

ONLINE APPENDIX FOR:

Unemployment in the Great Recession: A Comparison of Germany, Canada and the United States

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## APPENDIX 1: LABOR MARKET REFORMS IN GERMANY

The labor market reforms in Germany were undertaken by the Social Democrats under chancellor Schroeder and introduced in 4 steps between 2003 and 2005 (“Hartz I – Hartz IV”). They are mostly referred to as the “Hartz-Laws” or “Hartz-Reforms” since the reforms were worked out and proposed by a commission led by Peter Hartz. These reforms are almost entirely labor-supply oriented, with the primary goal of increasing efficiency of the unemployment agencies and “job centers”, increasing the matching rate of unemployed workers to potential employers, and changing the search- and work-incentives of workers. Some of the laws were adjusted in later years because it was found that their original designs were not very efficient. We mention one of these changes below. Here are the different components of the reforms:

**Hartz I:** Effective January 1<sup>st</sup> **2003**; mostly changed the labor-laws and rights of contractual workers; also modified job training programs for the unemployed that are financed/organized by the employment agency.

**Hartz II:** Effective January 1<sup>st</sup> or April 1<sup>st</sup> (“Minijobs”) **2003**. This one may be very important: It modified the rules regarding “Minijobs” and introduced subsidies to small-scale business creation.

“Minijobs” are defined by either hours of work or monthly earnings. These types of jobs are not subject to income taxation and are exempt from certain social security contributions. They existed prior to the reforms, but the reforms made them more attractive, e.g. by increasing the upper earnings limit defining a mini-job and by dropping hours restrictions. Workers in minijobs are still eligible for unemployment insurance, but the amount that can be claimed is means-tested. Both, the IAB and the Mikrozensus provide a variable for these types of jobs.

A new labor market policy is the subsidy for small-scale business creation of the unemployed. Initially (i.e. starting in 2003) they were handled in a fairly lenient way. However, in 2006 this policy was changed. Note that the “unemployment insurance” for individuals who paid into the social insurance prior to unemployment drops after some time to “unemployment

assistance”. It turns out that the unemployment agencies did not test the business ideas and practices of the new self-employed very well, and there was a sudden increase in business creation exactly before the drop from unemployment insurance to unemployment assistance: The unemployed just claimed they created the business and took away the money. Hence, since 2006 the application for the subsidy goes through a fairly rigorous process.

**Hartz III:** Effective January 1<sup>st</sup> **2004**. Complete reorganization of the employment agency system.

**Hartz IV:** Effective January 1<sup>st</sup> **2005**. These set of reforms are the most controversial one. It modified the unemployment insurance system substantially, generally making it more stringent. Also, now the unemployed are required to accept any job the unemployment insurance deems “justifiable and reasonable”. It is important to note however that not all unemployed are uniformly worse off compared to the former system. Apparently a substantial fraction (official numbers in 2005: 17%) of the unemployed are eligible for a higher level of unemployment insurance than they would have been under the old system.

Appendix Table 1: Alternative Decompositions for the Share of the Variance Explained for U.S. Men

	<u>2007-10</u>	<u>(2007-10) – (2000-07)</u>
<b>A. Main decomposition:</b>		
Share of the variance due to:		
Construction ( $\text{Cov}(\Delta e_i, \Delta e_i^c) / \text{Var}(\Delta e_i)$ )	0.654	0.785
Manufacturing ( $\text{Cov}(\Delta e_i, \Delta e_i^m) / \text{Var}(\Delta e_i)$ )	0.100	0.008
Other sectors ( $\text{Cov}(\Delta e_i, \Delta e_i^o) / \text{Var}(\Delta e_i)$ )	0.245	0.206
<b>B: Alternative Decomposition:</b>		
Share of the variance due to:		
Construction ( $\text{Cov}(\Delta e_i, \Delta e_i^c) / \text{Var}(\Delta e_i)$ )	0.567	0.975
Manufacturing ( $\text{Cov}(\Delta e_i, \Delta e_i^m) / \text{Var}(\Delta e_i)$ )	0.124	0.240
Other sectors ( $\text{Cov}(\Delta e_i, \Delta e_i^o) / \text{Var}(\Delta e_i)$ )	0.295	0.425
Covariances:		
$2 * \text{Cov}(\Delta e_i^c, \Delta e_i^m) / \text{Var}(\Delta e_i)$	0.115	-0.203
$2 * \text{Cov}(\Delta e_i^c, \Delta e_i^o) / \text{Var}(\Delta e_i)$	0.062	-0.175
$2 * \text{Cov}(\Delta e_i^m, \Delta e_i^o) / \text{Var}(\Delta e_i)$	-0.162	-0.261

Note: The main variance decomposition is based on the equation:  $\text{Var}(\Delta e_i) = \text{Cov}(\Delta e_i, \Delta e_i^c) + \text{Cov}(\Delta e_i, \Delta e_i^m) + \text{Cov}(\Delta e_i, \Delta e_i^o)$ . The covariances divided by  $\text{Var}(\Delta e_i)$  also correspond to the regression coefficients reported in Table 2a-b. The alternative decomposition is based on the equation  $\text{Var}(\Delta e_i) = \text{Var}(\Delta e_i^c) + \text{Var}(\Delta e_i^m) + \text{Var}(\Delta e_i^o) + 2\text{Cov}(\Delta e_i^c, \Delta e_i^m) + 2\text{Cov}(\Delta e_i^c, \Delta e_i^o) + 2\text{Cov}(\Delta e_i^m, \Delta e_i^o)$ .

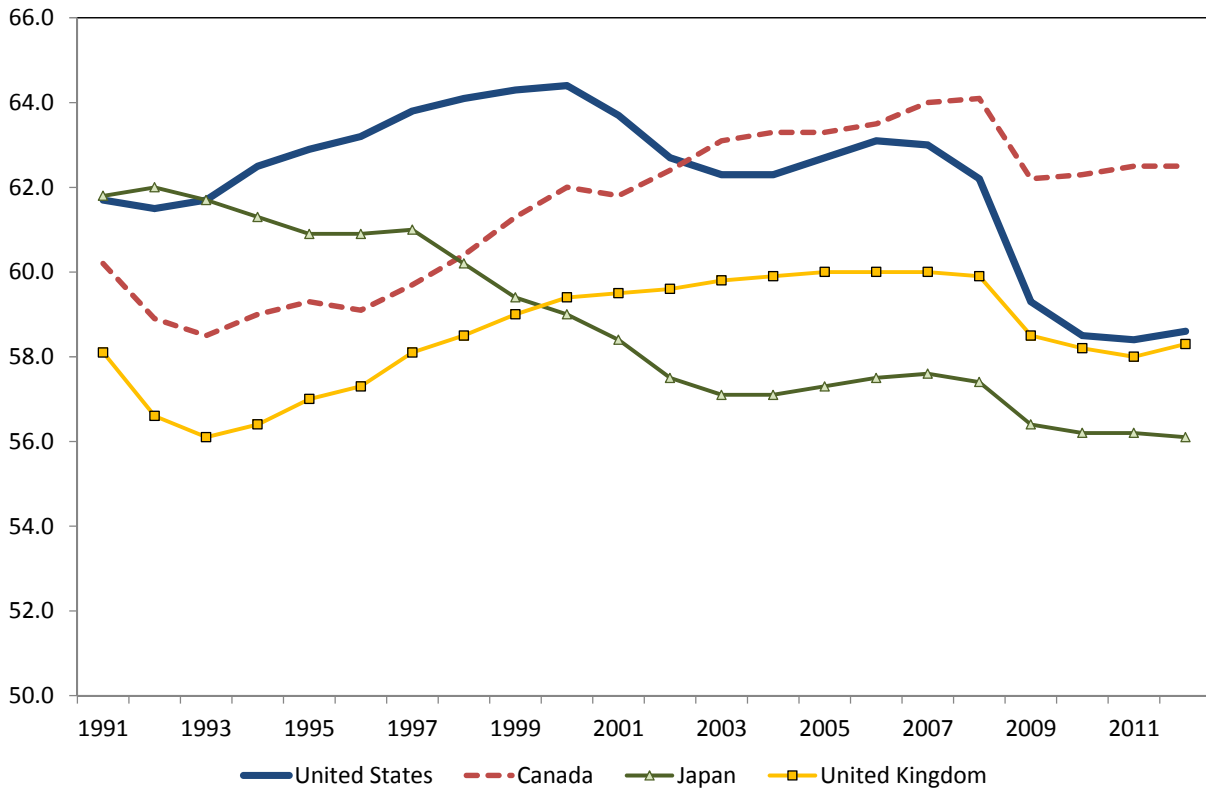
Appendix Table 2: Regression models of sector shares on overall employment share:  
Single differences specification, Eastern Germany 1995-2003

	Construction (1)		Manufacturing (2)		Primary (3)		Others (4)	
<b>PANEL I: 2003 rel to 1995</b>								
<b>A: Men using variation in</b>								
Region and education	-0.375 (0.110)	***	-0.181 (0.076)	**	-0.050 (0.023)	**	-0.394 (0.087)	***
Region only	0.020 (0.416)		-0.661 (0.439)		0.150 (0.122)		-0.508 (0.587)	***
<b>B: Men and women using variation in</b>								
Region and education	-0.173 (0.057)	***	-0.238 (0.054)	***	-0.043 (0.021)	*	-0.546 (0.065)	***
Region only	0.238 (0.181)		-0.515 (0.287)		0.160 (0.100)		-0.883 (0.407)	*
<b>PANEL II: Year by Year (using variation in region and education)</b>								
<b>A: Men using variation in Region and Education</b>								
1995-96	-0.324 (0.079)	***	-0.061 (0.057)		-0.013 (0.026)		-0.603 (0.081)	***
1996-97	-0.180 (0.065)	***	-0.108 (0.062)	*	-0.050 (0.029)	*	-0.662 (0.058)	***
1997-98	-0.258 (0.062)	***	-0.190 (0.054)	***	-0.082 (0.036)	**	-0.470 (0.073)	***
1998-99	-0.361 (0.073)	***	-0.190 (0.058)	***	-0.052 (0.028)	*	-0.397 (0.080)	***
1999-00	-0.419 (0.072)	***	-0.035 (0.080)		-0.048 (0.059)		-0.498 (0.133)	***
2000-01	-0.295 (0.104)	***	0.059 (0.100)		-0.019 (0.030)		-0.745 (0.142)	***
2001-02	-0.262 (0.064)	***	-0.060 (0.084)		-0.046 (0.036)		-0.632 (0.104)	***
2002-03	-0.231 (0.107)	**	-0.311 (0.074)	***	0.012 (0.056)		-0.471 (0.147)	***

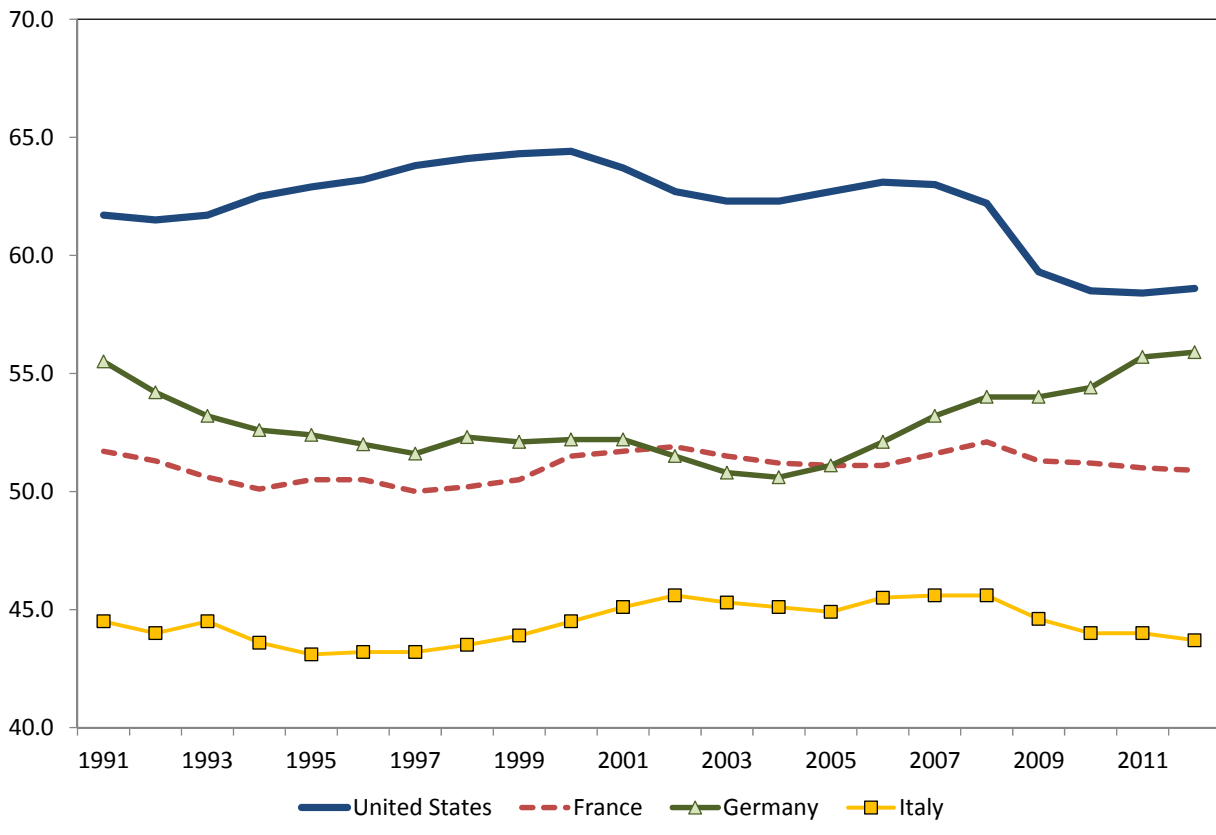
**A: Full Sample using variation in Region and Education**

1995-96	-0.182 (0.053)	***	-0.093 (0.050)	*	-0.029 (0.027)		-0.696 (0.075)	***
1996-97	-0.084 (0.044)	*	-0.116 (0.044)	***	-0.051 (0.028)	*	-0.748 (0.046)	***
1997-98	-0.158 (0.028)	***	-0.157 (0.032)	***	-0.083 (0.020)	***	-0.602 (0.038)	***
1998-99	-0.242 (0.038)	***	-0.176 (0.037)	***	-0.060 (0.021)	***	-0.523 (0.042)	***
1999-00	-0.288 (0.047)	***	-0.124 (0.066)	*	-0.089 (0.044)	*	-0.499 (0.084)	***
2000-01	-0.147 (0.070)	**	-0.054 (0.074)		0.001 (0.034)		-0.800 (0.081)	***
2001-02	-0.153 (0.047)	***	-0.162 (0.057)	***	-0.037 (0.030)		-0.647 (0.071)	***
2002-03	-0.059 (0.061)		-0.198 (0.052)	***	-0.005 (0.027)		-0.738 (0.090)	***

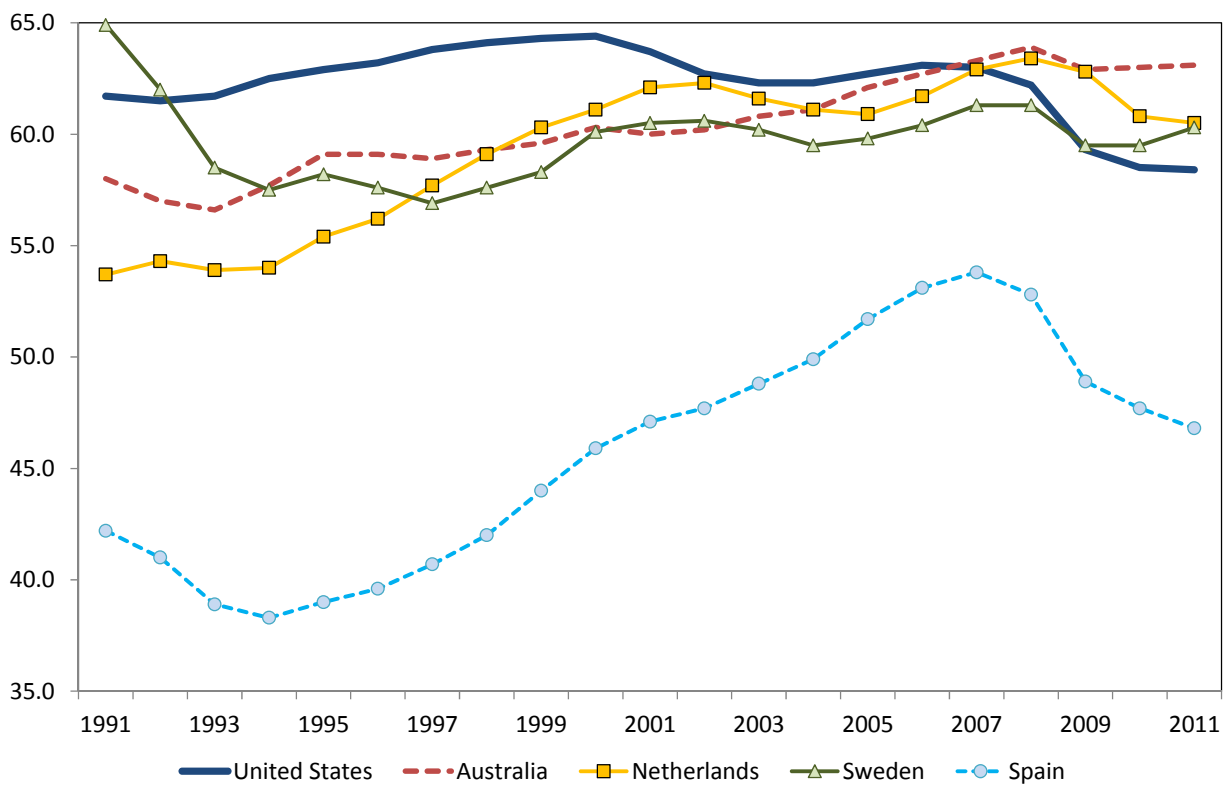
**Appendix Figure 1a: Employment-population ratio in G7 countries**



**Appendix Figure 1b: Employment-population ratio in G7 countries**

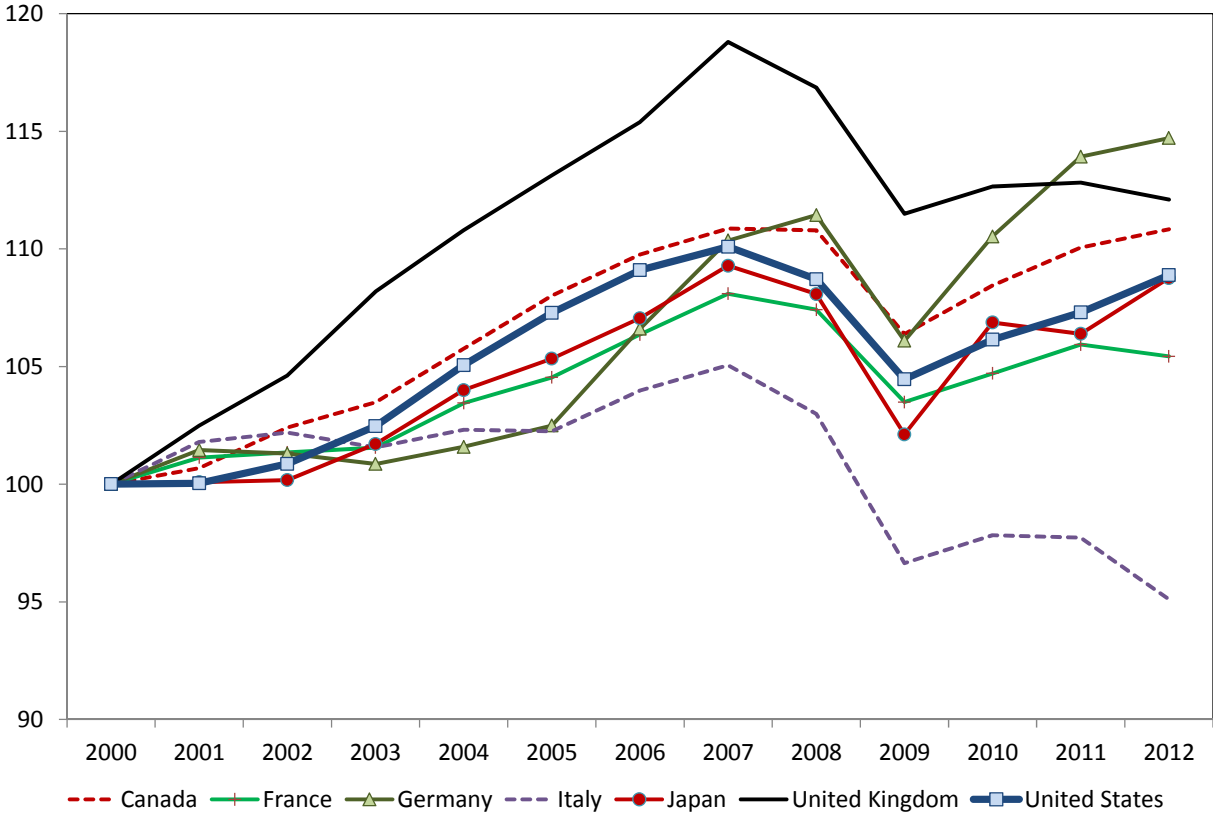


**Appendix Figure 1c: Employment-population ratio in selected OECD countries**

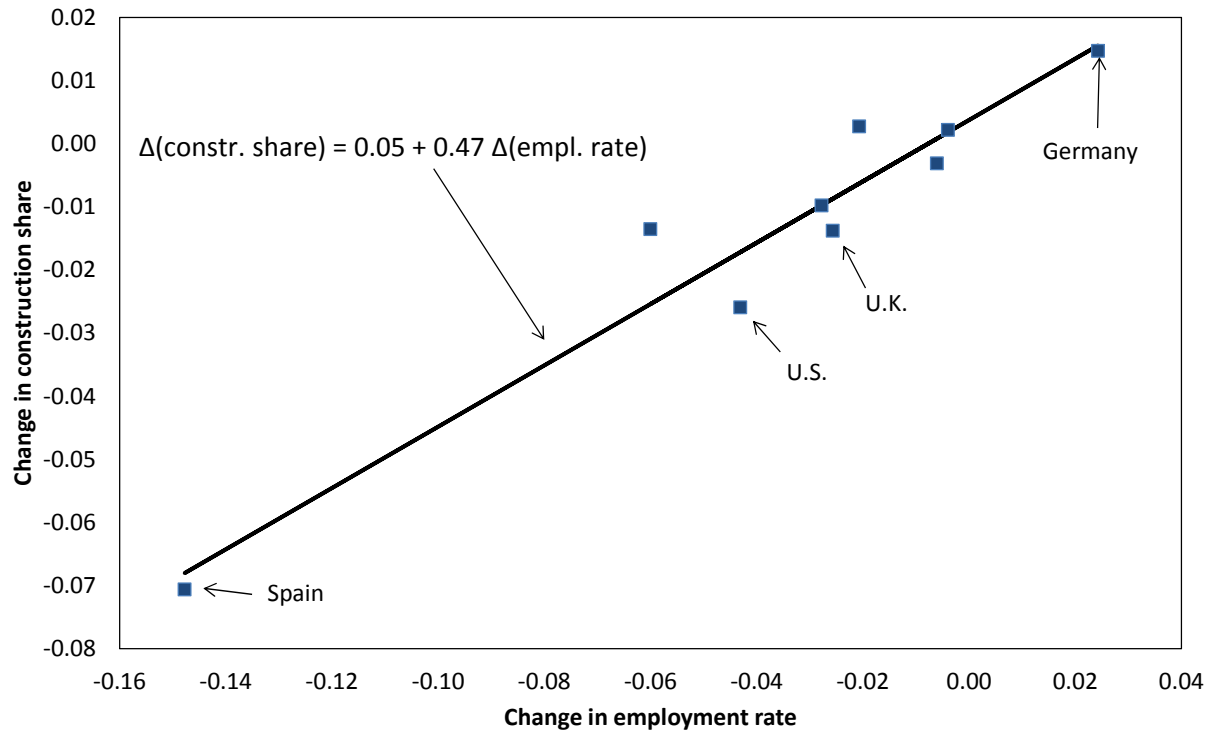




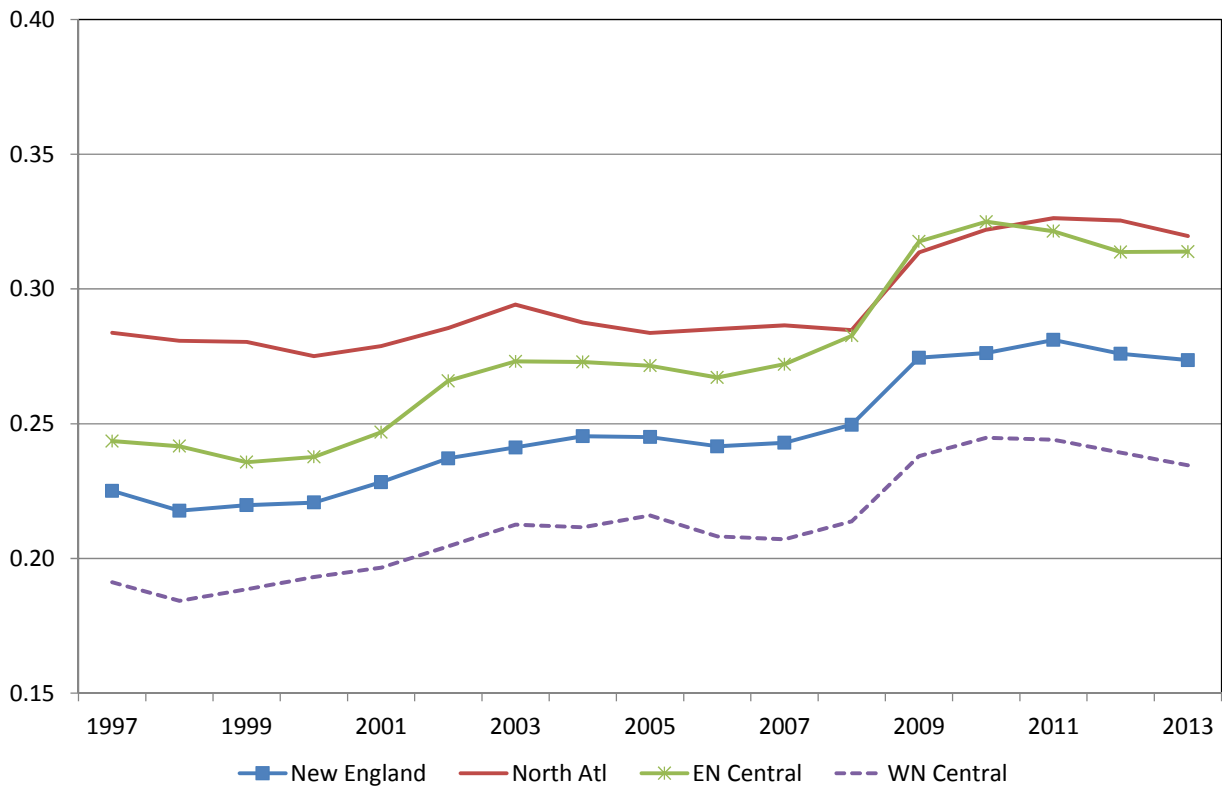
Appendix Figure 2: Real GDP per capita in G7 countries



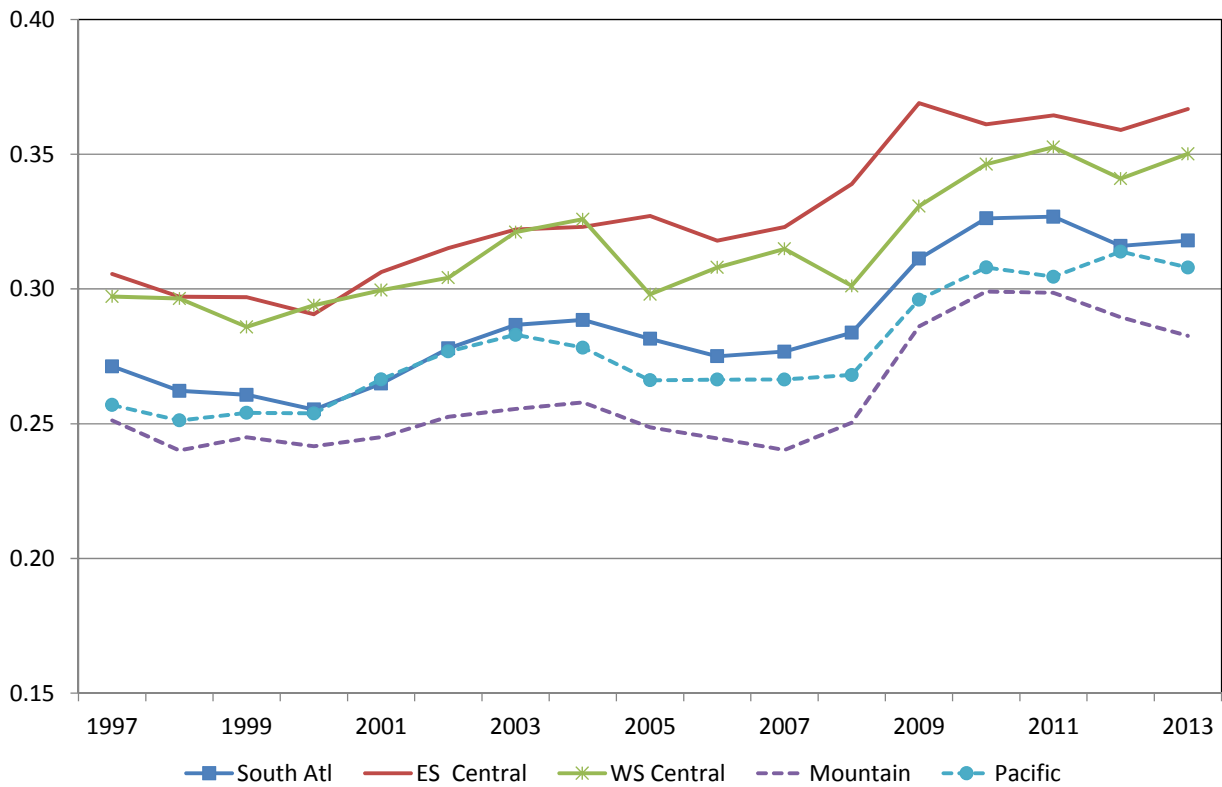
**Appendix Figure 3: Change in construction share and employment rate across OECD countries, 2007-10 relative to 2000-07**



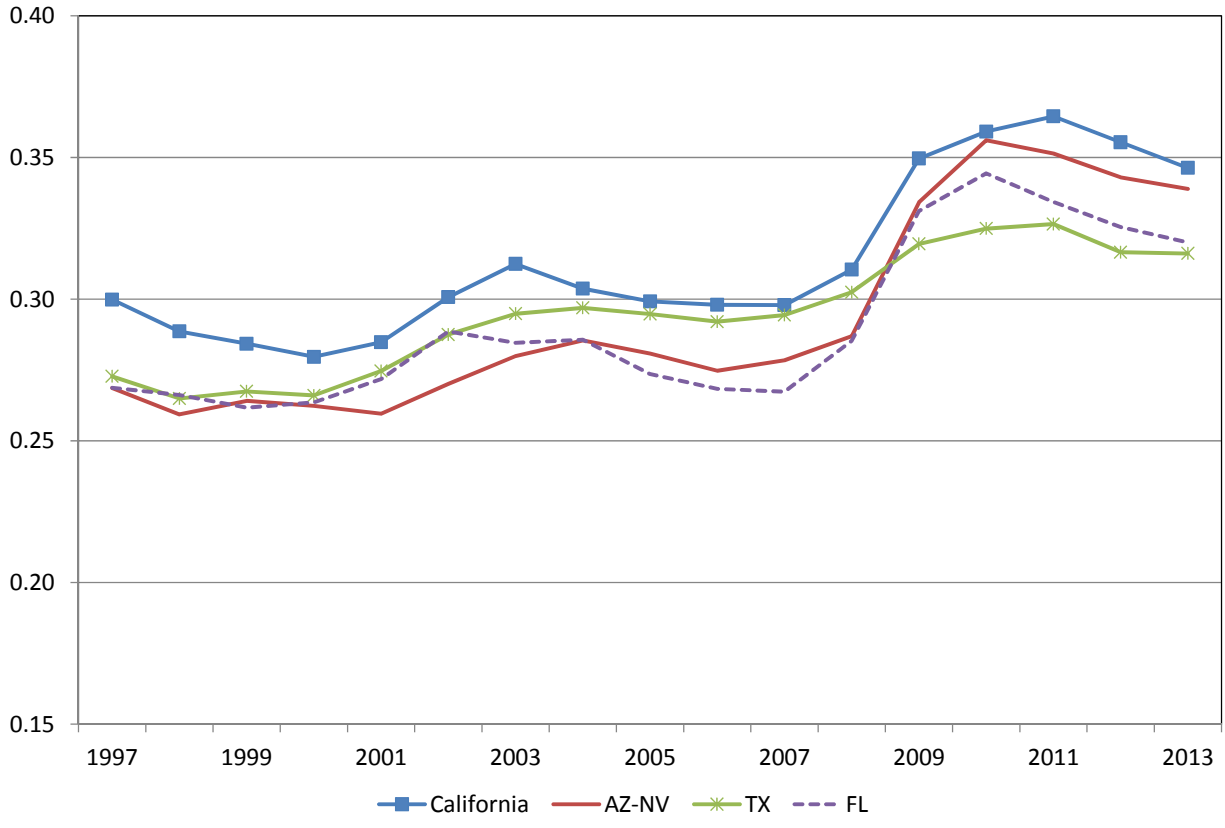
**Appendix Figure 4a: US non-employment rates by region, North East and Mid West**



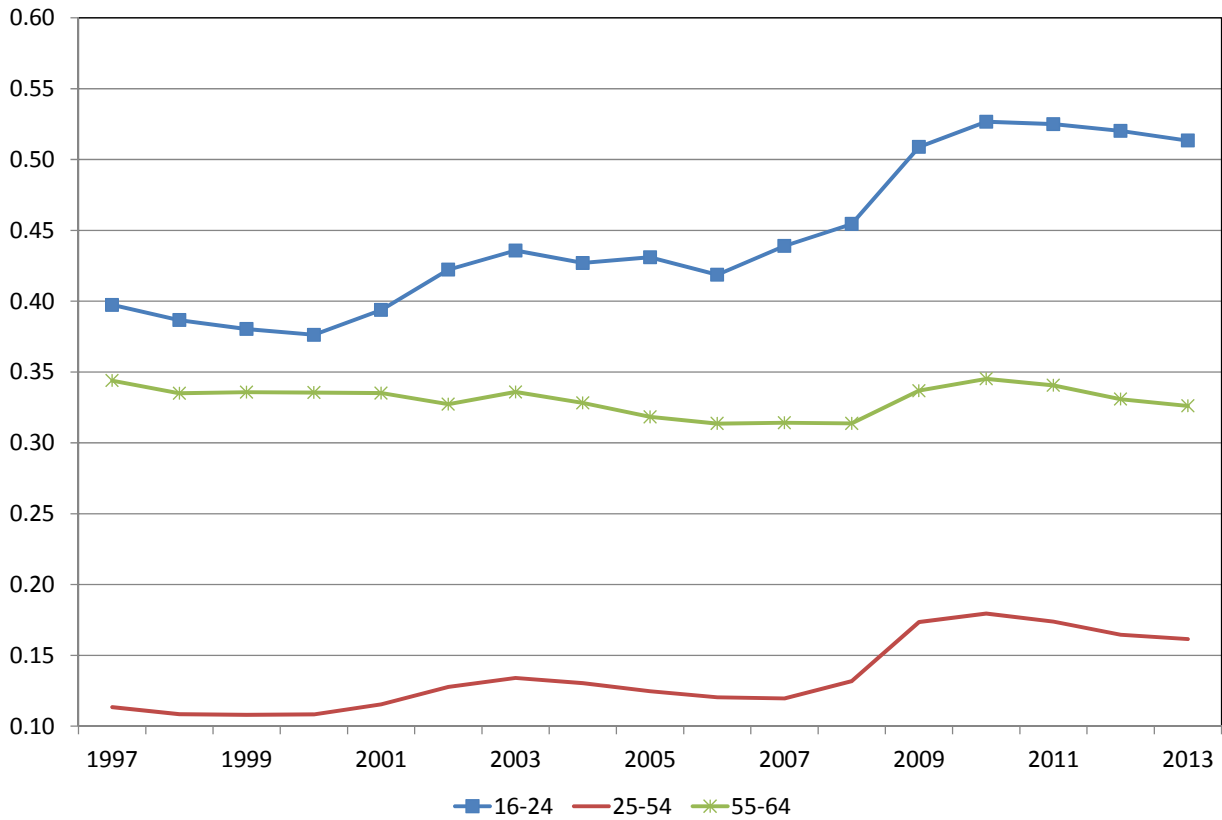
**Appendix Figure 4b: US non-employment rates by region, South and West (exclusive of individual states in Appendix Figure 4c)**



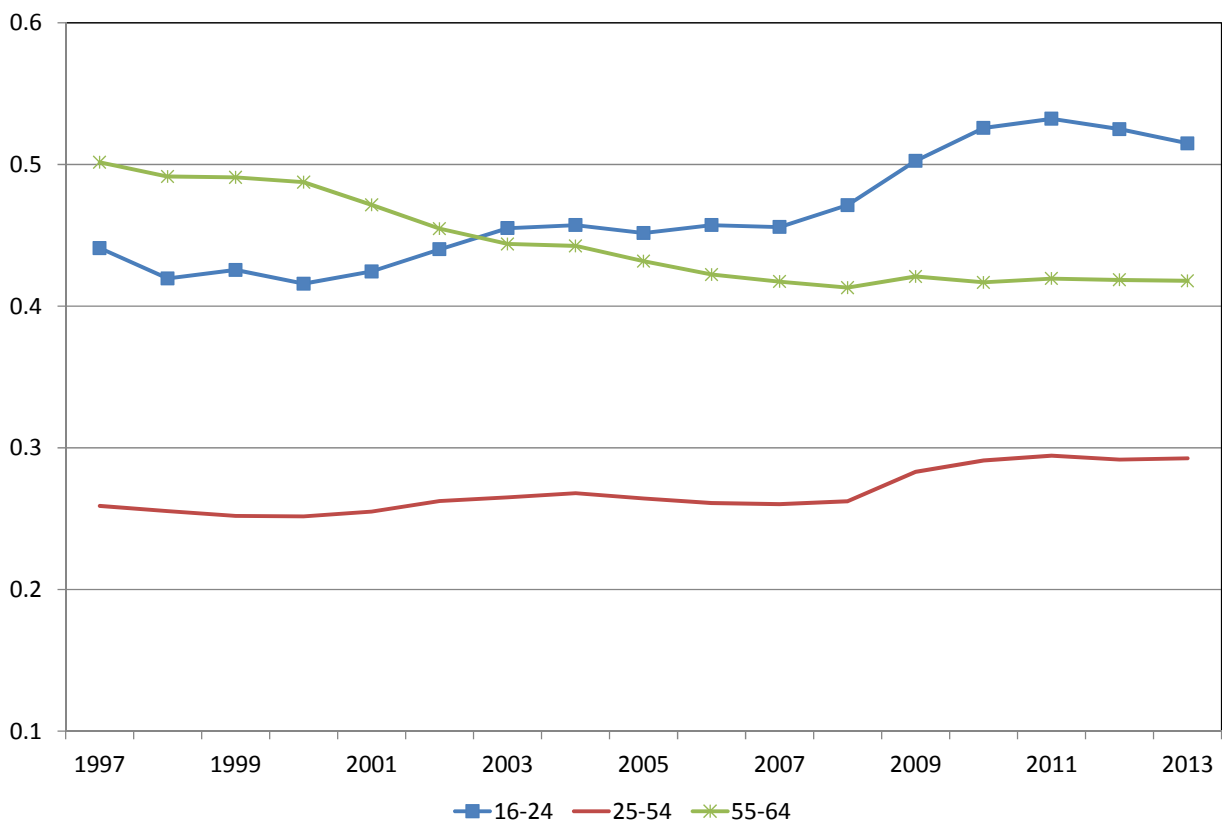
Appendix Figure 4c: US non-employment rates by individual states



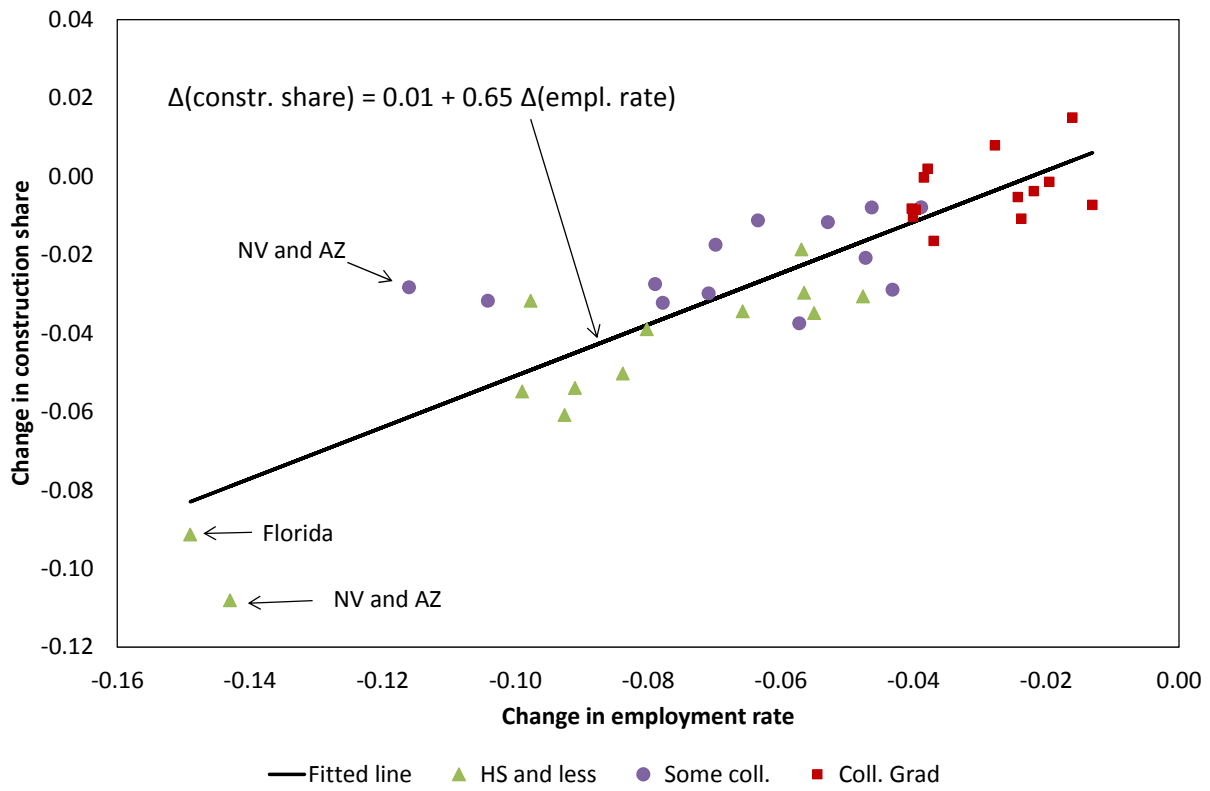
**Appendix Figure 5a: US non-employment rates by age groups, men**



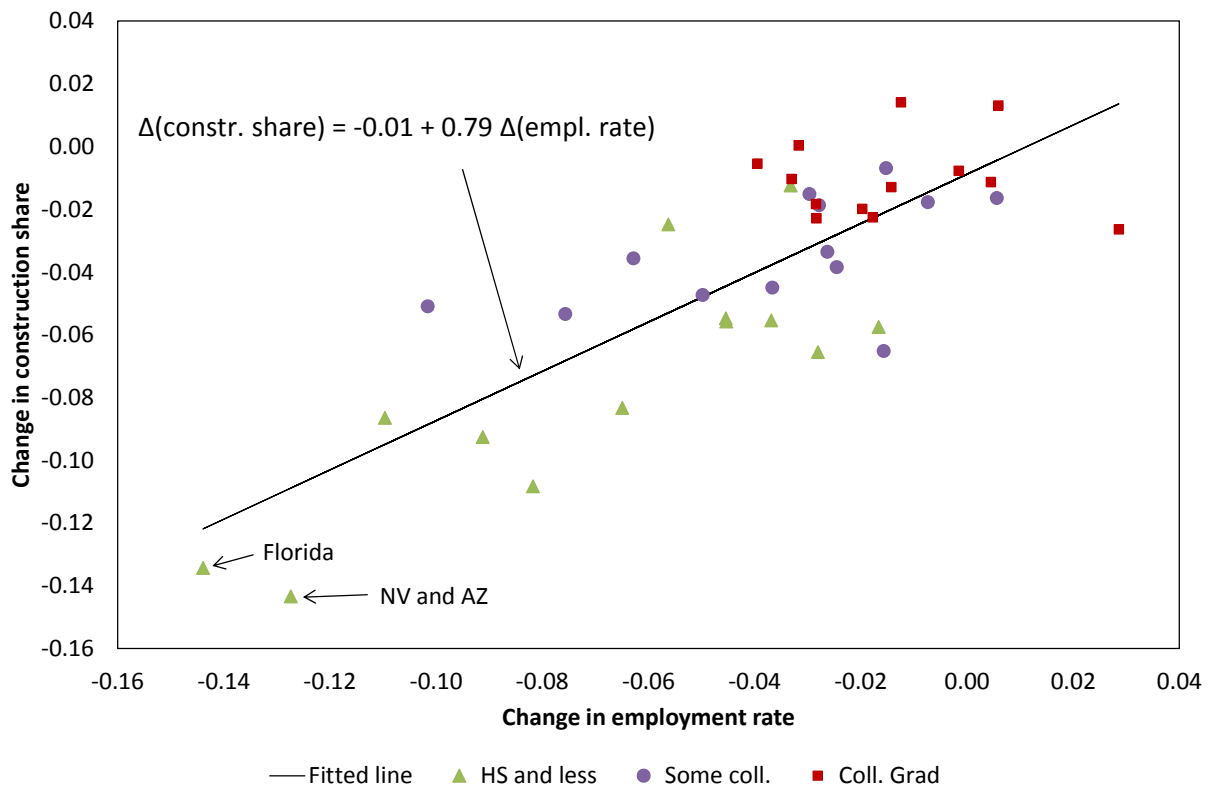
**Appendix Figure 5b: Non-employment rate by age groups, women**



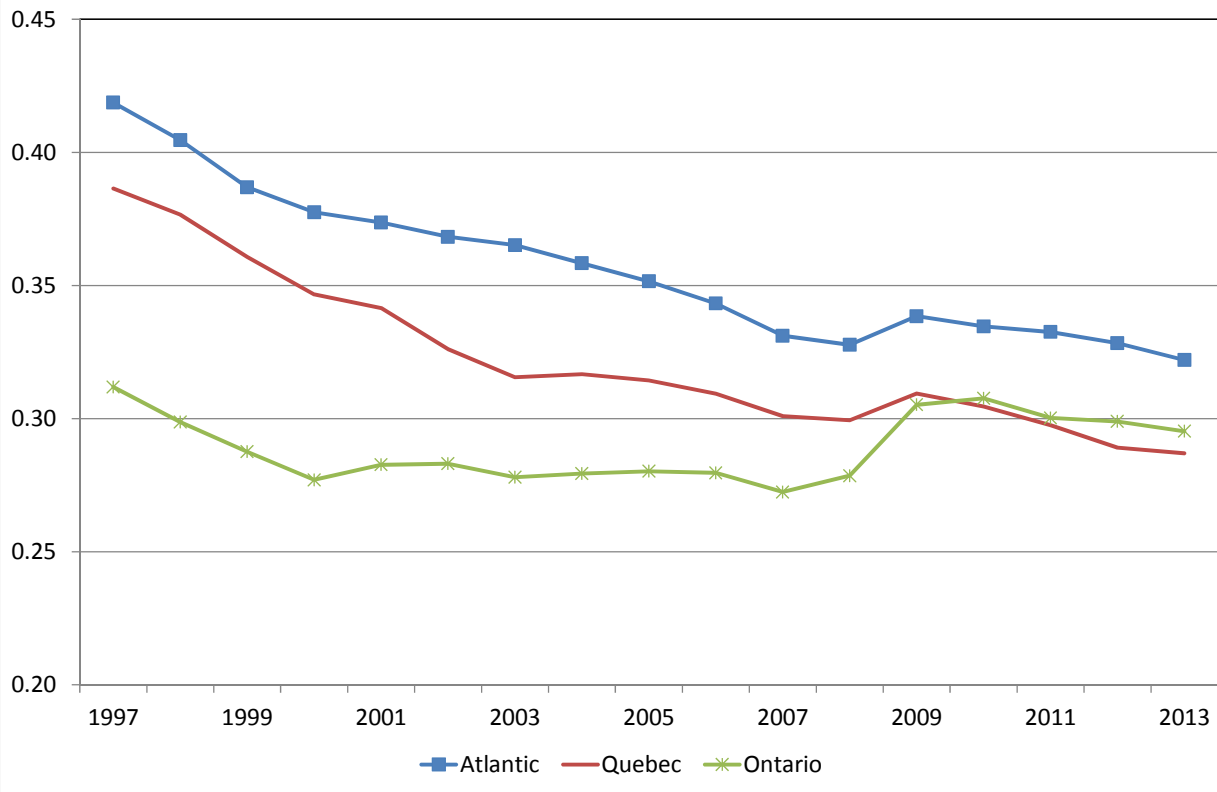
**Appendix Figure 6a: Change in construction share and employment rate of U.S. men, 2007-10**



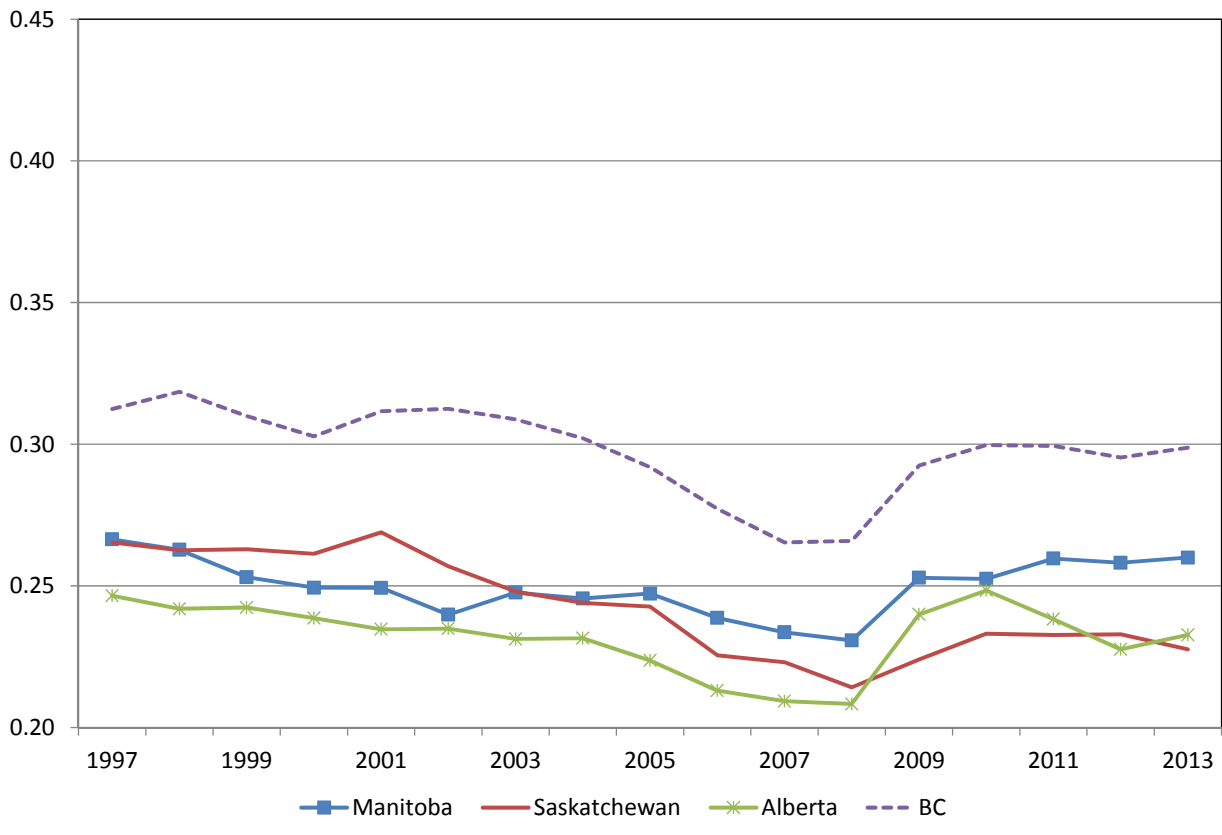
**Appendix Figure 6b: Change in construction share and employment rate of U.S. men, 2007-10 relative to 2000-07 (difference-in-differences)**



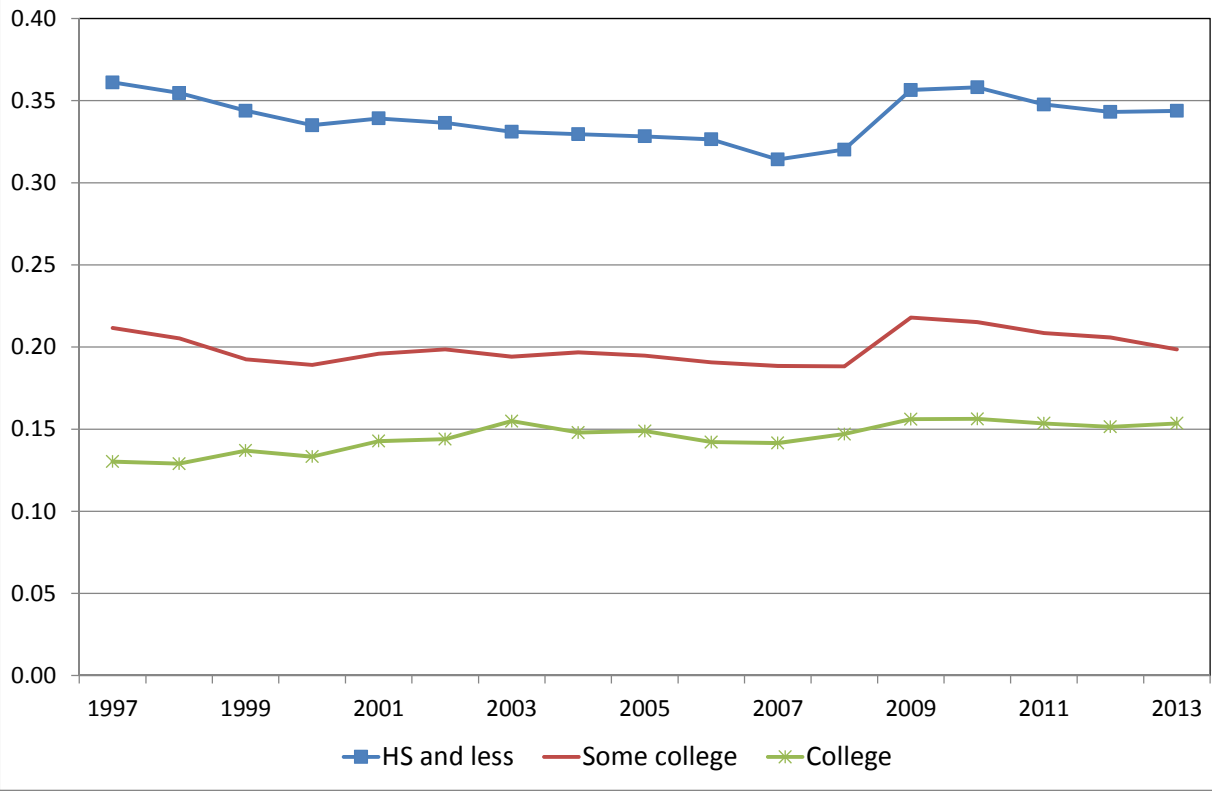
**Appendix Figure 7a: Canadian non-employment rates by region, East and Central**



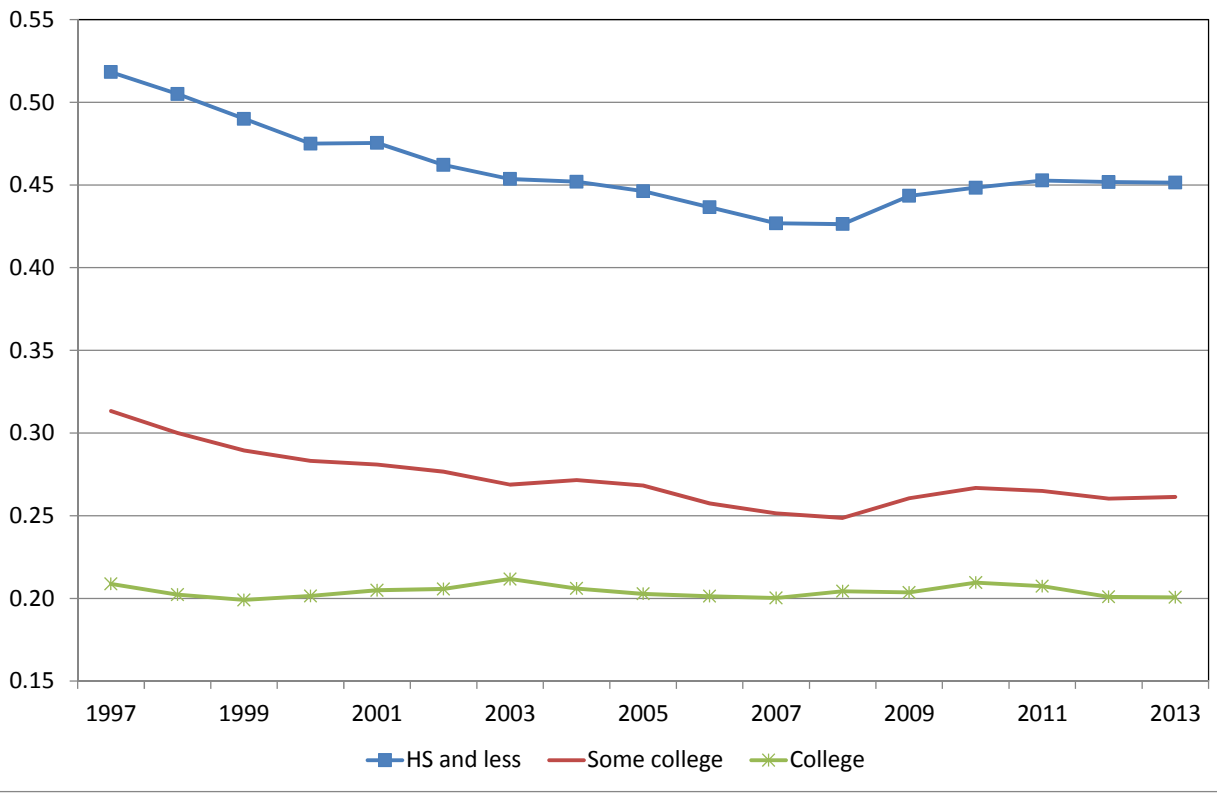
**Appendix Figure 7b: Canadian non-employment rates by region, West**



**Appendix Figure 8a: Canadian non-employment rates by education, men**

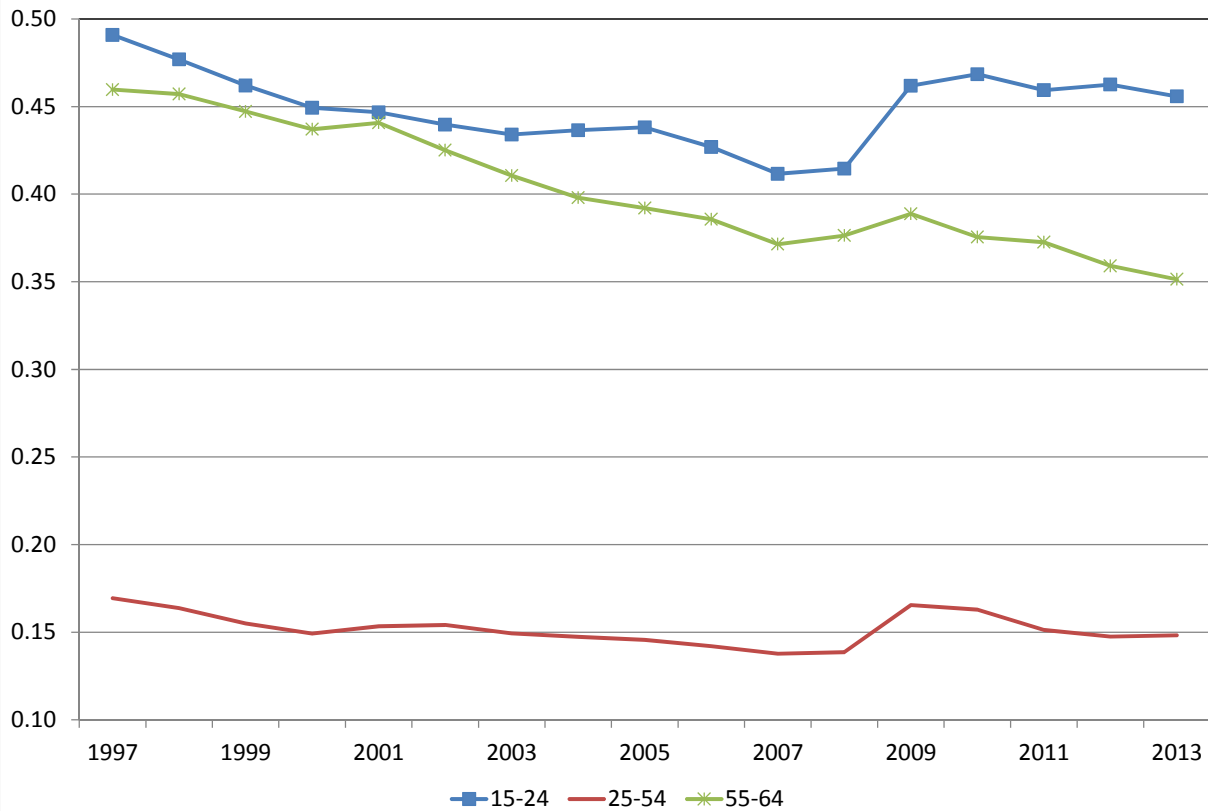


**Appendix Figure 8b: Canadian non-employment rates by education, women**

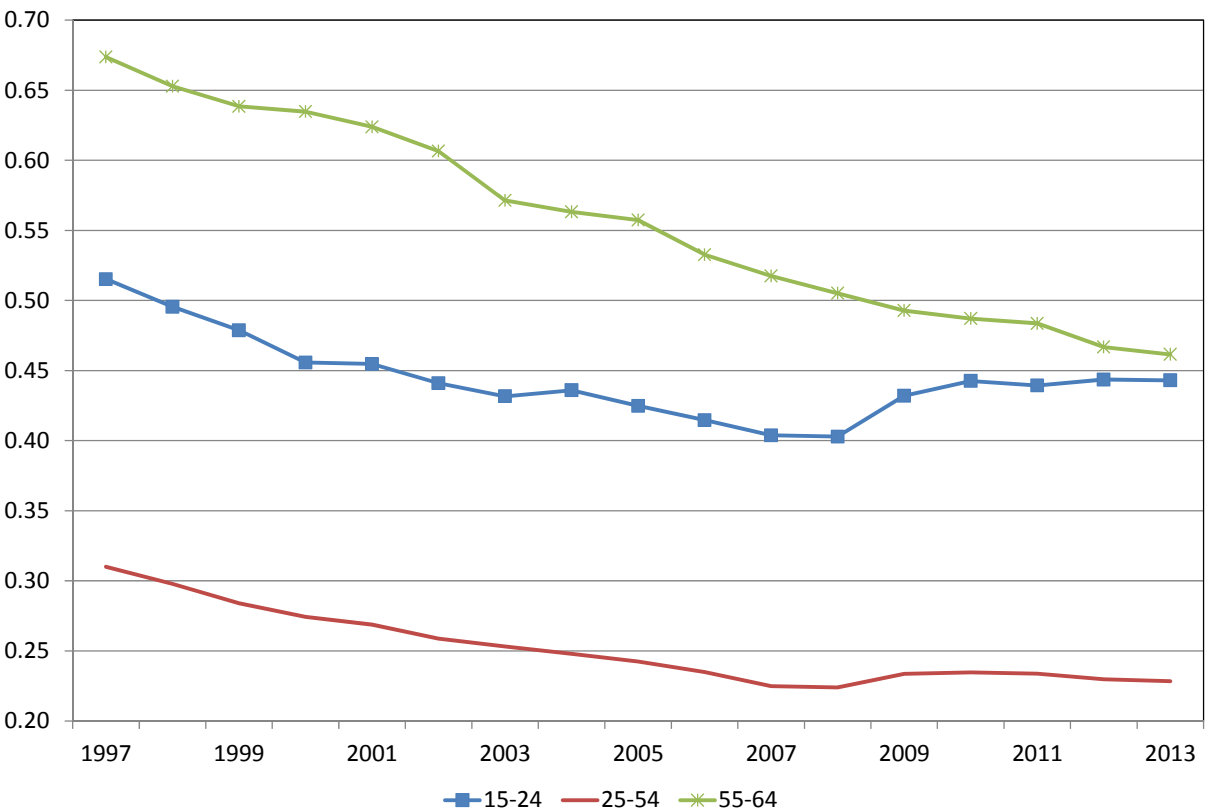




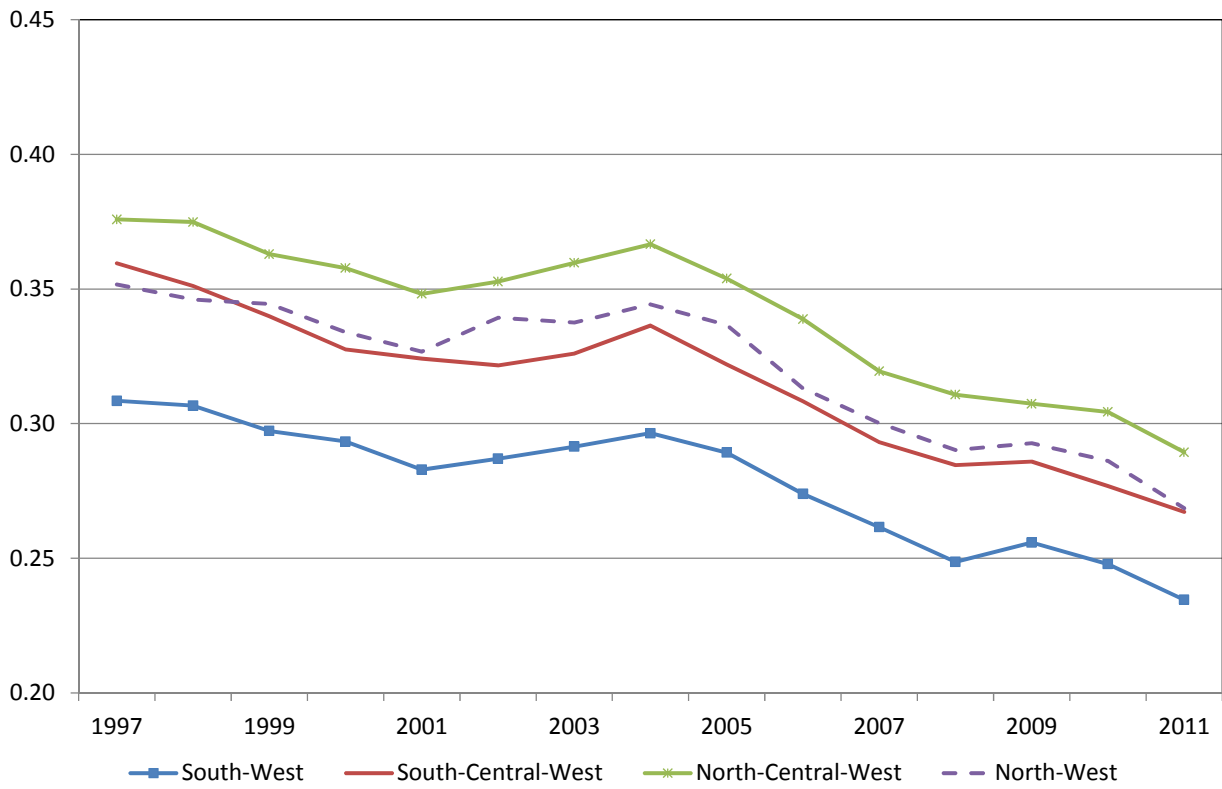
**Appendix Figure 9a: Canadian non-employment rates by age, men**



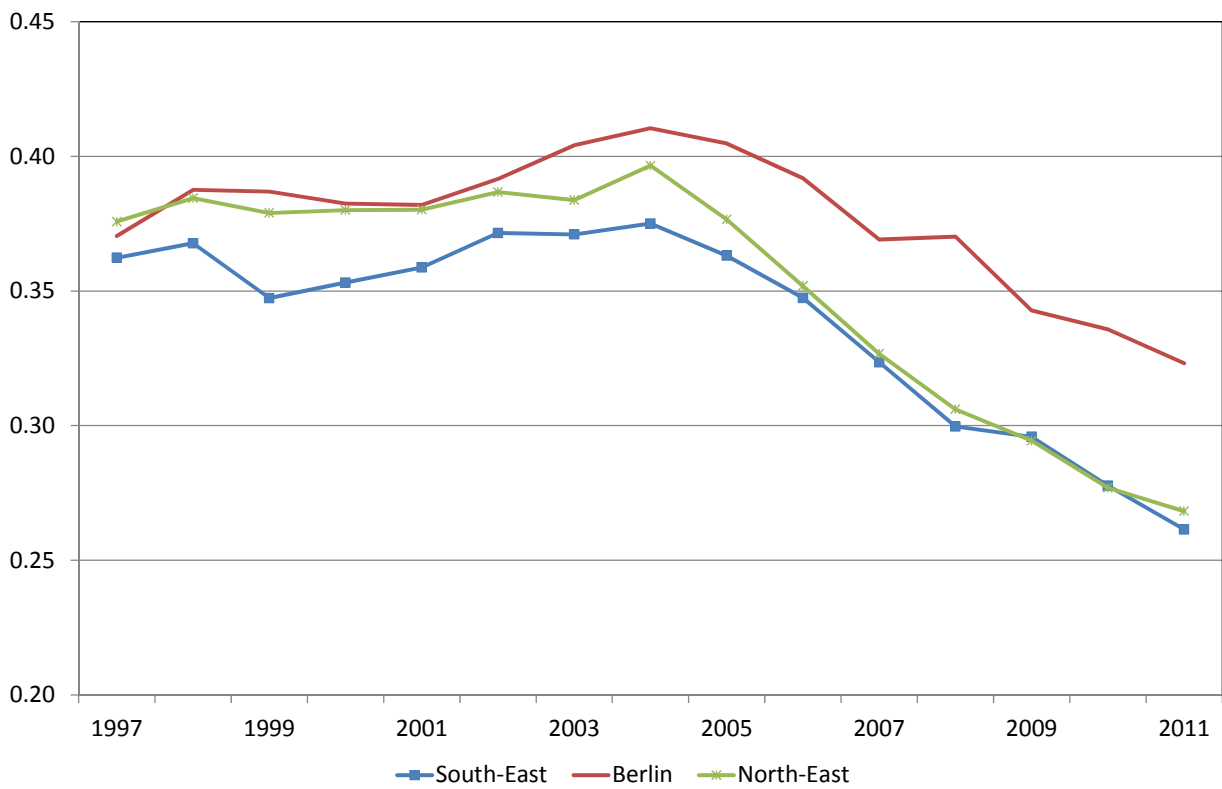
**Appendix Figure 9b: Canadian non-employment rates by age, women**



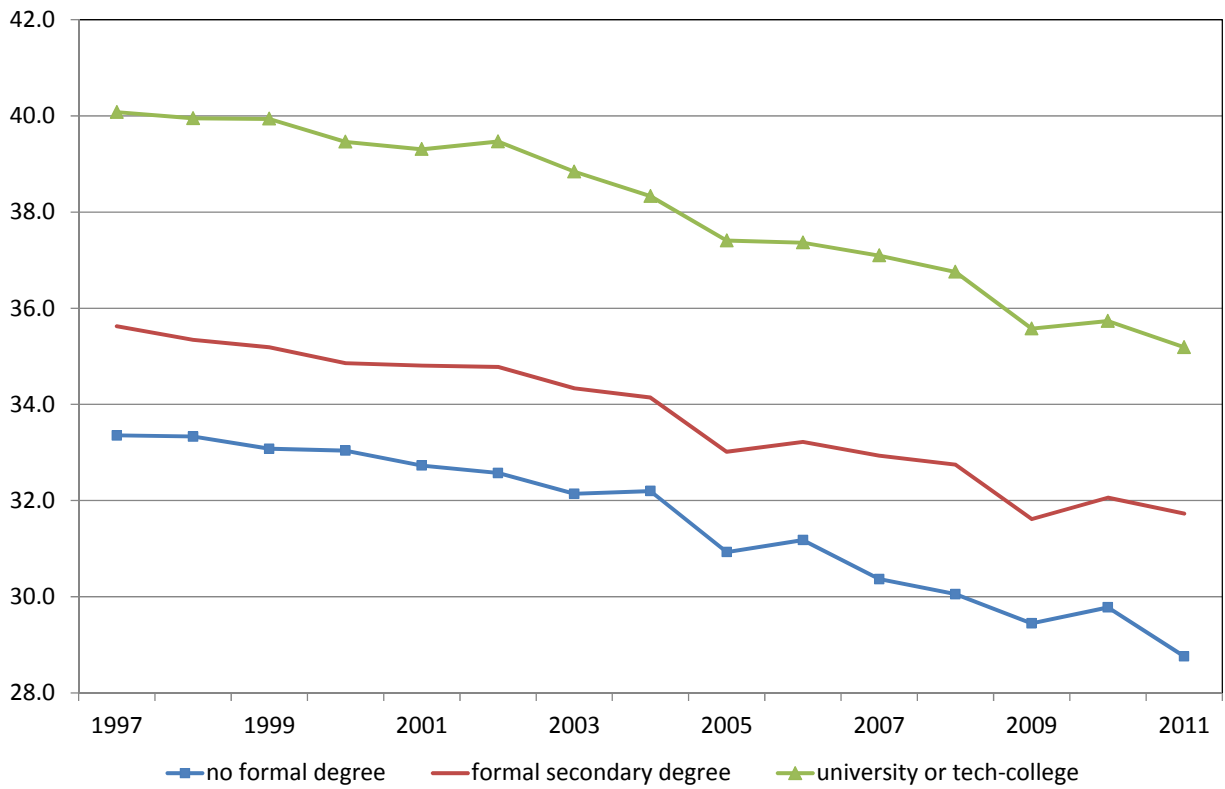
**Appendix Figure 10a: German non-employment rates by region, Western Germany**



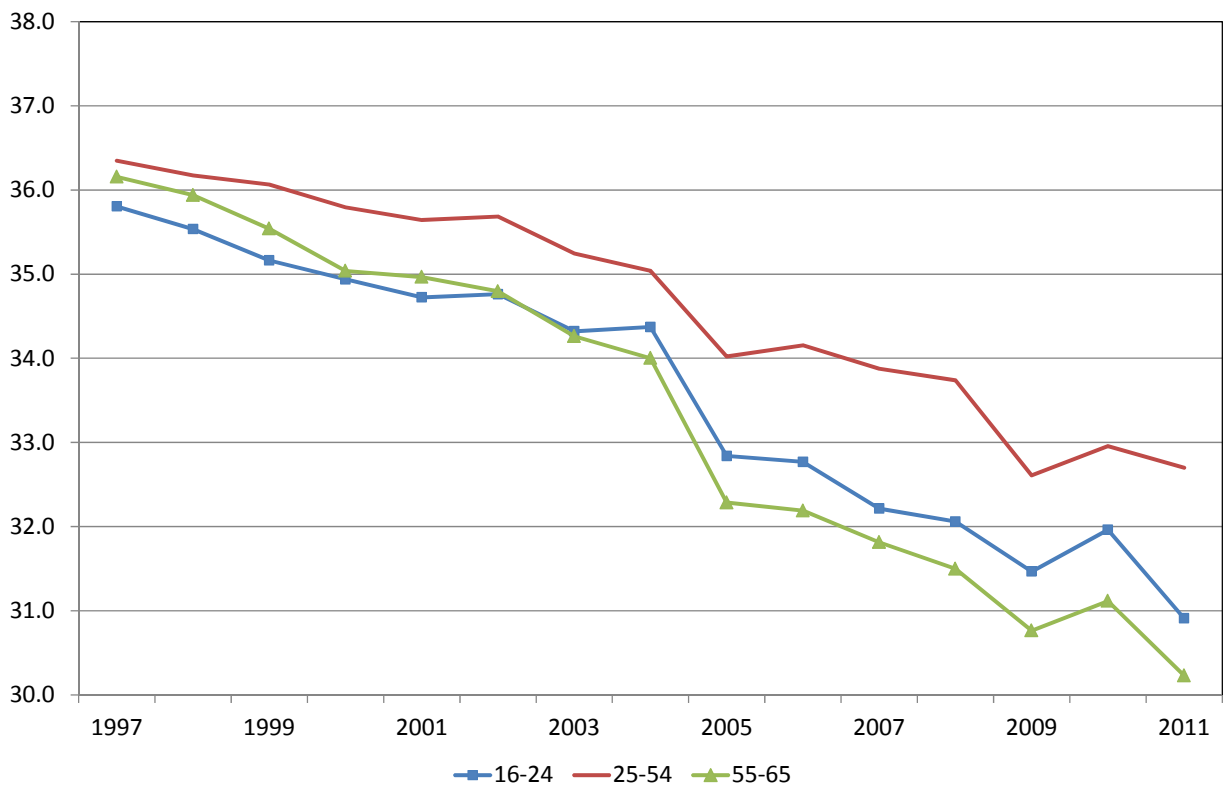
**Appendix Figure 10b: German non-employment rates by region, Eastern Germany**



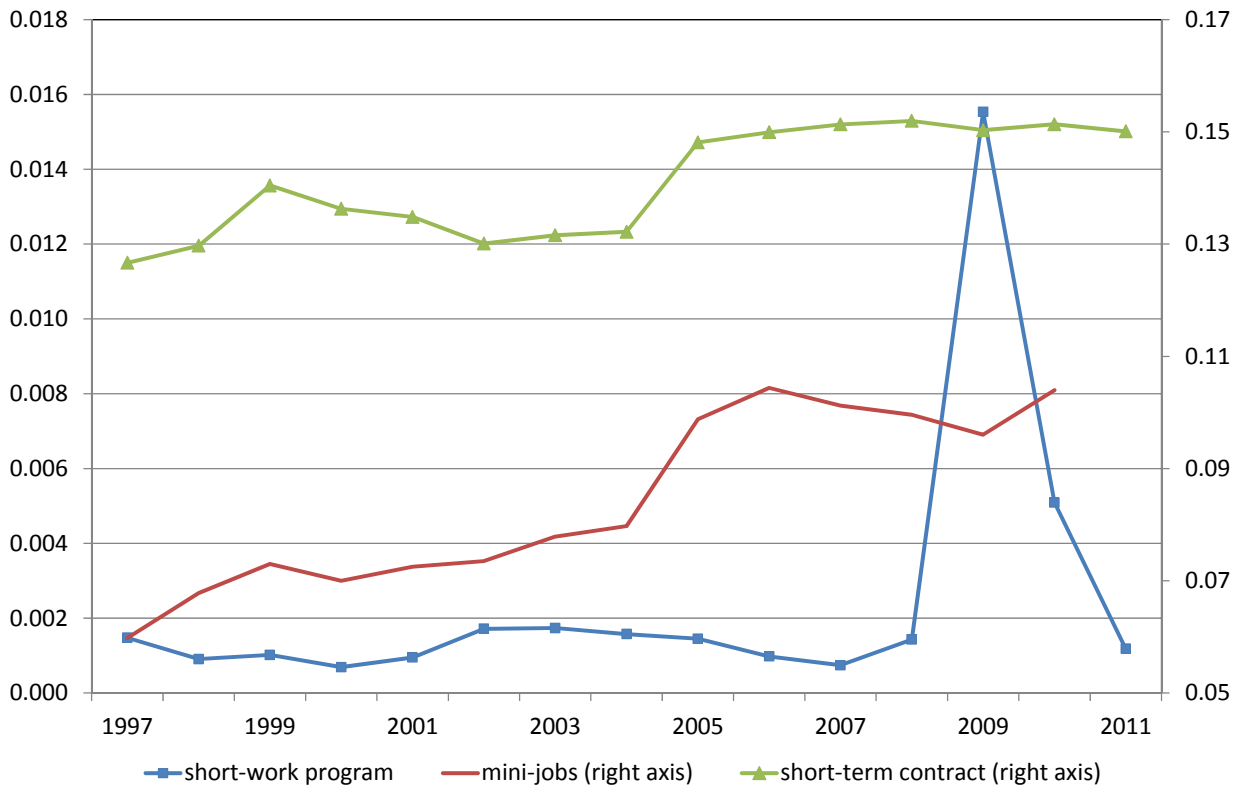
**Appendix Figure 11a: Actual Weekly Hours Worked (Conditional on Employment), by Education Group**



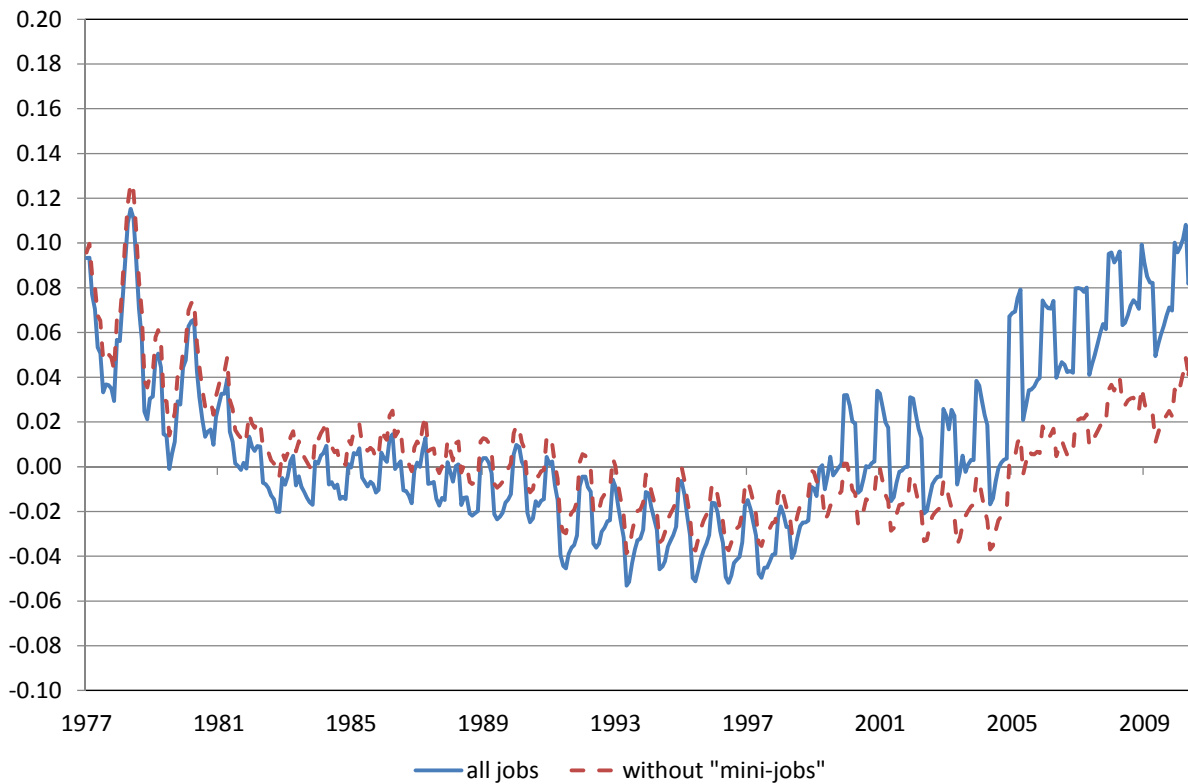
**Appendix Figure 11b: Actual Weekly Hours Worked (Conditional on Employment), by Age Group**



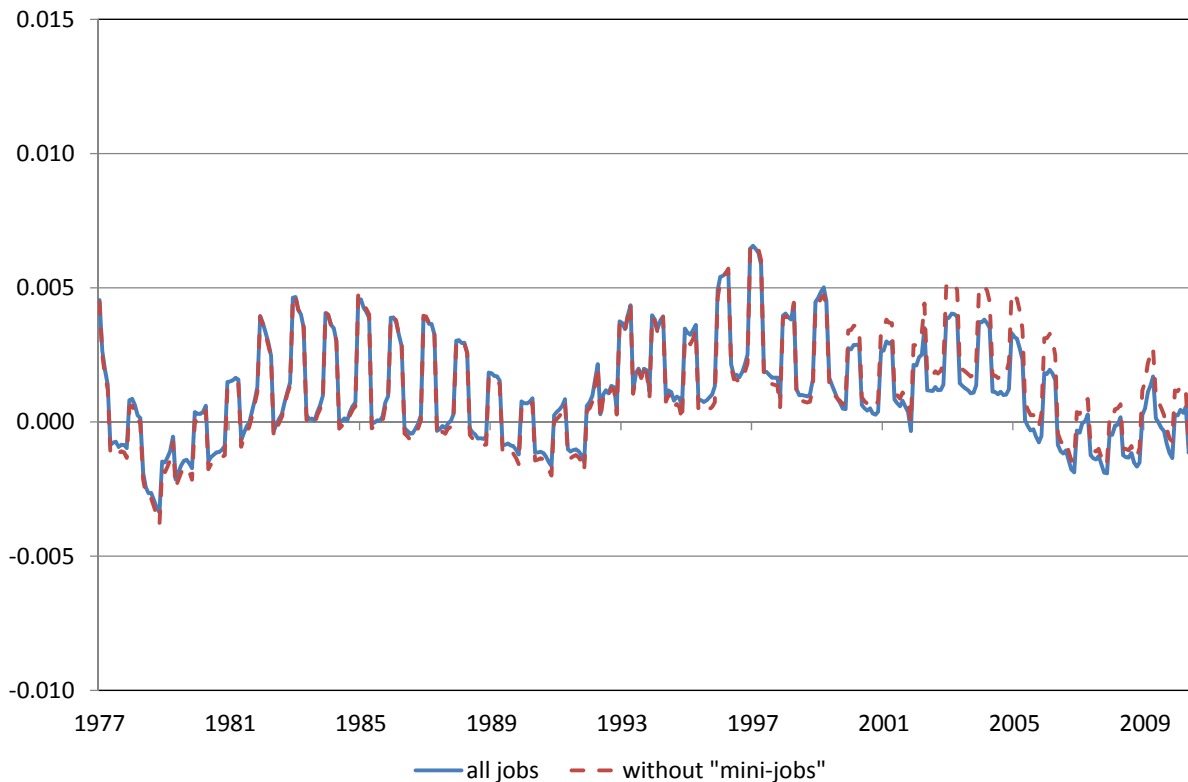
**Appendix Figure 12: Share of Workers on Short-Work Program, in Mini-Jobs, or on Short-Term Contracts (Conditional on Employment)**



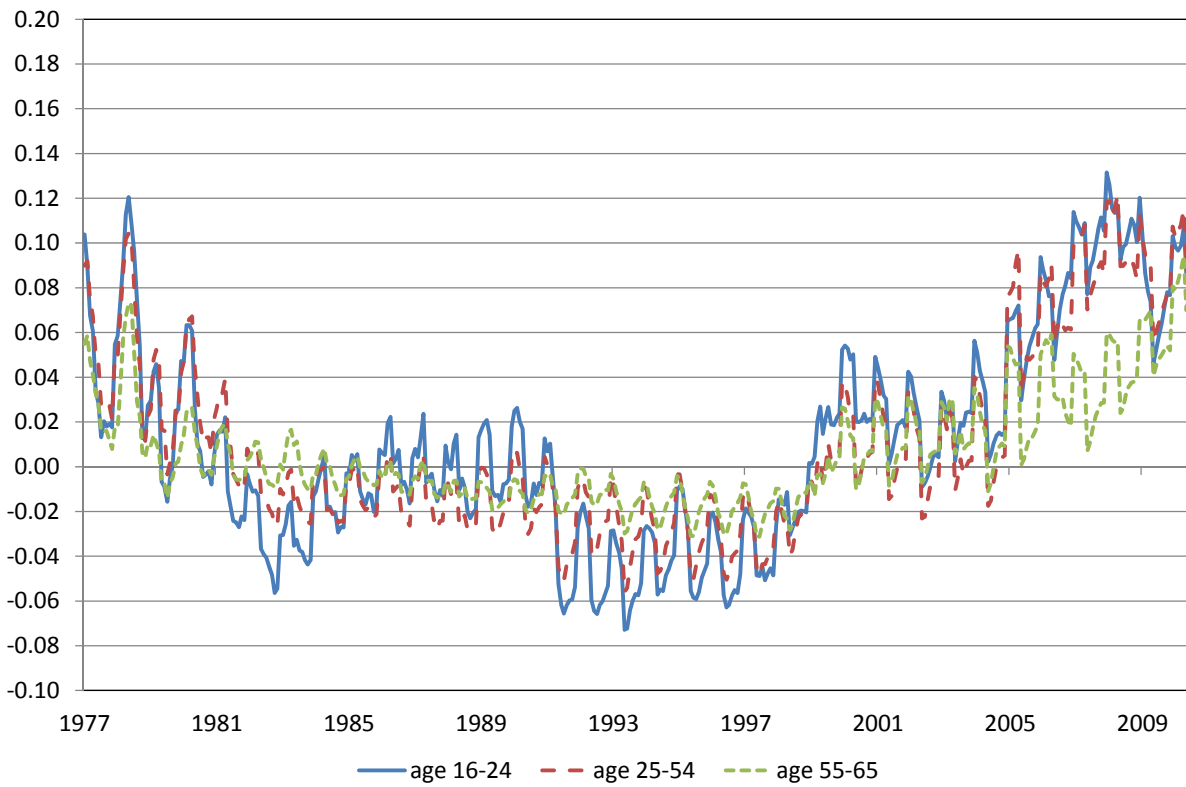
**Appendix Figure 13a: Monthly Unemployment-Employment Flows in Germany 1977-2010, with and without "Mini-Jobs"**



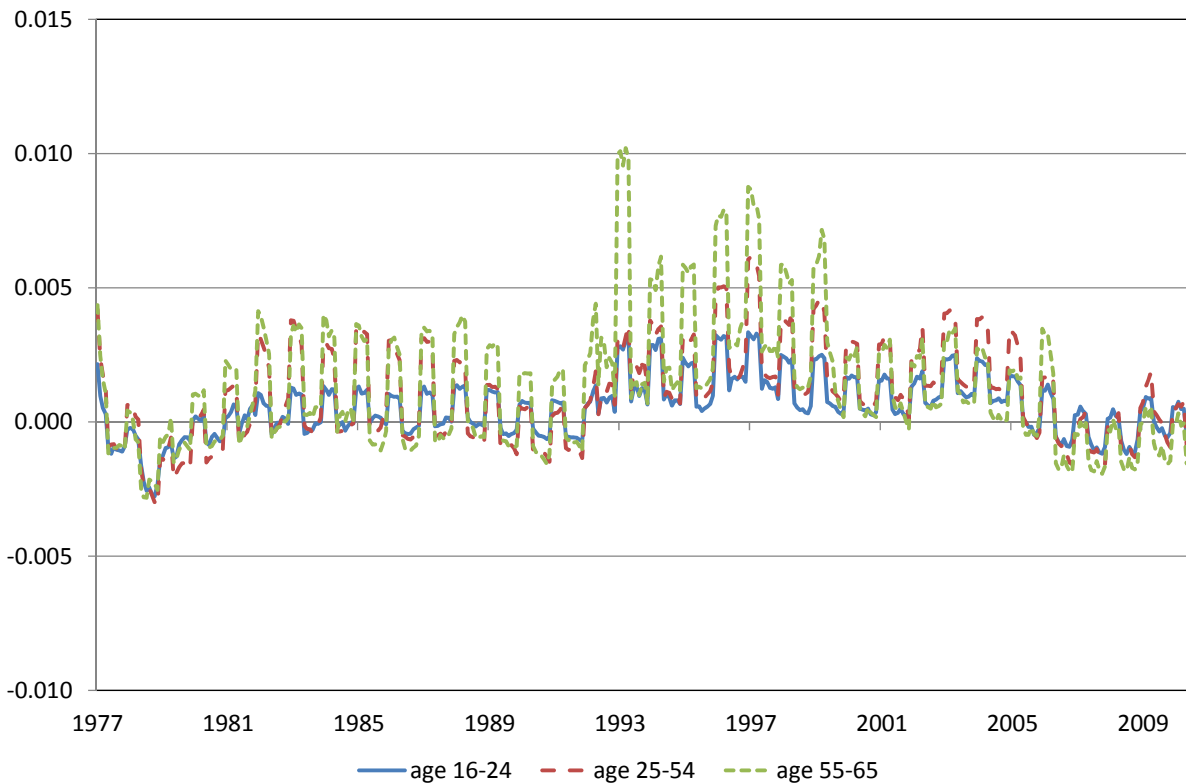
**Appendix Figure 13b: Monthly Employment-Unemployment Flows in Germany 1977-2010, with and without "Mini-Jobs"**



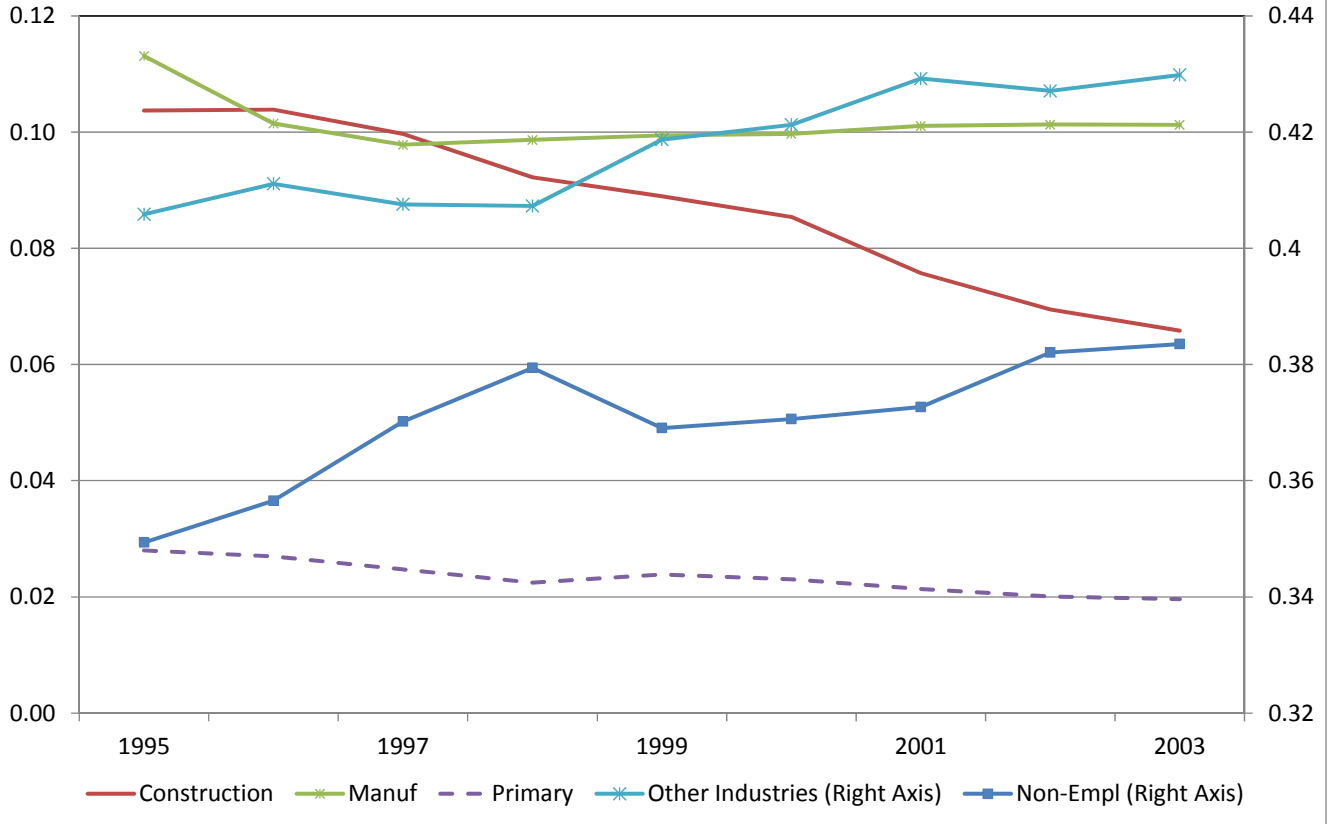
**Appendix Figure 14a: Monthly Unemployment-Employment Flows in Germany 1977-2010, by Age-Group**



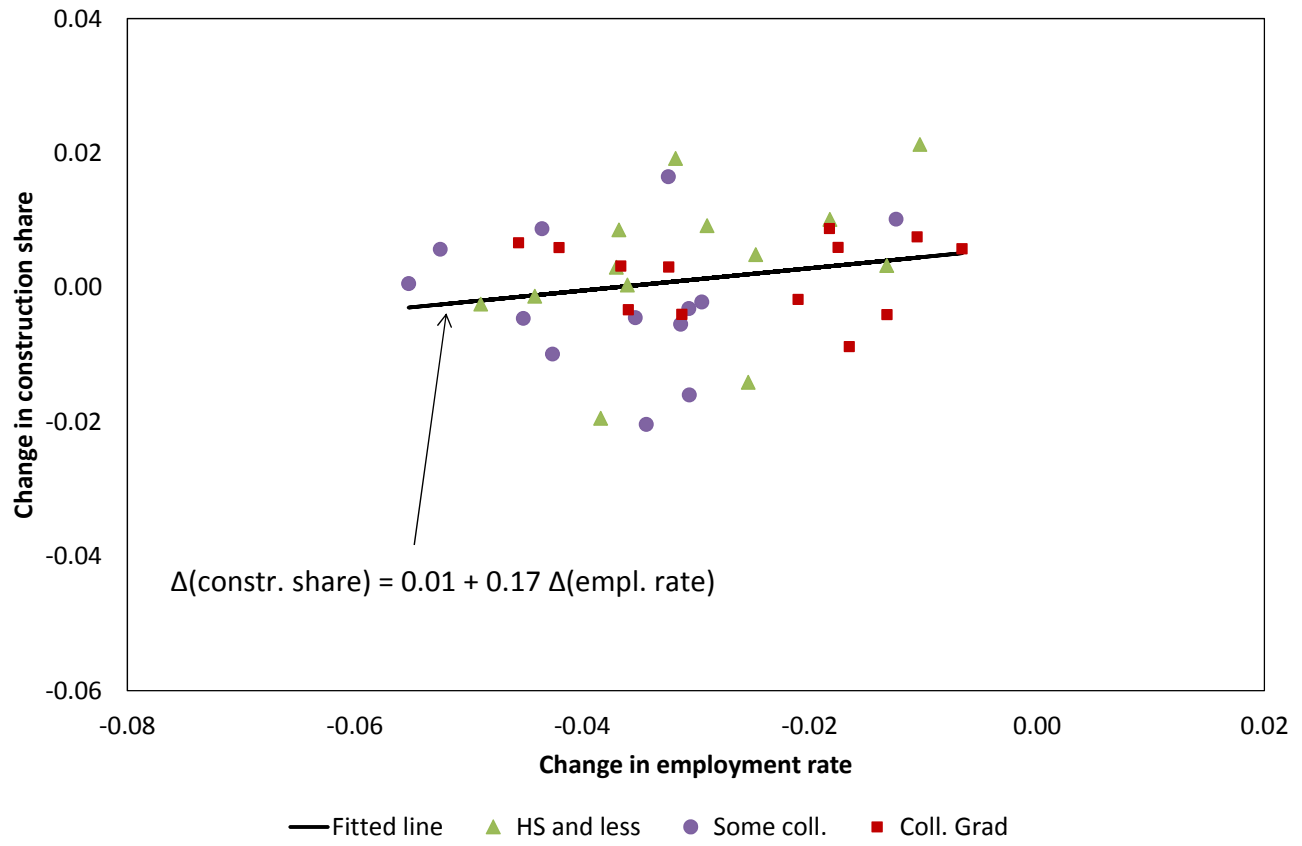
**Appendix Figure 14b: Monthly Employment-Unemployment Flows in Germany 1977-2010, by Age-Group**



Appendix Figure 15: Employment Stats, Eastern Germany 1995-2003

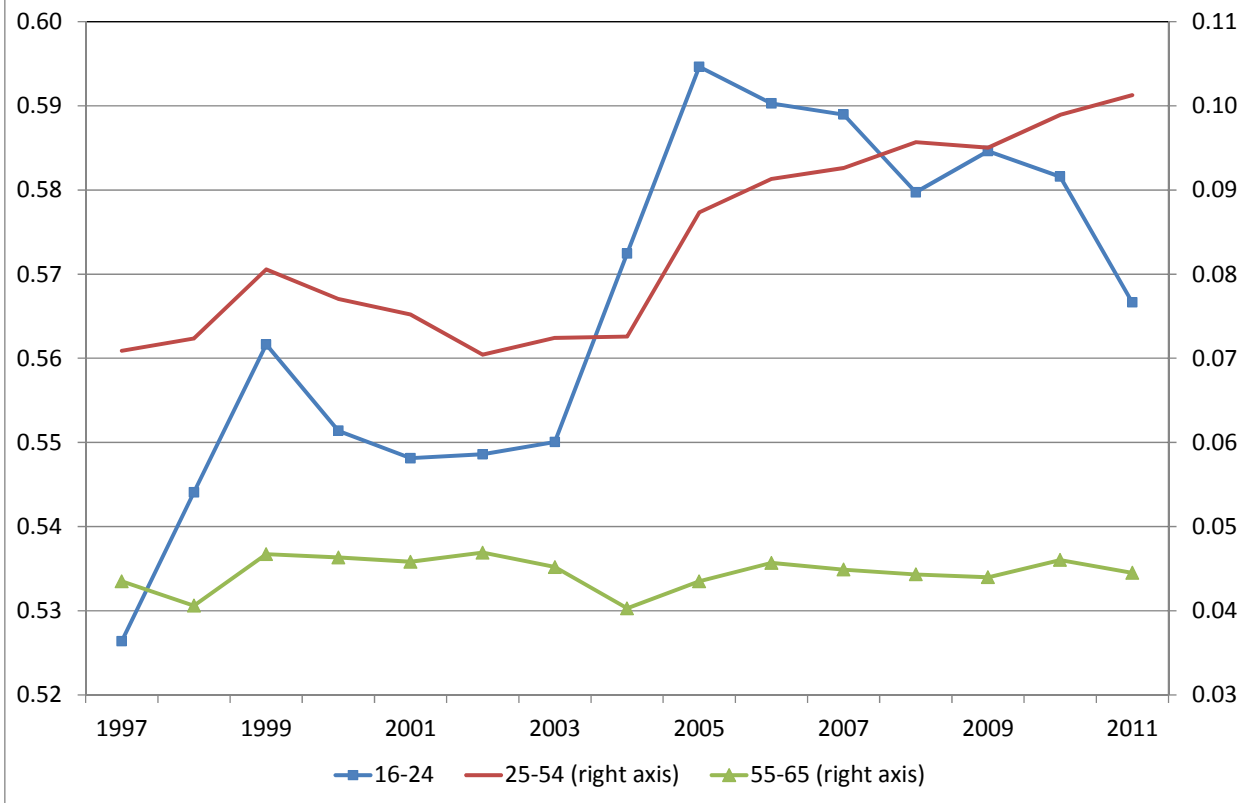


**Appendix Figure 16: Change in construction share and employment rate, U.S. men in 2000-03**





**Appendix Figure 17: Share of Workers on Short-Term Contracts (Conditional on Employment)**



Note: Share of workers on short-term contracts computed from the Mikrozensus