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Imperfect competition, general equilibrium and unemployment

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Abstract

We analyze whether different learning abilities of firms with respect to general equilibrium effects lead to different levels of unemployment. We consider a general equilibrium model, where firms in one sector compete à la Cournot and a real wage rigidity leads to unemployment. If firms consider only partial equilibrium effects when choosing quantities, the observation of general equilibrium feedback effects will lead to repeated quantity adjustments until a steady state is reached. When labor is mobile across industries, unemployment in the steady state is higher than when *all* general equilibrium effects are incorporated at once. The opposite result is true if labor is immobile.

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1. Introduction

In this paper we examine whether the inability to recognize general equilibrium effects leads to high unemployment. Our major conclusion is that this hypothesis is true if labor is mobile across industries, and wrong if labor is immobile.

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We consider a two sector model with imperfect competition in one sector and a real wage rigidity for low-skilled workers which creates unemployment. We compare two scenarios of Cournot competition in the imperfectly competitive sector: in the first scenario, we analyze what happens when firms incorporate all general equilibrium feedback effects at once when they choose their supply. We call this procedure general equilibrium Cournot competition, denoted by GEC, and the resulting equilibrium shall be the GEC outcome.

In the second scenario, we assume that firms do not take into account general equilibrium feedbacks of their quantity choice. Firms select best responses against their competitors' best responses under the assumption that the rest of the economy remains unchanged. They then encounter general equilibrium feedbacks and revise their production plans. As we will show, this procedure will converge to a state, where no further unexpected general equilibrium feedbacks will occur anymore. We call this process partial equilibrium Cournot competition, denoted by PEC and the state of convergence we call PEC steady state.

We obtain the following results: first, the resulting equilibria under PEC and GEC generally differ. Second, unemployment in the PEC steady state is not always higher than in the GEC outcome. In particular, we show that the degree of labor mobility across sectors determines the relative unemployment of GEC and PEC. When labor is mobile, unemployment is lower under GEC than under PEC. The opposite result is true when labor is immobile. To understand these twin results, we will identify four effects that account for the difference between PEC and GEC. The major effect leading to low output and low employment under PEC relative to GEC is the overestimation of the price reaction when the quantity is lowered by an individual firm. The counteracting effect in our model is the underestimation of the change of high-skilled workers' wages that are assumed by firms to remain constant. Since firms underestimate their wage costs when they increase their supply, quantity choices and employment tend to be higher for PEC than for GEC. The latter effect is large if labor is immobile and dominates all other effects. But when labor is mobile, the effect is rather small, and the results are reversed.

In the paper we will proceed as follows: in Section 2, we relate our paper to the literature on imperfect competition in a general equilibrium context. Section 3 develops the model. The simulation results are presented in Section 4. Section 5 deals with the implications of an immobile labor force and Section 6 concludes.

2. Relation to the literature

Our starting point is the idea often brought forward in the discussion as how to remedy the European unemployment problem, namely that insufficient recognition of general equilibrium effects by firms or unions contributes to high unemployment (see [Gersbach and Schniewind, 2005](#)). Hence, we examine how unemployment (or output) is affected, if firms in oligopolistic industries act under a partial or general equilibrium view. Our paper is related to three strands of literature. First, we have to incorporate imperfect competition in a general equilibrium framework,

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