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Oil Revenues and Inequality in Oil-rich Countries:
The Case of Iran

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ABSTRACT

The Rentier State Theory, the Dutch disease Paradigm, and the natural resource curse are some of the dominant perspectives developed to explain the sociopolitical and economic conditions of oil-rich countries. But the important issues, neglected by these theoretical frameworks, are the high effects of intense budget dependence on oil revenues, revenue fluctuations, and the institutional framework in which policies are made. These factors determine the outcome of oil revenues to society and under this circumstance, efficient policies to deal with socioeconomic problems such as inequality are not taken. This paper aims to elucidate the mechanism of interaction between oil revenue dependency, income fluctuation, and the lack of efficient institutions to address the problem of inequality in Iran, an oil-rich country. We ask: what consequences has reliance on oil revenues had for inequality in post-revolutionary Iran?

This study adopts a documentary analysis approach, relying on data drawn from reports issued by official institutions including the Central Bank of Iran, the Statistical Center of Iran, and OPEC to investigate the dynamics under consideration.

The results demonstrate that both the extent and the trajectory of inequality in post-revolutionary Iran have been closely linked to fluctuations in oil revenues. Two important patterns are particularly noteworthy. First, during periods of revenue windfalls, the upper strata capture a disproportionate share of the benefits. Second, the economy's structural dependence on oil income, together with the volatility inherent in such revenues and the absence of robust institutional frameworks, has entrenched persistent inequality, while simultaneously generating shifts in inequality that mirror the cyclical changes in oil revenues.

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1. Introduction

Oil-rich countries have been the subject of numerous studies analyzing their economic, political, and social systems. These studies define these countries as rentier states and outline their distinct political and financial features. Empirical studies have shown that oil-rich countries suffer high inequality rates. Studies attribute such higher rates of inequality mainly to the budgeting methods of state-run programs that are largely supplied with non-production incomes and the sale of natural resources. The easy access to oil revenues pushes governments in these countries to spend lavishly and distribute the rent instead of redistributing wealth, when its negative consequences on inequality are usually overlooked. The lack of an effective mechanism for the distribution of resources, as well as limited and fragile institutional frameworks within which politicians are making decisions explains why most of the oil rich countries hardly enjoy such endowment. As Mohaddes and Hashem Pesaran (2012) argue, when oil revenues managed appropriately are a blessing but in its volatility and lack of appropriate institutions and policy mechanisms which act as shock absorbers in the face of high levels revenue volatility it could be a curse. Thus, the main problem is, far from the oil income or the rent resulting from it, the institutional inefficacy in terms of resource management and distribution.

Some scholars (Sala-i-Martin and Subramanian, 2003; Mehlum et al., 2006; Mehrara et al., 2008) see the impact of the resource curse on economic and social variables such as inequality and the quality of country-specific institutions, such that in the absence of strong institutions, these oil revenues don’t allocate effectively. In lack efficient institutions, easy access to superfluous oil revenues brings governments a level of independence from society (Beblawi, 1987; Lynn Karl, 2009; Skocpol, 1982); governments hardly find the incentive to be accountable to their civil society and are less concerned about the consequences of their expenditure methods. In fact, “the easy access to oil revenues transforms the technical-economic independence of the oil sector into the socio-economic independence of the government” (Katouzian, 1981).

Governments that earn huge oil revenues often choose to distribute a portion of that wealth among selected social groups instead of its fair and proper reallocation (Dawkins, 1989; Beblawi,

1987; Shireen Hunter, 1986; Chatelus, 1990; Mahdavi, 1970). While this distribution is intended to promote social welfare (Hajiyousefi, 1997), it is heavily influenced by the logic of clientelism. Under such circumstances, each social stratum competes to seek a bigger share based on its attachment and loyalty to the government (Beblawi, 1987). As a result, the determining factor in welfare as well as in configuration of the social stratification is defined with degrees of dependence on governments (Katouzian, 1981). Under such circumstances, wealth distribution will rather translate into the distribution of the rent and securing the favor of social groups and even daring for social control than redistributing wealth and reducing inequality (Haji-Yousefi, 1997). In the same vein, Friedman (2006) alludes to historical clues that suggest the boost in oil revenues does not necessarily lead to economic growth and public welfare.

Although there have been little research examining income distributional consequences from abundance and dependency (Berishaa et al., 2020), some researchers have addressed the impact of oil income on social welfare in Iran. Mashayekhi (1984) explains how the economy in Iran is reliant on oil revenues and how fluctuations in these revenues impair welfare policies. Hasanzadeh et al. (2012) found out that the effect of oil revenues on the welfare of urban households surpasses that of rural households. Similarly, Katouzian (1981) states that expending oil revenues on consumption has no benefits for farmers and villagers, and in fact, worsens their situation. Abbasian et al. (2017) demonstrate that when the ratio of oil revenues to GDP exceeds 35.9%, harmful impacts on welfare are expected. Mesagan et al. (2019) compare the impact of oil revenues on social and economic welfare in Nigeria and Iran and find that although the effect is contrapuntal in the former, oil revenues have left a positive impact on social and economic indicators in Iran.

Pilvar et al. (2013) evaluate the short-term effects of oil revenues on welfare to be positive; but, they believe that this effect dissolves in the long term. According to Momeni (2003: 202) “after the [Iran’s 1979] Revolution, the quantity of jobs created in the non-productive economic sectors has always exceeded the entirety of that created in the productive sectors, indicative of the reward system of Iran’s national economy”. Based on the literature, oil-rich countries have failed to use

their wealth for development (Elteja'ei, 2017) and to overcome the problems of poverty and inequality. In general, one can argue that no previous study has proposed oil as a factor of development, democracy, and sustainable welfare in oil-rich countries. It is argued that huge part of this problem is blamed on the institutional inefficiency in these countries. Therefore, the governance systems and the economic structure dictated by rentier incomes are crucial factors in the intensification of inequality there.

Another point to make is that most studies outline inequality by concentrating on income differences that rely on the Gini coefficient and the rupture between income deciles. These studies have failed to consider "consumption" as the criteria for measuring the household's share of welfare. This paper assumes that income alone cannot effectively demonstrate the difference in the standards of living among various groups, as it may overlook aspects of inequality, such as in health or education, that have severe impacts on individual's lives in the long run. Rather, paying attention to household expenses which reveal inequality based on the amount of consumed welfare, along with comparing their income levels, can provide a thorough picture of inequality. Thus, the image of inequality in oil-rich countries in the current literature is by no means adequate, suggesting a research gap the addressing of which can improve our understanding of the nature of inequality in such countries.

The current paper aims to incorporate inequality in consumption besides inequality of income (based on Gini Coefficient) to provide a more telling image of inequality in an oil-rich country (Iran). So, the main question of the study is: what consequences has reliance on oil revenues had for inequality in post-Revolutionary Iran?

2. Oil Revenues and Inequality

Inequality refers to the imbalanced distribution of the per capita income among various groups (Todaro and Smith, 2012). In this sense, inequality is an indispensable component of all societies. However, the debate on the degree and changes of inequality is only meaningful when viewed in the context of income and spending variations. Economic growth and the quality of distribution

are two factors that determine the link between income and inequality. According to Kuznets (1955), inequality intensifies in the early stages of development which means that every society that sets progress in motion will experience a period of heightened inequality.

In the discussion of national income and its impact on inequality, the financing source and state revenues become important. Income from the sale of natural resources such as oil and the subsequent economic growth have been fascinating research topics especially with regards to their impact on inequality. High oil revenues in the Persian Gulf region and among the Middle East countries, as Moshrif (2020) argues, has always been associated with significant income inequality. It is a fact which reveals that oil revenues if not necessarily is responsible for the high inequality rate, at least, have failed to control it.

Leamer et al. (1999) agree that the abundance of resources entails more income inequality. Gylfason and Zoega (2003) show when capital distribution is unequal between resource and non-resource sectors, income inequality increases with resource abundance. Carmignani (2013) and Buccellato and Mickiewicz (2009) demonstrate the same positive relationship between the abundance of natural resources and inequality. Kim and Lin (2018) conclude a negative relationship between oil abundance and income inequality in the long run while Parcero and Papyrakis (2016) and Steinberg (2017) emphasize that, except for highly oil-rich economies, oil predicts lower degrees of income inequality. Based on the findings of Alexeev and Zakharov (2022), oil income has amplified income inequality in Russia with the quintile with the highest rent-seeking rates benefiting more when positive price shocks mixed with growing rent-seeking having dwindled the share of the paid workforce of revenues.

As a country where oil income has had an important role in the economy particularly in the past seven decades, Iran is also hit with relatively high degrees of inequality. The Gini coefficient of 0.4360 in the year of the Islamic Revolution (1979) has remained almost about 0.4 for four decades. According to Salehi Isfahani (2009), the persistent reduction of poverty after the Iran-Iraq war in 1988 has left little impact on the reduction of inequality.

As Faraji Dizaji (2016; 85) argues, “by all accounts, Iran’s economy has underperformed in terms of per capita GDP growth since the revolution”. Based on this fact, many researchers believe that Iran's high inequality rate and poor economic performance over the past four decades can be attributed to the natural resource curse, with oil being its primary determinant. Tabibian (2000) demonstrates that the increase in oil prices benefits the highest income decile more than other income groups (cited in faraji Dizaji, 2016: 89). The findings of Farzanegan and Kreiger (2017) similarly highlight the existence of a positive and meaningful relationship between income inequality and boosting oil revenues as 10% increase in the oil and gas rents per capita leads to 1.1% increase in income inequality in the long run.

These arguments illuminate the unequal distribution of oil incomes in oil-rich countries and somewhat inform the resource curse theory. The proposition of this theory is that oil resources are not inherently disastrous; it is rather institutional inefficiency, overt dependence on natural resources, mismanagement, improper distribution, inattention to long-term effects of programs, and the oil price fluctuations that turn them into disasters. The idea explains why “countries with weak economic and political institutions are particularly prone to the resource curse” (Berisha et al., 2020; Papyrakis et al., 2017; Torvik, 2002; Mehlum et al., 2006). Norway is a good counterexample, where the oil resources have never played a destructive role, thanks to an efficient political and institutional structure developed well before the extraction of oil. As Jonathan Di John (2011) argues, poor economic performance of less developed countries should not be blamed on the abundance of but the dependence on natural resources; dependence on the revenues that are gained through the sale of natural resources, together with their price fluctuation, do the worst harm to economic growth and inequality.

The dependence of a country on natural resources makes it vulnerable to price shocks, which in turn causes inflation and increases inequality (Lucas and Manders, 2010). Berisha et al. (2020) contend that there is a non-monotonic relationship between oil abundance, oil dependence, and income inequality, as oil abundance reduces income inequality. Goderis and Malone (2011) shows while oil abundance can initially reduce income inequality in short run, it tends to increase

it over time. Gylfason and Zoega (2003) similarly found that dependence on natural resources intensifies inequality. The findings of Kim et al. (2020) defend the hypothesis that oil abundance can decrease income inequality by investing in human capital and improving institutions' quality, while fluctuations in oil prices can increase inequality. In their idea, it is not the oil revenues but their fluctuations that increase inequality.

In an imaginary scenario, let us consider how the severe decrease in oil revenues creates inflation and increases inequality. With the increase in oil prices, the government uses the necessary means to protect the poor and compensate for part of their loss. In contrast, when such revenues dwindle, governments no longer have enough financial resources to tackle inequality. Despite its importance, the literature of the field has not adequately addressed the problem of oil price shocks and the changes in inequality in its relationship with the important topic of inflation and the life expenses of various social groups.

According to the economic literature, to decrease inequality and improve living standards economic growth and financial resources are necessary. When oil revenues can provide the financial resources necessary to improve living standards and tackle inequality, the question remains as to why income and expenditure inequality are normally high in oil-rich countries. It is clear that in the process of economic progress, the well-to-do groups tend to benefit more, which can lead to greater inequality in the absence of clear regulations. But that is not the whole story as, in the absence of economic growth, not only does inequality intensify, but inflation worsens the condition of the poor. Hence, economic growth is essential to fight poverty and inequality, though it must be accompanied by progressive social policies. We observed in this section how a potential that can serve to improve the poor's condition and reduce inequality would ironically escalate the situation. As explained above, it is not the oil revenues themselves but dependence on them, their improper distribution, and their price fluctuations, embedded in the general institutional and political structure of a country, that lead to inequality.

3. Hypothetical Considerations

Oil revenues have been a major source of income for Iran's government, accounting for 56.3% of revenues between 1970 and 2012. Such intense dependence on oil makes the theoretical debates on the relation between oil revenues and inequality applicable to the case of Iran.

In oil-rich countries, particularly where typically weak democratic and institutional structures result from the absence of intermediary civil organizations is common, the growth of the oil economy does not lead to a reduction in inequality. This is because wealth distribution is based on proximity to oil sources rather than on innovation, entrepreneurship, creativity, or merit. Without effective institutions to control inequality, a reduction in rent incomes can lead to inflation and further intensify inequality. Effective institutions moderate the situation by tying economic growth to the control of inequality.

Iran’s intense reliance on oil means that fluctuations in oil prices can have a significant effect on inequality and poverty. When oil prices decrease, inflation rises, and the government’s capacity to take protective measures to mitigate the impact of the economic shock on lower-income groups would be limited. At the same time, rising prices in areas such as housing and other consumer goods can widen the gap between the poor and the wealthy. With the government's economic power shrinking, it may be less able to introduce sufficient protective programs that compensate for the lost purchasing power of lower-income groups and control class divisions. In sum, the situation is ripe for widening inequality.

In the situation of budget deficit, governments usually try to compensate for the lost income by increasing taxes, but rather than improving existing tax systems to better reflect justice, they may introduce new taxes that disproportionately affect middle or lower-income groups instead of the wealthy. This is despite the fact that blue-collar clerics often pay the highest average taxes in Iran, while owners of industries, businessmen, traders, physicians, and lawyers who earn far more than clerics may pay less.

There are two conflicting arguments explaining the relationship between economic growth and inequality. Some suggest that economic growth leads to increase inequality, as seen in China

from the last two decades of the 20st century onward (Jain-Chandra et al., 2018; Piketty et al., 2019). On the other hand, some believe that slower economic growth and inflation also contribute to inequality. Both propositions echo degrees of reality while the quality of inequality differs in each pattern; in the first case, inequality is probably associated with an improvement in the condition of the poor, while in the second case, inequality aggravates poverty. This reaffirms the need to address poverty and control household expenses to reduce inequality. Any program aimed at tackling inequality must necessarily focus on fighting poverty.

While some scholars believe that resource abundance as the Achilles heel of resource-rich countries (Berishaa et al., 2020), empirical evidence shows that the absence or reduction of such resources can also intensify poverty. This is because oil-rich countries often have poor institutional structures while there is a lack of alternative resources; thus, any reduction in oil revenues can have severe consequences for poverty and inequality. Nevertheless, the abundance of resource revenues can at least help conceal the governments' inefficiencies.

4. The Place of Oil Revenues in Iran’s Economy

The Islamic Revolution of 1979 brought about significant changes in Iran's policies toward the marginalized groups who were previously ignored. The revolutionaries' slogans emphasized the importance of the "rule of the dispossessed" and promised to include them in welfare programs. The revolutionary government was seen as a patron of these groups and needed to maintain its revolutionary promises of protecting the poor and dispossessed to retain its grassroots support. As a result, the government's welfare system became a political, religious, and moral liability of the post-revolution establishment.

Iran's oil revenues were a significant source of financial resources for the new government's plans, but they decreased after the Revolution, and the outbreak of the Iraq War further exacerbated the situation. In 1977, Iran's yearly oil revenues were $23,559 million, but they decreased to $21,684 million in the year of the Revolution and fell even lower to $8,419 million

when the War ended in 1988 (a 64.27% decrease)[1]. In the first decade after 1979 revolution Poverty increased sharply, with approximately 20 million [around 40.5 percent of] Iranians experiencing absolute poverty in 1986 (Azimi, 1397: 93).

During the War years, there was an inverse relationship between the amount of taxes collected by the government and the price of oil. It's worth noting that increasing tax revenue "was not based on the re-construction of the tax system (i.e. increasing direct tax revenue) but on the indirect tax revenue" (Saeidi, 2001: 227). When the War ended, Iran's oil revenues increased, and for the next two years, 50% of the country's total national revenues came from oil. By 1992 thanks to the temporary spike in oil prices following the Gulf War, economic growth was lastly made possible (Keddie, 2004). Throughout the 1990s, except for 1998 and 1999, oil revenues accounted for 50% of the total national revenues. In 1998, oil revenues decreased by 35.4%, and tax revenues increased by 43.4%.

Theoretically, the amount of taxes in a country is subordinate to revenues and wealth creation. That is to say, when a country's revenues are hit, tax revenues also naturally decrease unless the loss is compensated by indirect taxes such as inflation. In such circumstances, the governments may be committed to reform the tax system to make up for the loss. However, in oil-dependent economies that lack an efficient tax system or institutions, privileged groups who have access to power do not comply with the situation. Thus, new taxes are introduced or inflation is unleashed to be presumably paid out of the pocket of the poor. As a result, the burden of taxes falls on the shoulders of salariat instead of the wealthy.

Although oil revenues improved in the 1990s, inflation in the first half of the decade increased due to structural adjustment policies. The average inflation rate in the decade was 24.4%. The highest rate of oil revenues in Iran's history was in the first decade of 21st century, from $188221 million in 2000 to $114751 million in 2011 (over 600% increase), before the US imposed severe sanctions against the country in 2011. Heavier oil sanctions in the 2010s reduced Iran's oil

[1] Data are available at: https://asb.opec.org/data/ASB_Data.php.

revenues to $27,308 million in 2015 (a 76.2% drop) when the JCPOA was signed. The decline was associated with a sharp jump in prices and inflation rate, with the inflation rate tripling from 10.8% in 2009 to 34.7% at the end of 2013.

The Iranian government, led by Hassan Rouhani since 2013, faced economic pressures due to heavy sanctions. His main priority was to remove the sanctions and restore oil incomes. To achieve this goal, Iran engaged in talks with G5+1 and signed the JCPOA, which led to the lifting of the sanctions. This resulted in a significant increase in oil revenues, which grew by 221.6% from $27.308 million in 2015 to $60,519 million in 2018. In this year, former US president Donald Trump withdrew from the JCPOA, and new sanctions were imposed on Iran's economy. As a result, Iran's oil revenues dropped to $7.656 million in 2020, which is only one-eighth of the amount two years earlier. This reduction in oil revenues caused inflation to soar in the country. The inflation rate, which had decreased to 9.6% in 2017, grew to 36.4% in 2020, representing a fourfold increase in just three years. It went up again to 50% in 2022, according to Iran's Central Bank. This reveals the significant dependence of Iran's economy and various groups' welfare on oil revenues, as well as their vulnerability to price shocks.

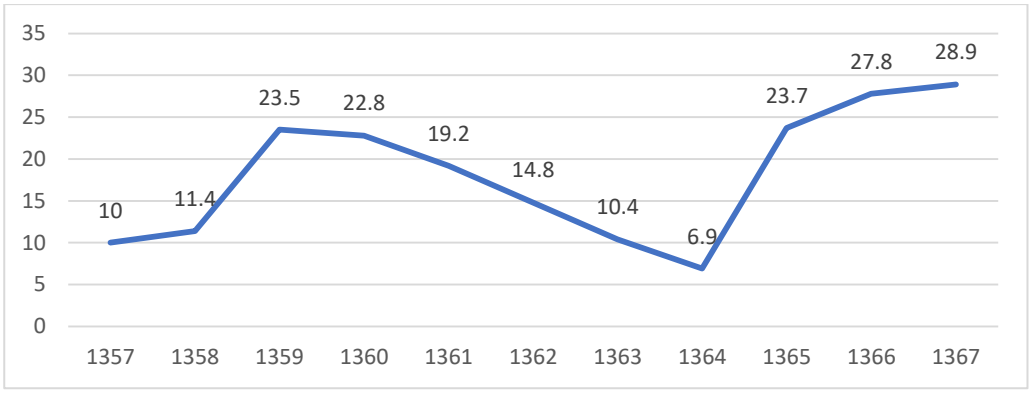
5. Inflation and Inequality in Post-Revolution Iran

Improving the welfare for all Iranian citizens was one of the demands of the participants in the revolution, and it was also taken into consideration by the leaders of revolution. This promise of welfare providing was reflected in the Constitution, which addressed welfare as part of the new establishment's ideological and moral obligation (in Articles 29, 30, 31, 43, and some clauses of Article 3). Several institutions were formed to serve the welfare of certain target groups, which in turn, were tightly oriented towards the consolidation of the values of the Islamic Republic. Understanding the origin of these welfare programs to comprehend their development is important. In Iran, welfare programs, were adopted as strategies for the promotion of the dominant value system, have been financed mainly through oil sales, providing a safe financial resource for the pursuit of those value-laden goals.

However, the path to fulfilling welfare for all citizens in Iran has not been smooth. The state of welfare programs has been highly dependent on the national economic and political aura of each period. Despite the early promising days, a whirlpool of incidents exposed Iran's welfare programs to various challenges. The imposed Iraq War created various challenges, one of which was the obligation it created for the government to intervene in the provisioning of necessary goods for citizens. The government fulfilled this task through a coupon and "well-organized rationing system [which] prevented mass hunger and serious malnutrition during the war" (Messkoub, 2006: 240). It stemmed from the "belief in the necessity of government intervention in the economy with the aim of social justice and eradicating poverty" (Movaseghi, 2006: 277). Therefore, the government was assigned the duty of providing the basic needs of citizens. Financing the War and reducing oil revenues, together with the high inflation rate, endangered the livelihood of certain groups and called for government intervention. Although the post-War years witnessed improvements in some welfare indicators, the threat of inequality and class divergence was still in place. Before going to the topic of inequality, we take on an overview of the situation of inflation, because the inflation rate is, on the one hand, dependent on oil revenues and, on the other hand, believed to prognosticate inequality.

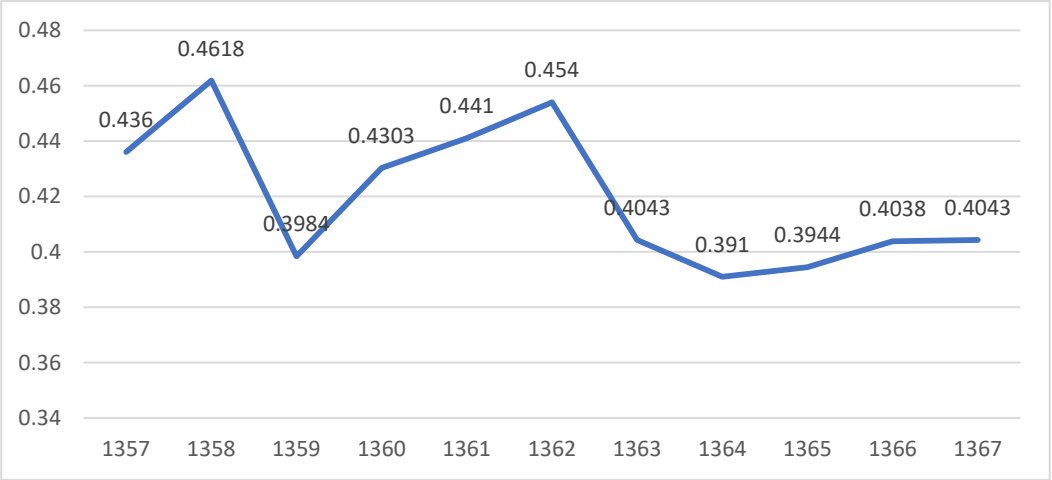
With the triumph of the Revolution and the afterward political and economic disturbances, the rate of inflation began to rise in the initial two years of the Revolution. The inflation rate of 10% in 1977 rose to 23.5% in 1980; later in 1985, it skewed down to the one-digit rate of 6.9%. From this time onwards, however, Iran's oil revenues sharply headed downward as a result of which the inflation rate tripled to 23.7% in the following year and reached its peak of 28% at the end of the war.

Chart 1: Iran's Inflation rate from the Islamic Revolution to the End of Iraq War



Source: Data obtained from Iran's Central Bank website at: https://tsd.cbi.ir/Display/Content.aspx

Chart 2: Gini coefficient in Iran from the Islamic Revolution to the end of Iraq War (1988)



Source: Data obtained from Iran's Central Bank website at: https://tsd.cbi.ir/Display/Content.aspx

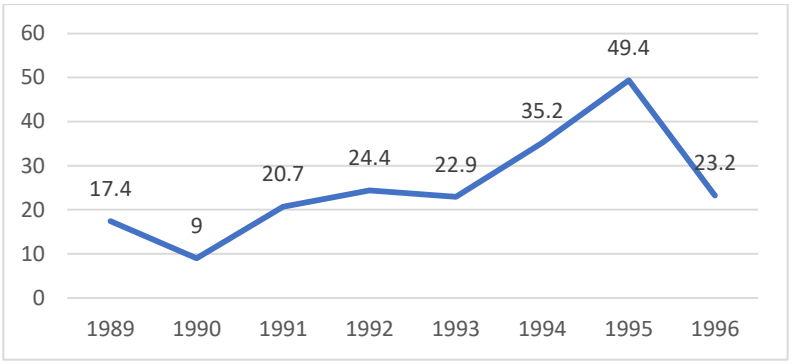
As an economic rule, inflation tends to widen the gap between social classes, as it unfavorably affects the poor while it may benefit the wealthy. This has been observed in Iran, where the Gini coefficient and inflation rate fluctuate in line with changes in oil revenues; When oil prices drop, both indicators worsen.

Following the end of the Iran-Iraq War, Hashemi Rafsanjani, the new president of Iran, supported privatization and implemented a reconstruction economy policy based on the World Bank's structural adjustment guidelines for developing countries. "In 1989, his administration increased industrial investment by removing bureaucratic regulations and allocating a larger budget to the industry (Nonejad, 2002: 210). In 1993, the government accelerated privatization by selling over 1,000 state-owned factories and enterprises (Keddie, 2004).

Criticism of privatization and the method of transferring economic enterprises was widespread among intellectual and political circles. Critics suspected that the process was more about giving shares of factories, companies, and commercial licenses to affiliated groups and relatives, rather than actual privatization. In Movaseghi's words (2006: p. 185), "The political elite benefited from the governmental economy and the monopolies, rents, and privileges and created a political and economic oligarchy in Iran". These efforts can be understood as the continuation of the same early Revolution patronage-clientship relations that preserved economic interests for the close circle, unless in the early days when privileges targeted the lower masses and were distributed by respective foundations.

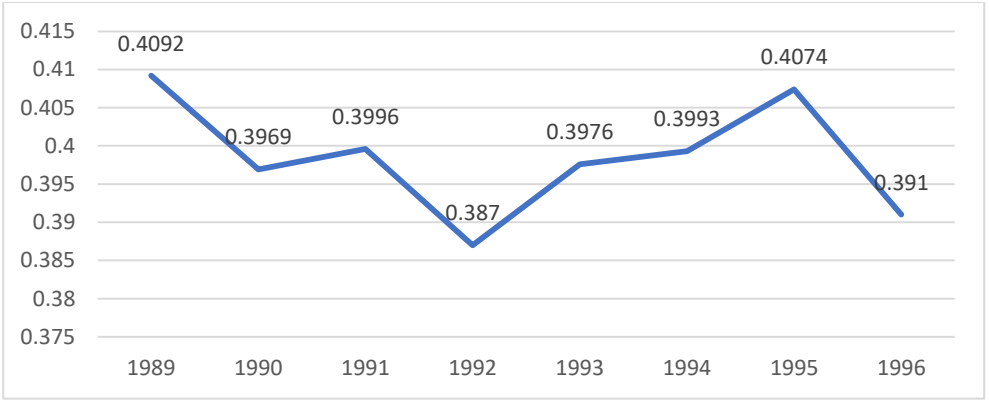
Rafsanjani's administration was marked with a relative boost in oil revenues that reached from $11,315 million in 1989 to $19,441 million in 1996 (a 71.8% growth). Meanwhile, inflation rate and Gini coefficient remained rather high, producing pressure that was mainly felt by the masses and lower deciles who were the victims of the structural adjustment policies. Nevertheless, Gini coefficient did not increase significantly. In the same period, the ratio of the richest decile to the poorest lowered from 17.6% to 14.5% (compared to 19.6% in the year of the Revolution and 26.6% in the following year) as a result of the country's increased income and wealth.

Chart 3: Changes of inflation rate in Iran (1989-1997)



Data are obtained from the reports by Iran's Central Bank.

Chart 4: Changes in the Gini coefficient in Iran (1989-1996)



Data are obtained from the reports by Iran's Central Bank.

In 1997, Mohammad Khatami was elected as the President of Iran. He introduced new policies that aimed to develop the country socially and politically, alongside economic development and targeted structural reforms in the welfare system as part of this campaign. Khatami took office in a condition that the price of a barrel of oil was below $20 and it continued to decline to $10 in 2000. This resulted in a reduction in Iran's oil revenues from $19,441 million in 1996 to $18,821 million in 2000. However, oil prices began to rise and reached $48,306 million in 2005 when

Khatami left the office to Mahmoud Ahmadinejad. The fact suggests the improvement of national revenues that continued in the entire 2000s until they peaked at $114,751 million in 2011.

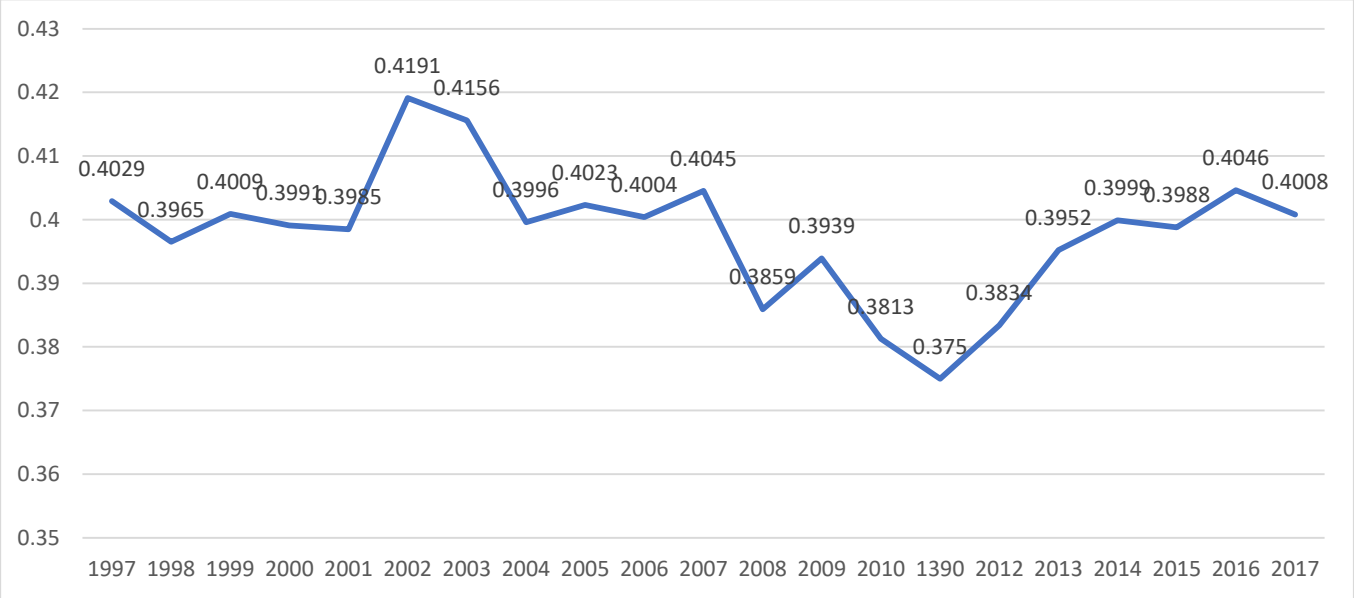
During the 2000s, we observe a lower inflation rate and an improvement in the Gini coefficient, a measure of income inequality. Between 2001 and 2010, the average inflation rate was 14.73%, compared to 24.39% between 1991 and 2000. The Gini coefficient also decreased during this time, from 0.3985 in 2001 to 0.375 in 2011. In the years of boosting oil revenues, the Gini coefficient somehow went downward or stayed untouched. Also, in 2011 which was the first year of the Subsidies Targeting Act implementation, Gini coefficient together with the ratio of the richest to the poorest deciles dropped to its lowest post-Revolution (0.375 and 12.1 respectively). The imposition of oil sanctions together with the increasing prices following the implementation of the new subsidies plan, pushed the Gini coefficient upward to 0.40 in 2016 and multiplied the ratio of the richest to poorest deciles 14-fold. Considering the limited oil revenues as a result of the sanctions in the 2010s, inflation rose smoothly as well (except for 2016 and 2017 when the rate was 9% and 9.6% respectively). In 2018 when renewed sanctions hit Iran's oil revenues more severely, the inflation rate rose above 40% and remained there from 2019 onwards. Interestingly, the inflation rate varied across income deciles with the lowest decile experiencing a rate of 43.7%, while the upper decile's rate was 53.2%[1]. This suggests that inflation rates are higher for the lower classes, implying widening inequality. The Gini coefficient has remained almost unchanged at around 0.40, with the expenditure ratio of the most consumptive decile to the least consumptive being 13.46. In addition to that, the ninth (16.29%) and tenth (30.41) deciles account for 46.70% of the households' expenses nationwide, a figure that is scored at 2.26% and 3.62% for the first and second deciles. The comparison implies that the upper 20% of Iran's population alone spends 7.59 times more than the bottom 20%, while the upper 10% spends 13.46 times more than the lowest 10% of the population. This is while the similar amount

[1] https://tn.ai/2842704.

for 2011 and 2016 stood at respectively 11.09 and 13.02. Also, in 2000 and 2006 when Iran's oil revenues were at their highest, the ratio stood at 16.39 and 17.36 respectively.[1]

In this time period the distribution of income and inequality have been affected by inflation rate, while the pattern of changes in the Gini coefficient has been tangent with the inflation rate. The congruence between the inflation rate and the Gini coefficient might take one year or longer to surface.

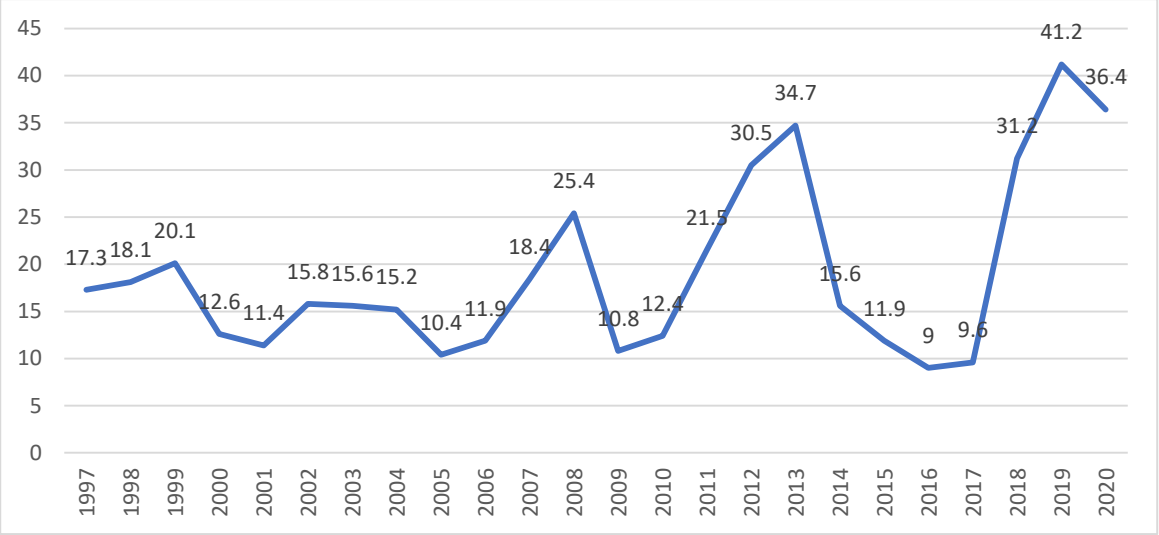
Chart 5: Gini coefficient rate (1997-2017)



Data are obtained from the reports by Iran's Central Bank.

[1] Data on inequality that are used in the paragraph are obtained from the "Income Distribution in Iran in 1400 (2021)" that is released by Iran's Census Center, while the calculations are those of the author.

Chart 7: Inflation rate in Iran (1997-2017)



Data are obtained from the reports by Iran's Central Bank.

The available data confirms that Iran's national economy and the overall welfare of the country depend heavily on oil revenues. This reality has a disproportionate effect on those in the lower-income brackets. It is due to the fact that these groups don't typically own the types of properties that experience sharp price increases during periods of inflation, like real estate does. Consequently, the gap in access to such goods intensifies during inflation. Additionally, lower-income groups are forced to pay more for basic goods despite their income not increasing at the same pace as prices. In light of this situation, the government must implement functional and targeted measures to protect vulnerable groups and prevent their livelihoods from collapsing. This includes provide basic goods and services for the general public. However, the reduction of oil revenues negatively impacts the government's budgeting capabilities for protective interventions.

6. Latent Inequality: Household Expenses

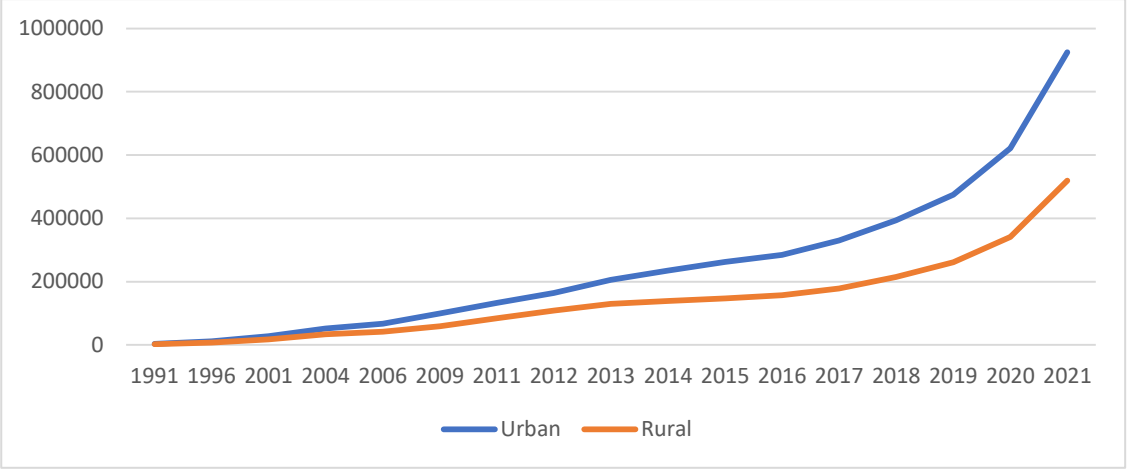
The inequality in expenditure is determined by the amount of consumed welfare and is an important indicator in the evaluation of social inequality. People's access to basic necessities is

linked to the provision of distributional justice (Fleischaker, 2005). This is particularly relevant to the case of post-Revolution Iran.

At the time of the Revolution, a large portion of the Iranian population lived in deprivation, evidenced by their limited access to services, resources, and opportunities. Therefore, one of the primary goals of the post-Revolution government was to eradicate poverty and improve the lives of less privileged individuals. Despite the outbreak of the Iraq War delaying these efforts, essential goods were distributed to the public through a coupon system to ensure the subsistence of the majority and prevent added pressure on the lower deciles. However, in the post-war era, the unjust distribution of the benefits of development contributed to widespread inequality, despite the implementation of development programs aimed at reducing inequality. Under such conditions, welfare policies focused on preventing the intensification of social disparity and reducing it through redistribution programs. In situations like these, distributional plans focus on implementing a fair taxation system, targeted subsidies, and other protective plans. But an inefficient taxing system, administrative programs reliant on oil revenues, and high inflation rates hindered the redistributive function of welfare programs in Iran.

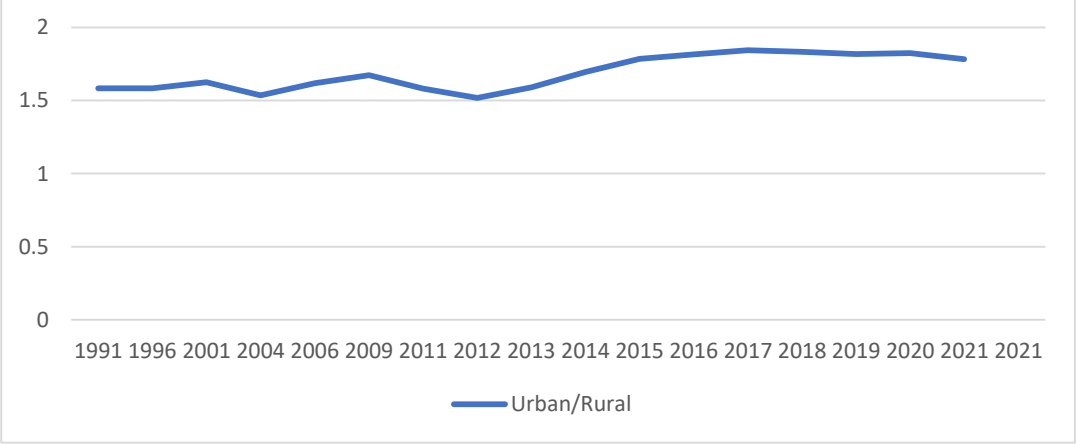
From the post-War years until now, Iran has experienced periods of rampant inflation, leading to a radical increase in the cost of living. On average, the net costs of an urban Iranian household increased over 9 times from 1991 to 2001, approximately 43.4 times by 2011, and over 302 times by 2021. The figures for rural households are 8.9, 43.5, and 268.7, respectively. In other words, over the past two decades, the net costs of living have increased yearly by an average of 10-fold for urban households and 8.9-fold for rural households. It is worth noting that during the same period, household income levels increased at a higher rate than their expenses, suggesting an overall improvement in living standards.

Chart 8: Net expenses of the urban and rural Iranian households (1991-2021) (by thousand Rials)



Source: Statistical Yearbook Reports, Chapter on Household Income (1991-2021)

Chart 9: Ratio of urban to rural household expenses (1991-2021)



The chart presented above demonstrates a widening gap between the expenses of urban and rural households. It shows that urban households have been spending more than rural households since the early 2010s, following an increase in oil revenues. This suggests that urban families have been able to enjoy a greater share of the consumptive welfare made possible by oil revenues. Moreover, by the decline in oil revenues, the trend of widening inequality gap between the two

groups remained almost intact. Interestingly, the year after the implementation of the Subsidies Targeting Act saw the lowest gap between the two groups. The net non-food expenses of urban families increased by 323 times between 1991 and 2021, while those of rural families increased by 299 times. Meanwhile, figures for food and tobacco expenses increased by 257 and 233 times, respectively. These figures suggest that the increasing livelihood pressures have been higher for urban families and in non-food consumptive categories. Although the non-food costs of rural families increased at a slower pace than those of urban families, their comparable food costs can be partly explained by the governmental subsidies on certain food items. Additionally, the increasing non-food expenses are mainly due to the costs of housing, healthcare, and uncategorized goods and services. In 1991, non-food costs constituted 68.64% of urban families' total expenses. This amount increased to 73.35% in 2021, experiencing a 78.5% increase in 2019. Similar items increased from 54% to 60% for rural families. These figures show an improvement in social welfare, but also highlight the lower economic power of rural families in paying for non-food goods, thus resulting in their lower share of consumed welfare.

Table 1: Ratio of the net non-food expenditure of households to the total expenses (1991-2021)

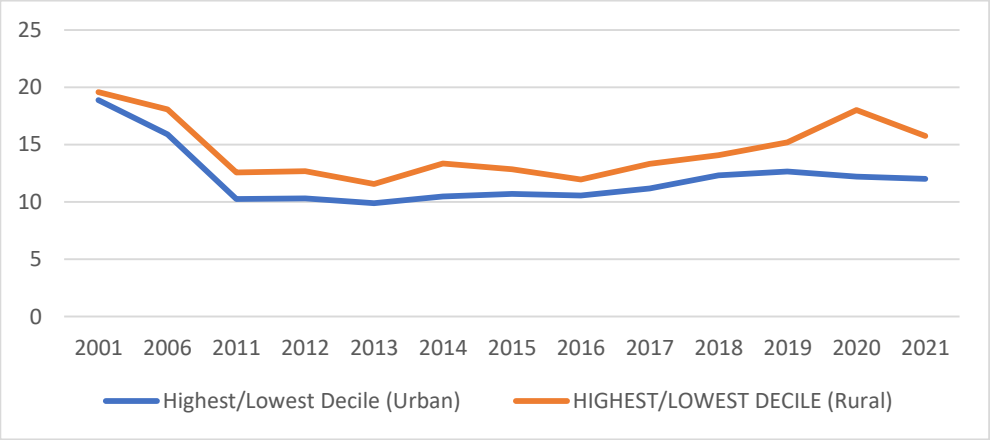
Goods	Urban				Rural			
	1991		2021		1991		2021	
	Non-food	Total	Non-food	Total	Non-food	Total	Non-food	Total
Clothing and Shoes	17.4	11.9	5.32	3.9	12.76	9.5	9.6	5.6
Housing	50.8	34.9	49	36	29.2	10	30.8	18.5
Appliances, furniture, essentials, services	9.3	6.4	5.8	4.3	14	4.8	10	6
Healthcare	6.3	3.7	13.6	10	8.9	3	15.9	9.6
Transportation and communication	8.7	5.1	13	9.5	8.1	2.8	19.2	11.6
Recreation	1.6	1.1	0.5	0.4	1.5	0.8	0.7	0.4
Uncategorized goods and services*	4.6	3.1	11	8.1	8.7	2.2	12.3	7.4
Education	1.7	1.2	1.6	1.2	1.5	0.81	1.4	0.8
Food and tobacco		22.57		26.65		46		39.88
Non-food		77.43		73.35		54		60.12

Source: Statistical Yearbook Reports (2006-2021); calculations added by author.

**Uncategorized household goods and services include: personal services and cosmetics; ornaments and personal accessories; group travels and accommodation; financial and legal services; religious expenses; and more.*

Another criterion for investigating social inequality is the 10st to 1th income decile expenses ratio indicator. The chart below shows the ratio for the mentioned duration of time:

Chart 10: Net ratio of 10th to 1st decile income decile in urban and rural areas (2001-2021)[1].



Source: Data on costs obtained from the Statistical Yearbook.

Based on this chart, the ratio of household expenses between the first and tenth income deciles in rural and urban areas has decreased over the years between 2001 and 2021. In 2001, the net household expenses of the tenth decile in urban areas were 18.89 times that of the first. This gap decreased to 12 times in 2021 and in rural areas it decreased from 19.58 times to 15.75 times. These changes happened mainly due to the improvement in the livelihood of the lower classes. However, this decline was greater in urban areas than in rural areas. The rate of consumption inequality in rural areas has been greater and more severe compared to urban areas, mainly due to lower incomes in rural areas, where the higher income groups are highly distinguished.

The largest decrease in the gap between the first and tenth deciles in both urban and rural areas was observed when Iran's oil revenues were at their peak (in 2016) and country enjoyed a one-digit inflation rate. However, a new turn of sanctions disrupted the trend. Interestingly, the Gini

[1]. Method of calculation; the sum of the 10th decile expenses is divided by the total of both decile's net food, non-food and tobacco expenses. As the net expenses by decile was not available for the pre-2001 years, they are calculating for the years following it.

coefficient in this period was higher in urban areas than in rural areas. For example, in 2021, the Gini coefficient was 0.3938 for the whole country, 0.3757 for urban areas, and 0.3594 for rural areas.

Moreover, the ratio of non-food to food expenses in each decile was also observed. For the first income decile in rural areas, the ratio was under 1 for almost the whole period (2001-2021), except for 2011 and 2017, when new Subsidies were introduced and the JCPOA was implemented, respectively. For the tenth income decile, the ratio has always been above 2, indicating that food costs are equal to about 50% of the non-food expenses in this decile. The same pattern prevails in urban areas, where the net non-food costs of the first decile are about 1.5 times that of its food. The ratio in the tenth decile has been above 5 in almost the whole period, except for 2012 and 2013, due to the first round of sanctions, and 2017 onwards because of their second round. It can be said that the first income decile is devoted to providing food expenses, finding no opportunity to spend on items other than essential needs. This fact is more severe in rural areas, with the tenth decile enjoying more consumptive welfare in cities than in villages.

Table 1: Ratio of non-food to food expenses in first and tenth deciles of urban and rural areas

Year	Urban			Rural		
	1st decile	10th decile	Total average	1st decile	10th decile	Total average
2001	0.78	5.1	2.91	0.78	2.02	1.44
2006	1.28	5.6	3.43	0.89	2.35	1.68
2011	1.77	4.58	3.05	1.02	2.15	1.55
2012	1.47	4.22	2.69	0.84	1.84	1.36
2013	1.34	4.4	2.75	0.74	1.8	1.31
2014	1.53	4.89	3.04	0.82	1.89	1.43
2015	1.72	5.11	3.2	0.96	2.11	1.54
2016	1.78	5.7	3.27	0.97	2.25	1.62
2017	1.74	5.2	3.29	1.03	2.26	1.69
2018	1.5	4.88	3.16	0.92	2.16	1.67
2019	1.18	5.12	3.04	0.61	2.03	1.54
2020	1.22	4.33	2.86	0.40	2.10	1.50
2021	1.23	4.06	2.75	0.69	2.16	1.51

When it comes to non-food expenses in rural households –except for *transportation and communication* plus uncategorized goods and services– the highest income inequality in 2021

was observed in the *recreation* category, with a 52.15-fold disparity between the top and bottom deciles. *Clothing and shoes* followed closely, with the top 10% spending 50 times more than the bottom 10%.

Table 3: Net ratio of non-food expenses of tenth to first deciles in urban and rural areas (2021)

Non-food items	Urban	Rural
Clothing and shoes	29.59	49.93
Housing	8	4.22
Appliances, furniture, essentials, services	11.69	18.58
Healthcare	14.82	20.63
Transportation and communication	25.63	59.16
Recreation	27.72	52.15
Education	28.26	23.86
Uncategorized goods and services*	27.53	57.28
Food and tobacco	5.29	8.4
Non-food total average	17.48	26.45

Source: The Statistical Yearbook (2021)

**Unlike other categories, this category is estimated with its gross cost because in calculating the net cost, the value of the used goods is deducted from the gross cost. Since these items sometimes include goods whose used value (as is the case with ornaments) is higher than brand new ones, their net value will be negative and, therefore, they are calculated based on their gross cost.*

In urban areas, the highest income inequality was in *clothing and shoes*, where the top 10% spent 29.59 times more than the bottom 10%. In terms of *food and tobacco* expenses, the top 10% of urban and rural areas spent 5.29 and 8.4 times more than the bottom 10%, respectively. Interestingly, as shown in the table below, income inequality tends to be higher in rural than in urban areas.

All told, in the 2010s, inflationary pressure and inequality, exacerbated by sanctions and a decline in oil revenues, had hurt the livelihoods of people in Iran. Proper welfare policies could be implemented to reduce the burden on the lower-income population and prevent the widening of the inequality gap. However, social policy-making in Iran failed to fully achieve this goal. According to the "Justice Index Report" (2021), Iran's approved budget for welfare programs decreased from 44.6 billion Rials in 2011 to 17.2 billion Rials in 2016, despite high inflation rates from 2012 to 2015. With the US withdrawal from the JCPOA and the fresh imposition of oil

sanctions, the budget decreased once again to 24.8, 24.1, and 25.9 billion Rials respectively in 2018, 2019, and 2020 (during which Iran experienced high inflation). These changes demonstrate the heavy reliance of Iran's social and welfare policies on oil revenues.

7.Conclusion

Iran’s economy has heavily relied on oil revenues for the past 70 years. This dependence, coupled with the volatility of oil prices, has impacted on inequality and the livelihoods of people in Iran. While abundant oil revenues could potentially improve the general standard of living, they tend to benefit high-income groups more than others. Despite hypotheses about the negative impact of oil income on equality, evidence suggests that it is not the oil revenues themselves that cause inequality, but rather, the sheer dependence on these incomes as well as the lack of efficient institutions to distribute them fairly. We suppose that to understand the extent of inequality, household expenses across different categories need to be examined to reveal the non-obvious layers of inequality in the households’ livelihood.

The case of Iran reveals that sharp drop in oil incomes, due to heavy dependency of the government’s programs on these revenues, and also by lack of alternative income to make social policy to compensate for the lost purchasing power of lower-income groups and control the inequality, leading to an increase in inflation and inequality. Conversely, during times of high oil revenues, the livelihoods of low-income groups improve, yet the benefits tend to favor higher-income groups more. The point to make is that the higher-income groups’ share of the benefits exceeds that of the lower-income groups, a fact that highlights another mechanism of inequality in which high-income groups enjoy the benefits of higher oil revenues more than other groups do. Consequently, any program aimed at reducing inequality must prioritize improving the standards of living of lower-income groups and reducing their expenditure on livelihood. Addressing non-obvious (or latent) inequalities, such as in healthcare, education, housing, and transportation, requires ensuring that lower-income groups have access to basic needs at affordable prices. For instance, transportation and communication, along with housing, constitute over than half of the

non-food expenses for urban and rural households, with low-income families spending a larger percentage of their income on these expenses. So, providing affordable transportation, healthcare, and housing can help reduce their expenses, increase their purchasing power in other categories, and improve their livelihoods. Therefore, reducing inequality in societies, where the lower-income groups or the majority have difficulties in securing their livelihoods, depends on improving the standards of living for these groups.

The above-mentioned actions need efficient institutions that can distribute resource income efficiently and effectively, and prioritize providing the poor people's needs and dealing with inequality, which is not the case in resource-rich countries. In oil-rich countries, oil revenues are often distributed inefficiently during times of abundance, but this can benefit the upper classes more than other groups. Conversely, during inflationary times, caused by lower oil income, it is the middle to low-income groups that suffer the most. Both situations contribute to inequality, highlighting the need for efficient institutions and policies that prioritize the needs of low-income groups.

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The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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