

# An agent-based model of military mechanization

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## 1 Introduction

This paper presents an agent-based model of military mechanization. First, it provides a theoretical discussion of military mechanization, states the research hypothesis, and explains why agent-based modeling is an appropriate research strategy. Then, it details an original agent-based model; presents results; and discusses their implications for the academic debate on military mechanization.

In summary, the orthodox

## 2 Background

States differ in the composition of their militaries, and in particular, of their ground forces.<sup>1</sup> One notable axis of comparison is *mechanization*: the degree to which the state relies on infantry vs. ground combat vehicles. Treating mechanization as a continuous variable, one extreme is an army consisting exclusively of dismounted, small arms-wielding infantry units; the other extreme is an army consisting solely of tank units, armored personnel carriers, artillery, and the like. Clearly, no modern state embodies either extreme, but the 1970s-era Vietcong are a good example of a low-mechanization army and the 1980s-era Israeli army of high mechanization.

The consequences of choices regarding mechanization are extreme. To quote former U.S. Secretary of Defense Donald Rumsfeld, “you go to war with the army you have.”

The causes of mechanization

Sechser and Saunders 2010 Biddle 2004 Gartzke 2001 farrell2001transitional

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<sup>1</sup>States may have multiple organizations that conduct ground combat operations: e.g., the United States operates both an Army and a Marine Corps as independent services. Henceforth, this paper uses the terms “army” and “ground forces” interchangeably.

### **3 Model**

### **4 Results**

### **5 Discussion**

### **6 References**

- Biddle, Stephen D (2004). *Military power: Explaining victory and defeat in modern battle*. Princeton University Press.
- Gartzke, Erik (2001). “Democracy and the Preparation for War: Does Regime Type Affect States’ Anticipation of Casualties?” In: *International Studies Quarterly* 45.3, pp. 467–484.
- Sechser, Todd S and Elizabeth N Saunders (2010). “The Army You Have: The Determinants of Military Mechanization, 1979–2001”. In: *International Studies Quarterly* 54.2, pp. 481–511.