
Individual Labor Income, Stock Prices and Whom it may concern

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There are several literatures that are connected to the investigated topic, such as

- Pricing of Human Capital Contracts
- Hedging of Individual Income Risk
- Portfolio Optimization
- Asset Pricing

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- 1 Theoretical Background
- 2 Econometric Model
- 3 Empirical Results
- 4 Conclusion

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$$y_t = f(S_t, S_{t-1}, \dots, S_1) + \epsilon_t, t = 1, \dots, T.$$

$$f(S_t, S_{t-1}, \dots, S_1) \equiv \int_0^t h_s^f dS_s$$

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$$(y_{i,t} | (G_i = j)) = \overbrace{\beta_i(1 - \alpha^j)}^A + \underbrace{\alpha^j y_{i,t-1}}_B + \overbrace{(1 - \alpha^j)\mu^j x_t}_C + \underbrace{\lambda \epsilon_{i,t}}_D$$

with random effect specification $\beta_i \sim N(\beta_i | \beta^j, \tau^{-1})$ and error term $\epsilon_{i,t}$, which follows a Student- t_ν distribution.

Parameter	Prior Distribution	Hyperparameter
α^j	$\alpha^j \stackrel{iid}{\sim} \text{Beta}(a_\alpha, b_\alpha)$	$a_\alpha, b_\alpha \sim \text{Ga}(2, \frac{1}{10})$
β_i	$N(\beta^j, \tau^{-1})$ $\beta^j \stackrel{iid}{\sim} N(m, c_\beta^2)$	$\tau \sim \text{Ga}(2, \frac{\tau}{2})$
μ^j	$\mu^j \stackrel{iid}{\sim} N(0, c_\mu^2)$	
λ	$\lambda \sim \text{unif}(0.1, 100)$	
ν	$\pi(\nu) = \frac{\nu}{100} \exp[-\frac{\nu}{10}]$	
$\eta_{i,j}$	$\pi(\eta_{i,j}) \sim \text{Di}(e_{i,j}),$ with $e_{i,j} \equiv 0.05$	
Differences to Juárez and Steel 2010a	The covariance matrix of β^j and of μ^j was dropped. The improper prior of λ was changed to an uniform distribution.	

Figure: Priors and differences to the original framework.

- German Socio-Economic Panel
- DAX30 (Thomson Reuters)

- The majority of the individuals do not attain a clear cluster assignment.
- There is a group of individuals that persistently attains high probabilities for a common cluster assignment.
- This group can be characterized by a strong relationship to financial markets.
- The occupational distribution of the found group differs significantly from the residual group.

P-value	Occupational Group
0.0292**	Armed Forces
0.5327	Legislators, senior officials and managers
0***	Professionals
0.2222	Technicians and associate professionals
0***	Clerks
0.0842*	Service workers and shop and market sales workers
0.9296*	Skilled agricultural and fishery workers
0.9994***	Craft and related trade workers
0.9594**	Plant and machine operators and assemblers
0.9629**	Elementary occupations

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Thank you for your attention!¹

¹Questions, criticism and feedback are warmly welcomed!