

2023

IARIW–BANK OF ITALY CONFERENCE “CENTRAL BANKS, FINANCIAL MARKETS AND INEQUALITY”

Paper Prepared for the IARIW-Bank of Italy Conference, Naples, Italy, March 29-April 1, 2023

A Time-Varying VAR Analysis of the Macroeconomic Impact of Changes in the Pasinetti Index
in the U.S.

Sylvio Antonio Kappes

Pedro Hugo Clavijo Cortes

Louis-Philippe Rochon

The Pasinetti Index (PI) was developed by Luigi Pasinetti (1980-81) in an effort to show that a theory of interest rate and income distribution logically precedes, in a pure labor economy, the introduction of capital accumulation and profits. The author establishes a “natural” interest rate value that leaves the income distribution between creditors and debtors unchanged in such an economy. This interest rate value – the Pasinetti Index - was later used as a measure of income flowing to (or away from) creditors (Seccareccia and Lavoie 2016) and also as a monetary policy rule (Rochon and Setterfield 2007). The PI is defined as follows:

$$PI=i-\pi-\lambda$$

Where i is a long-term interest rate, π is the inflation rate, and λ is labor productivity growth. Our aim in this paper is to examine the connections at the aggregate level between the Pasinetti Index (PI), the general economic activity, and the income distribution. For that, we employ three quarterly variables covering the period 1955:Q2 to 2019:Q4 for the USA: the PI; the real GDP growth rate (g) as a measurement of the economic activity; and the labor’s national income share growth rate (LS) that captures the functional income distribution. The data to construct the PI comes from the OECD database and the rest of the variables from the Federal Reserve Bank of St. Louis’s FRED database.

Following Perron et al. (2020), we provide a comprehensive treatment of testing jointly for structural breaks in both the mean and the variance of the errors, allowing the break dates to be different or overlap partly or entirely. We find evidence of some breaks in the variance of PI and g , and a weak presence of breaks for LS. The three variables experienced breaks in their variance

around the mid-1980s, which seems consistent with the overall change in macroeconomic volatility that the literature on the Great Moderation stresses. Additionally, output growth volatility also changed with the Great Financial Recession as expected due to its profound impact. Regarding structural changes in the mean, our exercises indicates three breaks for g , two for PI , and one for LS . The first break for g corresponds to the onset of the Great Moderation period, which seems to have modified not only output growth volatility but also its mean value. The second break heralds the end of the neoliberal expansion the economy experienced during the 1990s. Finally, the third break captures the effects of the Great Financial Recession on output growth. In this regard, the presence of a change in the mean value of the output growth is evidence of Ball's (2014) super-hysteresis hypothesis. The hypothesis maintains that the Recession affected not only the level but also the subsequent output growth rate. The break for LS is capturing the exceptional fall of the labor share registered during the beginning of the 2000s.

Next, we conduct a time-varying analysis that incorporates those instabilities to avoid any loss of power when performing inference. To that end, we employ a time-varying parameter vector autoregressive model featuring stochastic volatility in the innovations to the disturbances (TVP-VAR-SV). In addition, we also test for Granger causality in a robust way to the presence of instabilities, in particular, to assess the predictive power of PI on the rest of endogenous variables. To estimate the TVP-VAR-SV, we employ Bayesian machinery.

The time-varying VAR approach allows us to calculate impulse response function at different points of time and assess different responses. The shock size for the responses is set equal to the time-series average of the stochastic volatility for each series over the sample period. The impulse summarizes the effects of average-sized experimental structural shocks hitting the VAR system. Since the focus of this study is to analyze the effects of the PI on the growth rates of output and labor share, the shock is identified using a Cholesky ordering. The dates to calculate the different responses are not arbitrary but capture the response of the endogenous variables within the different regimes we found for PI in the univariate exercise. The intention is to determine whether the transition to a different regime could have influenced the economic conditions regarding the relationship between PI , g , and LS in those periods.

The impulse-response functions indicate that a rise in PI is highly detrimental to both real activity and labor share. The impact of a rise in PI on g declines over time, while the impact on LS has some permanent effects.

To complement the previous structural inference exercise, we also test for Granger-causality in a way that is robust to instabilities in the coefficients and variances. Our results indicate that the PI has strong predictive power for g ($PI \rightarrow g$) and for LS ($PI \rightarrow LS$), and so has LS for g ($LS \rightarrow g$). Overall, we believe that our empirical exercises show the relevance of the Pasinetti Index as an

explanatory variable for economic growth and income distribution, at least for the functional distribution. Extensions of our approach must consider how monetary policy impacts the PI, since the interest rate used in this index is a long-term one, while monetary policy is usually implemented with a focus on the overnight interest rate.

References

Ball L. M. (2014), 'Long-term damage from the great recession in OECD countries,' NBER Working Paper 20185. National Bureau of Economic Research: Cambridge (MA), US.

Pasinetti, L. L. (1980). The rate of interest and the distribution of income in a pure labor economy. *Journal of Post Keynesian Economics*, 3(2), 170-182.

Perron, P., Yamamoto, Y. and Zhou, J. (2020), Testing jointly for structural changes in the error variance and coefficients of a linear regression model. *Quantitative Economics*, 11: 1019-1057.

<https://doi.org/10.3982/QE1332> Rochon, L. P., & Setterfield, M. (2007). Interest rates, income distribution, and monetary policy dominance: Post Keynesians and the "fair rate" of interest. *Journal of Post Keynesian Economics*, 30(1), 13-42.

Seccareccia, M., & Lavoie, M. (2016). Income distribution, rentiers, and their role in a capitalist economy: a Keynes–Pasinetti perspective. *International Journal of Political Economy*, 45(3), 200-223.