THE DYNAMICS OF LABOR FORCE ATTACHMENT IN THE US LABOR MARKET

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1. INTRODUCTION

The objective of this paper is to analyze the dynamics of labor force attachment in the US. More generally, the paper also seeks to address issues relating to the appropriate definition of unemployment and non-participation, definitions that have usually been based more on tradition or custom than on empirical analysis, although it is worth noting that such definitions do nonetheless differ internationally (e.g. between Canada and the US) and are on occasion revised even within a national economy.

These questions concerning the appropriate breakdown of non-employment time and how to model the dynamics of such non-employment spells are important for several reasons. First, to the extent that considerable attention is paid to magnitudes such as the unemployment and the labor force participation rates, their definition is fundamental. Second, although it is usual in much economic analysis to interpret the unemployed as engaged in optimal job search behavior and non-participants as engaged in household production (at a corner solution with respect to market participation), some evidence suggests that the distinction between the two states may not in fact be clear cut. Hall (1970) and Clark & Summers (1979) argue that such a distinction may be difficult to sustain when, for example, multiple changes of classification occur within a single non-employment spell. Relatedly, Lucas & Rapping (1969) have queried the empirical content of the job search question that forms the basis of most unemployment classifications, given that nothing is specified in that question about job characteristics (including the wage). Third, the distinction between unemployment and non-participation may be harder to interpret in the context of recent flow-based models of labor markets (e.g., Hall 1983, Blanchard & Diamond 1992) where "waiting" for new openings to appear may be a better description of much optimal non-employment behavior than the active "job search" envisaged in an earlier generation of models. Empirically, agents who fail to find a match from the initial stock of vacancies and who wait for new openings to be generated may be classified as non-participants, even if they are unemployed in the flow model of labor markets. Finally, the analysis of unemployment and non-participation durations, their cyclical behavior, and questions concerning potential true duration dependence in such spells, are all fundamentally affected by decisions about how to draw the distinction between the two non-employment states.

This paper begins an empirical investigation of these issues for the US, using recent data from matched surveys from the new CPS. It builds on our earlier work with Canadian data (Jones & Riddell, 1998, 1999), although at the outset

we note that the US data has some important advantages for this set of questions, including detailed non-employment status for each survey month and a panel structure that goes beyond the matched pairs of surveys employed in our previous work.

2. FRAMEWORK FOR ANALYSIS

The statistical framework we employ to assess whether two (or more) non-employment states are behaviorally distinct is based upon work by Flinn and Heckman (1983). Using the NLSY, they tested whether unemployment and out of the labor force were distinct states for white male high school graduates, work that was subsequently extended by Gönül (1992). In both papers, the analysis compared the behavior of those classified as unemployed (U) with those classified as non-participants (O). While informative for some groups, we suspect that for the population as a whole, the non-participant category contains many persons with essentially no current labor force attachment and we have little doubt that the behavior of many in this O group is distinct from that of the unemployed. Central questions of measurement and policy, such as whether unemployment should be defined based on some sort of reported job search, or a reported desire for work, are concerned with subsets of the O and U categories, such as non-searchers who report that they desire work. To tackle such questions empirically requires data in which search behavior and the desire for work are identified.

Our empirical analysis can be described in the context of a Markov model of transitions among labor force states. Initially at least, we address potential heterogeneity within the O category by envisaging four states: employment (E), unemployment (U), marginal attachment (M), and not-attached-to-the-labor force (N). The first two states correspond exactly to those measured in the CPS, while the latter two states represent a division of the non-participation group (O) into two components, M and N. Although there are a range of possible definitions of marginal attachment, our primary focus is on individuals who did not search for work but who reported that they desired work. The residual not-attached state (N) is hence made up of persons who *neither* searched for *nor* desired work.

We consider labor market dynamics represented by a 4x4 transition matrix P where the ij element p_{ij} is the probability of an individual being in state j in the next period given that the individual is in state i in the current period:

$$P = \begin{pmatrix} pEE & pEU & pEM & pEN \\ pUE & pUU & pUM & pUN \\ pME & pMU & pMM & pMN \\ pNE & pNU & pNM & pNN \end{pmatrix}$$

In this Markov model context, marginal attachment and not attached would be behaviorally identical states if pME=pNE and pMU=pNU. If true, such equalities would imply that the 4 state Markov model was equivalent to a 3 state model based on the conventional measures of labor force activity (E, U and O): the reported desire for work would then convey no information regarding labor force attachment beyond that provided by reported job search.

In contrast, it might be that the conventional job search requirement for unemployment is too narrow, and that the marginally attached are not behaviorally distinct from the unemployed, in which case pUE=pME and pUN=pMN. If these conditions hold, unemployment would more sensibly be measured based on a reported desire for work rather than on job search. The desire for work is then the key criterion and no additional information is conveyed by reported job search.

Finally, it may be that neither of these restrictive conditions is supported by the data, in which case the marginally attached represent a distinct group with behavior between that of the unemployed and the non attached. This may supply a rationale for statistical agencies to report unemployment, marginal attachment and non-attachment on a regular basis.

3. Data Construction and Characteristics

This research employs a set of panels constructed from the new Current Population Survey that match households from one month to the next and then employ a matching algorithm based on checks for legitimate changes (in some cases no change) in race, age, sex, marital status, education and veteran status to identify individuals within these matched households. This procedure is similar to that used in previous work (Card, 1996) with matched CPS data. (Appendix A details the matching process and summarize the nature of the panels.) The rotation group structure of the CPS whereby an individual is in the sample for four consecutive months, then out of sample for eight months, then in again for a further four months, means that we are able to generate panels of four consecutive months, together with a

related panel for the same individuals for the same four months one calendar year later. Each panel ends up including about 6000-7000 matched individuals. We note that the availability of these data for all starting months permits investigation of seasonality issues in these labor force dynamics, something that was not possible with the March-April matches available in our earlier research with Canadian data. More importantly, we also note that this CPS panel structure goes far beyond the pairwise matching of two adjacent months that was employed in the earlier work, offering the potential for a richer picture of dynamics that includes duration dependence.[1]

A second advantage of the new CPS, relative to both the CPS pre-1984 and many other datasets, is that information on marginal labor force attachment is available for each survey month. For persons classified as not in the labor force, category O from the previous section, the marginal group (M) consists of individuals who answered "Yes" or "Maybe, it depends," to the question "Do you currently want a job, either full or part time?" and the balance of the O group comprises the non-attached (N). It may bear repeating that this question is subjective and not obviously linked to actual behavior, so one may harbor a legitimate skepticism as to whether responses are a good guide to future actions. Of course, something the same could be said of the usual job search question that is used internationally to divide the U and O groupings, especially given the absence of any specifics on wage, job type or working conditions. Our view at this stage is completely agnostic, looking to the empirical analysis to assess whether these responses in fact have useful content or not, rather than furthering a priori speculation.

Overall, the matching of sets of four consecutive months together with the detailed questions available in the new CPS on degrees of labor force attachment make this dataset unique in its capacity to address the central questions of this research.

3. RESULTS

Transition Rates

We begin presentation of the results by examining the average month-to-month transition rates from the three non-employment states {U, M, N} into the four labor market states {E, U, M, N}. For this discussion, we base our results on the full sample of matched individuals between any two adjacent months, rather than the more stringent requirement (for panel membership) that individuals successfully match across four months, although the overall pattern of the results is identical in both cases. We label matched pairs of months by the origin month.

Figure 1 presents the three hazards into employment, and several features are apparent. First, the series are relatively stable month-to-month, suggesting that there is no overwhelming pattern of seasonality to contend with. This is especially true for the hazard for not-attached group, the largest of these three non-employment categories. Second, there is clear indication in every month that the ranking pUE > pME > pNE holds, with a striking separation between each pair of series. The hazard from unemployment ranges in the 0.2 to 0.3 interval while that from not-attached is always below 0.05, with the marginal group having an intermediate hazard between 0.1 and 0.2 for all of the matched months. However, it should be noted that these data do not place the marginal group as much closer to the unemployed than to the not-attached, a finding that characterized the earlier work with Canadian data (Jones & Riddell, 1999, p7).

Figure 2-4 present the analogous empirical hazards into unemployment, marginal attachment, and not-attached, respectively. The hazards into unemployment are also fairly stable and display a similar clear separation in every month with pUU > pMU > pNU. For transitions into the marginal state, the smallest of the non-employment states numerically, Figure 3 shows that monthly stability still obtains, with the ranking pMM > pUM > pNM. Interestingly, the on-diagonal element pMM hovers around 0.3, while the corresponding figure for pUU was closer to 0.5, showing the higher degree of instability in the Markovian dynamics associated with the marginal state. Finally, Figure 4 graphs the two series pUN and pMN, with the average transition rate from marginal to not-attached being high at around 0.4 in all months while the figure from unemployment is rather around 0.1. (To permit an informative scale for the graph, we omit the series pNN from Figure 4: this hazard has a very stable value around 0.93.)

Overall, we conclude from this first look at the monthly rates of transition that the marginally attached group appear to exhibit different unconditional behavior than the non-attached, falling clearly between the U and N categories in each month. The marginal group also appears a relatively fluid one, with only a one third probability of remaining in the same marginal group in the next month, and displaying in fact a greater chance of moving into not-attachment.

Breakdown of the Marginal Group

We next report on transition behavior for a breakdown of the marginal group. The sub-categories are based on responses to the question concerning the reason for not searching and are made up of three groups: "discouraged workers," who report not searching because they believe no work is available; those not searching for "personal" reasons, based on child card, family responsibility or health problems; and those not searching for "other" reasons. The hazards from these sub-categories into the four states {E, U, M, N} are denoted d, p and o, respectively, and are graphed in Figures 5-8.

The hazards into employment display some differences by marginal sub-category, with the transition rates from "personal" being the lowest and with the discouraged worker group usually being intermediate between the other two, while the series graphed in Figure 6 show that the discouraged sub-category have the highest rate of transition into unemployment. All three groups tend to remain marginally attached with a month-to-month probability of around 0.3, with little to separate the sub-categories in this case, and the discouraged worker group usually has the lowest hazard of the three into the not-attached state (Figure 8). When compared with our earlier work on Canadian data, these four graphs show much less unconditional heterogeneity within the marginal group in the US, suggesting that, although the reason for not searching might be important in some cases, it does not carry the same significance as the question on a desire for work.

Pairwise Equivalence Tests

We next assess whether these results on the unconditional transition probabilities of moving from one state to another also hold conditionally. To do this, we estimate a multinomial logit model of the determinants of the hazards from one origin state to the four states {E, U, M, N} under consideration and, to test equivalence, we test whether or not we can pool two origin states. At this stage, note that these estimates are purely based on pairs of adjacent months and

do not yet exploit the panel structure of the CPS data. However, they correspond exactly to the tests that were feasible with our earlier Canadian data (Jones & Riddell 1999) and hence are useful both as a starting point and for purposes of international comparison. In each case, covariates are relatively parsimonious and include three variables for region, sex, marital status, age and two variables for education. In addition, each unrestricted model includes a dummy variable that takes the value 1 for one of the origin states and 0 for the other, together with interaction variables that multiply this dummy variable with each of the covariates. Thus, the unrestricted model allows all coefficients to vary between the two origin states while the restricted model omits both the dummy and the interactions, forcing all coefficient to be equal for the two origin states.

Table 1 reports the resulting test statistics for the equivalence of marginal (M) and not-attached (N). In every case, the null of equivalence is decisively rejected, consistent with the unconditional evidence apparent from Figures 1-4 above. Table 2 reports the equivalent results for testing equivalence of unemployment (U) and marginal (M) and again, although the sample sizes are noticeably smaller, we obtain the same decisive rejection in each case. Thus, these conditional results confirm the evidence from the graphs that these states appear to be distinct insofar as they predict different subsequent labor market behavior. Information about the desire for work is important as a supplement to job search information and significantly separates the marginally attached from both the unemployed and the not-attached groups.

We also wish to test equivalence for various sub-groups of the marginal category, along the lines of Figure 5-8 above. To date, however, the smaller sample sizes associated with these groups have meant that the results do not converge in some months. We hope to report these results in the next version of the paper.

Exploratory Analysis of a Larger Dynamic Model

Finally in this version of the paper, we address in an exploratory manner the use of the panel nature of these CPS data for the study of labor market dynamics. Consider a Markov model of transitions where we expand the set of states to accommodate dependence. In place of state E, for example, we envisage four potential employment states, E1, E2, E3 and E4 according to whether the current status in employment was preceded by 0, 1, 2 or 3 periods also in employment. Analogously, U1-U4, M1-M4 and N1-N4 denote the path-dependent measures of the three non-employment states.

Given this, the four month rotation structure from the CPS yields a transition matrix with 12 origin states (according to whether the current month is the first, second or third month in each of four states) and with 16 destination states, so we refer to this framework as the 12x16 model. Of course, this transition matrix is relatively sparse, having many zero restrictions, since (for example) the only way to reach destination state E3 is to have been in state E2 in the preceding month, something that only occurs on the paths EEEX and XEEE, where X represents any non-employment state. The first part of Table 3 summarizes these various possibilities, while the second and third panels give transition probabilities and sample sizes as an example of the results for the January 1994 panel. Note that, while some cell sizes are small, these results are largely consistent across the various panels and that some sample size improvement will be possible in future by averaging across all the panels.

Several features of these results in Table 3 bear comment. First, the quasi-diagonal blocks (row U1 to column U2, row U2 to column U3, row U3 to column U4, and analogously for M and N) have some indications of the relative stability of these non-employment states. In unemployment, the tendency is for these diagonal elements to rise slightly, indicating an overall degree of positive duration dependence in these unconditional data. For the marginal group, this effect is stronger still, so that although the one period transition rate pMM is only around 0.3 (compared with 0.5 or grater for pUU, for example), the hazard from M3 to M4 is nearly 0.6, very close to the U3 to U4 rate of transition. Marginal attachment may be a relatively stable state for persons who have remained marginally attached for a month or two already. Lastly, the quasi-diagonals for both the not-attached state and employment also display a tendency to rise with longer duration in the state.

Second, the pattern of transitions out of the marginal state show a falling hazard into employment as duration in the marginal state lengthens (compare M1-E1 cell with M2-E1 cell, e.g.), a relatively flat rate of transition from M1, M2 or M3 into U1, and some signs of a rise in the hazard from marginal into not-attached as marginal duration is longer. Thus, as a spell of marginal attachment goes on, the hazard into employment tends to decline, unlike the fairly flat or rising pattern from U1, U2 and U3 to E1. Transitions to unemployment stay fairly constant, however.

Third, the unconditional pattern from the three unemployment origin states show signs of a falling hazard into both M and N. The marginal group is not therefore exclusively a synonym for longer term unemployed who have stopped searching, but who still want a job. Note, though, that the sample sizes in several of the cells for both U and M origin states are quite small, at least for this one month sample.

Fourth, the hazards out of the not-attached group tend to fall for all three other destination states as duration not-attached extends, with the probability of a transit from N1 to any of E1, U1 or M1 being roughly double the respectively probability of a transit from N3 to E1, U1 or M1. Not-attached is a stable state with a rising overall hazard associated with remaining in the state.

4. OTHER ISSUES

Independence assumption, IIA and multinominal logit; use of multinomial probit or binary logits.

Measurement error issues in GF data; reinterview data.

Use of 4-8-4 panel structure, longer-term stability.

Duration analysis with covariates and heterogeneity.

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TABLE 1

EQUIVALENCE TEST STATISTICS FOR MARGINAL AND NOT-ATTACHED GROUPS[a]

		obsU	obsR	df	chi2	pvalue
JAN/FEB 94						
	NM_EUM	7726	7726	24	683.89611	0
FEB/MAR 94						
	NM_EUM	7561	7561	24	755.38238	0
MAR/APR 94						
	NM_EUM	7809	7809	24	728.89906	0
APR/MAY 94						
	NM_EUM	7703	7703	24	685.57187	0
MAY/JUN 94						
	NM_EUM	7280	7280	24	432.37603	0
JUN/JUL 94						
	NM_EUM	7238	7238	24	641.43537	0
JUL/AUG 94						
	NM_EUM	7145	7145	24	703.46701	0
AUG/SEP 94						
	NM_EUM	7036	7036	24	558.25907	0
SEP/OCT 94						
	NM_EUM	7310	7310	24	539.44817	0
OCT/NOV 94						
	NM_EUM	7521	7521	24	614.73336	0
NOV/DEC 94						
	NM_EUM	7310	7310	24	462.21525	0
DEC94/JAN95						
	NM_EUM	7555	7555	24	512.62927	0
JAN/FEB 95						
	NM_EUM	7595	7595	24	755.54235	0
FEB/MAR 95						
	NM_EUM	7437	7437	24	638.31232	0
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SEP/OCT 95						
	NM_EUM	6479	6479	24	489.95379	0
OCT/NOV 95						
	NM_EUM	6069	6069	24	440.41537	0
NOV/DEC 95						
	NM_EUM	5393	5393	24	477.55828	0
DEC95/JAN96						
	NM_EUM	5985	5985	24	553.18168	0
JAN/FEB96						
	NM_EUM	5888	5888	24	514.86969	0
FEB/MAR 96						
	NM_EUM	6111	6111	24	509.53278	0
MAR/APR 96						
	NM_EUM	5621	5621	24	443.72839	0
APR/MAY 96						
	NM_EUM	6072	6072	24	449.45058	0
MAY/JUN 96						
	NM_EUM	5827	5827	24	384.34621	0
JUN/JUL 96						
	NM_EUM	5873	5873	24	441.98122	0
JUL/AUG 96						
	NM_EUM	5247	5247	24	391.6024	0
AUG/SEP 96						
	NM_EUM	6142	6142	24	413.77012	0
SEP/OCT 96						
	NM_EUM	5978	5978	24	408.59622	0

[a]Test statistics from multinomial logit models of the determinants of transition probabilities from the Marginal (M) and the Not-Attached (N) states into the four states {E, U, M and N} in the subsequent month. Unrestricted model allows all coefficients to vary according to whether the origin state is M or N. Restricted model requires all coefficients to be equal for the two states.

TABLE 2
EQUIVALENCE TEST STATISTICS FOR UNEMPLOYED AND MARGINAL GROUPS[a]

		obsU	obsR	df	chi2	pvalue
JAN/FEB 94						
	UM_EUM	1574	1574	24	430.00487	0
FEB/MAR 94						
	UM_EUM	1631	1631	24	473.61434	0
MAR/APR 94						
	UM_EUM	1610	1610	24	332.35741	0
APR/MAY 94						
	UM_EUM	1431	1431	24	385.41531	0
MAY/JUN 94						
	UM_EUM	1444	1444	24	280.54408	0
JUN/JUL 94						
	UM_EUM	1436	1436	24	264.12342	0
JUL/AUG 94						
	UM_EUM	1394	1394	24	295.50336	0
AUG/SEP 94						
	UM_EUM	1352	1352	24	321.28838	0
SEP/OCT 94						
	UM_EUM	1268	1268	24	348.05174	0
OCT/NOV 94						
	UM_EUM	1346	1346	24	405.01636	0
NOV/DEC 94						
	UM_EUM	1214	1214	24	348.01625	0
DEC94/JAN95						
	UM_EUM	1130	1130	24	267.82949	0
JAN/FEB 95						
	UM_EUM	1456	1456	24	350.53804	0
FEB/MAR 95						
	UM_EUM	1324	1324	24	404.52216	0
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SEP/OCT 95						
	UM_EUM	1081	1081	24	232.44894	0
OCT/NOV 95						
	UM_EUM	965	965	24	236.12259	0
NOV/DEC 95						
	UM_EUM	915	915	24	235.89016	0
DEC95/JAN96						
	UM_EUM	942	942	24	231.51416	0
JAN/FEB 96						
	UM_EUM	1075	1075	24	212.58727	0
FEB/MAR 96						
	UM_EUM	1108	1108	24	306.12287	0
MAR/APR 96						
	UM_EUM	975	975	24	194.50677	0
APR/MAY 96						
	UM_EUM	1008	1008	24	216.88499	0
MAY/JUN 96						
	UM_EUM	1007	1007	24	212.77309	0
JUN/JUL 96						
	UM_EUM	1036	1036	24	252.05532	0
JUL/AUG 96						
	UM_EUM	974	974	24	189.47225	0
AUG/SEP 96						
	UM_EUM	1078	1078	24	249.04761	0
SEP/OCT 96						
	UM_EUM	999	999	24	307.4532	0

[a]Test statistics from multinomial logit models of the determinants of transition probabilities from Unemployment (U) and the Marginal (M) state into the four states {E, U, M and N} in the subsequent month. Unrestricted model allows all coefficients to vary according to whether the origin state is U or M. Restricted model requires all coefficients to be equal for the two states.

NOTES

[1] At the outset, it should be noted that although we are able to generate panels for most four month periods since January 1994 through December 1996, there is a gap in the data in mid-1995. Technical factors associated with a change in the CPS geographic identifiers from the September 1995 public use file and associated confidentiality provisions mean that the BLS was obliged to change household identifiers after May 1995 so that the panels have a gap from May to September 1995.

Table 3-1

from\to	E1	E2	E3	E4	U1	U2	U3	U4	M1	M2	M3	M4	N1	N2	N3	N4
E1	-	.9623 .9653 .9654	-	-	.0110 .0114 .0121	-	-	-	.0049 .0040 .0041	-	-	-	.0217 .0193 .0183	-	-	-
E2	-	-	.9766 .9762	-	.0087 .0096	-	-	-	.0025 .0026	-	-	-	.0122 .0116	-	-	-
E3	-	-	-	.9788	.0086	-	-	-	.0022	-	-	-	.0104	-	-	-
U1	.2260 .2404 .2790	-	-	-	-	.5435 .5477 .5164	-	-	.1107 .0954 .0859	-	-	-	.1198 .1165 .1187	-	-	-
U2	.2079 .2692	-	-	-	-	-	.6050 .5814	-	.0873 .0565	-	-	-	.0998 .0928	-	-	-
U3	.2852	-	-	-	-	-	-	.5979	.0447	-	-	-	.0722	-	-	-
M1	.0827 .1097 .1067	-	-	-	.1437 .1694 .1838	-	-	-	-	.3106 .3532 .3360	-	-	.4630 .3677 .3735	-	-	-
M2	.0794 .0411	-	-	-	.1963 .1826	-	-	-	-	-	.3878 .4658	-	.3364 .3105	-	-	-
M3	.0241	-	-	-	.1325	-	-	-	-	-	-	.5904	.5663	-	-	-
N1	.0361 .0339 .0316	-	-	-	.0112 .0134 .0105	-	-	-	.0347 .0219 .0297	-	-	-	-	.9180 .9308 .9283	-	-
N2	.0181 .0193	-	-	-	.0063 .0063	-	-	-	.0155 .0118	-	-	-	-	-	.9601 .9540	-
N3	.0148	-	-	-	.0045	-	-	-	.0153	-	-	-	-	-	-	.9653

Table 3-2

from\to	E1	E2	E3	E4	U1	U2	U3	U4	M1	M2	M3	M4	N1	N2	N3	N4
E1	-	ee-- -ee- --ee	-	-	eu-- -eu- --eu	-	-	-	em-- -em- --em	-	-	-	en-- -en- --en	-	-	-
E2	-	-	eee- -eee	-	eeu- -eeu	-	-	-	eem- -eem	-	-	-	een- -een	-	-	-
E3	-	-	-	eeee	eeeu	-	-	-	eeem	-	-	-	eeen	-	-	-
U1	ue-- -ue- --ue	-	-	-	-	uu-- -uu- --uu	-	-	um-- -um- --um	-	-	-	un-- -un- --un	-	-	-
U2	uue- -uue	-	-	-	-	-	uuu- -uuu	-	uum- -uum	-	-	-	uun- -uun	-	-	-
U3	uuue	-	-	-	-	-	-	uuuu	uuum	-	-	-	uuun	-	-	-
M1	me-- -me- --me	-	-	-	mu-- -mu- --mu	-	-	-	-	mm-- -mm- --mm	-	-	mn-- -mn- --mn	-	-	-
M2	mme- -mme	-	-	-	mmu- -mmu	-	-	-	-	-	mmm- -mmm	-	mmn- -mmn	-	-	-
M3	mmme	-	-	-	mmmu	-	-	-	-	-	-	mmmm	mmmn	-	-	-
N1	ne-- -ne- --ne	-	-	-	nu-- -nu- --nu	-	-	-	nm-- -nm- --nm	-	-	-	-	nn-- -nn- --nn	-	-
N2	nne- -nne	-	-	-	nnu- -nnu	-	-	-	nnm- -nnm	-	-	-	-	-	nnn- -nnn	-
N3	nnne	-	-	-	nnnu	-	-	-	nnnm	-	-	-	-	-	-	nnnn

Figure 1
Transitions into employment

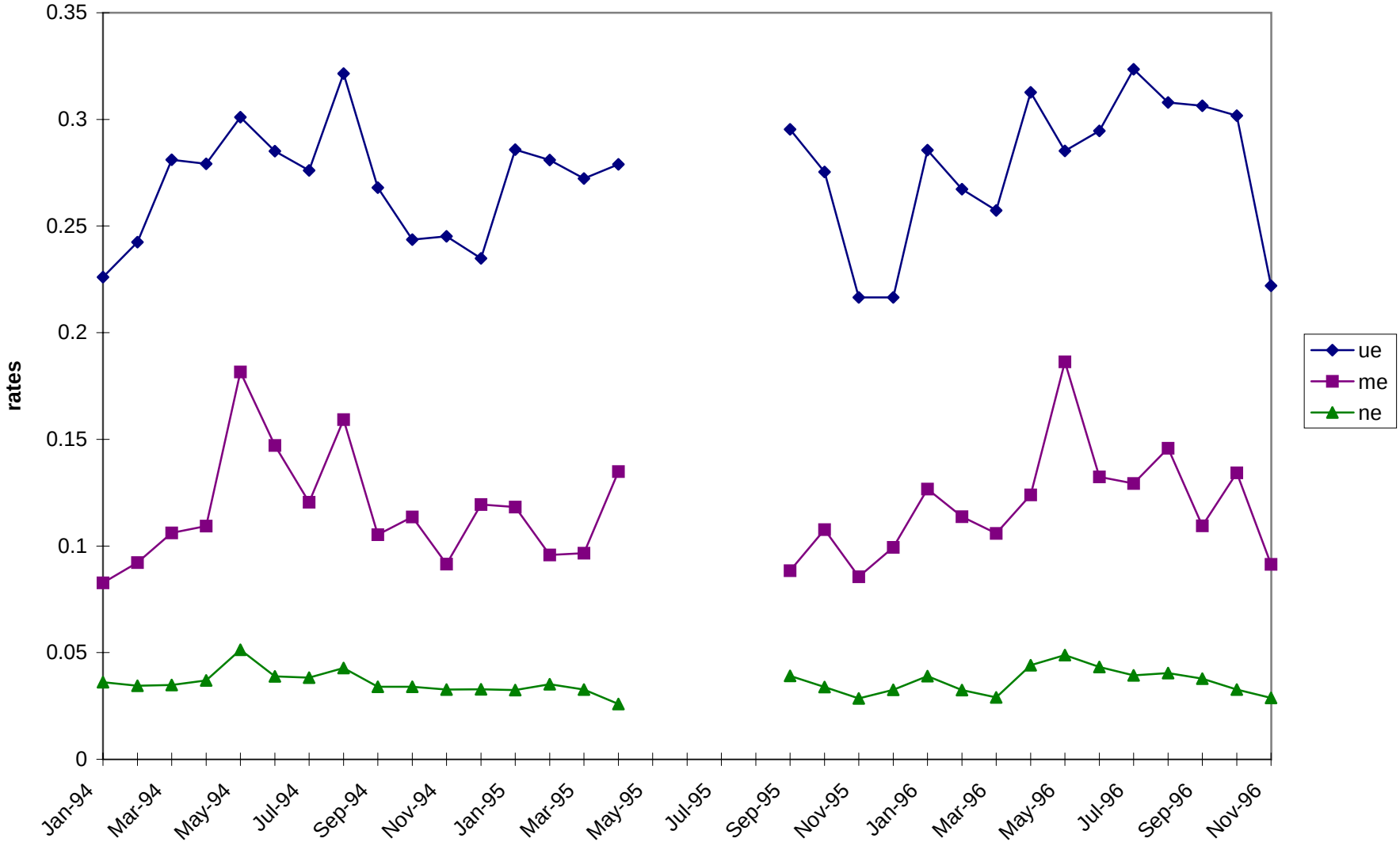

Figure 2
Transitions into unemployment

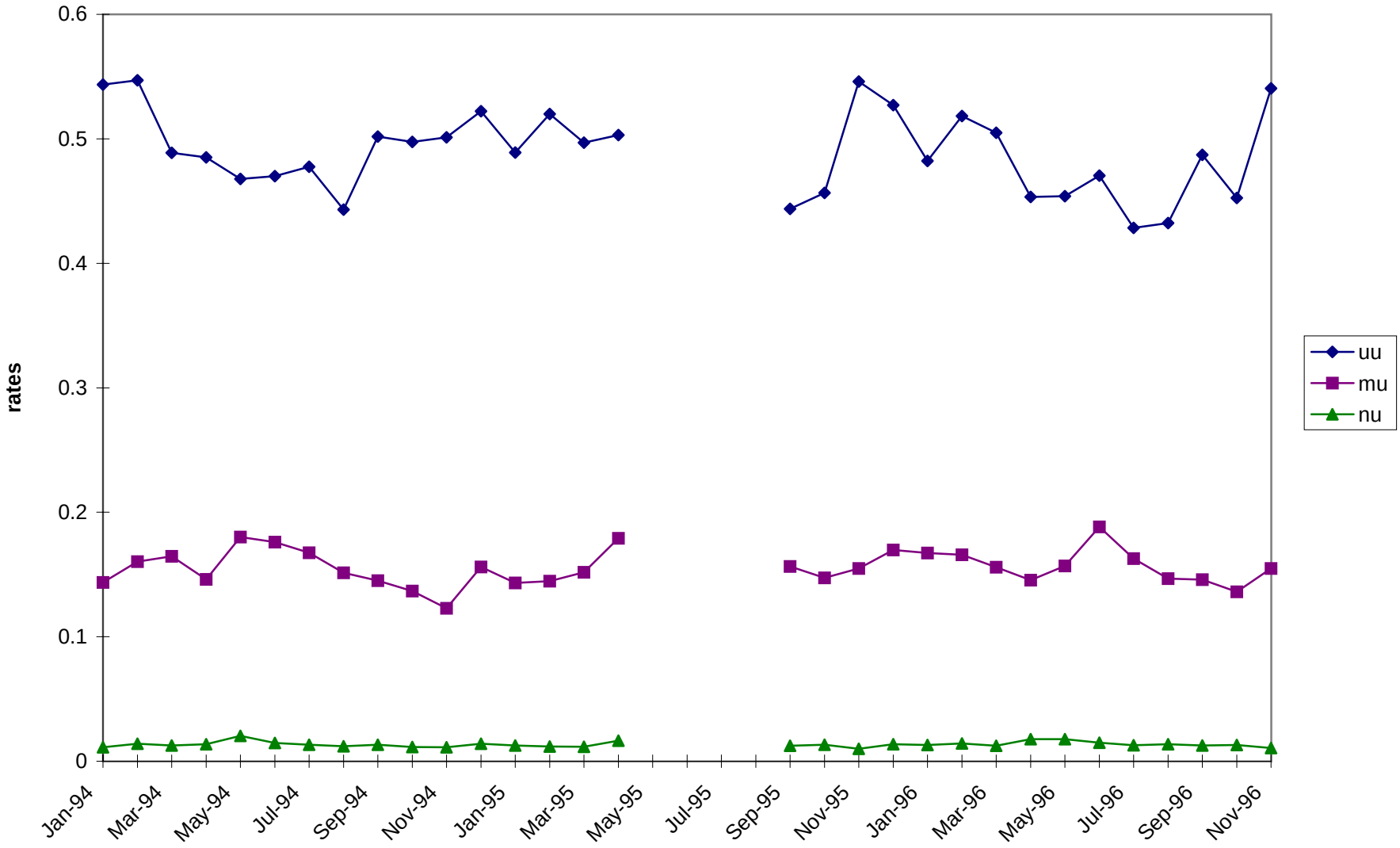

Figure 3
Transitions into marginal state

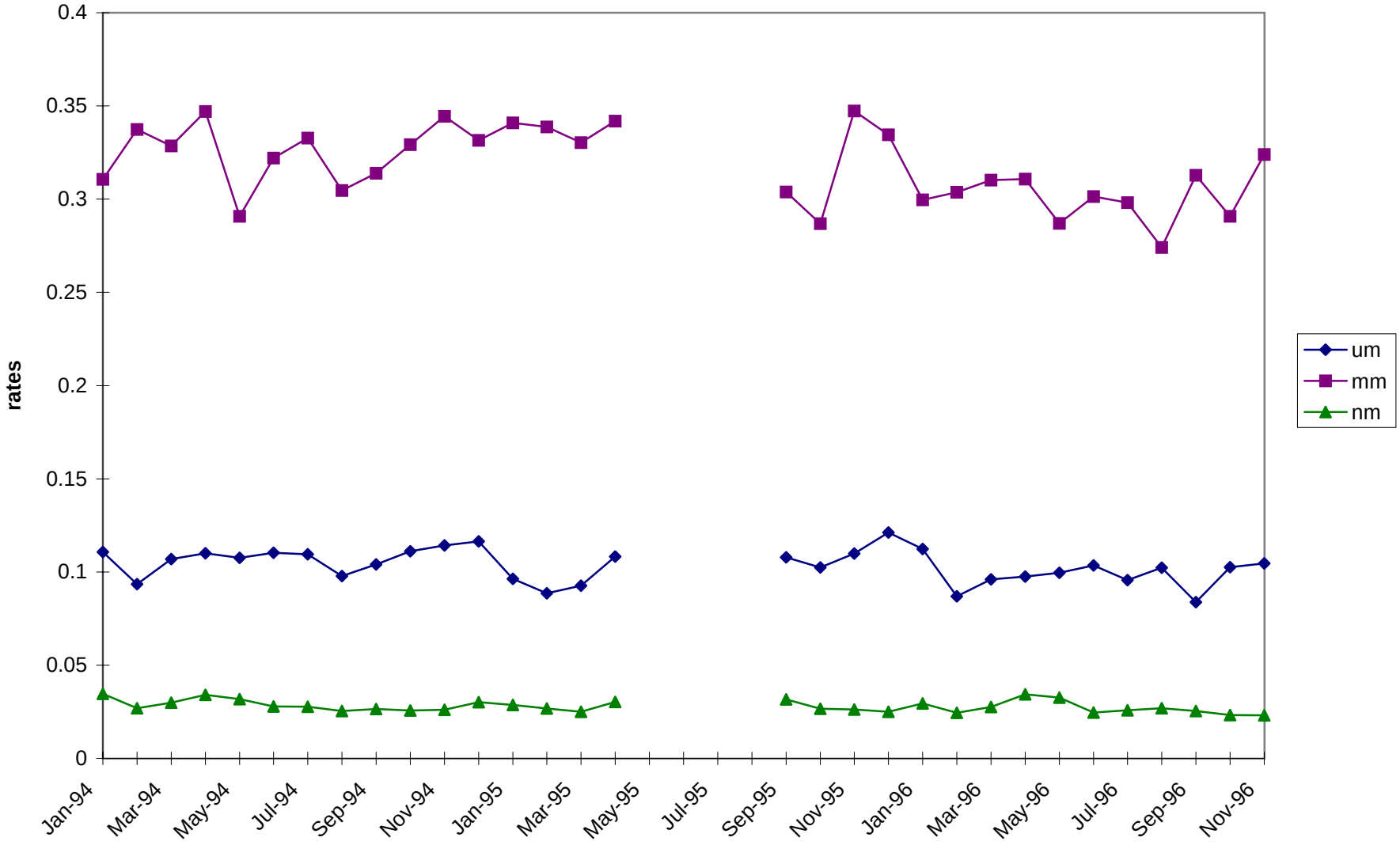

Figure 4
Transitions into not-in-labour-force

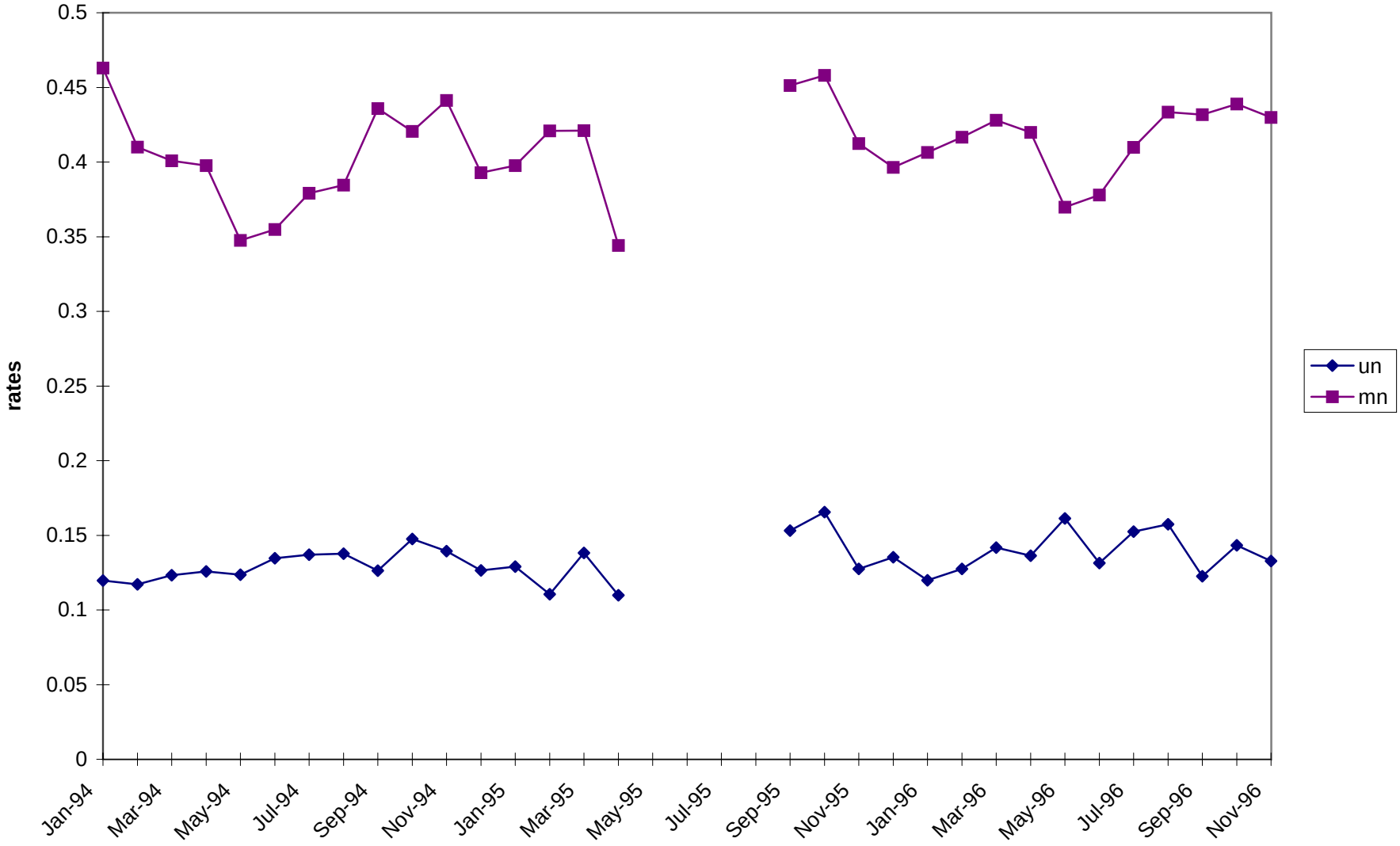

Figure 5
Transitions into employment

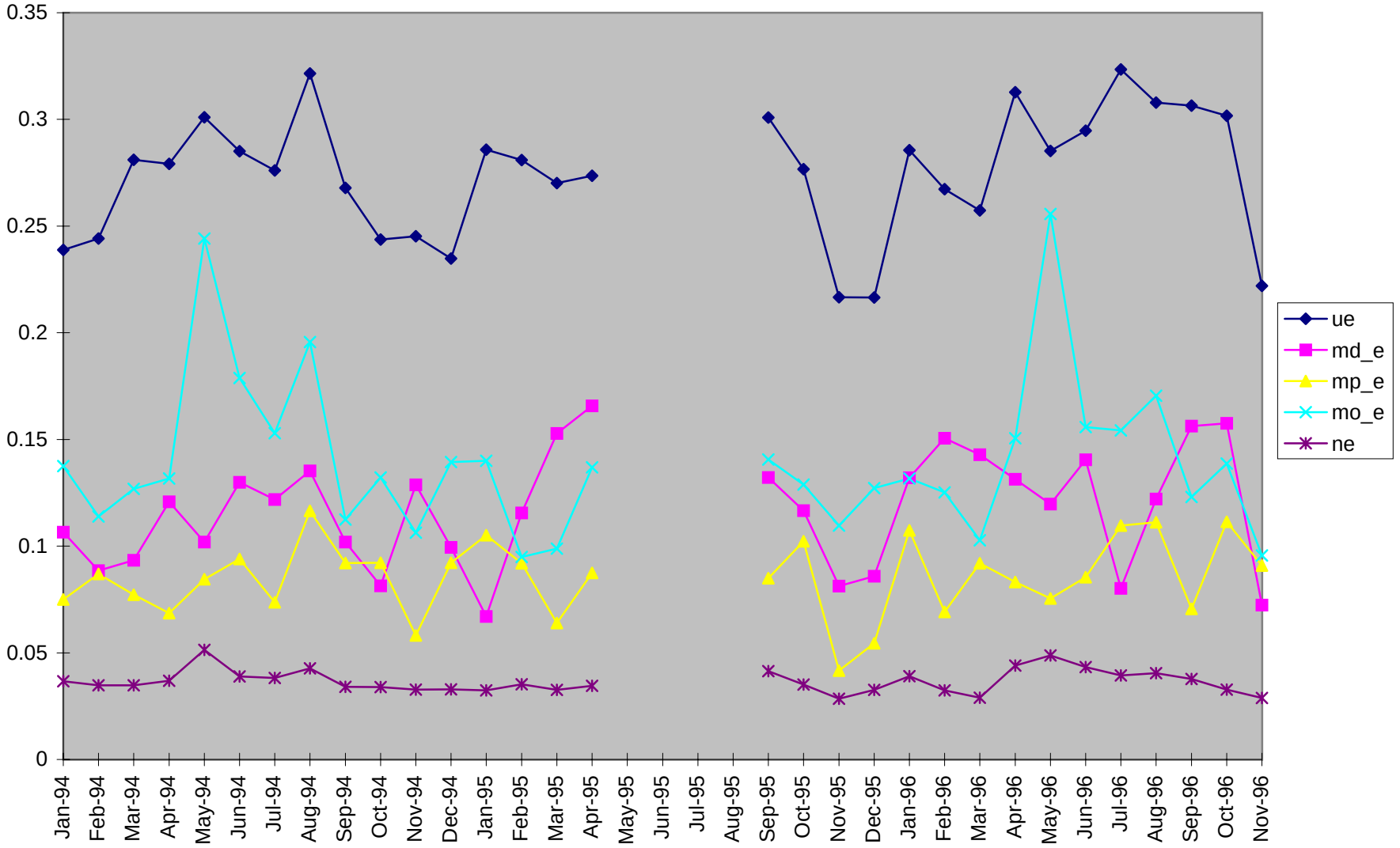

Figure 6
Transitions into unemployment

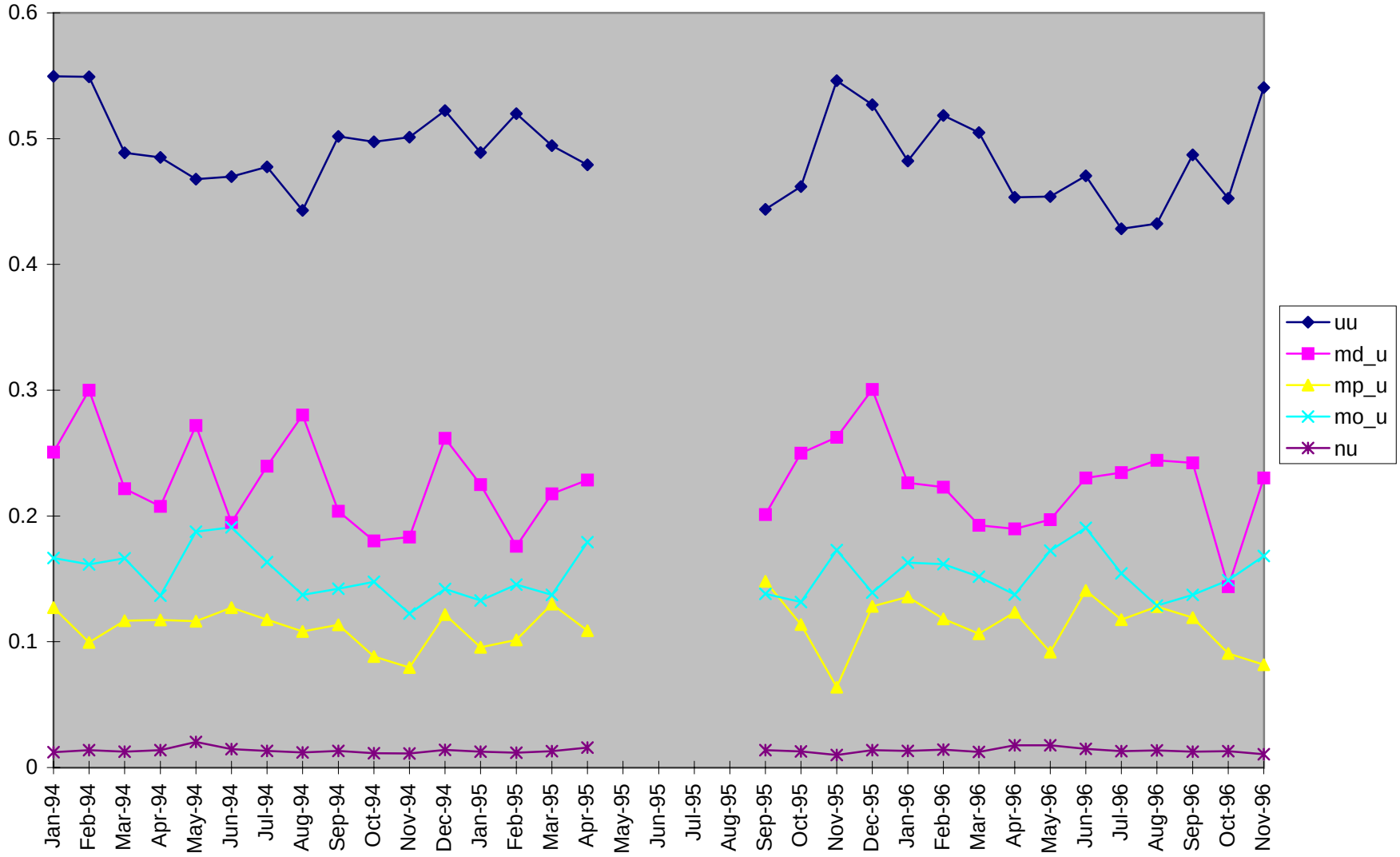

Figure 7
Transitions into marginal state

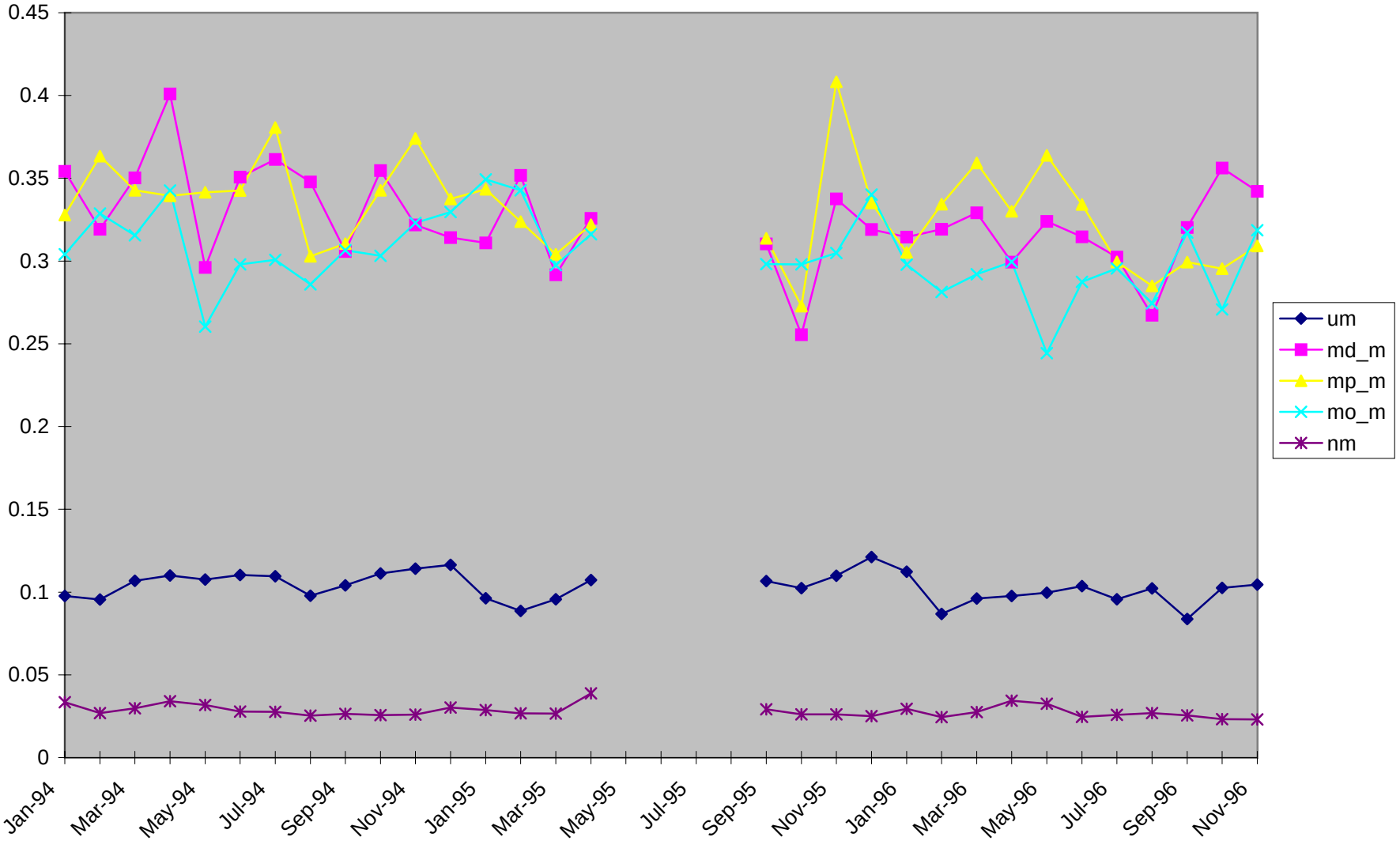

Figure 8
Transitions into out of the labour force