

Investigating the Effect of Inflation on Income Inequality of Urban Households in Iran Using the Atkinson Approach

Mohammad Reza Armanmehr¹

*Assistant Professor of Economics,
Shahrood University of Technology,
Shahrood, Iran*

Asieh Farahmandmanesh²

*MA in Economics, Payame Noor
University of Mashhad*

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Introduction

This study investigates the changes in inequality caused by the direct impact of price changes of commodity groups among different income deciles of urban households in Iran. The importance of examining income inequality has forced governments to intervene in certain matters through the application of specific policies in terms of reducing economic inequality. The importance emanates from three aspects: 1) High income inequality not only causes the spread of economic instability but also it can hinder productivity growth; 2) In many studies, the reduction in income inequality is expressed in terms of growth and development. 3) The publication of statistics and extracts from poverty and economic inequity is important in centralizing people's attention to these issues.

Theoretical frame work

Indicators of inequality used to measure income inequality in a community do not pay attention to the elements making up this inequality and the relative contribution of each of them in terms of total inequality of income. In order to implement a policy of reducing inequality, the determinants of this inequality must be identified so that a more effective policy can be applied by prioritizing their relative importance in creating inequality. It has been proved that inflation is one of the factors affecting income distribution, and its effect should be measured on its own as one of the factors affecting income inequality. In this research, Atkinson index has been used. The research data were collected during the period of 1372-1392 and time series. If the Atkinson income inequality function, instead of the income of

1- arman1212002@gmail.com

2- a.farahmandmanesh@gmail.com

households in each decade, uses the equivalent household income per decade, The amount that the Atkinson formula will show for income inequality represents the effect of the total inequality factors minus the direct effect of prices on income inequality. Therefore, the inequality of equivalent income is defined as the effect of the sum of factors influencing income inequality minus the direct effect of prices. In this research, the demand function estimation has been done using the method of linear expenditure system (LES). Due to the non-observance of the distorted sentences, the normal distribution, and the simultaneous effect of disrupting the variables on each other, the seemingly unrelated equations are used to estimate the parameters of the demand function.

Methodology

- 1) To derive the demand relation, the Ston-Garri utility function is used. We maximize the utility function by limiting the budget.
- 2) Estimating the parameters of the demand function: One of the most important applications of SUR is to estimate the parameters of the consumption expenditure system of the household. In this study, there are eight major product categories, therefore, we will have eight equations
- 3) Extraction of equivalent income from the Ston-Garri function: After estimating the parameters, we obtain the equivalent income. It is the amount of income (expenditures), which is at the same level of the utility of original income (expenditures) (before the price change). This is presented at the level of new prices and is called equivalent revenue.
- 4) Calculation of Atkinson's inequality
- 5) The steps of calculating the direct effect of price changes on inequality

Percentage share of the impact of price changes on income inequality

$$= \left(\frac{\text{income inequality} - \text{Inequality of equivalent income}}{\text{income inequality}} \right) * 100$$

Results & Discussion

the direct influence of inflation (price changes) on income inequality is calculated. The average calculated value of this effect during the studied period is 48.8%, and this average represents the share of price changes or the share of inflation in income inequality. Therefore, commodity price changes (inflation) are the most fundamental factor in the variation in income inequality.

Conclusion

To solve the problem of income inequality, it is necessary to understand the constituent elements of the income inequality and the share of each of them in the total income inequality. The results indicate that the great price increase (high inflation) increases inequality. In addition, of the effective factors, increasing the price (inflation) has had the greatest impact on income inequality (almost 49 percent), while the remaining 51 percent relates to the rest of the factors (tax system, employment level, etc.) which are linked to the change in inequality. Regarding the above percentage, it is safe to say that price changes or inflation is one of the main factors accounting for the change in income inequality. Therefore, what policy

makers should do to eliminate income inequality is to do their best to avoid inflationary policies.

JEL :D33, D63, E31

Key words: Inflation, equivalent income, expenses linear system, income inequality, Atkinson index

References (in Persian)

- Abbasian, E., & Nasrin Doost, M. (2012). *Eghtesad refah* [Welfare economy (1st ed.)]. Tehran: Noor Elm.
- Abolfathi Qomi, A. (1994). *Daramadi bar mabahese shakhshaye nabarabari daramad va faghr* [Introduction to topics of income inequality and poverty indicators]. Tehran: Iran Statistics Center Printing.
- Abrishami, H., & Mehrara, M. (2002). *Eghtesadsanji karbordi ruykardhaye novin* [Applied econometrics (new approach)]. Tehran: Publishing and Printing Institute of Tehran University.
- Abunoori, I., & Tajdin A. (2004). Baravord asar tavarom bar nabarabari dar tozie hazineye iran ba estefade az ravesh naparametriki (1350-1380) [Estimating influence effect on inequality in Iran's cost distribution using non-parametric method (1971-2009)]. *Journal of Economic Research*, 39(2), 165-184.
- Abunoori, A., Mofatteh, S., & Parhizi Ghashti, H. (2010). Tajzie va tahlil asar tavarom bar tozie daramad dar iran (Tahlil moghayesei manateghe shahri va rostayi iran) [Analysis of inflation impact on income distribution in Iran (Comparative analysis of urban and rural areas of Iran)]. *Quarterly Journal of Economic Sciences*, 4(13), 77-96.
- Armanmehr, M. (2011). *Ralz-Hakimi (Barrasiye tatbighi va nagh� meyarha va abade edalat eghtesadi dar andisheye jan ralz va mohammadreza hakimi)* [Rawls-Hakimi (Comparative and critical analysis of economic justice criterions in John Rawls and Mohammad Reza Hakimi's thought)]. Qom: Dalilema Publication.
- Dadghar, Y. (2007). *Eghtesad bakhshе omumi* [Public sector economy (2nd ed.)]. Qom: Mofid University Press.
- Darvishi, B., & Shahiqatash, M. (2013). Sanjeshe nabarabarie daramadi dar beyne ostanhaye iran (Ruykard eyni va ghyasi az shakhshaye istaye naparametrik) [Evaluating income inequality among Iranian provinces (Objective and deductive approach to nonparametric static indices)]. *Journal of Nameye Mofid*, 19(69), 137-156.
- Deputy Strategic Planning and Controlling Statistical Center of Iran. (2013). *Tozie daramaddar khanevarhaye shahri, rustayi va kol keshvar 1380-91* [Income distribution in urban and rural households throughout the country 2001-2012]. Retrieved from www.amar.org.ir/Portals/0/Files/.../ch_ntahdkhshr_92_v2.pdf.
- Jafari Samimi, A. (2005). *Eghtesad bakhshе omumi 1* [Public sector economics 1 (7th ed.)]. Tehran: SAMT Publications.
- Kafae, S. M., & Nasiri, H. (2009). Moarefi va baravorde do shakhes jaded nabarabari toziedaramadbaraye iran: Jini tak parametri va Atkinson-jini [Introducing and estimating two new indicators of income distribution inequality for Iran: Gini's Single-Parametric and Atkinson-Gini]. *Journal of Economic Research*, 39(4), 105-138.

- Kafaee, S. M., & Nasiri, H. (2008). Osul hakem bar shakhes haye nabarabari daramadi va brrasiye anha az nazar eslam [Principles governing income inequality indices and their examination in Islam]. *Quarterly Journal of Islamic Economics*, 8(32), 93-122.
- Khosravi Nejad, A., & Hashemi, A. (1995). Sisteme makhareje khatti, olguye taghazaye khanevarhaye shahri dar iran [Linear expenditure system: Demand model of urban households in Iran]. *Journal of Economics*, (4), 74-92.
- Mohtashami Barzadaran, Gh., Yaghoobi, M., & Nezhad Abdullah, M. (2013). Shakheshayе tozie daramad dar iran [Indicators of income distribution in Iran]. *Journal of Economic Magazine*, 13 (9 &10), 49-64.
- Motevasseli, M., & Samadi, S. (2000). Shenakht janbehaye eghtesadiye siyathaye kahesh faghr [Understanding economic aspects of poverty reduction policies]. *Journal of Economic Research*, 34(2), 65-98.
- Phetros, M., & Mawboudi, R. (2010). Rabeteye beyne nabarabari daramad va nabarabari makharej masrafi [The relationship between income inequality and inequality of consumption expenditures]. *Quarterly Journal of Social Welfare*, 11(40), 341-365.
- Raghefar, H., & Ebrahimi, A. (2008). Nabarabari daramadi dar iran teye salhaye 63-85 [Income inequality in Iran during the years of 1984-1988]. *Quarterly Journal of Social Welfare*, 7(28), 9-34.
- Salimifar, M., & Taheri Fard, A. (2010). Barrasiye tahliliye rabeteye roshd eghtesadi va tozie daramad dar keshvarhaye mantagheye emrikaye latin [Analytic study of the relationship between economic growth and income distribution in Latin American countries]. *Journal of Management and Development Process*, 23(1), 3-23.
- Sayyed Noorani, M. (2013). Arzyabiye raveshiye shakheshaye faghr va nabarabari ba takid bar hoghughe eghtesadi dar eslam [Assessment of the poverty and inequality indices with emphasis on economic rights in Islam]. *Quarterly Journal of Majles and Strategic*, 21(77), 195-226.
- Sayyadzadeh, A., & Ahmadi, S. M. (2006). Barrasiye tabee refah ejtemaei amartiyasen dar iran yek tahlilnazari va tajrobi [A survey on Amartya Sen social welfare function in Iran: A theoretical and experimental]. *Journal of Namehye Mofid*, 2(2), 123-138.
- Shahabi, A., Mohammadi, T., Shakeri, A., & Abdollah Milani, M. (2015). Barrasiye asar taghyyire gheymatha bar tozie daramad va refah dar manategh shahri [The effect of price changes on income distribution and welfare in urban areas]. *Quarterly Journal of Economic Modeling*, 9(1), 25-47.
- Suri, A. (2015). *Eghtesadsanji pishrafte* [Advanced econometrics (3rd ed., Vol. 2)]. Tehran: Farhang Shenaci.
- Toutounchian, I. (2000). *Pool va bankdariye eslami va moghayeseye on ba nezame sarmayedari* [Money and Islamic banking and comparing it to the capitalist system (1st ed.)]. Tehran: Cultural and Artistic Institute of Tavangharan.

References (in English):

- Atkinson, T. (2015). Can we reduce income inequality in OECD countries? *Empirica*, 42(2), 211-223.
- Balcilar, M., & Chang, Sh., Gupta, R., & Miller, S. M. (2016). *The relationship between the inflation rate and inequality across US States: A semiparametric approach*. Pretoria. South Africa: University of Pretoria.

- Blackwood, D. L., & Lynch, R. G. (1994). The measurement of inequality and poverty: A policy maker's guide to the literature. *World Development*, 22(4), 567-578.
- Blanco, L. (2009). Life is unfair in Latin America, but does it matter for growth? *World Development*, 38(3), 393-404.
- Cowell, F. A. (2008). *From the New Palgrave dictionary of economics* (2nd ed.). London: Palgrave Macmillan.
- Deaton, A. (2010). Price indexes, inequality, and the measurement of world poverty. *American Economic Review*, 100(1), 5-34.
- Duncan, D., & Sabirianova, P. K. (2016). Unequal inequalities: Do progressive taxes reduce income inequality? *International Tax and Public Finance*, 23(4), 762-783.
- Goda, T., Stewart, Ch., & Torres, A. (2016). *Absolute income inequality and rising house price*. Retrieved from <http://www.eafit.edu.co/escuelas/economiayfinanzas/noticias-eventos/Paginas/absolute-income-inequality-and-rising-house-prices.aspx>.
- Henderson, J. M., & Quant, R. A. (2002). *Microeconomic theory: A mathematics approach* (13th ed., M. Gharabaghian & J. Pajouyan, Trans.). Tehran: Rasa Cultural Services Institute.
- Kuznets, S. (1995). Economics growth and income equality. *American Economic Review*, 45(1), 1-28.
- Lecaillon, J. (1995). *An analytic study on the income distribution and economic development* (A. Akhavi, Trans.). Tehran: Institute of Business Studies and Research
- Litchfield, J. A. (1999). Inequality: Methods and tools. Text for World Bank's web site on inequality poverty, and socio-economic performance. Retrieved from <http://www.worldbank.org/poverty/inequal/index.htm>.
- Loughrey, J., & O'donoghue, C. (2012). The welfare impact of price changes on household welfare and inequality 1999-2010. *Economic and Social Review*, 43(1), 31-66.
- Lambert, P. J., & Ianza, G. (2006). The effect on inequality of changing one or two incomes. *Journal of Economic Inequality*, 4(3), 253-277.
- Nemati, M., & Raisi, G. (2015). Economic growth and income inequality in developing countries. *International Journal of Life Sciences*, 9(6), 79-82.
- Ravallion, M. (2004). *Pro-poor growth: A primer*. Washington DC: World Bank.
- Saint-paul, G., & Verdier, T. (1996). Inequality, redistribution and growth: A challenge to the conventional political economy. *Papers and Proceedings of the Tenth Annual Congress of the European Economic Association*, 40(3-5), 719-728.
- Sen, A. (2007). *Economic inequality* (V. Mahmoudi & E. Abbasian, Trans., 3rd ed.). Tehran: Institute of Economics in Tarbiat Modares University.
- Tirelli, P., & Menna, L. (2016). *Optimal inflation to reduce inequality*. Bicocca, Italy: University of Milan.
- Todaro, M. (1999). *Economic development in the Third World* (Gh. A. Farjadi, Trans., 13th ed.). Tehran: Kaohsar.
- Varian, H. R. (1975). Distributive justice, welfare economics, and the theory of fairness. *Philosophy and Public Affairs*, 4(3), 223-247.
- Walker, D. O. (2007). Patterns of income distribution among world regions. *Journal of Policy Modeling*, 29(4), 643-655.