ABSTRACT

ESSAYS ON THE DYNAMIC EFFECTS OF FISCAL POLICY ON OUTPUT AND UNEMPLOYMENT IN THE PRESENCE OF LABOR MARKET FRICTIONS AND LABOR MOBILITY BARRIERS: THEORETICAL INVESTIGATIONS AND EMPIRICAL STUDIES

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In any economy, government intervention is almost inevitable because of market failures and market imperfections. From the macroeconomic perspective, government could intervene in the economy through either supply side policies, or demand side policies, or both. How does government intervention affect the aggregate economy?

To improve our understanding about the characters of different categories of government interventions in macroeconomics, this dissertation attempts to assess the impacts of both the supply side intervention policies, such as labor market regulations, and demand side intervention policies, such as fiscal policies, on the aggregate economy. In particular, this dissertation concentrates on investigating the impacts of the demand aspect fiscal policies, and the supply aspect labor market regulations, on output and unemployment.

More concretely, this dissertation seeks to rigorously study three important questions associated with evaluating the impacts of different categories of government

interventions on aggregate output and the labor market. First, which category of the different government spending components, i.e., government wage, consumption, and investment, is more effective in boosting output and reducing unemployment? Second, how do changes in different government spending components and diverse categories of taxes affect the labor market dynamics during recessions? Third, what are the effects of changing fiscal policies and labor market regulations simultaneously on the aggregate economy? To properly examine these three questions, we employ three different theoretical frameworks and distinctive economies, which are appropriate to investigate each question under consideration, in different chapters of this thesis.

This dissertation consists of six Chapters. Chapter 1 is an introduction to the whole thesis. Chapter 2 reviews the related literature and briefly articulates the contributions of this dissertation.

Chapter 3 investigates the first important question: Which component of government wage expenditure, government investment, and government consumption is more effective in stimulating the economy? Through estimating a structural vector autoregressive model using the U.S. data, we find that government wage expenditure is the more effective component in boosting output and reducing unemployment, according to the estimated cumulative output and unemployment multipliers.

To understand why government wage expenditure is the more effective component, we develop a directed search model with heterogeneous government expenditures, a productive government sector, and complementarities between government goods and private goods in consumption. Calibrating the model to the U.S. economy, we show that the model can generate the empirical pattern of the dynamic responses of output and unemployment to government spending shocks of each component, as well as the order of the cumulative output and unemployment rate multipliers. Moreover, the model demonstrates that the mechanisms though which different government spending components affect the economy are not the same, in particular,

government wage expenditure is more effective than the other components because it affects the labor market both directly via the employment in the public sector, and indirectly by the induced demand for labor.

In addition, we also evaluate the quantitative effectiveness increments from reallocating government expenditures through counterfactual experiments. We find that raising government wage expenditure financed by lowering government consumption expenditure generates the largest cumulative output and unemployment rate multipliers: 20 percent increase of government wage expenditure raises the cumulative output multiplier by 5.25 percent and reduces the cumulative unemployment rate multiplier by 8.22 percent, respectively. This analysis suggests that reallocation of government resources can be an alternative to alleviate the rising government deficit.

Chapter 4 studies the second important question: How do changes in different government spending components and various categories of taxes affect the labor market dynamics during recessions? This problem is investigated through employing the episode of the 1990s in Japan, which is labeled as the Lost Decade. During the 1990s, the unemployment rate surged from 2.08% in 1990 to 5.40% in 2002, while the job finding probability decreased from 42% to 27%, and the probability of losing a job increased from 0.80% to 1.87%. Meanwhile, the Japanese government changed their fiscal policies to boost the economy and to cushion its labor market in the 1990s. From the spending aspect, the share of aggregate government spending in gross national product (GNP) was increased by more than 20% from 1990 to 2002, where the respective share of government wage, consumption, and investment in GNP changed differently during the 1990s. From the tax aspect, the consumption tax was raised from 0.03 to 0.05 in 1997, while the labor tax and capital tax were fairly stable according to Mendoza et al. (1994) and Esteban-Pretel et al. (2010).

To evaluate the impacts of these different changes in fiscal policy instruments on the unemployment rate in Japan during the 1990s, we build, calibrate, and simulate a dynamic general equilibrium model with search and matching frictions in the

labor market, a productive government sector, heterogenous government spending components, and different categories of taxes. The model is calibrated to match the data moment of the Japanese economy in 1990, through employing the solution method of a two-boundary problem, we solve and simulate the transition path of the economy from the initial steady state to a new steady state far away in the future.

With the calibrated model, we evaluate the potential impacts of the changes in different categories of fiscal policies on unemployment during the Lost Decade through counterfactual experiments. We find that if government investment and wage didn't change, the unemployment rate in 2002 would be 7.56% and 0.36% lower, respectively, while it would be 5.90% higher if government consumption did not change. As the wealth effect increases the value of employment and decreases the value of unemployment, leading to rising matching surplus, which encourages hiring and reduces unemployment. Meanwhile, 10% tax reductions in labor, capital, and consumption after 1990 reduces the unemployment rate in 2002 by 15.87%, 9.59%, and 13.83% respectively. Their effects are not the same because different categories of taxes affect the economy heterogeneously: labor tax directly influences the value of employed workers, capital tax affects the accumulation of capital and hence the value of vacancy posting, while consumption tax affects the wealth of the household. Our study confirms that countercyclical fiscal policies contribute to cushion the labor market during recessions.

Chapter 5 examines the third important question: What are the effects of changing fiscal policies and labor market policies simultaneously on the aggregate economy? This problem is motivated by the episode of the Chinese economy since the late 1970s, which is a period of fast economic growth accompanied by enlarging urban-rural income inequality. This period is also featured by the existence and changes of labor mobility barriers across regions, which is the supply side intervention, and the urban-biased allocation of government education spending, which is the demand side intervention. The labor mobility barriers and urban-biased gov-

ernment education expenditures have been considered as two main determinants of the enlarging interregional income inequality.

To investigate how these two factors affect the urban-rural income inequality theoretically, we develop a two-region growth model, where labor mobility barriers affect the cost of migration across regions, while government education expenditures influence the accumulation of regional human capital. Under several tractability assumptions, we characterize the equilibrium paths of regional mean incomes, with which we evaluate the impacts of reducing labor mobility barriers and reallocating government education spending on interregional income inequality, which is measured by the ratio of urban to rural mean incomes, through comparative dynamics analysis.

We find that reallocating government education spending more equally mitigates the interregional income inequality as this reallocation reduces the urban mean income and raises the rural mean income simultaneously. While only reducing the labor mobility barriers does not necessarily decrease the urban-rural income inequality because it generates counteracting effects on the mean income of the rural stayers and that of the rural migrants. The combination of these two policies is likely to reduce the interregional income inequalities if the effect from reallocating government resources dominates. Our theoretical investigation suggests that reallocating government education resources more equally across regions could be very important in mitigating the enlarging urban-rural income inequality.

Chapter 6 summarizes the main findings of this dissertation. It also outlines the policy implications and discusses the directions for further studies.

Our analysis in this dissertation implies that different categories of government intervention policies generate heterogenous impacts on the aggregate output and the labor market. Moreover, different changes in distinctive policy instruments might exert counteracting effects on the aggregate economy. Therefore, elaborate considerations about the potential impacts of different policy instruments are indispensable

in the process of policy recommendation and policy implementation.