1067-91-153 **Qi Sun*** (sunq@lafayette.edu), Easton, PA 18042. *An Analysis of the U.S. Consumer Price Index –An Application of the ARMA and the GARCH Model.* Preliminary report.

The U.S. Consumer Price Index (CPI) is a time series measure of the price level of consumer goods and services. It measures a price change for a constant market basket of goods and services from one period to the next within the same area and serves as one of the most popular measures of inflation. This research analyzes the monthly U.S. CPI data for the past 30 years using the ARMA (Autoregressive Moving Average) model and the GARCH (Generalized Autoregressive Conditional Heteroskedasticity) model. By investigating the cyclical return of the CPI using the ARMA model, we discovered that both previous returns and shocks have an impact on future returns. Specifically, the cyclical return in the previous month has a positive effect on the cyclical return for the next month and shocks in the previous three months have negative impacts on the next cyclical return. Through studying the volatility of the CPI using the GARCH model, we found out that both previous variance and shocks contribute positively to the future volatility, but previous variance plays a more important role. (Received July 28, 2010)