

# Japan's Output Gap Estimation and $\ell_1$ Trend Filtering

Hiroshi Yamada\*

*Department of Economics  
Hiroshima University*

and

Lan Jin

*Graduate School of Social Sciences  
Hiroshima University*

## Abstract

This paper estimates Japan's output gap using the recently developed  $\ell_1$  trend filter, which is an alternative to the popular Hodrick–Prescott (HP) filter. This new filter provides a piecewise linear trend line, which means it possibly provides better output gap estimates than the HP filter does for an economy such as Japan that has experienced some structural breaks.

*JEL Classification:* E32, C22

*Key Words:* output gap;  $\ell_1$  trend filter; Hodrick–Prescott filter; structural break; lasso.

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\*Corresponding author: Hiroshi Yamada. Department of Economics, Hiroshima University, 1-2-1 Kagamiyama, Higashi-Hiroshima 739-8525, Japan. Tel.: +81-82-424-7214; fax: +81-82-424-7212. E-mail: yamada@hiroshima-u.ac.jp