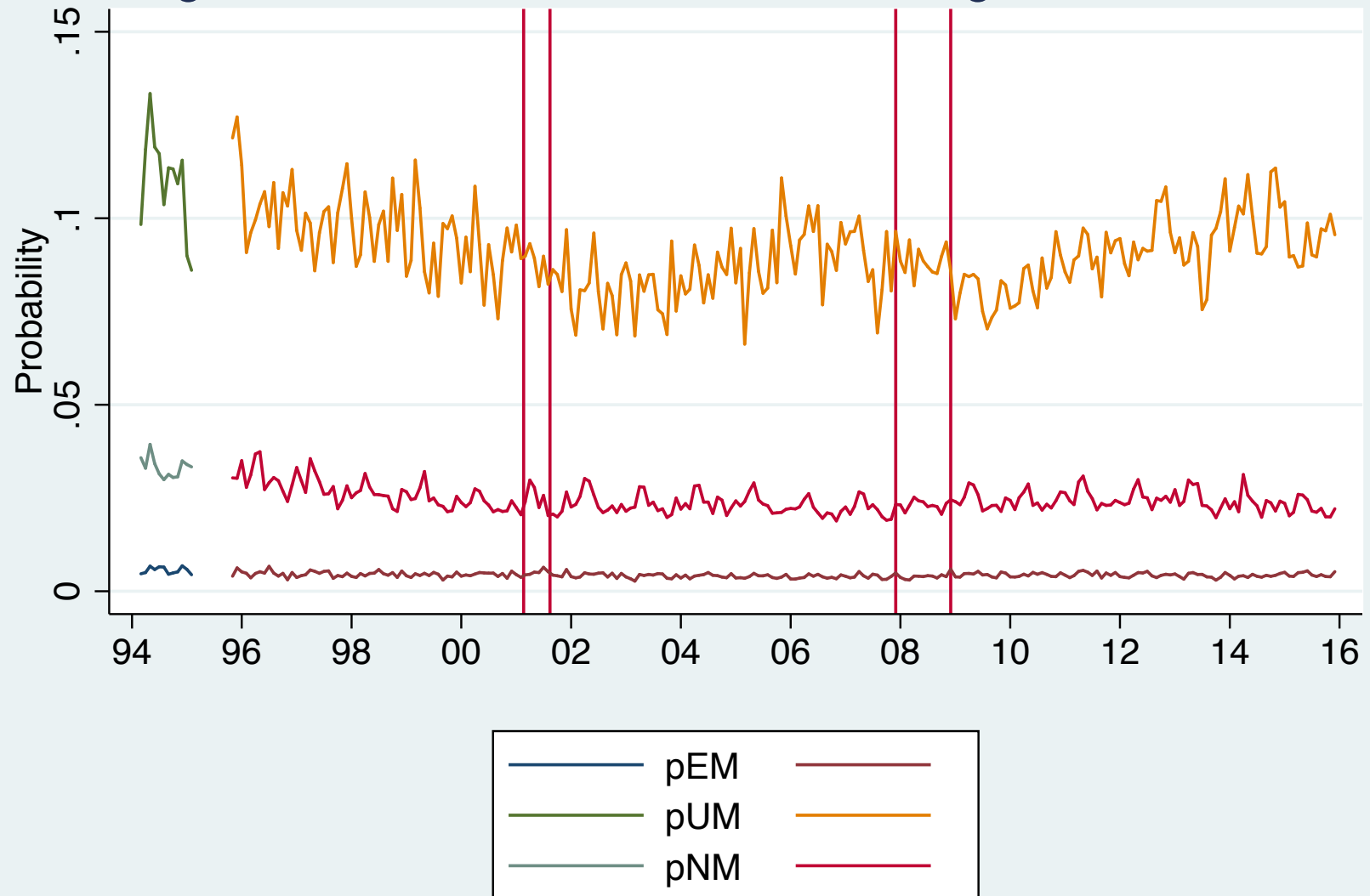


Figure US4: Transition Rates into Non-Attachment

