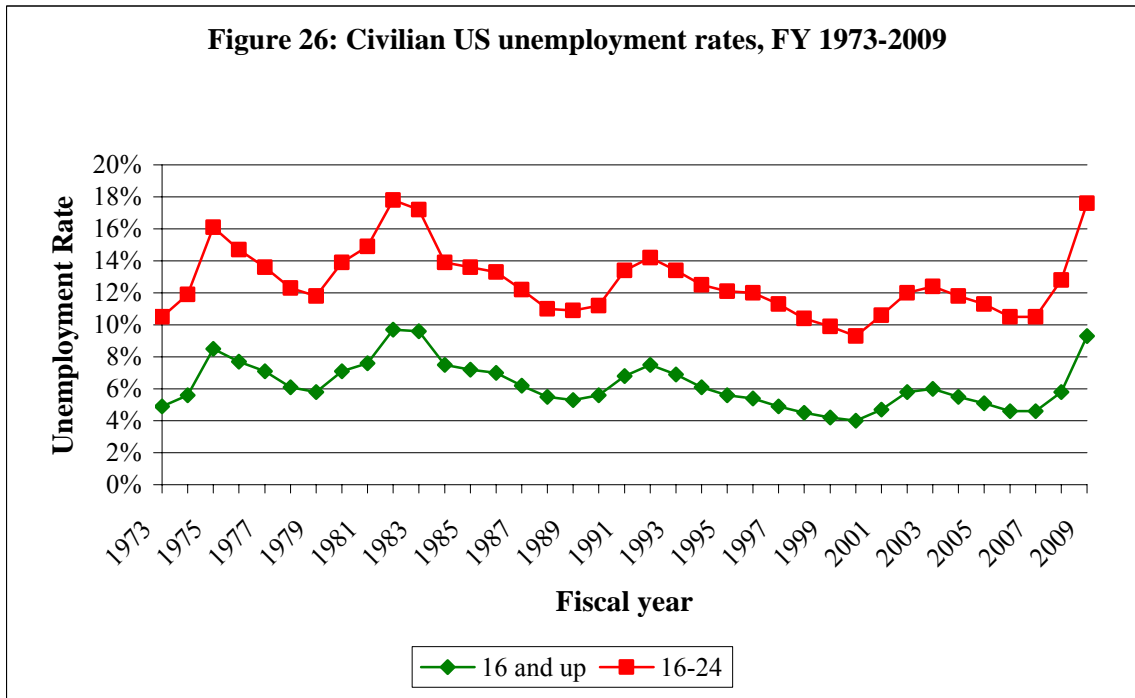


Section V: Impact of labor market conditions on accession quality

The civilian economy from which recruits enter the military experienced a dramatic worsening in FY 2009. The economy had already slid into recession,²⁵ but the unemployment rate rose steeply during the year. At the start of the fiscal year, in October 2008, the nationwide unemployment rate for those in the labor force aged 16 and over stood at 6.6 percent. By the end of the fiscal year, in September 2009, the rate had surged to 9.8 percent, which was the highest it had been in over 25 years. One month later, it would top 10 percent. (It would remain above 10 percent for another 2 months.) Figure 26 plots two measures of the U.S. unemployment rate: the rate for all in the labor force aged 16 and over, and the rate for members of the labor force aged 16-24. Both measures are tracked and reported by the U.S. Bureau of Labor Statistics (BLS).



The civilian job market deteriorated sharply in FY 2009. As Figure 26 shows, the nationwide unemployment rate for the civilian labor force aged 16 and over (the most commonly cited measure of the unemployment rate) averaged 9.3 percent for the year. For the age 16-24 subset of the labor force—from which the military disproportionately draws its recruits—the rate stood at 17.3 percent. Both rates were up steeply from the year before and stood at their highest levels since the recession of the early 1980s. That recession, in turn, saw the highest unemployment rates since the Great Depression.²⁶

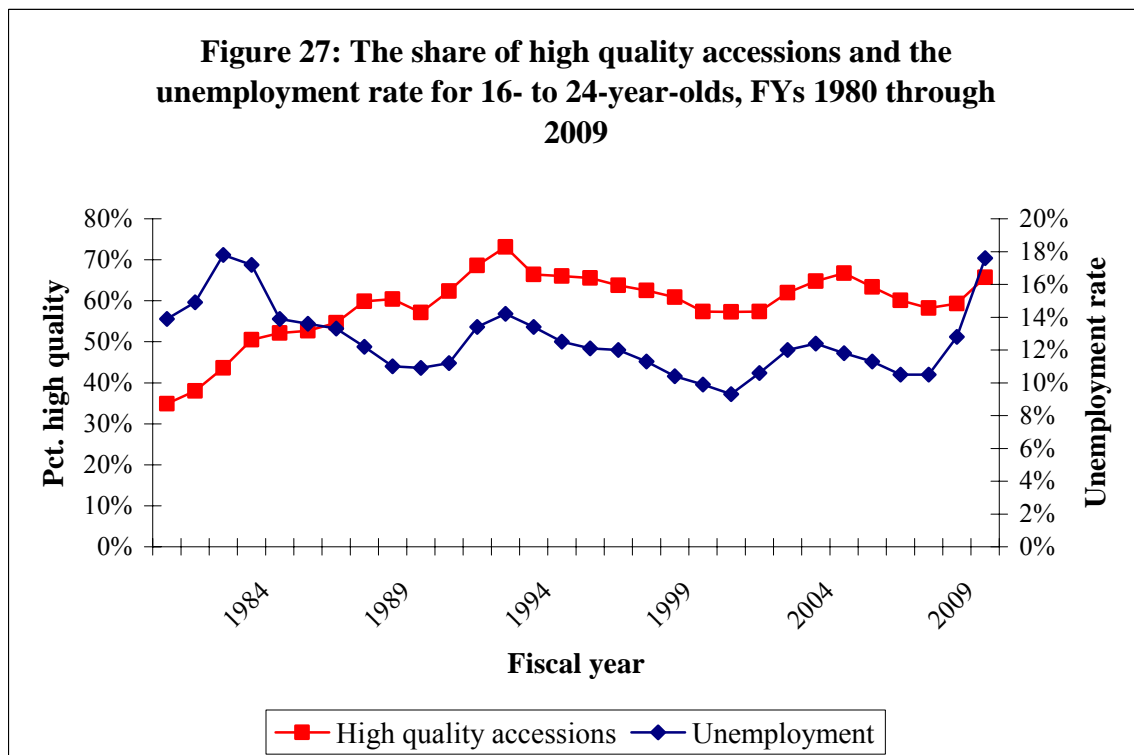
²⁵ According to the National Bureau of Economic Research (NBER), the recession began in December 2007.

²⁶ During that recession, the nationwide unemployment rate peaked at 10.8 percent in November and December 1982.

In this section, we use data that are readily available in appendix D of this report to investigate the relationship between labor market conditions and the overall quality of accessions. We begin by considering accessions across all of DOD. We then discuss how the impact of labor market conditions on accession quality varies across the Services.

Variables of interest. Our measure for labor market conditions is the unemployment rate for 16- to 24-year-olds that is reported in table D-2 of this report. To measure accession quality, we use the share or percentage of all accessions who qualify as high quality. A high quality accession has an AFQT score in any of categories I, II, and IIIA—in the top 50 percent—and also has a high school diploma (Tier 1). The data on high quality accessions comes from table D-9 of this report.

Looking at the data. In figure 27, we present the time series for the two measures going back to 1980. Since 1980, the United States has suffered through four different recessionary periods. The first was in the early 1980s. The unemployment rate for 16- to 24-year-olds peaked at 17.8 percent in 1982. The second was in the early 1990s, when the unemployment rate peaked at 14.2 percent. The third came less than a decade ago when unemployment rose from 9.3 percent in 2000 to 12.4 percent in 2003. The latest is the recession that resulted from the recent financial crisis. This caused unemployment among 16- to 24-year-olds to rise to 17.6 percent in 2009.

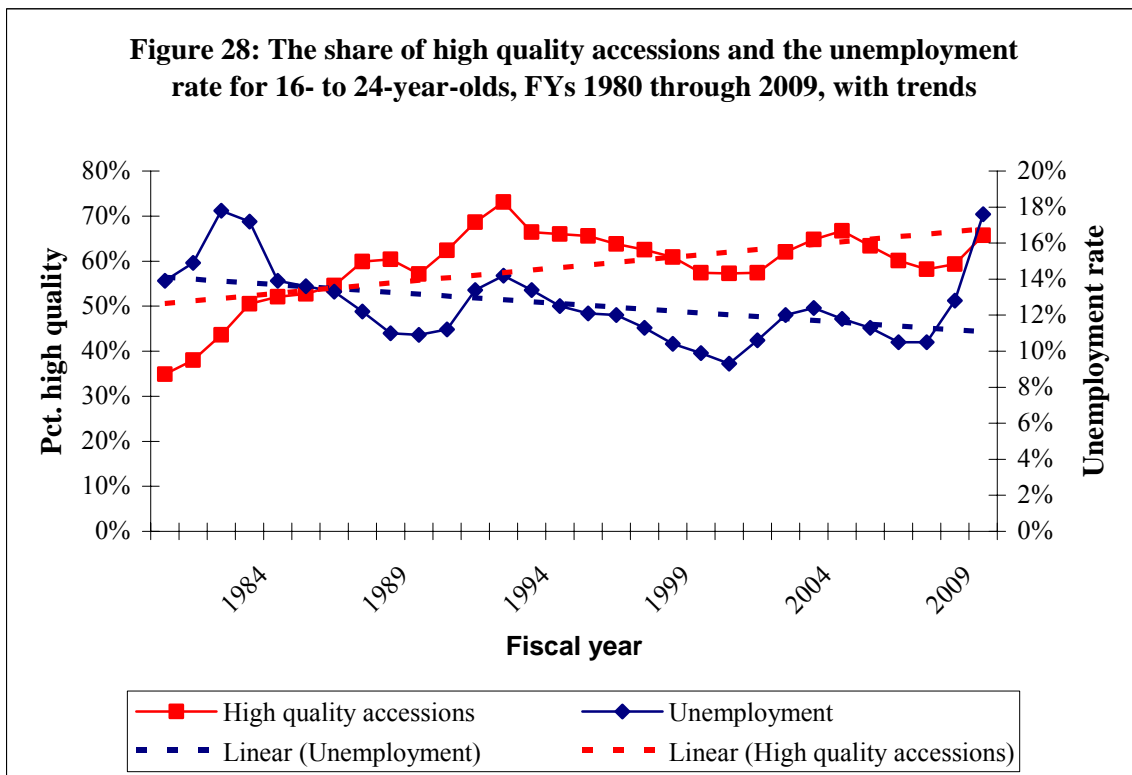


During each of these periods of increasing unemployment, the percentage of accessions categorized as high quality also increased. From 1980 to 1982, the share rose from 35 percent to nearly 44 percent. From 1990 to 1992, the share rose from 62 percent to 73

percent. From 2000 to 2003, the share rose from 57 percent to 65 percent. Finally during the latest recession, the share rose from 58 percent in FY 2007 to 66 percent in FY 2009.

Since the early 1990s, decreases in unemployment have been associated with decreases in the share of accessions that are high quality. For instance, between FYs 1992 and 2000 the share fell from 73 percent to 57 percent and between FYs 2003 and 2007 the share fell from 65 percent to 58 percent.

Statistical analysis. Estimating time series models can be a bit tricky. For instance, if one were to estimate a simple model on the levels of the variables' values, he or she would find a weak negative relationship between the unemployment rate and accession quality. This does not make much intuitive sense given what we have seen in figure 27. The reason one would find this non-intuitive result is that each of time series is trended. The share of all accessions who are high quality has followed a positive trend since the early 1980s, while the unemployment rate among 16- to 24-year-olds has followed a negative trend over this same time period (see figure 28). Estimating the model using levels can lead to spurious results if the time series are heavily trended.²⁷



²⁷ The results of Dickey-Fuller tests indicate the presence of a unit root, or extreme autocorrelation, in each of the time series we are considering here. One way of dealing with unit root issues is to take first-differences of the data. The resulting time series test negative for the presence of a unit root and neither is heavily trended.

Instead of looking at levels, we consider the relationship between year-to-year fluctuations in unemployment and accession quality. To do this, we estimate the following model for all of DOD and for each of the Services.

$$\Delta\%High\ Quality_t = \alpha + \beta \Delta\%Unemployment_t + \varepsilon_t$$

Where $\Delta\%High\ Quality_t = \%High\ Quality_t - \%High\ Quality_{t-1}$ and $\Delta\%Unemployment_t = \%Unemployment_t - \%Unemployment_{t-1}$. The results of the regression models are presented in table 2.

Table 3: Regression results (standard errors in parentheses)

	DOD-wide	Army	Navy	USMC	Air Force
Constant	0.987 (0.581)	0.854 (0.882)	1.066 (0.734)	1.162* (0.553)	1.125 (0.744)
$\Delta\%Unemployment$	1.168** (0.379)	1.720** (0.576)	0.968* (0.479)	0.766* (0.361)	0.387 (0.485)
R-square	0.253	0.242	0.127	0.139	0.022

** Significant at the 0.01 level.

* Significant at the 0.05 level.

The results indicate that across DOD short-term increases in unemployment are associated with short-term increases in accession quality. To get a sense of the magnitude of the relationship, a 1-percentage point increase in the unemployment rate for 16-to 24-year-olds is associated with a 1.17-percentage point increase in the share of accessions that are high quality. The result implies an elasticity of roughly 0.25 which is in line with the results of previous studies. The positive relationship between the two variables varies considerably across the four Services. It is strongest for the Army and non-existent for the Air Force.

The results are fairly robust to small changes in the specification of the model. For instance, when we lagged the unemployment rate by 1 period (year), we still found a strong statistically significant relationship between accession quality and unemployment. We also considered a model where accessions were related to the 2-year moving average for unemployment. The results of this model were again consistent with the results of the previous 2 models.

Conclusions and caveats. Our results indicate that there is a strong relationship between labor market conditions and accession quality. The reader should keep in mind that we have not controlled for other factors that may also affect accession quality. These factors include such variables as college tuition rates, civilian wages, and the labor force participation rate. Information on these variables is not included in the PopRep, thus their omission from our analysis.