Life-cycle search, match quality and Japan's labor market

Julen Esteban-Pretel [a],[1], Junichi Fujimoto [b],*

[a] National Graduate Institute for Policy Studies (GRIPS), 7-22-1 Roppongi, Minato-ku, Tokyo 106-8677, Japan
[b] Faculty of Economics, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

ABSTRACT

Esteban-Pretel, Julen, and Fujimoto, Junichi—Life-cycle search, match quality and Japan's labor market

The Japanese labor market has been experiencing considerable transformations over the recent decades. We analyze the implications of some of these actual and potential transformations, whose impact may not be homogeneous across workers of different ages. We first develop a life-cycle search and matching model which incorporates random match quality as well as elements capturing important institutional features of the Japanese economy. Our model is consistent with the life-cycle properties of Japan's labor market, namely that the job separation and unemployment rates are U-shaped, whereas the job finding rate declines with age. We then conduct three experiments that are relevant to Japan: a decline in productivity, a removal of the firing costs, and a decline in the population growth. In the first two experiments, we find substantial changes to these three rates, where young workers tend to be the most affected. We observe, however, a very small labor market impact in the third experiment. *J. Japanese Int. Economies* **26** (3) (2012) 326–350. National Graduate Institute for Policy Studies (GRIPS), 7-22-1 Roppongi, Minato-ku, Tokyo 106-8677, Japan; Faculty of Economics, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan.

© 2012 Elsevier Inc. All rights reserved.

1. Introduction

The Japanese labor market has seen many changes over the last 20 years. Since the early 1990s, the unemployment rate has experienced a secular increase, accompanied by a reduction in the probability

* Corresponding author. Fax: +81 3 5841 5521.
  E-mail addresses: julen@grips.ac.jp (J. Esteban-Pretel), junichif@e.u-tokyo.ac.jp (J. Fujimoto).
[1] Fax: +81 3 6439 6010.

of workers finding jobs, and an increase in the chances of leaving a job. During this period, the Japanese government introduced a number of measures to deregulate the labor market that led, among other things, to an increase in contingent employment. These changes in the labor market increased people's concerns about the collapse of the traditional Japanese "life-time employment" system.

Japan's concerns, however, do not only lie in the aggregate level. Some of the issues faced affect workers of particular ages, such as high youth unemployment, or difficulty of old workers to find jobs late in their careers. These issues reflect an underlying heterogeneity in the labor market outcomes among workers of different ages. In fact, the Japanese labor market features a declining age profile of the job finding rate, and U-shaped age profiles of the job separation and unemployment rates. In order to fully understand the changes in Japan's labor market, whose implications may differ for workers in different stages of their working life, we need to first comprehend the forces generating such age profiles of the key variables, for example, the reason why young workers separate so often from their employees, or why the unemployment rate begins to increase again at very old age. Attempts for capturing such heterogeneity using a formal model, however, have not been thoroughly made in the literature thus far.

The main objective of this paper is twofold. The first goal is to build a model that captures the main characteristics of Japan's labor market, including its life-cycle features. The second is to use the model to perform experiments that are relevant for the changing Japanese labor market. To achieve these goals, we develop a life-cycle labor search and matching model with features relevant for Japan. We subsequently calibrate the model to match the long-run empirical evidence, and compare its predictions with the data. We then perform three experiments, a decline in productivity, a reduction in the firing costs, and a fall in the population growth rate.

The first step in our analysis is to understand the general and life-cycle aspects of the Japanese labor market, which we aim to capture with the model. Such characteristics include both similarities and differences with other countries, such as the US. In Japan, job finding, job separation, and unemployment rates are all highest for young workers and decline with age, but job separation and unemployment rates increase after the age of 50. In contrast, in the US. all three variables are monotonically decreasing in age (see e.g., Gorry, 2011; Esteban-Pretel and Fujimoto, 2010). Moreover, the levels of these variables are generally lower in Japan than in the US. Part of the differences in the shape of age profiles and the levels of these variables may be due to particularities in the general features of the Japanese labor market, such as severe restrictions to dismiss workers, widespread adoption of a mandatory retirement system, and a universal, highly organized job search during the last years of school.

We build our model in the style of the recent life-cycle search and matching models such as Chéron et al. (2008) and Hahn (2009), which differ from the textbook models[2] in assuming the finite life of workers. We further introduce several innovations to quantitatively explain general and Japan-specific aspects of the data. As in Esteban-Pretel and Fujimoto (2010), we incorporate random match quality, which is not necessarily known at match formation but is revealed after the first period of employment. As shown in Esteban-Pretel and Fujimoto (2010), the uncertainty in match quality delivers a declining separation rate as workers age, which the stylized model of Chéron et al. (2008) does not obtain. We also introduce elements that reflect some of the institutional features of the Japanese labor market mentioned above.

The model reproduces well the empirical age profiles of the variables of interest, through the following mechanisms. First, the decline of the job finding rate with age can be understood as follows. Since we assume that workers of all ages are pooled into a single labor market, they all face the same probability of being matched with a firm. Age variations in the job finding rate are therefore due to differences in the probability that a match becomes a productive job. Older workers have shorter employment horizons ahead of them, which reduces the expected value of a job and thus makes firms more selective in hiring these workers, reducing their job finding rate. This circumstance, already present in Chéron et al. (2008), is known as the *horizon effect*.

The horizon effect, combined with our assumption, reflecting mandatory retirement, that the firing costs are lower after a certain age, yields a rise in the model separation rate during the last years in the

---

[2] See, e.g., Pissarides (2000).