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Applying Political Business Cycle to Explain Macroeconomic Policies in Iran: A Public Choice Perspective

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ABSTRACT

Public choice theorists evaluate the government's behavior within the framework of political business cycles. Considering the significant role of macroeconomic factors such as inflation and unemployment in voters' behavior, governments with politically beneficial behaviors seek to increase voter satisfaction and the probability of their re-election through adopting economic policies. Thus, the long-term welfare of the current and future generations will be sacrificed to governments' short-term beneficial policies. This study analyzed the political business cycles within the framework of the Nordhaus (1975) approach by using the optimal control method and maximizing the social voting function. The results indicated that the election-winning government increases the unemployment rate to control inflation. However, by approaching the next election period, the elected government reduces the unemployment rate close to the point corresponding to short-term policy, resulting in increasing the inflation again. In the long-term, the policymaker selects a policy with lower unemployment and higher inflation with respect to the optimal point.

1. Introduction

$\mathcal{P}$ublic choice is the economic analysis of political institutions. There are various applications of public choice approaches to explaining real-world phenomena. One of these applications is the explanation of the macroeconomic policies of the governments in which the role of macroeconomic performance on voter decisions is examined (Mueller, 2003: 429). Political business cycles (PBCs) theory, which emerged in the 1950s, is considered as a branch of the public choice theory that analyzes economic fluctuations based on the interactions between government and voters.

According to this theory, macroeconomic factors, including inflation rate, unemployment rate, income distribution, and economic growth play an influential role in voters' behavior. To this aim, governments attempt to increase voters' consent and the probability of their re-election by adopting economic policies. Thus, public choice theorists seek to explain the issue that policymakers, like individuals, pursue personal, party, or group interests and to reject idealism on people's mentality about policymakers. It can be said that individuals as consumers, producers, or politicians attempt to maximize their profits. The only important difference is that restrictions are different in the domain of politics, which results in changing the behavior of individuals and make the interest of politicians more complex. Kramer (1971), Tufte (1975), Nordhaus (1975), Hibbs (1977), Fair (1978), McRae (1977), Lachler (1978), and Alesina (1987), as the first theorists of this field, have attempted to explain the politicians' benefit-seeking behavior within the framework of political business cycles. The models developed in this regard explain how to control unemployment and inflation by the government in order to maximize votes gained in the election. Therefore, adopting optimal decisions to maximize the well-being of the current generation with regard to the benefits of future generations can be affected by short-term political actions. If policymakers' actions are taken in a more beneficial approach to gain more votes, governments' short-term beneficial policies will be preferred to the long-term well-being of the current and future generations. The present study aims to analyze the effects of government policy decisions on unemployment and inflation rates within the framework of the Nordhaus (1975) approach, by using the optimal control method. For this purpose, the government is monitored during election periods by maximizing the social voting function, the optimal unemployment rate, or inflation.

The rest of the paper is organized as follows. Section 2 addresses the theoretical literature of political business cycles. Section 3 presents the background of the research. Section 4 outlines the pattern of political business cycles. Political business cycles and macroeconomic performance

of Iran are analyzed in Section 5. Finally, Section 6 concludes the research and provides policy suggestions for future research.

2. Theoretical literature on political business cycles

The theoretical literature on political business cycle has emerged in the 1950s and in the decades of the 1970s and '80s has been expanded. The main and initial study linking macroeconomic performance to political success was conducted by Kramer (1971). In the model of opportunistic political business cycle, policymakers based on the short-term memory of voters, adopt policies in the run-up to the election that improve the living conditions of society and economic performance and increase their chances of winning the election. Nordhaus (1975) and Hibbs (1977) developed a model of political business cycle known as the *"old political macro economy"*. In this regard, Hibbs (1977) proposed the theory of party bigotry in which parties and candidates have different ideals, goals and economic plans. According to this view, voters vote for the candidates of a particular party based on their ideals, goals, and economic plans. Thus, partisan bias can stem from partisan principles or voters' preconception.

In the 1980s, political business theorists, influenced by the new classical theorists, hypothesized the existence of economic rationality in the behavior of agents and voters, known as the *"new political macro economy"*. In this regard, Alesina (1987) has proposed a model based on rational party theory. According to this theory, people's decision-making is based on party principles, programs, and the actual functioning of parties, and in order for a party to be able to seize power, it must make visible changes in economic variables. Ragoff and Sibert (1988) also developed and developed patterns based on rational and opportunistic behavior, taking into account the incomplete information of voters before the election.

2.1. Approaches explaining voter behavior

The literature of political business cycles has mainly analyzed the interaction of voters and policymakers on economic fluctuations. Regarding the effectiveness of economic factors such as inflation, unemployment, income distribution, and economic growth on voter behavior, governments with

benefit-seeking behavior attempt to gain voters' consent and increase the probability of their re-election by adopting economic policies. The following subsection discusses the theoretical foundation of the approaches explaining the behavior of voters and policymakers.

Considering the theoretical literature of political business cycles, three approaches of rational choice, sociological approach, and psychological approach are outlined in this way to explain voter behavior (Ezzati, 2005). In the rational choice approach, voters mainly focus on the ideas and plans suggested by candidates and evaluate their performance to participate and vote in parties or governments. Downs (1957), as a pioneer in the application of rational choice theory to elections and party competition, analogized political choices to economic choices in a book entitled "An Economic Theory of Democracy". Downs believed that people in the market compare goods in terms of price and quality and buy economically affordable goods. In the political market, people act in the same way and vote for the people and parties that respond to the best voters' requests. In other words, the motivation of people to participate in elections and voting is essentially formed based on their economic interests.

Lazarsfeld et al. (1940) proposed the political sociology of elections and predicted political orientation and the outcome of the voting process by studying the social, economic, and cultural conditions of voters. Based on their results, there is a direct relationship between the social, economic, and cultural conditions of individuals and their voting (Lazarsfeld et al., 1994: 27). Despite a limited political and ideological spectrum in homogeneous societies, it is possible to observe a variety of changes in opinion, ideology, and political behavior in some other societies. Accordingly, voting behavior is a political consequence caused by social and psychological political factors. In this approach, the social factors affecting voters' preferences are different depending on the social, cultural, political, and economic growth and development of countries. In the first phase of development, political participation is mostly affected by social groups such as parties, religious and ethnic groups, and trade unions and associations. Thus, in social group-

based voting, voters focus on parties which have historically supported their social group. In other words, they make a choice that logically represents the individual's trade interests. Further, some factors such as the high level of education, skills, and information of individuals significantly affect individuals' preferences in long-term development.

In political psychology, electoral behavior is a process related to an individual's habits and learning in childhood and the decision of voters is mainly a function of psychological factors. From this perspective, party affiliation is regarded as the most important factor explaining electoral behavior, which changes less over time. Party affiliation is rooted in important factors, the most important of which is the family. Accordingly, the person inherits his or her political orientation from the family and the environment, and the increase of age enhances and stabilizes this tendency in individuals. Therefore, the votes of individuals are a function of party affiliation, and advertising campaigns fail to affect an individual's choice. Furthermore, party affiliation is itself a function of emotional and environmental factors, among which the family plays an important role in this regard. According to this view, voters' behavior can be predicted given the persistence of party affiliations (Ayoubi, 2003: 20).

2.2. Political benefit-seeking approach of policymakers

Concerning the theoretical literature of political business cycles, Kramer (1971), Tuft (1975), Nordhaus (1975), Hibbs (1977), Fair (1978), McRae (1977), Lachler (1978), and Alesina (1987) were among the first theorists who addressed the political benefit-seeking approach of policymakers. Given the short-term memory of voters, policymakers adopt policies in the years leading up to the election to improve society's livelihood and economic performance. So far, a large number of economists (e.g., Hibbs, 1977; Garrett, 1989; Immergut, 2005; Brendera & Drazen, 2005; De Donder & Hindriks, 2007; Potrafke, 2010) believed that political parties pay more attention to economic variables such as reducing inflation and unemployment rates and creating jobs during elections. Therefore, some policies such as job creation and unemployment insurance plans are among the most important components to encourage citizens for participating in the

elections and affect the election results. In general, unemployment is considered as a phenomenon with destructive and detrimental effects on personal and social relationships and entails enormous costs to the individual and society.

Considering the political business cycles pattern, an economy is assumed to be formed by a large number of individuals, each adopts a well-behaved ordinal preference ordering over economic variables. Accordingly, the voting function is defined as the function $= z(z_1, z_2, \dots, z_n)$, in which z_1 represents the inflation rate, z_2 indicates the unemployment rate, and $z_3, z_4, \dots, z_n$ are other economic variables affecting individuals' preferences. It is worth noting that ordering the preferences of individual i is defined by a function with real values $u^i = u^i(z)$, in which u^i is assumed to be a pseudo-concave and an increasing function of z_i (Pourkazemi et al., 2007).

To evaluate the electoral behavior of a voter, it is first assumed that two political parties are active at time t and each voter compares the economic performance of each party's representative during the previous election period (z_t) with the desired standard goals ($\hat{z}_t$). If the political party representative performs better than the voter-desired standard, the person will vote the representative again. Otherwise, the person will vote for his/her rival party. Accordingly, the voting function of individual i is defined as the function $v^i = \Phi^i(z_t, \hat{z}_t)$ while the social voting function is introduced as the sum of individual voting functions in society as follows:

$$v(z_t, \hat{z}_t) = \sum_{i=1}^{n} v_t^i = \sum_{i=1}^{n} \Phi^i(z_t, \hat{z}_t).$$

With the assumption that the parties only benefit from the election results and are fully aware of the voters' preferences, the party of power chooses a policy that can win the majority of votes in the next election. Therefore, the optimal policy is to maximize the social voting function relative to the economic performance of each party ($\max_{z_t} v(z_t, \hat{z}_t)$). According to the short-run Phillips curve, there is an inverse relationship between inflation and unemployment and politicians affect the macroeconomic situation and

reduce unemployment through expansionary monetary policies to be re-elected in the next election. However, an increase in the inflation rate is observed over an interval, over which politicians gain electoral exploitation.

Nordhaus (1975) and Lachler (1978) considered the social voting function as a function of unemployment and inflation rates. Accordingly, individuals prefer low unemployment and stable prices to the high unemployment rates and inflation, as an increase in the unemployment rate significantly reduces the income of some households. On the other hand, any reduction in the number of hours of work and the amount paid for overtime affects other individuals and decreases their utility. Further, households are highly sensitive to high inflation rates, as high inflation leads to inefficient allocation of resources, disruption in income distribution, a decrease in household purchasing power, and ultimately, a decline in social welfare. In the proposed model, the voter's indifference curve is concave and the indifference curves closer to the origin show higher levels of utility, and the politicians are on an indifferent curve with respect to the points. Figure 1 illustrates the voting indifference curves.
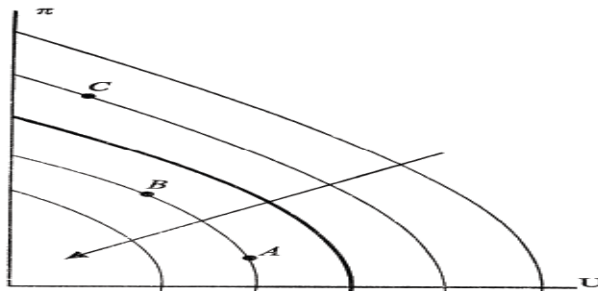

Figure 1. A trade-off between unemployment and inflation in the social voting function; Source: Nordhaus (1975)

Politicians are on an indifferent curve at points A and B, although the combination of inflation and unemployment rates is different. With single-peaked preferences of voters, the long-run Phillips curve (LL) is tangent to the median-voter indifference curve at the point M, as shown in Figure 2.
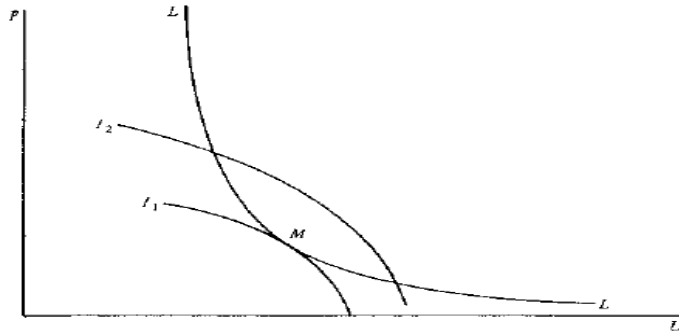
Figure 2. A trade-off between unemployment and inflation; Source: Nordhaus (1975); Muller (2003: 438)

Therefore, making choices constrained to a long-run Phillips curve LL by rational voters and knowing the competition between the two parties lead to the selection of the combination of unemployment and inflation. By manipulating macroeconomic leverage in the short term, the government can reduce the unemployment rate, considering the effects of inflation that become apparent later. Figure 3 demonstrates the short-term Phillips curve (SS) faced by these governments. As observed, if voters neglect or underestimate future inflation, the inflation moves on the short-term Philips curve to the left of the equilibrium point M. The ruling party in the government can increase the utility of the majority of voters in the short term, by adopting policies that shift the economy to the left along the short-term Philips curve to the point M' (Nordhaus, 1975; Muller, 2003: 439).

As a result, the ruling party in the government is in a position to increase its chances of being re-elected by reducing unemployment before an election, although this policy leads to higher inflation after the election.
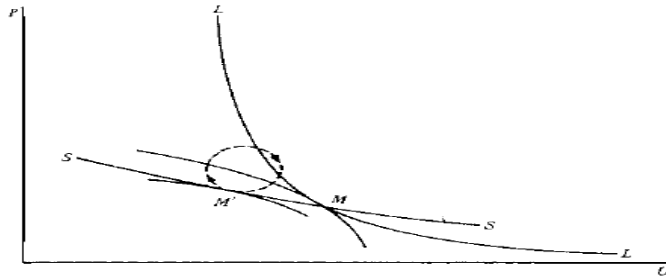
Figure 3. Political business cycles, source: Nordhaus (1975); Muller (2003: 439)

In the theory of political economy of the constitution, economic analysis of basic laws and institutions and their reform to create frameworks for rulers that can not harm the public interest (Dadgar, 2014).

3. Background research on political business cycles

By conducting preliminary studies on political business cycles, Kramer (1971) related macroeconomic performance with political successes. To evaluate the political business cycles theory, he studied the relationship between the percentage of votes gained by Republican candidates for Congress and the economic situation in the United States from 1896 to 1964. Based on the results, Kramer concluded that the percentage of votes gained by Republican candidates for Congress had an inverse relationship with inflation and unemployment, and a direct relationship with income.

Hibbs (1977) proposed the party spirit theory, in which parties and candidates have different ideals, goals, and economic plans. According to this approach, voters vote for candidates of a particular party based on their ideals, goals, and economic plans. Therefore, party spirit can be originated from party principles or voter spirit. Alsina (1987) suggested the rational party spirit theory, in which individuals' decision-making is based on the party's principles, programs, and the actual performance of the parties. To gain power, the party should create significant changes in economic variables. Rogoff and Sibert (1988) developed the theory of political

business cycles by considering incomplete information of voters before the election period.

By using data from 14 provinces in Russia over the period 1993 to 1999, Frank and Thames (2001) examined the impact of election years on business components. To this aim, they divided the business components into job creation costs, labor insurance costs, pensions, and wages. The results revealed that governors significantly increased the costs of job creation, labor insurance, pensions, and wages in the election years to gain more votes.

Cerda and Vargara (2007) investigated the effects of paying government subsidies during election years on the re-election of the ruling government, by using data obtained from 13 regions (including 229 cities) of Chile during 1989-1999. In this research, the performance of elections was considered a dependent variable and as a function of economic variables, non-economic variables, and the fixed effects of time and country. Based on the results, the ruling government had a significant impact on the election results by improving business conditions and paying subsidies to various sectors of the economy including business, education, health, and social security. As an example, to gain one percent more votes, it is necessary to increase subsidy-received individuals by 0.7%.

Pourkazemi et al. (2007) studied the political business cycles in the Iranian economy by using annual data during 1987-2005. The results indicated that governments adopt expansionary policies to control the unemployment rate in the first two years, resulting in increasing the inflation rate. In the second two years, however, governments attempt to reduce the inflation rate for re-election in the next period.

Kwon (2008) analyzed the impact of policy variables on unemployment and individuals' participation in elections, by using questionnaire data collected from interviews with 1.200> voters in the presidential election in Korea from 1997 to 2002. Based on the results, unemployment declined in the election years while left and right-wing parties failed to have a significant impact on reducing unemployment. Additionally, other issues

such as decreased unemployment, increased age, and education positively affect the participation of community members, although political orientations and the assessment of community members in terms of economic conditions have a negative impact on community participation in elections.

By utilizing panel data from 9 regions (including 282 municipalities) in Sweden during the years 1982 to 2002, Elinder (2010) evaluated the effect of changes in unemployment and economic growth on people's participation in elections. The results indicated that the growth of unemployment reduces people's participation in elections such that 1% growth of unemployment rate decreases people's participation in elections by 1.71%. In addition, the 1% economic growth increases people's participation in elections by 0.38%, highlighting the significant role of economic variables in determining the behavior of voters.

In another study, Leigh and Neill (2011) examined the relationship between parties' ideology and electoral incentives on unemployment growth, by using Australian municipalities' data over the period 2001 to 2004. The unemployment growth was the dependent variable in this model and was considered as a function of exogenous control variables and political variables. They found that the ruling party officials (mayors) have an opportunistic behavior so that they can increase civil budgets and reduce unemployment in election years to be re-elected and gain more votes. Based on their results, the ideology of the National Party reduced unemployment by changing the budget allocation, while the ideology of the Liberal Party increased unemployment.

Sorens (2012) reviewed the impact of economic conditions and the dimensions of the party system on the political business cycle. Considering the hypothesis of this research, nationalist and liberal parties could affect the outcome of elections in the advanced countries of Western Europe and North America during the recession period. However, the findings of this research failed to support the relevant hypothesis. The party strategy and the political framework of each election seem to emphasize the relationship between economic conditions and the contribution of non-traditional party voting.

Shahabadi et al. (2016) examined the impact of political cycles including election year indicators, minority government, coalition, and government ideology on unemployment growth by using panel data method and data of 29 selected countries among developed and developing countries during 1994-2011. Given the results of the Generalized Least Squares (GLS) and generalized method of moments (GMM), it was found that the candidates in each country, regardless of their ideology (right- or left-wing), seek to gain a greater share of people's votes by increasing job opportunities, reducing unemployment, and expanding business space in election years. Contrary to developed countries, the variables of minority government and coalition in developing countries have positive and negative effects on unemployment growth, respectively.

By addressing the 2016 US presidential election as a political shock, Eklin (2018) discussed the impact of political shocks on the renewable energy industry and concluded that Trump's unexpected selection was a negative shock to the renewable energy sector. After twenty days from the election, the stock market experienced a sharp decline of 6% and the negative effect of these shocks was mainly concentrated on non-US corporations. On the other hand, companies lost almost 14% of their value after the election.

4. Political business cycles model
4.1. Optimal unemployment and inflation rates
The approaches of Nordhaus (1975) and Lachler (1978) in business cycle literature are known as opportunistic policymakers, upon which the government is seeking short-term changes in the economy to change the behavior of voters to get more votes. In the Nordhaus approach, using the maximization of the social voting function on the equation of inflation rate and expected inflation rate, he examines the short-term and long-term policies of the government in setting unemployment and inflation rates during election periods- Be. Accordingly, the maximization of the social voting function is as follows:

$$\max \quad W = \int_0^\infty g(u_t, \pi_t) e^{-\rho t} dt \tag{1}$$

$s\,t.$

$$\pi_t = f(u_t) + \lambda v_t \tag{2}$$

$$\dot{v}_t = \gamma(\pi_t - v_t) \tag{3}$$

where g(.) represents the voting function, ρ indicates the policymakers discount rate, π_t shows the inflation rate, $\dot{v}_t$ displays the expected inflation rate, and $0 \le \lambda < 1$. By maximizing the social voting function in Equation (1) to the inflation rate equation in Equation (2) and the expected inflation rate in Equation (3), the following results are obtained (Nordhaus, 1975):

$$\frac{f'(u)}{1-\lambda} = -\frac{g_1}{g_2}\left(\frac{\rho + \gamma(1-\lambda)}{(\rho+\gamma)(1-\lambda)}\right), \qquad 0 \le \lambda < 1 \tag{4}$$

$$\frac{f'(u)}{1-\lambda} = -\frac{g_1}{g_2}\left(\frac{\rho}{(\rho+\gamma)}\right), \qquad \lambda = 1 \tag{5}$$

To analyze Equations (4) and (5), this section evaluates the short- and long-term policies of the government in determining unemployment and inflation rates. Accordingly, by adding the short-run Phillips curve ($S_M S_M$) and the long-run Phillips curve (LL) to the social voting function, we have:
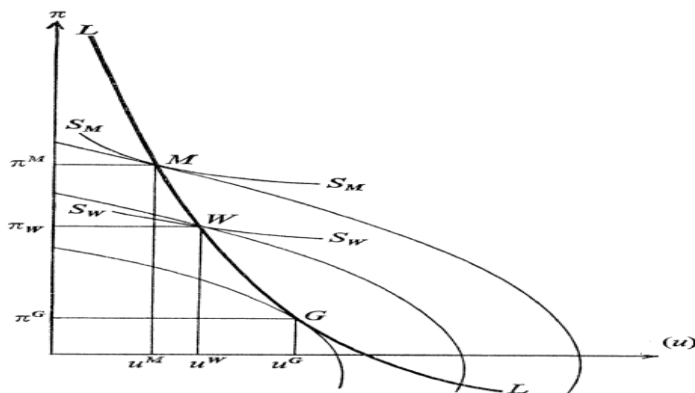
Figure 4. Government policies to determine unemployment and inflation rates in short-term and long-term, source: Nordhaus (1975)

In the following, two limit scenarios are considered when $0 \leq \lambda < 1$:

A) In the first limit scenario, planners use the zero discount rate to allocate resources between the current and next generation ($\rho = 0$). By using the first-order condition in Equation (4), we have:

$$\frac{f'(u)}{1-\lambda} = -\frac{g_1}{g_2} \tag{6}$$

This solution is called the Golden Rule policy of unemployment and inflation rates and indicated by point G in Figure 4. At this point, the combination of unemployment and inflation rates is as (u^G, π^G), in which the long-run Phillips curve (LL) is tangent to the social voting function.

B) In the second limit scenario, which is a short-sighted policy, planners use the infinite discount rate ($\rho = \infty$) to allocate the resources between the current and next generation. By using the first-order condition in Equation (4) in this case, the following equation is obtained:

$$f'(u) = -\frac{g_1}{g_2}\left(1 - \frac{\lambda\gamma}{(\rho+\gamma)}\right) \tag{7}$$

By increasing the parameter ρ, the Equation (7) is written as follows:

$$f'(u) = -\frac{g_1}{g_2} \tag{8}$$

The point M in Figure 4 illustrates this state, where the short-run Phillips curve ($S_M S_M$) is tangent to the social voting function and the combination of unemployment and inflation rates is as $(u^M \pi^M)$. Accordingly, this scenario, which is a short-sighted policy, has a higher inflation rate and lower unemployment rate $(u^M < u^M, \pi^M > \pi^G)$ compared to the Golden Rule policy at point G. The social optimum is obtained at the midpoint state in point W, where the short-run Phillips curve is tangent to the social voting function and the long-run Phillips curve passes through it. At the optimal

social point, the optimal combination of unemployment and inflation is as (u^W, π^W). Thus, in the social optimum state, the unemployment rate is greater than the short-term unemployment rate and lower than that of the golden rule policy $(u^M < u^W < u^G)$. Ultimately, the inflation rate in the middle state is greater than that of the golden rule policy and lower than the short-term inflation rate $(\pi^G < \pi^W < \pi^M)$.

4.2. Short-term behavior of policymakers in the Nordhaus approach

To evaluate policymakers' behavior in selecting short-term policies, Nordhaus (1975) assumed that voters know the average value of economic variables although they have a short-term memory in past events. In other words, they forget events of far distant past times, and the memory related to recent events performs significantly stronger than the memory of past events on the election day. As a result, voters assign greater weights to recent events compared to past events. To provide a simplified solution to the system, the social voting function, unemployment, and inflation rate are considered as follows:

$$g(u_t, \pi_t) = -u_t^2 - \beta\pi_t, \qquad \pi \geq 0, \beta > 0 \tag{9}$$

$$f(u) = \alpha_0 - \alpha_1 u_t \tag{10}$$

$$\pi_t = \alpha_0 - \alpha_1 u_t + \lambda v_t \tag{11}$$

By substituting Equations (9) and (11) in the objective function of Equations (1) and (3), we have:

$$\max \ v_\theta = \int_0^\theta \left(-u_t^2 - \beta\alpha_0 + \beta\alpha_1 u_t - \beta\lambda\pi_t^e \right) e^{-\mu t} dt \tag{12}$$

$$s\,t. \ \dot{v}_t = \gamma\left(\alpha_0 - \alpha_1 u_t - (1-\lambda)v_t \right) \tag{13}$$

By forming the Hamiltonian function, there is:

$$H = \left(\left(-u_t^2 - \beta\alpha_0 + \beta\alpha_1 u_t - \beta\lambda v_t \right) + \psi\gamma[\alpha_0 - \alpha_1 u_t - (1-\lambda)v_t] \right) e^{-\mu t} \tag{14}$$

where ψ represents the shadow price of the expected inflation rate. By deriving the Hamiltonian function with respect to the unemployment rate, the optimal unemployment rate is obtained:

$$\frac{\partial H}{\partial u_t} = 0 \Rightarrow -2u_t + \beta\alpha_1 - \psi\gamma\alpha_1 = 0 \tag{15}$$

$$\Rightarrow u^* = \frac{\alpha_1(\beta - \psi\gamma)}{2} \tag{16}$$

Since the shadow price of the expected inflation rate tends to zero by approaching the election time $(t \to 0, \psi \to 0)$, the optimal amount of unemployment rate approaches the value $\frac{\beta\alpha_1}{2}$. Finally, by solving the relation (16) for ψ, deriving it with respect to the time, and considering the corresponding substitution, Nordhaus calculates the differential equation of the unemployment rate as follows:

$$\dot{u} = Au + B \tag{17}$$

where $A = \gamma(1-\lambda) - \mu$ and $B = -\frac{1}{2}\alpha_1\beta(\gamma - \mu)$. By integrating the Equation (17), the optimal policy or optimal behavior of the unemployment rate is derived as follows:

$$u^*(t) = (\frac{\beta\alpha_1}{2} + \frac{B}{A})\exp(A(t-\theta)) - \frac{B}{A} \tag{18}$$

Equation (18) represents the political business cycles in the Nordhaus approach and implies that the unemployment rate is declining throughout the presidency period. Further, the shadow price of the expected inflation limits towards zero $(t \to 0, \psi \to 0)$ by approaching the election. Therefore, the optimal amount of unemployment (u^*) tends to the value $\frac{\beta\alpha_1}{2}$. In other words, the unemployment rate has the highest rate at the beginning of the presidency period and decreases at the end of the period. Furthermore, the severity of the decline in unemployment rates at the end or beginning of the period depends on the positive or negative values of A, respectively.

According to the Nordhaus theory in political business cycles, democratic systems choose a policy in the long-term, which has lower unemployment and higher inflation rate than those of the optimal point. In the short-term, however, the election-winning party increases the unemployment rate to control the inflation rate. By approaching the next election period, the party reduces the unemployment rate again to the point corresponding to the short-sighted policy, which results in increasing inflation.

5. Political business cycles and macroeconomic performance of Iran

The need for macroeconomic policies in Iran is enshrined in principles 11, 110 and 176 of the Constitution. Also, strong democratic institutions and improving the quality of government governance by changing the structure of government spending and reducing government rents can facilitate the process of technological change, increase economic growth, and ultimately improve economic performance (izadkhasti, 2018).

The huge gap between Iran's economic and social potentialities at one hand, and its actual performance at the other, is the current structure of Iranian public sector at one hand, and the bad governance of its public administration at the other. What has led macro-policies to fail to meet the goals of the upstream documents has been the incompatibility of monetary, exchange rate, and trade policies in the past. Although Iran does have a remarkable share of human capital and its economy is capable to have 8% annual economic growth, but average GDP and annual growth has, however, been less than 3% during 4 previous decades (Dadgar & Nazari, 2018).

Tables (1) and (2) present the unemployment and inflation rates at different presidency periods in Iran during 1989-2018. According to data in the Iranian economy, the average inflation rate in the second period of the government of construction was 32.6%, which was higher than its average in the first period. The reform government presented a better performance in stabilizing the economy such that the average inflation rate in the second period of the government was 14.25%, which was lower than its average in the first period. Finally, in the government of compassion and hope the average inflation rate in the second period was higher than that of the first

period, implying the lack of success of the government in stabilizing the economy.

Figure (5) and (6) present the unemployment and inflation rate trend in Iran's economy in time period (1989-2019).

Table 1. Macroeconomic performance of the Iranian economy during time period (1978-2018)

Year	Inflation rate	Unemployment rate	Year	Inflation rate	Unemployment rate
1989	17.4	11	2004	15.2	10.3
1990	9	11.1	2005	10.4	11.5
1991	20.7	12.8	2006	11.9	11.3
1992	24.4	11	2007	18.4	10.5
1993	22.9	10.26	2008	25.4	10.4
1994	35.2	11.73	2009	10.8	11.9
1995	49.4	12.77	2010	12.4	13.5
1996	23.2	9.1	2011	21.5	12.3
1997	17.3	13.1	2012	30.5	12.2
1998	18.1	12.5	2013	34.7	10.4
1999	20.1	13.5	2014	15.6	10.6
2000	12.6	14.3	2015	11.9	11
2001	11.4	14.2	2016	9	12.4
2002	15.8	12.8	2017	9.6	12.1
2003	15.6	11.8	2018	31.2	12

Reference: Research findings based on statistics reported by the statistics center

Figure 5. Unemployment rate trend in Iran's economy (1989-2019)
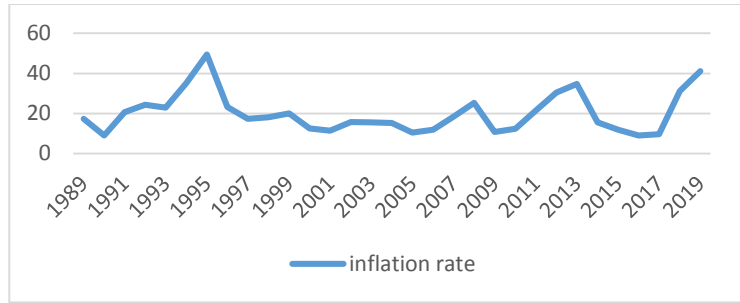
Reference: research findings

Figure 6. Inflation rate trend in Iran's economy (1989-2019)
Reference: research findings

Table 2. reports the changes in inflation and unemployment in different periods of the presidency in Iran.

Table 2. Changes in inflation and unemployment in different periods of presidency in Iran (%)

Government	Period	Inflation variation	Number of increase	Variation percentage	Unemployment variation	Number of increase	Variation percentage
Construction	1989-1992	7	2	40	Zero	2	Zero
	1993-1996	0.3	2	1.3	-1.16	2	-11.3
Reform	1997-2000	-4.7	2	-27	1.2	2	9.1
	2001-2004	3.8	1	33	-3.9	Zero	-27.4
Compassion	2005-2008	15	3	144	-1.1	Zero	-9.5
	2009-2012	19.7	4	182	0.3	1	2.5
Hope	2013-2016	-25.7	1	-68.3	2	3	19.2
	2017-2018	17.3	1	180.2	-0.1	0	-0.8

Reference: research findings

Based on the analysis, in the first periods of the presidency, governments have attempted to control inflation along with using expansionary policies to reduce unemployment, although these policies have led to an increase in the inflation rate in the second period.

Changes in support of the president in Iran reflect voters' sensitivity to economic decisions and their actions. Also, Voters evaluation of the government's performance (inflation, unemployment, growth) has influenced the election of presidents in different periods.

6. Conclusion and political suggestions

Political business cycles approach, as a branch of public choice theory, seeks to evaluate the interaction between government and voters. Voter behavior is based on rational choice, sociological, and psychological approaches. In the rational choice approach, voters mainly focus on the ideas and plans of candidates and evaluate their performance for participating and voting in parties or governments. The sociological political approach states that there is a direct relationship between the social, economic, and cultural conditions of individuals and their voting. In the political-psychological approach, electoral behavior is a process related to individuals' habits and learning in childhood and voters' decisions are generally a function of psychological factors. From this view, party affiliation is considered as the most important factor to explain electoral behavior, which changes less over time.

Regarding the short-term memory of voters, policymakers adopt policies in the years leading up to the election to improve society's livelihoods and economic performance. In this research, the social voting function was considered as a function of unemployment and inflation rate in the framework of Nordhaus's (1975) approach. Accordingly, individuals prefer low unemployment and stable prices to high unemployment and inflation rates. To maximize the social voting function, governments can reduce unemployment with regard to the inflation effects that become apparent later, by manipulating macroeconomic leverage in the short term. In this way, the government increases the probability of its re-election by reducing unemployment through applying pre-election expansionary policies although this policy leads to higher inflation after the election.

According to data in the Iranian economy, the average inflation rate in the second period of the government of construction was higher than its average

in the first period. The reform government presented a better performance in stabilizing the economy such that the average inflation rate in the second period of the government was lower than its average in the first period. Finally, in the government of compassion and hope the average inflation rate in the second period was higher than that of the first period, implying the lack of success of the government in stabilizing the economy.

In general, in a society where voters have a short-term memory of past events and forget events of the distant past times, the outcome of applying a short-term benefit-seeking policy by the government leads to higher inflation and lower unemployment, compared to the optimal policy. Therefore, short-term political actions may affect adopting optimal decisions by the government to maximize the well-being of the current generation with respect to the benefits of future generations.

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