The Israel – Palestine Conflict: A Game Theoretic Analysis of Policy Preferences and Implications

**Abstract**

This paper explores the Israeli-Palestinian conflict through the lens of game theory, focusing on two key strategic models: the Prisoner's Dilemma and the Hawk-Dove game. In the context of the conflict, the Prisoner's Dilemma highlights the challenges of cooperation between Israel and Palestine, where mutual defection often leads to less-than-ideal outcomes for both parties. Meanwhile, the Hawk-Dove game offers insights into the strategic choices regarding conflict escalation or defuse, with consequences for security and resource allocation. By integrating these game-theoretic frameworks, this paper provides a comprehensive analysis of the strategic interactions and policy implications in the Israeli-Palestinian conflict, offering valuable insights for policymakers and researchers alike.

**Introduction**

The Israeli-Palestinian conflict, spanning decades, remains a deeply intricate issue with far-reaching implications. At its core, it revolves around competing claims to the same land, intertwining with concerns of security, identity, and religious significance. Over time, this conflict has escalated into cycles of violence, punctuated by sporadic peace efforts, all while underlying tensions persist. Central to the conflict are the aspirations of Israelis and Palestinians for self-governance and sovereignty over their homeland. However, reaching a consensus has proven difficult in the face of long-standing grudges and intricate geopolitical realities.

This conflict holds significance not only for Israelis and Palestinians but also for the broader global community. Its ramifications extend beyond regional borders, impacting peace and stability in the Middle East and beyond. The war persists despite multiple attempts at peace talks, presenting continuous difficulties for international diplomacy. Understanding the intricacies of this conflict is crucial for devising effective strategies to promote reconciliation and foster lasting peace in the region.

**Literature Review**

In examining the ongoing Israeli-Palestinian conflict, (Dobrushkin, 2019) utilized three-game theory models: Hawk-Dove, Evidence Games, and Norm Enforcement. By applying these models, Dobrushkin aimed to shed light on the underlying dynamics driving the conflict.

(Stein, 1991) studied The Israel-Palestine conflict which has been marked by a series of wars and tensions over the 20th and 21st centuries. He states that the conflict originated with the establishment of the state of Israel in 1948, leading to the Arab-Israeli War, during which neighboring Arab states invaded Israel in support of Palestinian Arabs. Subsequent conflicts, including the Six-Day War in 1967 and the Yom Kippur War in 1973, further heightened tensions and reshaped territorial boundaries. Efforts to negotiate peace agreements, such as the Oslo Accords in the 1990s and various peace initiatives in the 21st century, have met with limited success amid ongoing disputes over land, borders, and the status of Jerusalem.

(Vasegaard, n.d.) examined the model using Nash Equilibrium whereas (Ahmad, 2022) examined why a "land for peace" solution, such as the Oslo Accords, failed to materialize between Israel and the Palestinians. It critiqued existing strategic behavior models, arguing that they made unrealistic assumptions about the motivations of the main actors involved.

**Methodology**

Prisoner’s Dilemma:

The Prisoner's Dilemma is a classic game theory scenario where two rational individuals must decide whether to cooperate or betray each other. If both cooperate, they both receive a moderate payoff. If one betrays while the other cooperates, the betrayer receives a high payoff while the cooperator receives a low payoff. If both betray, they both receive a moderate payoff. Despite both individuals being better off if they cooperate, the temptation to betray is strong, leading to a scenario where mutual betrayal is likely, resulting in suboptimal outcomes for both parties.

So, in the case of the Israel-Palestine conflict we'll use the following payoffs:

Each side has two choices: "Cooperate" (C) or "Defect" (D). The payoffs represent the perceived benefits to each side based on their actions. Let's define the payoffs:

1. If both sides cooperate (C, C):

* Israel receives a payoff of 3.
* Palestine receives a payoff of 3.

1. If Israel defects while Palestine cooperates (D, C):

* Israel receives a payoff of 5.
* Palestine receives a payoff of 1.

1. If Palestine defects while Israel cooperates (C, D):

* Israel receives a payoff of 1.
* Palestine receives a payoff of 5.

1. If both sides defect (D, D):

* Israel receives a payoff of 2.
* Palestine receives a payoff of 2.

**Palestine**

Cooperate (C) Defect (D)

**Israel** Cooperate (C) (3,3) (1,5)

Defect (D) (5,1) (2,2)

In this scenario, the Nash Equilibrium occurs when both sides defect (D, D) which is (2,2). This is because millions of lives are being lost every day and the human suffering is not stopping so if one side cooperates while the other defects, the defector receives a higher payoff. Therefore, both sides have an incentive to defect, resulting in a suboptimal outcome for both. The status quo is failing everyone and human suffering is not stopping anytime soon therefore both defecting seems like the best option.[[1]](#footnote-1)

The Hawk-Dove Game:

In the Hawk-Dove game, two players must decide between two strategies: Hawk (fight) or Dove (concede). If both choose Dove, they share a moderate payoff. If one chooses Hawk while the other chooses Dove, the Hawk claims the entire payoff, while the Dove gets nothing. If both choose Hawk, they share the cost of fighting and receive a reduced payoff. This game illustrates the trade-off between aggression and conciliation, where the optimal strategy depends on the opponent's choice. It also highlights the risks and rewards of conflict escalation versus peaceful coexistence.

So, in this case, the payoffs are:

* v: Value of the resource (land).
* c: Cost of fighting.
* v/2: Value of the resource when shared equally.

Given these parameters, the payoffs for each possible outcome are as follows:

1. If one agent fights and the other concedes:

* The fighter claims the full resource (v).
* The conceder gets nothing.

1. If both agents fight:

* Each agent has a 50% chance of victory, so each gets v/2 in expectation.
* However, both agents incur a cost of fighting (c), resulting in an overall payoff of v/2−c for each.

1. If neither agent fights:

* The resource is shared equally, so each agent claims v/2.

**Palestine**

Hawk (Fight) Dove (Concede)

**Israel** Hawk (Fight) (,0) ()

Dove (Concede) ( ) ( )

This set of equations demonstrates that an individual’s optimal strategy is to assume the opposite role as their opponent. Thus, so long as fighting is relatively costly (v/2 < c), an individual can never benefit by deviating from this equilibrium strategy, constituting a Nash equilibrium.

At its heart, the Israeli-Palestinian conflict revolves around a territorial dispute between two nations vying for control over the same geographic area. The insights provided by the Hawk-Dove model, which analyzes conflict over contested resources, offer valuable perspectives for understanding this core issue. According to the model, conflict arises when parties receive conflicting signals stemming from uncorrelated asymmetries. This can occur in two main ways: firstly, when individuals interpret the same asymmetry differently, and secondly, when different asymmetries suggest opposing courses of action. Both of these sources of conflict are evident in the Israeli-Palestinian conflict. The Israel-Palestine land dispute centers on competing claims to the same territory, particularly historic Palestine. Rooted in religious, historical, and political factors, both Israelis and Palestinians assert sovereignty over this region, including Jerusalem. Wars and displacement, notably in 1948 and 1967, have deepened tensions, exacerbated by the establishment of Israeli settlements in occupied territories. Efforts to negotiate a resolution, such as the Oslo Accords, have faced obstacles including border disputes and the status of Jerusalem. The unresolved land dispute remains a primary obstacle to achieving a lasting peace agreement, with far-reaching implications for regional stability and security.[[2]](#footnote-2)

**Policy Implications**

The Israel-Palestine conflict revolves around fostering trust, promoting dialogue, and addressing core grievances. Firstly, prioritizing confidence-building measures, such as humanitarian initiatives and economic development projects, can help alleviate tensions and build trust between Israelis and Palestinians. Secondly, engaging in sustained diplomatic efforts, supported by international mediation, is essential for facilitating meaningful dialogue and negotiations toward a comprehensive peace agreement. Thirdly, addressing the root causes of the conflict, including issues related to borders, settlements, refugees, and Jerusalem, requires a commitment to compromise and mutual recognition of each other's rights and aspirations. Finally, promoting people-to-people interactions and grassroots initiatives can foster mutual understanding and reconciliation between Israeli and Palestinian communities, laying the groundwork for a feeling of sustainable peace.

**Conclusion**

The application of game theory to the Israeli-Palestinian conflict offers insights into the strategic interactions and dynamics shaping the ongoing dispute. By examining scenarios such as the Prisoner's Dilemma and the Hawk-Dove game, we gain a deeper understanding of the challenges and opportunities inherent in conflict resolution efforts.

Delving further into the games, the Prisoner's Dilemma highlights the inherent tension between individual self-interest and collective well-being. In the context of the Israel-Palestine conflict, this dilemma reflects the challenge of cooperation amidst deep-seated mistrust and competing national interests. While both parties may recognize the benefits of peace and cooperation, the fear of exploitation or betrayal by the other side often leads to a breakdown in cooperation and perpetuates a cycle of conflict.

Similarly, the Hawk-Dove game sheds light on the strategic choices and behaviors of conflicting parties. The game illustrates the trade-offs between fight and conciliation, with each side weighing the risks and rewards of conflict escalation versus peaceful coexistence. In the context of the Israel-Palestine conflict, this game underscores the importance of de-escalation strategies and confidence-building measures to prevent the outbreak of violence and create conditions conducive to negotiation and dialogue.

These game-theoretic models highlight the importance of cooperation, trust-building, and de-escalation strategies in mitigating conflict and fostering peace. However, achieving a lasting resolution to the Israel-Palestine conflict requires more than just theoretical frameworks; it demands bold political leadership, sustained diplomatic engagement, and genuine commitment to addressing the root causes of the conflict.

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1. <https://www.theguardian.com/commentisfree/2023/nov/03/a-two-state-solution-is-the-only-way-that-the-israel-palestine-problem-can-be-solved> - Clamour is growing for a durable peace – but that means Hamas must be dismantled and Israel must end the settlements in the occupied territories [↑](#footnote-ref-1)
2. <https://www.bbc.com/news/newsbeat-44124396> - Israel Gaza war: History of the conflict explained [↑](#footnote-ref-2)