

A Study on Path Analysis of Determinants of Low-income Households: An Evidence from Korea

HyunWook Ryu¹ and SangSu Keum²

¹*Department of Global Trade and Management, Shinhan University, South Korea*

²*Department of Computer Science, Semyung University, South Korea*

¹*ryuhw@shinhan.ac.kr*

Abstract

Deciding low-income intensifies poverty rate, on July of 2017, the government of Korea has announced to raise minimum wage in order to make change to labor market structure. Income inequality has long been a social issue, and housing income is considered to be major determinant. With sample data in a medium-sized city of Korea, this study investigates causal relationship among parametric variables utilizing path analysis. We find that the quality of job for the households leads to income of the sample data analyzed.

Keywords: *Small-to-medium sized city, Low-income, Factors, Path analysis, Macro variables*

1. Introduction

There is conceptual frame pre-defined between the level of income and poverty. Poverty is determined upon household income, which is comprised of earned and non-wage incomes. Earned income differentials stem from the number of income earners in household, number of hours worked, and wage gap. One important influential factor is the number of income earner for each household. Household composition (including structural change), tax, and non-wage income are additional driving factors of income distribution. Not only is identifying driving factors of income distribution important, but finding inter-relation among factors also is critical to develop relevant policies.

This paper aims to study income inequality in theoretical perspective, and analyze factors of income differentials. It investigates causal relationship among factors; thus, it contributes to distinguish inefficient policies. The structure of this paper is as follows. Section two discusses the trends of income inequality. Section three presents previous researches and describes research model used in this study. Section four presents empirical analysis, and Section five discusses the results with implications.

2. Previous literature and the model

Previous researches cover and combine different factors in various topics. There are studies investigating various drivers such as inflation, nations' wealth, economic development index, and other macroeconomic factors as a measure of income inequality. [2][7][9] Other scholars present demographic effects on income gap including education and rural population. [4][11] Studies on citizen role and redistribution of assets and FDI inflows as political factors

Article history:

Received (November 2, 2017), Review Result (November 12, 2017), Accepted (November 22, 2017)

are covered. [1][10] Studies figure urbanization, age structure and household structure as demographic drivers for income inequality. [3][15] Researches on cultural and environmental factors state that such variables lead to poverty rate, which use land concentration, cultural characteristics, and rising shadow economy respectively [5][12].

In Korea, previous researches are divided into micro-level and macro-level. Study on variables pertinent to micro-level, which identify poverty eradicating causes from dynamic analysis [11]. Macro-level studies use distribution structure of economy, labor market, economic variables, and opportunistic structure [8][16]. There are several empirical studies interpreting both macro and micro variables [14].

As income inequality is such an important issue, figuring causes is necessary for sustainable development for a country. Although many literatures have worked on such area, no study has provided empirical evidence for inter-causal relationship among variables. This study is original in two aspects. This is the first study which identifies causal relation between driving factors of income inequality. Second, we present an empirical result with factor analysis with medium-sized city data in Korea. Shown in [Figure 1], path analysis is utilized to present directed dependencies among variables on hand. As it shows linear causal model by path coefficients, result can be interpreted with decomposed variables. The model is fundamentally written as following form:

$$r_{i,j} = \sum_q P_{i,q} r_{i,q}$$

where I and j denote two different variables given and q applied to all variables from which paths lead.

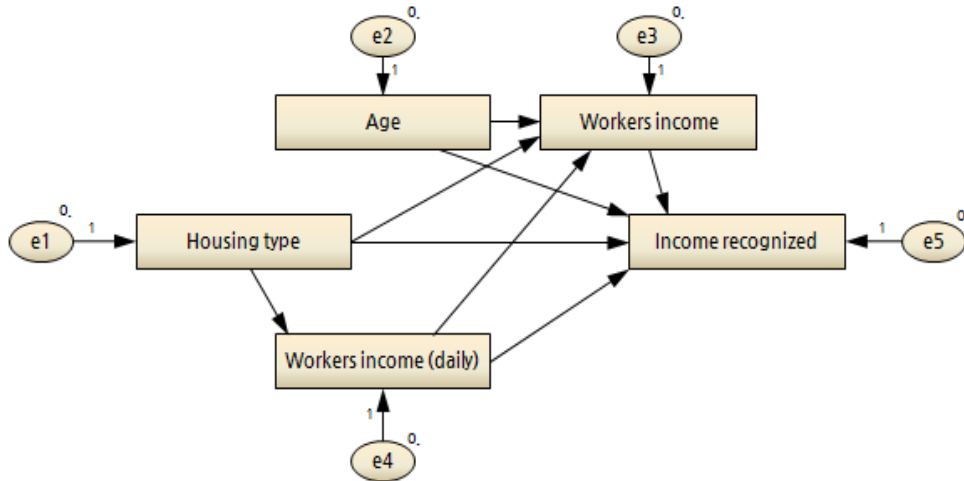


Figure 1. Research model

3. Empirical test

This paper aims to investigate how variables are inter-related. The sample data is total of 2,955 retrieved from local government in Korea.

Table 1. Variables

| Variable | Details |
|--------------------|--|
| Age | Age of householder |
| Householder tax | Households which householder pays income tax |
| Housing type | Type of house |
| Workers income | Income amount for daily workers |
| Income recognition | Amount of income recognized |

The variables used in the analysis is presented as follows: (i) Age of householder, (ii) Households which householder pays income tax, (iii) Type of living house, (v) Income amount for daily workers, and (vi) Amount of income recognized, shown in [Table 1].

Table 2. Causal effects test results

| | | Effects in detail | | |
|-------------------|-------------------|-------------------|----------------|---------------|
| | | Indirect effects | Direct effects | Total effects |
| Worker's income | House type | 0 | 0.021 | 0.021*** |
| Householder's tax | Age | 0 | -0.358 | -0.358*** |
| | House type | 0 | -0.063 | -0.063*** |
| | Worker's income | 0 | -0.014 | -0.014 |
| Income recognized | House type | -0.027* | -0.018 | -0.045 |
| | Age | -0.202 | 0.011 | -0.191 |
| | Worker's income | -0.008 | 0.415 | 0.407*** |
| | Householder's tax | 0 | 0.564 | 0.564*** |

Reject if 0; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Shown in [Table 2], causal relationship between explanatory variables is confirmed as four paths becomes statistically significant. Householders tax variable is influenced by householders' age, and Worker's income and Householder tax lead to Income recognition.

4. Conclusion

Various factors are at the base of income inequalities, and this study aims to decompose and conduct path analysis of the factors affecting household income. As examined the interrelation between driving forces of household income,

Since the level of income inequality differs across the globe, the importance of this study is that it contributes to figuring the causal relationship between driving factors of low incomes in medium-sized city of Korea. In the aftermath of conducting path analysis, householders age becomes meaningful variable for the householders who work as permanent employees. As resulted significant, working status (in other words, the quality of job) becomes determinant factors for the income. This result may persuade the government in that raising minimum wage is less important than the job security. Although the present study generated

insights on income determinants, small size of data remains limited which calls for further research in the future.

References

- [1] P. Aghion, and J.S. Commander, "On the dynamics of inequality in the transition", *Economics of Transition*, Vol. 7, No. 2, (1999).
- [2] A. Bulir, "Income inequality: Does inflation matter?", *IMF Staff Papers* 48, No. 1, (2001).
- [3] A. Chevan, and R. Stokes, "Growth in Family Income Inequality 1970-1990: Industrial Restructuring and Demographic Change", *Demography*, Vol. 37, No. 3, pp. 365-380, (2000).
- [4] H. Chu, "The impacts of educational expansion and schooling inequality on income distribution", *Quarterly Journal of Business and Economics*, Vol. 39, No. 2, (2000).
- [5] E.M. Crenshaw, "Polity, Economy and Technoecology: Alternative Explanations for Income Inequality", *Social Forces*, Vol. 71, No. 3, pp. 807-816, (1993).
- [6] K.Z. Hong, "Analyzing the Length of Poverty Spells", *Korean Journal of Social Welfare Studies*, (2004), Vol.24, pp.187-210.
- [7] A. Kaasa, "Factors of income inequality and their influence mechanisms: a theoretical overview", Working paper series 40, Tartu University Press, University of Tartu, (2005).
- [8] I. Ku, "Poverty in Korea, Why It Remains High?: Analysis of the Trend in Poverty since the 1990s", *Korean Journal of Social Welfares*, Vol.56 No.4, pp.57-78, (2004).
- [9] S.C. Parker, "Income Inequality and the Business Cycle: a Survey of the Evidence and Some New Results", *Journal of Post Keynesian Economics*, Vol. 21 No. 2, pp. 201-225, (1999).
- [10] V. Popov, "Shock therapy versus gradualism reconsidered: Lessons from transition economies after 15 years of reforms", *Comparative Economic Studies*, Vol. 49, No. 1, (2007).
- [11] G. Psacharopoulos, and S. Francis, "Education and the labor market in Venezuela: 1975-1984", *Economics of Education Review*, Vol.7, No. 3, (1988).
- [12] J.B. Rosser, and M.V. Rosser, "Another Failure of the Washington Consensus on Transition Countries: Inequality and Underground Economics", *Challenge*, Vol. 44, No. 2, pp. 39-50, (2001).
- [13] S.H. Seok, "Analysis of Reducing Effect of Senior Poverty of Basic Senior Pension", *Senior Welfare Studies*, Vol. 50, pp. 335-352, (2010).
- [14] Y.N. Song, "A Study on the Change in Regional Poverty Disparity", *Journal of Industrial Economics and Business*, Vol.20 No.1, pp.17-38, (2007).
- [15] L. C. Xu, and H. Zou, "Explaining the Changes of Income Distribution in China", *China Economic Review*, Vol. 11, No. 2, pp.149-170, (2000).
- [16] G. Yoo, "A Survey of Relationship between Growth, Distribution and Poverty", *KDO Journal of Economic Policy*, Vol. 28, No. 2, pp.199-237, (2006).

Authors



HyunWook Ryu, Ph.D.

Assistant professor, School of Global Business, Shinhan University, Republic of Korea



SangSu Keum, Ph.D.

Professor, School of Computer Science, Semyung University, Republic of Korea

This page is empty by intentions.