

prudently explains why this happened, it does not seem beside the point to refer to his exact words where he states that the people or the nobility always acted arrogantly when the one or the other group was humiliated..." (*Ibid.*, 265)

These ideas set the foundation for the development of pluralism as expressed in documents such as The Federalist Papers.

2.1 Overview of the Model

If we are to build a model of political interaction, we must first settle upon the definition and role of government. In general, albeit vague terms, the purpose of government is to satisfy the needs of its citizens. Machiavelli felt that society could reasonably be aggregated into two factions: the lower class (populace), the upper class (aristocrats). Although these two classes are constantly at odds, it is the duty of the government to attempt to satisfy both simultaneously.

Consider Figure 2.1. Here the government acts to minimize the discontent of a number of different factions. We can think of this as a system seeking the lowest possible energy state, where discontent is the energy which threatens to destroy it. The legislative process is in fact an attempt to determine the laws which provide the "best fit" to social norms. If men were ideal and had total control over their environment, this would constitute the entire political process. However, due to human imperfection, additional complexity is unavoidable. Two major difficulties hinder our political system.

One is the determination of the "best laws." In short, how are the relative discontents of the various factions to be weighted? In all societies, certain individuals are treated more favorably than others; certain problems are considered more seriously than others. How is this "legislative balance" to be determined?

Second, we must consider the consequences of physical and cognitive constraints interfering in the political process. An executive branch is necessary in order to bridge the gap between the "ideal" laws reflecting desired conditions and the "real" physical limitations placed upon the government apparatus. When these two forces clash, it is the executive who must interpret the laws in such a fashion that they may be implemented. Unfortunately, this concession to the non-idealities of the world produces some complications. An executive able to interpret the laws too freely can easily ignore them entirely, usurping power. Another complication is the development of an executive legislative agenda. Being so closely involved with the implementation of the laws, it is a great temptation for the executive to try to influence

the formulation of these laws. Thus, in our real government we have not two but three factions--the executive, the populace, and the aristocracy.

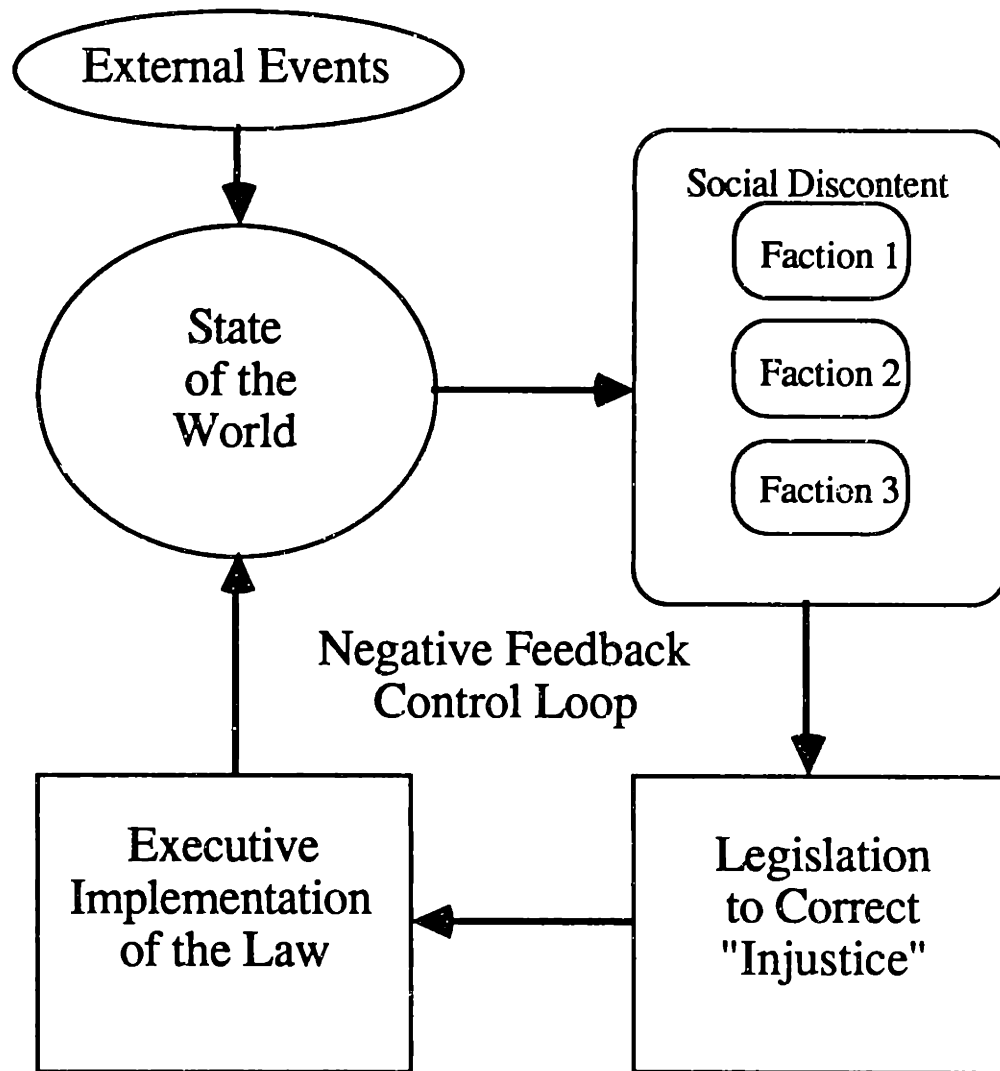


Figure 2.1: A Simple Model of the Political System

2.2 Modes of Behavior

The model presented in Figure 2.1 outlines a negative feedback policy loop. Thus, an increase in social discontent induces a legal change in order to reduce this discontent. For moderate perturbations, this system is stable. However, there are situations under which the political system proves incapable of coping with disturbance and the moderating legislative feedback loop fails. When popular discontent becomes intolerable, the lower class is apt to

bypass the legislative process, actively opposing the policies of the executive and replacing the members of the legislature with more favorable representatives. Popular uprisings can take many different forms, but all are characterized by an increase in unrest and violent opposition to government policies. If the people perceive the "injustice" to be due to biased legislation, they are likely to overturn the authority of that body, or sharply alter its political makeup. If injustice is due to the "corrupt" policies of the executive (be he prince, president, or magistrate), he is likely to be stripped of power by the masses. These actions constitute the political process of rebellion, and can also serve as a powerful force for stability in society, tending to minimize the amount of social discontent (Figure 3.8).

However, not all political interactions lead to stability. Civil unrest can cause the polarization of society. All factions are caught up in the turbulence of political conflict, and violent measures tend to undercut the position of the moderates, causing escalation. More violence eventually leads to a decrease in economic productivity. This results in even more deprivation and discontent. This destructive cycle may cause enormous damage to the economy before it is halted.

The model described herein has the capability to produce all of these modes of behavior, from stable accommodation to catastrophic failure. Since it is necessary to make a number of assumptions at each stage in an endeavor such as this one, I have attempted to use Machiavelli's writings as a base wherever possible, drawing on outside sources in areas where Machiavelli's philosophy is vague. In a general sense, this model can be considered an exploration of the mathematical consistency of Machiavelli's findings in the Discourses given his assumptions. However, in building any model, one is forced to consider the fundamental causal relationships involved. Thus, this thesis also constitutes an examination of the conditions necessary in order to maintain a stable republic.

Chapter Three: Model Description

3.0 Model Scope

The model draws upon Machiavelli's rich description of political interaction in order to simulate many of the modes of behavior described in his works. Because the model is intended to replicate some of the political conditions in a Renaissance Italian city-state, economic modes of production and technology are assumed to be constant. Most of the scenarios tested run for about 35 years, thus fluctuations in the quality of land or environmental effects are also ignored. Perhaps the most significant assumption of the model is no population growth over this period. Because the primary units in the model (freedom and welfare) are intensive quantities (per person/aristocrat), an increase in size alone would have little effect (assuming resources to support the added population were available). However, a change in the proportional make-up of the the aristocracy and populace would be significant. Figure 3.1 lists some of the major endogenous and exogenous variables in the model.

<u>Endogenous Variables</u>	<u>Exogenous Variables</u>	<u>Excluded Variables</u>
Production	Land Quality	War (economic effects can be simulated)
Freedom	Famine	
Economic Welfare	Population	
Executive Authority	Ratio of Upper Class to Lower Class	
Legislative Power Distribution	Environmental Influence on Social Norms	
Social Expectations for Political and Economic Welfare		
Government Policy		
Social Unrest		
Rebellion		

Figure 3.1: Endogenous, Exogenous, and Excluded Variables