This paper empirically estimates the time-varying path of inflation persistence for the United States of America and the United Kingdom from 1880-2010. These 130 years can be divided into four distinct monetary regimes. It is a claim of this paper that the variation in the persistence of inflation can be explained through the evolution of credibility across these monetary regimes. Inherent in credibility, are the institutional characteristics of the monetary regime which lends higher credibility to one regime over another. The inflation persistence in both USA and the UK is found to be negatively correlated with the credibility of the monetary regime.