Inflation-unemployment tradeoff and regional labor market data*

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Abstract. We estimate a linear and a piecewise linear Phillips curve model with regional labor market data for West German and Neue Länder. Employing regional observations allows us to country difference the data. This eliminates, under the assumption of homogeneous Länder, supply shocks and changes in the formation of expectations as possible identification failures. With seemingly unrelated regressions we find a flat Phillips curve in the Neue Länder. For the West German Länder a piecewise linear model with a higher inflation-unemployment tradeoff for the regime of low unemployment rates fits the data very well. The results hold true if we control for endogeneity of the unemployment rate. With a kinked but upward sloping aggregate supply curve there seems to be room for stabilization policies, at least in the range of aggregate demand shifts that our data covers.

Key words: inflation-unemployment tradeoff, NAIRU, regional labor market data, seemingly unrelated regression

JEL classification: E24, E31

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1. Introduction

More than three decades ago Milton Friedman (1968) argued that a “natural rate of unemployment” would determine inflation in the long run. Any attempt to steer the economy below that rate of unemployment, sometimes also called the non-accelerating-inflation-rate-of-unemployment (NAIRU), would lead to increasing inflation rates while an unemployment rate higher than that would cause disinflation. By that time, it challenged the perception of the Phillips curve as some kind of a stable downward sloping relation in a scatter plot diagram with inflation and unemployment on the axes. Thirty years after, there is still no consensus view on whether monetary and fiscal policies have an effect on unemployment in the short as well as in the long run, only in the short run, or not at all. Even if one accepts Gregory Mankiw’s proposition that one of the ten principles of economics is that monetary policy has an impact on inflation and unemployment in the short run there is still no agreement on how to explain an inflation-unemployment tradeoff (Mankiw 2000).

Some time series studies like Gordon (1997) find support for a time-varying NAIRU. But it has also been argued that supply shocks or changes in the way workers and firms form expectations caused the break down of the Phillips curve. Only recently, the role of expectations has been investigated by Akerlof, Dickens, and Perry (2000). They find a nonlinear Phillips curve with inflation regimes where there is a tradeoff and others where there is non because of regime specific inflation expectations.

In this paper we confront the inflation-unemployment tradeoff with regional labor market data on nominal wage inflation and unemployment for Germany. Drawing on regional observations for estimating an inflation-unemployment tradeoff has several advantages to studies of more aggregated time series (see also Coe et al. 1999, DiNardo and Moore 1999). As we have quarterly data on nine West German Länder and five Neue Länder for all through the nineties, our estimations are based on more than 200 observations for the West Länder and more than 100 observations for the Neue Länder. This large amount of observations also enables piecewise linear estimates of the Phillips curve for high and low regimes of unemployment. Regional data allows us, under the assumption of common shocks to all Länder, to eliminate supply side shocks by differencing our series with respect to one country. Therefore, we can circumvent the difficult choice of a supply side variable, that captures e.g. changing import prices or deviations of productivity growth from a trend. Finally, assuming that inflation expectations do not change differently across Länder, country differenced data allows us to eliminate changes in expectations formation as a possible reason of a break down of the inflation-unemployment tradeoff.

The rest of the paper is organized as follows. First, we sketch our Phillips curve models, a linear and a piecewise linear version, and define coefficient restrictions that we will employ to test the slopes of the inflation-unemployment tradeoff. Section 3 reports on the data and presents the empirical results. The last section summarizes and draws some conclusions with respect to stabilization policies.