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Gallup Democracy in Exercising the NATO Membership Option: The Cases of Finland and Sweden

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Abstract

The article asks whether the exercising of the NATO membership option is justified for Finland and Sweden in the light of their geopolitical state after Russia's attack on Ukraine. It was the Gallup democracy, which launched the political moves toward the membership. In both countries, the majority of people turned to favor the membership within 2–3 months. Finland activated first. Sweden was fast in catching up with the Finnish process. The theory of option pricing is employed to analyze the optimal timing of exercising the option when the uncertainty regarding the value of the membership is rapidly diluting. The Turkish intervention in the membership process after the membership applications of Finland and Sweden were delivered suggests a bargaining phase once the application is delivered. Finally, the effects of the Gallup surveys on the political equilibrium are analyzed in a voter–politician model (JEL codes: D72, D74, and H56).

Key words: Gallup democracy, defense alliance, option value of membership

1. Introduction

In December 2021, the Russian leader Vladimir Putin delivered an ultimatum: NATO shall not take new members, and must withdraw from its current borders. The ultimatum was targeted against Ukraine in particular. However, it was soon understood in Finland and Sweden that it also concerned the sovereignty of their decision-making in national security. Both countries have earlier been highly inhibited when it comes to the consideration of their potential membership in NATO (see the data below). Putin's claim created the opposite effect of what he wanted: Finland and Sweden delivered their membership applications in May 2020. The Russian attack on Ukraine on 24 February revealed the true intentions of Russia. Subsequently, Russia has publicly reminded others about the borders during the reign of tsar Peter the Great. Thus, the spheres of interest had come back to Europe. NATO rejected Russia's ultimatum and welcomed new members on the condition of satisfying the stated criteria. Both Finland and Sweden do.

In this article, I will present some war history in terms of geopolitics, particularly in Finland. I will also document the Gallup survey results on NATO membership for 2005–2022. I will develop a model showing the value of having a NATO membership in a defense alliance in terms of option pricing. And I will provide an illustration of the voter–politician interaction.

The case of Finland is considered more thoroughly, as it is more complicated. The Gallup surveys in Finland and Sweden led to drastic changes in the attitude of the citizens toward the NATO membership. While Finland's support of the NATO membership used to fall within 21–30% over the past years, it quickly climbed to over 50% for the first time in Finnish history on 28 February following the Russian attack. It subsequently hiked up to 65% in late April, and up to 79% in June. In early March, Sweden reached the majority with 51% in favor of a NATO membership.

While only two parties in Finland had included the NATO membership in their political agenda over decades, the political leaders have been reluctant to initiate the process, pointing to the need for much stronger support from the public. Suddenly, the politicians were awakened by the Gallup results. The Finnish government issued a notice for the parliament, and most representatives moved fast to support the membership. Of the nine parties represented in the parliament, only one was against the membership in Finland. Meanwhile in Sweden, the social democratic party had resisted the NATO membership for decades, and then it eventually moved in favor of the membership. Of the eight parties represented in the Swedish parliament, six came to an agreement on applying for the membership. This is a historical moment, as Sweden successfully avoided wars for more than 200 years with its policy so far. After an intensive but careful evaluation of the national security needs, Finland and Sweden jointly delivered their applications to NATO on 18 May 2022.

2. Some Historical Background

From a historical perspective, Finland and Sweden have a different past. What today is called Finland was part of the Swedish empire for hundreds of years up to 1809 when Sweden lost its war against Russia. After the defeat of Sweden, Finland became a part of Russia as a Grand Duchy with an extensive self-determination in its internal matters up to its independence in 1917. Stalin's Red Army attacked Finland in 1939, but failed to occupy it. The Finnish success in the 1939–1940 Winter War is legendary.[1] Sweden stayed neutral, but unofficially helped Finland in the Winter War.[2] During the Continuation War in 1941, German forces also fought against the Red Army in northern Finland. The massive military

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[1] In Kanniainen (2018), I show in an overlapping generations model that a small defending army fights harder than a larger attacking army. An attacking army with up to three to four times superior manpower was not enough to beat the smaller defending armies in the Winter War or in the final confrontation in the Continuation War in the summer of 1944. The same, by the way, was true in the Sinimäki battles in Estonia in the summer of 1944 when German-Estonian forces stopped the Red Army that was four times bigger. Also, the recent war experience in Ukraine is in line with this theory, which has been confirmed several times earlier in history. Unfortunately, Ukraine failed to signal *ex ante* inadequately to Russia its defending motive and ability.

[2] During the Winter War, 8000 Swedish volunteers were fighting in the Finnish Lapland against the Soviet Union's Red Army and a third of the Swedish air force was repainted with Finnish markings, fighting successfully against Soviet bombers.

attack was initiated by Joseph Stalin on 9 June 1944 against Finland, as he attempted to conquer the country that had disappointed him in the Winter War with catastrophic losses to the Red Army. After the Finnish forces won numerous resistance battles against the Red Army and ultimately stopped Stalin in the Tali-Ihantala battle in the summer of 1944, Stalin started to withdraw his troops, reallocating them toward Berlin. The war against the Soviet Union ended with the breakup of the joint military operations between Finland and Germany, leading to mutual warfare between their forces in Lapland in 1944–1945.

Although Finland was able to survive the wars without being occupied, it can be permanently viewed as a high-risk country in terms of its national security. This is based on the historical perspective, and arises from its geopolitical location with a joint border of 1343 km with Russia. For more than 300 years, the area of Finland (earlier as a part of the Swedish or Russian imperiums) has been the scene of wars and hostilities between European superpowers Sweden, Russia, and Germany; including the attack of the British and French forces during the 1854–1856 Crimean War against the Åland island, which was a part of Russia in those days. After Finland declared independence in 1917, the Åland islands were allocated to its ownership by the League of Nations, the predecessor of the United Nations.

After the war, Finland switched from an anti-Soviet attitude to a workable relationship with the Soviet Union. It was understood that the Soviet Union is a superpower armed with nuclear weapons. In 1948, Finland and the Soviet Union signed a contract on 'friendship, cooperation, and assistance'. It was terminated in 1992 after the collapse of the Soviet Union.[3] The years 1945–1991 during the Cold War were called 'finnlandisierung' in the west. It was the price to be paid by Finland for a rational adaptation to its security threats. From the game-theoretic perspective, it can, however, be viewed as a wise strategic choice in the spirit of Ellsberg (1959).

The state of the national security in Finland has indeed been stable after the Second World War, say from 1948 up to 2014. The leaders of the Soviet Union had understood that increasing pressure against Finland would probably result in Sweden applying for a NATO membership.[4] However, during his visit to Finland in 2012, the Russian military commander Nikolai Makarov caused concerns, claiming that Finland belongs to Russia's sphere of influence. He warned Finland for having military relations with NATO, and instead suggested closer military cooperation with Russia.

Earlier in 2005, Vladimir Putin had declared that 'The breakup of the Soviet Union was the greatest geopolitical tragedy of the 20th century'. Subsequently, Russia revealed its true intentions by aggressively attacking Georgia in 2008 and supporting the separatists in East Ukraine in 2014 with the occupation of Crimea. The final step was the attack on Ukraine,

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3 The first draft of this contract was sketched by the Finnish Marshall Gustav Mannerheim during the final stage of the war. The signed version was initiated by Joseph Stalin in 1948. Finland committed itself in preventing attacks through Finland against the Soviet Union. The close and friendly contacts between the Finnish and Soviet leaders were used as weapons in the internal policies in Finland. One can, however, state that the friendship was a 'divine comedy' of the tactical Finnish politicians, who opportunistically—and by small steps—took actions in moving the country little by little toward the west. The most outstanding step was the membership in the European Union, taking place in 1995 simultaneously with Sweden.

4 The earlier Swedish prime minister Bildt (2022) has recently confirmed that Sweden has not actively sought out the NATO membership to avoid Russian pressures against Finland.

which took place on 24 February 2022. Was it the final one? Does Russia have plans for Finland and Sweden after Ukraine?

2.1 Finland: maintaining the national defense capability

Subsequently, Finland has chosen a defense policy on several key principles. Unlike Sweden, which abolished the draft in 2000, Finland has maintained the draft, training 20,000 men every year (and currently, some females on a voluntary basis). Consequently, Finland's wartime defensive manpower comprises 280,000 soldiers, along with a trained reserve of up to 900,000. Moreover, it has the strongest artillery in Western Europe, a large number of modern tanks, and a navy. In the early 1990s, Finland made a significant strategic move by buying 62 Boeing F/A-18 C/D Hornet fighters from the USA. In 2021, Finland decided to replace those fighters with 62 US F-35 fighters in the coming years. With the acquisitions of those fighters, the Nordic countries will have nearly 300 fighters, including 143 F-35 fighters of the fifth generation and nearly 100 JAS 39 Gripen fighters of Sweden. The trade contracts created long-term ties between Finland and the US defense industry.

Currently, Finland has defense agreements with the USA and several European countries, along with her partnership for a peace agreement with NATO since 1994. With its membership in the European Union, Finland is no longer considered 'neutral' between the east and west. While Finland is a part of the west, it did not use the opportunity to join NATO in 2004 when the Baltic states became members. However, the Finnish defense force has been adapted to be fully compatible with the NATO forces. Although Finland recognizes that it has the option to be a member of NATO, it has kept the option open up to the current times.

3. National Security: Dealing with the Information Asymmetry

The geopolitics and considerations regarding the sphere of interests are back in Europe. In Kanniainen (2018), I have concluded that Finland is a high-risk country in terms of national security. This classification of risk cannot be obtained from the market data. Apart from the geopolitics, the state of national security is also affected by the defense policies and the defense agreements between other players in the field. In that paper, I considered a game between a defending country and a threatening country under asymmetric information. The threatening country is uncertain about the fighting intensity of the defending country. For deterrence in the Schelling (1960) sense, the defending country finds it optimal in the pooling equilibrium to overinvest in its defense capacity. This proposition provides the theoretical explanation for the empirical facts on the documented building of their defense. With the recent investments in fighters and marine forces, Finland is investing 2% of its annual gross domestic product to the defense budget. Given those facts, the memberships of Finland and Sweden would be an asset for NATO.

Sweden, of course, has a strong air force, naval, and defense industry. However, Sweden gave up the military draft in 2000. There has been an understanding that the USA unofficially provided security guarantees for Sweden, and Russia presumably understands this. The Russian aggression against Ukraine in 2014 has led to an effort in Sweden to rebuild the military but this is very slow. Finland and Sweden both strengthened and substantially activated their defense cooperation, although they did not extend it to a mutual military alliance.

4. Why Did Russia Attack Ukraine?

Is Russia's security concern justified? It is a bold fact that in history, Russia has been attacked by enemies from the west along the Northern European plain (Poland in 1605, Sweden in 1708, France in 1812, and the Germans both in WW1 and WW2). France and Britain also attacked Russia during the 1853–1856 Crimean war on the Black Sea. The Russian argument is that after the Cold War, NATO has expanded toward Russia, thereby causing a security issue.

What the Russians have forgotten is that compared with those historical attacks, there is a difference today: Russia is a nuclear power with more than 6000 nuclear warheads. Realistically, no enemy can attack Russia.[5] The military budget of NATO (US: $685 billion, other NATO countries: $300 billion) is several times bigger than the Russian defense budget (61 billion $).[6] The population and the gross domestic product of NATO countries are much larger than that of Russia. Yet, it is true that no country or alliance can threaten a country with nuclear weapons.

In the Russian narrative, Ukraine does not exist as an independent nation. It is claimed that the people of Russia, Belarus, and Ukraine belong together. Even worse, the Ukrainian people are viewed as inferior and should be dominated by Russia, and it is argued that Ukraine does not have the right to exist separately from Russia. According to Russia, the Ukrainian language should not exist. The attack as a 'military operation' is justified because modern Ukraine is allegedly ruled by Nazis. From the European perspective, there is a more plausible explanation for the Russian attack on Ukraine and their claims that Europe's security structure needs to be reformulated: Russia's trauma from the Soviet Union break-up and its loss of status as a superpower. The current Russian leadership hopes to have a place in the history of restoring what was lost.

5. Gallup Democracy

Gallup surveys on the NATO membership have been run in Finland for quite some time. The Table 1 shows the data from 2005 to 2022.

Up to Autumn 2021, only 20–30% of people supported the NATO membership. In 2022, the results changed dramatically. For the first time on 28 February, only a few days after the Russian attack, the majority opinion in the Finnish Gallup was 'yes' (53%) on the NATO membership. On 27 April, the share of YES answers had climbed up to 65% (Figures: Kantar TNS), and on 6 May, up to 76%. The 26 June figure (HS) is even higher at 79%.

The Gallup results subsequently have had a vast impact on political thoughts. Only two of the Finnish parties favored the NATO membership from an early start. A large majority of the representatives in the parliament moved to favor the application for the NATO membership. The president of the country used to require a referendum. It is no longer considered necessary.

Sweden took notice of the process in Finland. In Sweden, there was a substantial increase in the support of the membership compared to 42% in January 2022. From there,

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5 Even North Korea is safe from hostilities as it is today a nuclear state. Only dictators with nuclear weapons are safe. Saddam Hussein and Muammar Gaddafi could confirm this, but they are no longer around.

6 Source: The Military Balance 2019.

Table 1. Gallup surveys on the NATO membership of Finland. 'In your opinion, should Finland seek membership in NATO?' (*Sources:* A Finnish market and opinion research company *Taloustutkimus, Kantor TNS and Helsingin Sanomat HS*).

Date	Yes (%)	Cannot say (%)	No (%)
Autumn 2005	28	9	63
Autumn 2006	26	10	65
Autumn 2007	26	5	69
Autumn 2008	28	12	60
Autumn 2009	28	10	62
Autumn 2010	25	7	68
Autumn 2011	20	10	70
Autumn 2012	18	10	71
Autumn 2013	21	10	70
Autumn 2014	30	10	60
Autumn 2015	27	15	58
Autumn 2016	25	14	61
Autumn 2017	22	17	62
Autumn 2018	20	21	59
Autumn 2019	20	16	64
Autumn 2020	21	25	53
Autumn 2021	24	24	51
28 February 2022	53	19	28
14 March 2022	62	21	16
27 April 2022 (Kantor TNS)	65	22	13
6 May 2022	76	12	12
26 June 2022 (HS)	79	10	11

the majority of people turned to favor the NATO membership. One week after the Finnish February Gallup, 51% of people supported the membership in the Swedish Gallup.[7] Only 27% of people were against it. Their share declined by 10% in 2 months. Traditionally, the influential Social Democratic Party has been against the membership. The attitude in the party changed during the process.

6. NATO Membership: Benefits and Costs

The major security benefit associated with the membership in NATO arises from Article 5, committing the allied members to defend each other.[8] Though the NATO decisions require unanimity and though the allied members are left to choose which way they help another member under a threat or a military attack, the shared responsibility is considered the cornerstone of NATO as a defense alliance. As three of the member countries have nuclear weapons, the safety net includes the nuclear umbrella—not a minor benefit. By implication, no NATO member country has been a subject of a military attack during the existence of NATO.[9]

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7 Demoskop opinion research company for the Aftonbladet newspaper.

8 See Kanniainen and Ringbom (2017).

9 Article 5 has been activated only once, and this happened after the 9/11 terrorist attack in New York in 2001 when all NATO member states declared their readiness to fight against terrorism jointly

No member country is, however, supposed to restrict its role as a consumer of safety, as each is expected to participate in the safety production. Nonetheless, there are limitations for the value of mutual support as an international public good. It is known since Olson and Zeckhauser (1966) that members in a defense alliance have the incentive of free-riding on the security created by other members, and an alliance does not invest optimally in the defense in a Nash equilibrium of the alliance.[10]

As for the security maintenance of the Baltic states, the membership of Finland and Sweden appears to be valuable for NATO as their membership makes the Baltic sea an internal NATO sea. This is one of the implications of the NATO membership, and apparently understood in Finland, Sweden, and NATO.

One of the problems is to anticipate and prepare the country for the potential countermeasures of Russia during the membership process. The cost of retaliation is not illusory. According to Russian statistics, there are 11 million non-Russian people living in Russia with an average income of less than 400 € per month. Pressures on the border control against large organized migration flows from non-Russian citizens living in Russia may take place, as it did in Poland and Lithuania in the autumn of 2021. The potential attacks include cyberattacks on energy, electricity, and water supply lines, threatening the functioning of the society.[11] Disinformation with the purpose of causing societal unrest is anticipated. Neither are the military operations excluded on the ground, in the air, or in the sea.[12]

Despite the potential countermeasures by Russia, Finland soon came to the conclusion that it has two alternatives: seek membership in NATO, or return to the 'finnlandisierung' under Russia's influence.

7. The Highlights of the Membership Process

Finland and Sweden jointly delivered their membership application to NATO on 18 June 2022. The process is of interest and it can be described as follows.

Only a few days after the Russian attack, Finland and Sweden made a historical decision of providing Ukraine with some military aid. Initially, their assistance was more symbolic, but the symbolic value should be recognized. The February Gallup results also led the governments in both countries to evaluate their defense policies. On 4 March, President Sauli Niinistö met Joe Biden, the president of the USA, in Washington; the Swedish prime minister Magdalena Andersson joined in a phone call.

The process toward the membership started on 13 April, when the government issued a statement concerning the changed national security. It was debated in the parliament and evaluated in various parliamentary committees with the help of independent professionals.

with the USA. This did not, however, lead to an NATO operation. Though there was a coalition in Afghanistan, it was not based on Article 5.

10   The data in Military Balance statistics reveal that, say in 2019, only the minority of the NATO members met the requirement of having the ratio of the defense budget to the gross domestic product reach the 2% level. Those countries were the USA, Bulgaria, Greece, UK, Estonia, Lithuania, Latvia, and Poland.

11   For an analysis of cyber operations, I can refer to Kanniainen (2019).

12   The Russian capability for military retaliation operations is momentarily limited, as its troops that were based close to the Finnish border have been moved to the fight in Ukraine and have been subject to substantial losses.

A substantial majority of the members of the parliament expressed their support for the membership, although the president and the prime minister initially abstained from expressing their personal views, thereby allowing for an independent judgment of the parliamentary members.

On 12 May, the president and the prime minister announced their support for the membership application. The decision regarding the membership application on 15 May was initiated by the Ministerial Committee on Foreign and Security Policy, chaired by the president along with the key ministers. Meanwhile, the countries actively participated in the preparation of sanctions against Russia. Turkey, which had earlier informed Finland of its support for the NATO membership of Finland and Sweden, announced on 15 May that it opposed their application.

In Sweden, the government and the opposition announced on 16 May that Sweden would apply for the NATO membership, and tries to deliver the application jointly with Finland. Only the leftists and the Green Party disagreed. The speed of the Finnish process had been somewhat a surprise for Sweden. In early March, the Swedish prime minister stated that the Swedish NATO membership would destabilize Europe. Also, Finland was hesitant because it was uncertain how the war would proceed in Ukraine. The attitudes changed fast when the Russian cruelties and information about murdered civilians were spreading. For example, the maternity hospital in Mariupol was bombed by the Russians.

During the process, Finland interacted actively with the Swedish government in order to coordinate the decisions. Sweden's decision was considered to be of great importance for Finland (though not for the Finnish decision).

It was the dominating viewpoint that the membership of Finland and Sweden would obtain widespread support among the NATO members. Finland and Sweden would be an asset for NATO, as their membership would strengthen the Baltic security. It was argued that delivering the application simultaneously was highly desirable; both to share the pressure of the expected retaliation from Russia during the process, and to share the local responsibility of stabilizing the area during the membership period. As an alternative, it was suggested that Finland and Sweden could form a joint defense alliance outside of NATO. However, such a solution could obviously not be in the interest of the USA, as such an alternative would not provide input in the defense of the Baltic states. Moreover, it was understood that if Finland withdraws without submitting its application, its NATO option would be gone forever. Finland would therefore be a permanent satellite of Russia.

It is also important to think about the future. How long will the USA be committed to defend Europe? The president of that country is changed after 4 or 8 years. Without the USA, Europe would itself have to take a greater responsibility for its defense.

The historical vote in the Finnish parliament took place on 17 May 2022. Of its 200 members, 188 voted yes and 8 voted against. Three members were not present. On the next day (18 June), the membership application was delivered to NATO together with the Swedish application. The North Atlantic Council with the NATO ambassadors was yet unable to invite Finland and Sweden because Turkey had expressed its resistance. At the Madrid meeting on 28 June, Turkey eventually expressed its support for the application after hard negotiations. Turkey had some concerns about terrorism and trade in defense materials, and it saw the membership process as an appropriate opportunity to express its national interests. Finland, Sweden, and Turkey then accepted a 'document of a joint understanding' on those issues, making it possible for NATO to accept Finland and Sweden as its

observer members. The associated document was signed by the NATO council on 5 July. Next in the accession process, all NATO countries have to ratify Finland's and Sweden's Accession Protocol in accordance with their own national procedures, that is, to bring it into force in accordance with their own national procedures.

8. Exercising the NATO Membership Option: An Optimal Stopping Approach

Before the Russian attack on Ukraine in 2014, there were hopes of Russia developing a more democratic society that respected other countries' sovereignty. This makes it understandable why it did not feel necessary to immediately exercise the option of becoming a member of NATO. By overinvesting in national defense, it was thought that it would be possible to create deterrence against hostile military actions. It was also thought that overinvesting in defense would eliminate any informational asymmetries concerning the ability and willingness to defend itself (Kanniainen 2019). The membership option was considered to be valuable for deterrence even when it was not exercised. The Russian attack against its neighbor changed all this, leading to the conclusion that it was time to exercise the membership option.

An algebraic description of the membership option in NATO can be analyzed analogously with the theory of an investment option. I will borrow the modeling by Dixit and Pindyck (1994), adapting it to the current case of a membership option as an optimal stopping problem.

However, as NATO has 30 members and unanimity is required in all decisions, there were some concerns on whether some existing members would express reservations about the membership of new countries. By the time the joint application from Finland and Sweden was delivered on 18 June 2022, there was an understanding among the decision makers that no existing member would challenge the membership of these countries. However, the president of Turkey soon expressed his disapproval, demanding concessions to approve the membership of Finland—and Sweden in particular. They were related to the security of Turkey itself in terms of terrorism threats, limits in weapons transactions, and the USA's refusal of selling F-35 fighters to Turkey. Through the Turkish intervention, a new element was introduced to the membership process. Therefore, the analysis of the membership option has to be extended to cope with the issues raised by Turkey. In the analysis below, the Turkish intervention is considered to be anticipated. The case of an unanticipated intervention is a simplification of the model.

The membership process is therefore considered as a two-stage event. In the first stage, the membership candidates (Finland and Sweden) evaluate the value of the membership and the option to exercise it, anticipating that in the second stage, they have to bargain with an existing member (Turkey) on the conditions. The model will be solved backwards.

The key elements determining the maximum expected value of the option $F(V)$ are: the balance between the added value of national security, V, of a joining country arising from the collective defense (NATO Article 5), and the current cost in terms of the Russian retaliation, C, and the cost of meeting the conditions set by Turkey, c. The latter variable is assumed to be determined in the second stage by Nash bargaining. The bargaining power of the joining

country is denoted by $1 - \theta$ and that of Turkey by θ with $0 < \theta < 1$. Letting W denote the national security of Turkey, the variable c (the 'nuisance cost') is solved from bargaining

$$\max_c \Gamma = [V - C - c]^{1-\theta}[W + c]^{\theta},$$

where the value of V is taken to be determined in the first stage of the process.

Taking the logarithms and the derivative with respect to c, the bargaining solution satisfies

$$c = \theta(V - C) - (1 - \theta)W.$$

Two results are available. First, the greater the incremental value of the NATO membership for the candidate countries Finland and Sweden (V) *is*, the greater is the 'nuisance cost' created by Turkey, c.[13] Second, as expected, its value is negatively related to the existing national security of Turkey, W.

Move then to the first stage of the membership process. As a state variable, V, the value of the NATO membership for nonmembers (Finland or Sweden) is assumed to obeying a geometric Brownian motion

$$dV = \alpha V dt + \sigma V dz$$

with a positive drift, $\alpha > 0$, and σ as the variance parameter of the process (t is the calendar time). The variance parameter is important in that it captures the uncertainty related to the value of the NATO membership.

The evolution of the value of the membership is subject to an increment of a stochastic process $dz = \varepsilon_t \sqrt{dt}$ where the stochastic process ε_t is taken to be a serially uncorrelated, normally distributed random variable with a mean of zero and a standard deviation of one. Moreover, the values of dz have the Markov property with the probability distribution for all future values depending on its current value only.

The value of membership, V, creates an option value of seeking the membership, denoted by F. A membership application, however, triggers a Russian retaliation, anticipated to be of magnitude C and the conditions imposed by Turkey, c. Introduce a discount rate $\rho > 0$ for the member candidate. The optimal exercise of the membership option can now be studied in terms of the timing which maximizes the expected present value of $V - C - c$, or

$$\begin{aligned} F(V) &= \max E\big[(V - C - \theta(V - C) + (1 - \theta)W)e^{-\rho T}\big] \\ &= (1 - \theta)\max E\big[(V - C + W)e^{-\rho T}\big]. \end{aligned}$$

For termination, one hopes to find a critical cutoff V^* with continuation being optimal on one side of V^* and termination being optimal on the other side.

If $0 < \alpha < \rho$, the membership option has value even if $V < C + c$ currently because eventually it may turn out to be that $V > C + c$. Therefore, the option has value even when it is not (yet) exercised.

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13 This case was intuitively suggested by the editor. It is nice that it comes out algebraically.

Following [Dixit and Pindyck (1994)](#), the Bellman equation reads as

$$\rho F dt = E(dF),$$

saying that over a time interval dt, the return on the membership is given by the expected appreciation of the option value. Expanding dF by using Ito's Lemma,

$$dF = F'(V)dV + \frac{1}{2}F''(dV)^2.$$

Substituting into dV and noticing that $E(dz) = 0$, the Bellman equation becomes

$$\frac{1}{2}\sigma^2 V^2 F''(V) + \alpha V F'(V) - \rho F = 0.$$

This is a second-order differential equation, linear in F and in its derivatives F' and F''. It has to satisfy the following boundary conditions: $F(0) = 0$, $F(V^*) = V^* - C$, and $F'(V^*) = 1$ with the last two known as the value-matching and the smooth-pasting conditions. To satisfy the first boundary condition, the solution must take the form $F(V) = AV^{\beta_1}$, where $A > 0$ and $\beta_1 > 1$ are constants.[14] The remaining boundary conditions can be used to solve for the two remaining unknowns (constant A and the critical value V^*). At the optimal timing of the exercise of the option, the relation between the membership value and the resulting cost of retaliation then satisfies

$$V^* = \frac{\beta_1}{\beta_1 - 1}(C - W).$$

Since $\beta_1 > 1$, it follows that $V^* > C–W$. An expected retaliation by Russia raises the threshold value of the membership option of Finland and Sweden. However, if the national security of Turkey is strong, it cannot impose strongly against the membership of those countries, reducing the threshold value of the incremental security created by NATO.

The key interest in the above relation is in the effects of policy uncertainty. How does the uncertainty about the value of membership (denoted by σ) interact with the membership decision? *Great uncertainty makes it optimal to push further in time of the exercising of the option.* The intuitive explanation is that the cost C is realized when the membership option is exercised, while the benefit may be limited. As Finland and Sweden are making the move to exercise their options, this appears as an indication that *the uncertainty* of the value of the membership measured by σ is currently considered particularly *low*, making it worthwhile to exercise the option. The potential cost from Russia's retaliation is outweighed by the expected benefits associated with the membership.[15]

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14 For their exact values within the parameters of the model, the reader is asked to consult Dixit and Pindyck Ch 5.

15 As stated above, the current risk of military intervention against Finland and Sweden is limited because Russia is involved in the war with Ukraine, and has lost a nontrivial fraction of its military. However, it can rebuild its military after that war.

9. Political Equilibrium under Heterogeneous Voters

It was observed above how the Gallup information of voters' preferences can effectively steer the political equilibrium. Most of the political parties in Finland and Sweden were fast in updating their political agendas in favor of exercising the NATO option. Whose option is it? Is it an option for the country, or for the policy makers? A plausible argument is that while the national security truly is highly significant in the politicians' preferences, the matters of power also play a role in the fast adaptation. How does such an adaption arise in the political game between the parties? In this section, we introduce a characterization of the power play between the parties.

Picture a fictitious two-party economy with the voter heterogeneity in relation to a number of policy targets, along with the explicit consideration of national security and public finances. There are supporters of a strong national defense, say in terms of a NATO membership (to be labeled by N), and voters with more lenient defense concerns opposing a NATO membership (to be labeled by n). Their preferred policy stance is measured by parameters $\gamma^N > \gamma^n > 0$, respectively. In addition, the voters express their preferences in regard to public finances, $\delta^N > \delta^n > 0$. Moreover, the N-voters are more prone to national defense concerns and the public finances than the n-voters. The relative weight of those policy targets also can be relevant for the voters. With that in mind, consider the case where the national security is relatively more (less) important for the N-voter (n-voters) than the national defense with the weight given by $\beta > 1$.[16]

The two parties competing for the voters announce their political agendas (say, $x > 0$, $y > 0$) prior to the elections. Voters are free to switch between the parties; the degree of party loyalty remains open. The citizens are averse to deviations from their bliss policies. Their one-period preferences are given by loss functions[17]

$$u^N = -\phi\left(x - \gamma^N\right)^2 - \left(y - \delta^N\right)^2, \quad u^n = -\frac{1}{\phi}(x - \gamma^n)^2 - (y - \delta^n)^2.$$

If the Gallup surveys reveal that the bliss points of voters γ^N, γ^n have changed, how does that shape the political equilibrium?

Assume that there are two election periods. Both parties want to achieve and stay in power to enjoy some private economic benefits (not to be modeled explicitly). It is the ruling party that sets the actual policy ($x > 0$, $y > 0$). The preferences of the party in power are expressed as loss functions

$$U^N(x_{N1}, x_{N2}, y_{N1}, y_{N2}) = -\sum_{i=1}^{2}\left[\phi(x_{Ni} - \gamma_N)^2 + (y_{Ni} - \delta_N)^2\right],$$

$$U^n(x_{n1}, x_{n2}, y_{n1}, y_{n2}) = -\sum_{i=1}^{2}\left[\frac{1}{\phi}(x_{ni} - \gamma_n)^2 + (y_{ni} - \delta_n)^2\right],$$

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16   The relative importance of any two issues is earlier discussed by Holler and Skott (2005).

17   To formulate such preferences, I have benefitted from the approach introduced by Acemoglu et al. (2013) in a different context.

which may deviate from the preferences of their voters in that the citizens and the parties have different bliss points. The deviations from the most desired policy agenda arise from costs in negotiation etc. not to be specified explicitly.

The heterogeneity of voters' preferences suggests that the welfare of the voters suffers if the parties end up following the agenda of the competing party,

$$-\left[\phi\left(x_{N1} - \gamma^N\right)^2 + \left(y_{N1} - \delta^N\right)^2\right] < -\left[\phi\left(x_{n1} - \gamma^N\right)^2 + \left(y_{n1} - \delta^N\right)^2\right]$$

$$-\left[\frac{1}{\phi}\left(x_{n1} - \gamma^n\right)^2 + \left(y_{n1} - \delta^n\right)^2\right] < -\left[\frac{1}{\phi}\left(x_{N1} - \gamma^n\right)^2 + \left(y_{N1} - \delta^n\right)^2\right].$$

The parties are aware of this mechanism.

9.1 Agenda setting and voting

To study the political equilibrium when the voters may switch from one party to another, there are three stages. In stage 1, the party in power (whether of N-variety or n-variety) chooses its policy (x_1, y_1) for the first period and its policy agenda for the second period (x_2, y_2), wishing to stay in power in period 2. Its choice has to be forward-looking. In stage 2, there is an election for the second period. The party, whose political agenda results in a smaller loss to the voters, wins the election. In stage 3, the winning party carries out its political agenda. The model is solved backward.

Let's say that it is party 1, which is in power in the first period. It chooses its political agenda for period 2 to minimize its loss, and it knows the expected political agenda of party 2. If party 1 continues to stay in power for period 2, it chooses (x_2, y_2) from the first-order conditions to be equal to its bliss values, making the second-period losses to the party equal to zero. However, the voters of party 1 face a loss to the extent that the bliss points of the voters and the parties differ,

$$u^N = -\phi\left(\gamma_N - \gamma^N\right)^2 - \left(\delta_N - \delta^N\right)^2.$$

They can switch the party and end up having a loss

$$u_n^N = -\phi\left(\gamma_n - \gamma^N\right)^2 - \left(\delta_n - \delta^N\right)^2.$$

The parties get their vote, depending on the policy that will result in a smaller loss to these voters. Under the switch, party 2 wins on the condition that its own voters stay loyal.

Similarly, if party 2 is in power and carries out its preferred policy agenda, the voters of the party 2 face a loss,

$$u^n = -\frac{1}{\phi}\left(\gamma_n - \gamma^n\right)^2 - \left(\delta_n - \delta^n\right)^2.$$

If they switch the party, they end up having a loss

$$u_N^n = -(\gamma_N - \gamma^n)^2 - \frac{1}{\phi}(\delta_N - \delta^n)^2.$$

If they switch, party 1 will win, but it is subject to the conditions that their voters stay loyal.

How does the outcome depend on the parameters ϕ and δ? Consider now an exogenous disturbance, such as a war. The concerns of the citizens have dramatically changed in the Gallup survey, $\Delta\gamma > 0$. Consider the case where the parties responded by changing their political agenda as

$$\Delta x_N = \Delta\gamma, \ \Delta x_n = \alpha\Delta\gamma, \ \alpha < 1.$$

Both in Finland and Sweden, most parties hurried up to update their political agenda in response to the Gallup survey, choosing $\alpha = 1$ (or equivalently, $\frac{\partial x_1}{\partial \gamma^N} = 1$). Denote the new bliss point of the citizens as γ^*. By implication, the parties which updated imperfectly their agendas (one party in Finland, two parties in Sweden) may face the risk of losing popularity among voters. That depends on the loyalty of their voters. The loss to the voters is given by

$$-\frac{1}{\phi}(\alpha\gamma^* - \gamma^*)^2 - (\delta_n - \delta^n)^2,$$

while if switching the party, the loss is smaller,

$$-\frac{1}{\phi}(\gamma^* - \gamma^*)^2 - (\delta_n - \delta^n)^2 = -(\delta_n - \delta^n)^2.$$

We considered above explicitly a separated political equilibrium in the case of two policy issues, though nothing was said about the role of the other policy target; fiscal balances parameterized by δ. The number of political issues can, however, be very large and the public finances matter. It is also possible that the political issues are not fully independent from each other. The effects of the NATO membership indeed carry over to budget issues. Issues like meeting Article 5 of defending other NATO members can arise if such a demand arises, resulting in the risk of getting involved in a military conflict. Issues like coordinating the acquisition of the defense materials among the member states are possible. Those second-order implications complicate the voters' party loyalty. The process involves parties updating their political agendas in the interaction with voters' preferences. The more political issues there are on the table, the smaller the weight attached to each issue is. Some of the issues are, however, fundamental; and some are of less importance.

One conclusion in the above model is very clear: if parties equally adjust their bliss points γ_N, γ_n, there is no change in the political equilibrium in the comparative statistics as the distances $\gamma_N - \gamma^N$, $\gamma_n - \gamma^n$ do not change. In addition, consider for a moment the case of separate policy-making with the sole focus in the national security by concentrating on first terms in u^N, u^n. Then the relative strength of the effect of any policy decision x on voters' welfare under the two competing parties is given by the ratio

$$\frac{\left(\frac{\partial u^N}{\partial x}\right)}{\left(\frac{\partial u^n}{\partial x}\right)} = \phi^2 > 1.$$

The agenda of a party emphasizing the defense target (having thus $\phi > 1$) may result in a substantial welfare gain on its voters.[18]

10. Conclusion

The alternative (or complementary) ways of strengthening the national security are defense investments and a membership in a defense alliance. In the case of defense investments, the socially efficient allocation amounts to having the security effect with the last unit invested in defense being equal to the social welfare effect with the last unit of money invested in social welfare. Membership in a defense alliance creates an extra welfare benefit in terms of the collective defense as an international public good. The membership in NATO is historical in transforming Finland from a high-risk country to a lower-risk country. Similar security benefits accrue to Sweden as well. Sweden terminated the draft in military service in 2000, but has been unable to replenish it. Despite the strong air force and navy, Sweden has been less safe after the Russian attack on Ukraine in 2014.

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18 As an empirical observation, it is worth mentioning that the party (conservatives), which historically used to favor the NATO membership, gained a substantial hike in its Gallup popularity after it became evident that Finland would apply for the membership. The prediction is that though it is in the opposition now, it will be the leading party in the next election. It stands to remind that other issues may arise. Meanwhile, the 'tail' of such issues in the voter's loss functions is not irrelevant.

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