

CHAPTER V. A STATIC MODEL OF POLITICAL DOMINATION

As of the conclusion of chapter four, my conception of political domination is more or less complete; in part two, I will shift from descriptive to normative analysis. Before doing this, however, I will in this chapter experiment with developing a game theoretic model of political domination that squares with the account presented in the last three chapters. This model will be a *static* model. By this I mean that it will not contemplate the question where systems of political domination come from, or how they might change over time. Obviously, behind every real-world instance of political domination there will be an interesting history of how it came into being, how it evolved, and possibly how it eventually broke down. Properly understood, nothing in the model sketched here suggests otherwise. Everything depends on what one is interested in: in my case, it just happens that I am less interested (at present) in understanding how systems of political domination came about than I am in understanding the internal experience of those persons or groups party to such systems.

§ 28. PRELIMINARIES

To a large extent, the basic architecture of a formal model of political domination has already been determined by the conception developed in the past three chapters. To begin with, I have argued that political domination should be conceived of as a social relationship between two or more persons or groups. Thus, our model must have at least two actors, the agent and the subject of political domination, who will rather prosaically be named player 1 and player 2 respectively. (In sect. 32 below, I expand the model to allow for more than two players.) Depending on the situation imagined, these players

Chapter V: A Static Model of Political Domination

might represent a slave-master and a group of slaves, the class of nobles and the class of peasants, a husband and a wife, an employer and a group of employees, a colonial power and one of their colonies, and so forth.

The players are assumed to act purposefully, as if they were pursuing certain goals or ends; moreover, these goals or ends are assumed to be at least minimally rational — that is, internally consistent. The nature of these assumptions has already been discussed, and will not be expanded on here. We must now, however, provide the players with more substantive aims. Obviously, this will restrict somewhat the generality of the model, for real persons and groups have a wide variety of goals and ends, many of which contradict the substantive aims I will assign the representative players. This should not concern us overmuch. When deciding what to do in real-world situations, whenever what one wants to do depends on what others are doing, people make assumptions about what each others' goals or ends are. They could hardly do anything else. Often these assumptions are wrong, in which case people sensibly adjust their actions as best they can, but initial assumptions are unavoidable. In this sense, then, I am really doing no more here than an ordinary person would do when faced with a real situation of political domination.

Let us assume that the goals or ends of the players are conflictual. In particular, suppose that the subject of political domination has control over some social good (not necessarily material) valued by the agent; and that the agent's aim will be to extract as much of this good from the subject as possible, while conversely the subject's aim will be to surrender as little as possible.¹ For example, if player 2 is a slave and player 1 a slave-

¹ As Scott and Foucault each contend in their own way, relations of domination are always relations of resistance. See for example: Scott, *Weapons of the Weak* (1985), esp. chs. 2–3, and *Domination and the Arts of Resistance* (1990), p. 45; Foucault, *History of Sexuality* (1978), p. 95–96.

Chapter V: A Static Model of Political Domination

master, the valued social good might be productive labor; if player 2 is the peasant class and player 1 the class of nobles, the valued good might be feudal dues; if player 2 is a wife and player 1 her husband, the valued good might be some combination of household or sexual services, or perhaps deference and status recognition; and so on.

A point of clarification is in order here, because it might at first appear that this characterization of the social relationship makes much stronger assumptions than it actually does. For example, suppose player 1 is an employer (or his foreperson), player 2 a wage laborer, and the valued good work effort. Now it might appear we are asserting wage laborers desire to work as little as possible, suggesting some unwarranted assumption about the inherent laziness of a group of persons. Actually, this is not the case. Our model need only contemplate some surplus effort, over and above what a worker would offer at a given wage, under given employment conditions, if counterfactually the employer did not have coercive powers over the worker. The employer's aim is thus to extract as much *surplus* effort as possible, over and above what the worker would provide voluntarily; thus, it is perfectly natural, and not at all a sign of laziness, for workers to resist offering more effort than they should. It is precisely the nature of political domination to place the employer in a position to extract more effort from the workers than they would willingly offer. Depending on the case we are interested in, we can adjust our interpretation of the valued good under contention so as to correspond to the appropriate surplus value.² (Under slavery, for example, we might suppose any effort is surplus effort.) With this clarification, it should be clear that at least

² The choice of language here is usefully reminiscent of Marx. Without too much interpretive violence, we can say in our model, political domination always involves exploitation. This issue will come up again, in chapter six, sect. 35(a).

Chapter V: A Static Model of Political Domination

in the typical case of political domination, the substantive aims of the parties are indeed conflictual in the sense described.

Political domination is a social relationship with a certain, specific structure. This structure can be captured in a game theory model through the specification of the game's rules. The main structural features, I have argued, are these: first, the subject must be dependent on the social relationship to some degree; second, the agent must have some power over the subject (by which means the former will be able to extract surplus value from the latter); and third, this power must be arbitrary. Not all these features are present in every iteration of the model below: in particular, dependency and arbitrariness are absent from the basic model (sect. 29). Arbitrariness will be captured indirectly by introducing incomplete information (sect. 30); dependency will be captured by introducing outside options for the subject (sect. 31). The final version of the model (sect. 32), includes all these elements, with the addition of allowing for more than two players.

The rules of the game determine the strategies available to the players. Different strategy profiles produce different outcomes, over which we assume the players have preferences. As we have said, since what each player wants to do depends on what the other is doing, the social relationship described by the model is strategic, or game theoretic. The standard "solution concept" for such models is the Nash equilibrium, described in chapter four. Nash equilibria exist whenever no one wants to unilaterally change their strategy, given the strategies adopted by everyone else. To repeat what was said before, this solution concept brings along no assumptions regarding the Pareto optimality, efficiency, symmetry, or equity of the outcome. (Indeed, in the final version of the model, the outcome is sub-optimal, inefficient, asymmetric, and inequitable.) Not every aspect of political domination can be captured by the Nash equilibrium concept: the

Chapter V: A Static Model of Political Domination

model will thus necessarily emphasize some aspects at the expense of others. Only if one demands from our model what is impossible — that it stand as a perfect substitute for the complete descriptive and normative analyses offered in the other chapters — would one regard this as a problem. We should not demand this.

These, then, are the preliminaries. Now let us present a simple version of formal model of political domination.

§ 29. THE BASIC MODEL

Consider two players, player 1 representing the agent of political domination, and player 2 the subject of political domination. To avoid gratuitous abstraction, we might suppose that player 1 is a foreperson at some factory with relatively unregulated working conditions, that player 2 is a wage-laborer under her supervision, and that work effort is the valued good under contention. We will further suppose the foreperson has some power over the wage laborer, enabling her to coerce surplus effort over and above what it would be reasonable for the wage laborer to provide at his present wage and under his present working conditions. Coercion is a special case of social power (see chapter three, sect. 20), but one of particular interest to social and political theorists.

In the basic version of the model, the political domination game has only two stages. In the first stage, player 2 (the wage laborer) decides how much surplus effort e to offer player 1 (the foreperson). In the second stage, player 1 decides whether or not to exercise her coercive powers over player 2 or not.

Let us normalize the quantity of surplus effort the wage laborer might offer in stage one, such that $e = 0$ represents no surplus effort, and $e = 1$ represents the full amount of surplus effort player 1 could extract by exercising her coercive powers in stage two. I will

Chapter V: A Static Model of Political Domination

suppose the wage laborer will never want to offer more surplus effort than the maximum the foreperson could coerce from him. Player 2 thus has the option of offering any level of surplus effort on a range from 0 to 1; a strategy s_2 for player 2 is a particular offer on this range.

In the basic version of the model, I will limit the foreperson's options to either 'coerce' or 'don't coerce' in stage two. As this is a sequential model, the foreperson may condition her decision on the level of surplus effort offered in stage one. Thus a complete strategy s_1 for player 1 specifies for each possible level of effort player 2 might offer in stage one, whether or not she will respond by coercing player 2. For example, a strategy for player 1 might be, 'coerce player 2 if he offers less than 0.69 units of effort, and don't coerce player 2 if he offers more than this'.

After the foreperson decides whether to coerce or not, the game ends. By definition (see above), if the foreperson coerces the wage laborer, $e = 1$. Otherwise, $e = s_2$ — in other words, the level of surplus effort volunteered by the wage laborer. Now we must assign preferences to the players over these possible outcomes. Suppose the experience of being coerced itself is at least somewhat undesirable, and so it carries a negative utility of $-p$ for player 2. Player 2's objective function (i.e., the function he acts as if he were trying to maximize) is thus,

$$u_2 = 1 - e - \alpha p \tag{5.1}$$

where the parameter α takes a value of 1 if the foreperson coerced the wage laborer, and 0 if she did not.³ Further suppose it is somewhat costly for the foreperson to exercise her

³ From here on, I am assuming both players have what are called 'linear loss utility functions': for details, see appendix H.

Chapter V: A Static Model of Political Domination

coercive powers over the wage laborer. This ‘cost’ should be interpreted very broadly. In particular, it would include at least:

1. the material costs of coercing the wage laborer (effort, time spent, resources expended, etc.),
2. the social costs (others may disapprove of using coercion),
3. the psychological costs (the foreperson might feel badly about using coercion),
4. less the social benefits (others might approve of using coercion), and
5. less the psychological benefits (the foreperson might enjoy using coercion).

By assuming that exercising coercive powers is indeed costly, we are assuming the negative utility of items 1, 2, and 3 outweigh the positive utility of 4 and 5 (if this were not the case, the foreperson would actually enjoy coercing the wage laborer, and thus would do so regardless of the level of effort offered). Let this cost be $-c$, and suppose it is no greater than -1 (if this were not the case, the foreperson would never want to coerce because she could never recoup her costs from the extra effort put forth by player 2). Player 1’s objective function is thus,

$$u_1 = e - \alpha c \tag{5.2}$$

In the basic version of the model, let us finally assume the values of both p and c are common knowledge to both players, as are the objective functions 5.1 and 5.2 (and, of course, all the rules of the game).

The solution to this simple version of the model can easily be found by backwards induction. In the second stage, the foreperson will coerce wage laborer if and only if her gains from doing so outweigh her costs, i.e., only if $1 - s_2 > c$. (We assume if the foreperson is perfectly indifferent between coercing and not coercing, she will abstain from doing so.) The wage laborer can thus anticipate in stage one that he will be coerced if $s_2 < 1 - c$. Accordingly, he will offer the lowest level of surplus effort not triggering a

Chapter V: A Static Model of Political Domination

coercive response, $s_2^* = 1 - c$.⁴ Since the foreperson will therefore not coerce, we find that $e = 1 - c$ and $\alpha = 0$, and that the payoffs to the wage laborer and the foreperson will be $u_2 = c$ and $u_1 = 1 - c$ respectively.

Even with this rather bare-bones formal model, it is worth pausing to note a few interesting points. First, in equilibrium we will never actually see the foreperson exercise her coercive powers over the wage laborer, but nevertheless the mere fact that she has this power results in her extracting surplus effort from the wage laborer. This handily accords with a point made earlier (chapter two, sect. 12) regarding the tendency of those suffering under political domination to make anticipatory concessions: the wage laborer suffers under his domination despite the fact that he is never actually interfered with.⁵ This encourages our decision then to associate the conception of political domination with the structure of the social relationship itself, and not with specific outcomes.

Second, if we take the level of surplus effort offered by the wage laborer as a measure of the degree to which he is dominated, then his political domination is related to the willingness of the foreperson to exercise her coercive powers: that is, the more reluctant she is to exercise these powers, the less surplus effort she is able to extract. This stands to reason of course. But, as we shall see in the following section, this particular result depends on the wage laborer's being aware of the foreperson's state of mind.

⁴ We could assume player 1 coerces when she is perfectly indifferent, in which case player 2's optimal strategy would be defined by the ugly expression $s_2^* = \lim_{\epsilon \rightarrow 0} \{1 - c + \epsilon\}$. Since there is no real material difference between these two results, the assumption made in the main text is warranted to avoid pointless mathematical complexity.

⁵ Cf., Scott, *op cit.* (1990), *passim*, but esp. chs. 1–3; Wartenberg, *The Forms of Power* (1990), p. 121–126; and Pettit, *Republicanism* (1997), p. 63–64.

Chapter V: A Static Model of Political Domination

§ 30. MODELING ARBITRARINESS

Let us now expand the basic model to incorporate arbitrariness. Unfortunately, the Nash equilibrium concept cannot directly capture the true nature of arbitrariness. There is a trick, however, by which we may capture an aspect of the experiences of arbitrariness indirectly. Having an arbitrary power over someone means being able to exercise that power at one's discretion, without having to follow a known rule or procedure. From the point of view of the person subject to political domination, this experience is somewhat analogous to a situation in which one simply does not know the rule of procedure actually being followed by the agent of political domination. Obviously, these situations are not the same, but the experience of them from the subject's point of view is somewhat similar. Thus, if we expand the model so as to hide the foreperson's rule for action from the wage laborer, we might thereby indirectly capture some part of the experience of being subject to arbitrary power.⁶

Fortunately, this is rather easy to do. The foreperson's rule for action is given by her Nash equilibrium strategy; as we saw above, this strategy is partly determined by her cost c . Now suppose the wage laborer does know what this cost is: in this case, he will not know what level of effort is necessary in order to avoid being coerced. The standard method for modeling incomplete information is to add a new stage to the game prior to the two stages in the basic model. In this earlier stage, an artificial player called "nature" selects a cost $c \in C$. Nature's move is known to the foreperson, but hidden from the wage

⁶ This indirect approach will only work so long as this is a one-shot game. If the game were repeated, the Nash equilibrium concept would probably drive the foreperson to reveal her rule for action — though repeated games are notorious for being plagued with multiple Nash equilibria. This only shows there are still many phenomena game theorists have not yet developed techniques for adequately capturing through formal modeling.

Chapter V: A Static Model of Political Domination

laborer.⁷ Some readers might prefer a less artificial interpretation (which can be rendered mathematically equivalent): suppose that c^* represents the foreperson's fixed, underlying material costs, which are known to the wage laborer, and that ε represents the foreperson's variable psychological costs (what side of the bed she got out of that morning, etc.), which are not known to the wage laborer. Then simply define $c = c^* + \varepsilon$. It is less important for solving the model knowing how ε is actually determined (or, how nature selects a cost $c \in C$), than it is knowing the wage laborer's beliefs regarding what the foreperson's actual costs are likely to be. To keep things simple, I will imagine the wage laborer assumes the foreperson's actual costs to be uniformly distributed between 0 and 1 — i.e., he supposes any cost on this range as likely as any other. In all other aspects, the rules of the game remain as in the basic model.

The strategies available to the wage laborer are the same as before, for it they consist of an offer of some level of surplus effort between 0 and 1. The strategies available to foreperson, however, are now conditional on both her costs and on the wage laborer's move. For example, a strategy for the foreperson might be, 'if my costs are 0.21, then coerce player 2 if he offers a level of effort less than 0.79, and don't coerce player 2 if he offers more than this.'

The solution to this version of the model is again found by backwards induction. In the third stage of the game, the foreperson's situation will be no different from before, because she knows what nature's move was in stage one. Therefore, the foreperson will coerce the wage laborer if and only if $1 - s_2 > c$. In stage two, however, the wage laborer

⁷ This technique for modeling incomplete information derives from work by John Harsanyi. There is some dispute as to whether these should be called games of *imperfect*, as opposed to incomplete, information. 'Imperfect information' is probably, strictly speaking, more accurate, but common usage seems to have settled on 'incomplete information'. For discussion, see Binmore, *Fun and Games* (1992), p. 501–511.

Chapter V: A Static Model of Political Domination

must hazard a guess as to the likelihood of being coerced in stage three. The question he must ask himself is, “Given any level of surplus effort I might offer, what is the probability that I will not be coerced?” If, as we supposed, the wage laborer believes c to be uniformly distributed between 0 and 1, then the probability of not being coerced is equivalent to the level of surplus effort offered. That is, if the wage laborer offers $s_2 = 0.75$, there is precisely a 75 percent probability that $c > 1 - s_2$, in which case the foreperson will not exercise her coercive powers, and a 25 percent probability that $c < 1 - s_2$, in which case she will. Given this estimation we may revise his objective function as follows:⁸

$$Eu_2 = [(1 - s_2) \cdot \text{prob}\{\text{not being coerced}\}] + [-p \cdot \text{prob}\{\text{being coerced}\}]$$

or more simply,

$$Eu_2 = (1 - s_2) s_2 - p (1 - s_2) \tag{5.3}$$

To determine the optimal level of surplus effort to offer, we need only set the first order partial derivative of this function to zero and solve for s_2 :

$$\frac{\partial Eu_2}{\partial s_2} = 1 - 2s_2 + p = 0$$

$$s_2^* = \frac{1 + p}{2} \tag{5.4}$$

Notice that once the arbitrariness has been taken into account, the severity of the coercive punishment p becomes a direct factor in determining the level of surplus effort the wage laborer will offer. As we would expect, the more severe the coercive punishment, the greater surplus effort offered. In the basic model, the severity of coercive punishment did

⁸ Here I assume player 2 is risk-neutral. This assumption is not necessary, but it makes the math much simpler.

Chapter V: A Static Model of Political Domination

not matter because the wage laborer could choose a level of surplus effort so as to ensure not being coerced. This is no longer possible. For any level of offered surplus effort less than 1, there is a positive probability of being coerced. Thus, unlike in the basic model, we may observe the foreperson exercising her coercive powers over the wage laborer — namely, whenever $c < 1 - (1 + p)/2$. Because exercising coercive powers carries a dead-weight cost, the equilibrium in this version of the model will be inefficient (that is, not Pareto optimal).⁹

In order to determine the expected outcome in this version of the model, we must additionally make an assumption about the actual probability distribution of c , and not just the wage laborer's beliefs regarding this distribution. Let us suppose the wage laborer's belief is correct, so any c on the range from 0 to 1 is equally likely.¹⁰ In this case, we can determine the expected outcome by substituting the wage laborer's optimal offer of surplus effort given by equation 5.4 into both players' respective objective functions. For the wage laborer this yields the following result:

$$Eu_2 = \left(1 - \frac{1+p}{2}\right) \left(\frac{1+p}{2}\right) - p \left(1 - \frac{1+p}{2}\right)$$

$$Eu_2 = \frac{p^2 - 2p + 1}{4} \tag{5.5}$$

In most cases, this expected payoff for the wage laborer will be smaller than his payoff in the basic version of the model. First, note that we assume $p > 0$ — i.e., that there is some negative value to being coerced per se, however small. Second, note that for any $p > 1$,

⁹ This being the case, there are potentially gains to be had through bargaining; these will not be considered here. But I would refer the reader to chapter three, sect. 17(a), where I noted that commitment problems make bargaining between seriously unequal parties unlikely to succeed. Cf., Elster [cites].

¹⁰ On this assumption, we can also determine the likelihood of observing player 1's use of her coercive powers. If $p = 0.25$ for example, coercive power will be exercised with a probability of 38 percent.

Chapter V: A Static Model of Political Domination

the wage laborer will simply offer $s_2 = 1$. Given these bounds, we find that so long as $c > 0.25$ in the basic version of the model, the wage laborer will always do better in the basic version of the model than in the version incorporating arbitrariness. Some representative outcomes are displayed in figure 5.1 below.

Figure 5.1		<i>Cost of Coercion Known:</i>			<i>Cost of Coercion not Known:</i>
		$c = 0.25$	$c = 0.50$	$c = 0.75$	
Penalty for being Coerced:	$p = 0.05$	$u_2 = 0.25$	$u_2 = 0.50$	$u_2 = 0.75$	$Eu_2 = 0.23$
	$p = 0.25$	$u_2 = 0.25$	$u_2 = 0.50$	$u_2 = 0.75$	$Eu_2 = 0.14$
	$p = 0.50$	$u_2 = 0.25$	$u_2 = 0.50$	$u_2 = 0.75$	$Eu_2 = 0.06$

Most interestingly, even when the actual and known cost is 0.50 in the basic version of the model — which is exactly the same as the expected cost in the version incorporating arbitrariness — the wage laborer does better knowing this cost in advance. In other words, the *mere fact of arbitrariness itself* has negative consequences for the wage laborer. Those suffering under political domination are forced to over-compensate in taking defensive measures against the possibility of coercion, because they do not know the rule being used by those wielding coercive powers over them.¹¹

The foreperson's expected payoff is as follows:

$$Eu_1 = \left(\frac{1+p}{2} \right) \left(\frac{1+p}{2} \right) + \frac{1}{2} \left(1 + \frac{1+p}{2} \right) \left(1 - \frac{1+p}{2} \right)$$

$$Eu_1 = \frac{5+2p+p^2}{8} \tag{5.6}$$

¹¹ This is true *despite* the fact that we have made player 2 risk neutral. If player 2 were risk averse, the effect would be even more dramatic.

Chapter V: A Static Model of Political Domination

For the most part, the foreperson will do better having arbitrary powers over the wage laborer. She will certainly do better if $c > 0.375$ in the basic version of the model, or if $p > 1$ in the version incorporating arbitrariness; otherwise, it will depend on the exact value of these variables. Whenever the foreperson's actual cost of exercising coercive power is the same as the wage laborer's estimation of her expected cost, the foreperson does better if her actual cost is hidden from the wage laborer.

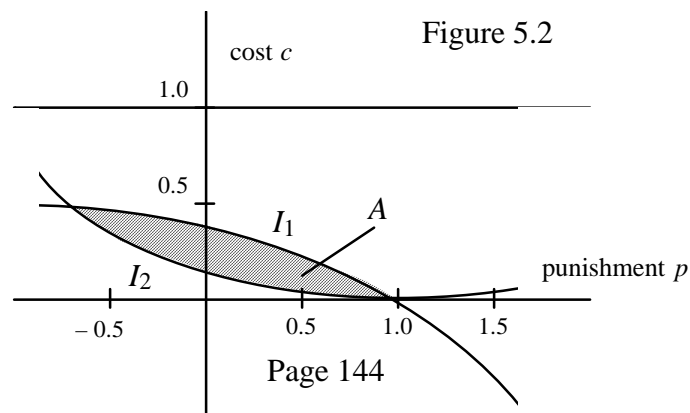
Let us try to generalize this result somewhat. In the earlier version of the model, the foreperson had power over the wage laborer, but not arbitrary power; in this version she has arbitrary power over him. In the earlier version, the foreperson's payoff was $1 - c$ (see sect. 29 above); in this version it is $(5 + 2p + p^2)/8$, as per equation 5.6. The foreperson will thus prefer having arbitrary power whenever:

$$\frac{5 + 2p + p^2}{8} > 1 - c \tag{5.7}$$

This, conveniently, can be expressed as an indifference function $I_1 : P \rightarrow C$. We can do the same for the wage laborer. In the earlier version of the model, his payoff was c , and in this version it is $(p^2 - 2p + 1)/4$. Thus the wage laborer will prefer the foreperson's having arbitrary power whenever:

$$\frac{p^2 - 2p + 1}{4} > c \tag{5.8}$$

These two indifference functions are mapped in figure 5.2 below. This figure doubtless



Chapter V: A Static Model of Political Domination

requires some explanation.

On the horizontal axis, we have the level of severity of the punishment, p . On the vertical axis, we have the cost c to the foreperson of exercising her coercive powers over the wage laborer; we assumed this value has an upper bound of 1 and a lower bound of 0. (Keep in mind, the cost is known to the wage laborer only in the earlier version of the model.) The curve I_1 indicates those situations in which the foreperson is indifferent between having arbitrary powers and not: to the north of this curve, she prefers having arbitrary powers, to the south she prefers not having such powers. The curve I_2 similarly indicates those situations in which the wage laborer is indifferent between the foreperson's having arbitrary powers and not; to the south of this curve, he prefers her having arbitrary powers, to the north he prefers her not having such powers. The shaded area A between these curves covers those situations in which *both* players would prefer the foreperson did *not* have arbitrary powers. The existence of this area is guaranteed by the fact that the second version of the model has an inefficient Nash equilibrium outcome, which in turn is a direct result of there being incomplete information.

Inefficiency is standard in incomplete information models. It stems from the fact that exercising coercive powers carries a dead-weight cost: were both players perfectly informed, they would act to ensure these costs were never incurred. In a parallel example, game theory models of worker strikes find that if both employers and employees are perfectly informed, strikes would never occur. Only when there is incomplete information will employers and employees risk incurring the dead-weight costs incurred if there is an actual strike. One interesting suggestion we are left with here is that there will be at least a few real-world situations in which both the agents and the subjects of political domination could be made better off by reducing the arbitrariness of the

Chapter V: A Static Model of Political Domination

former's powers. For those who believe the powerful will never agree to reform on moral grounds alone, this could be a hopeful result.

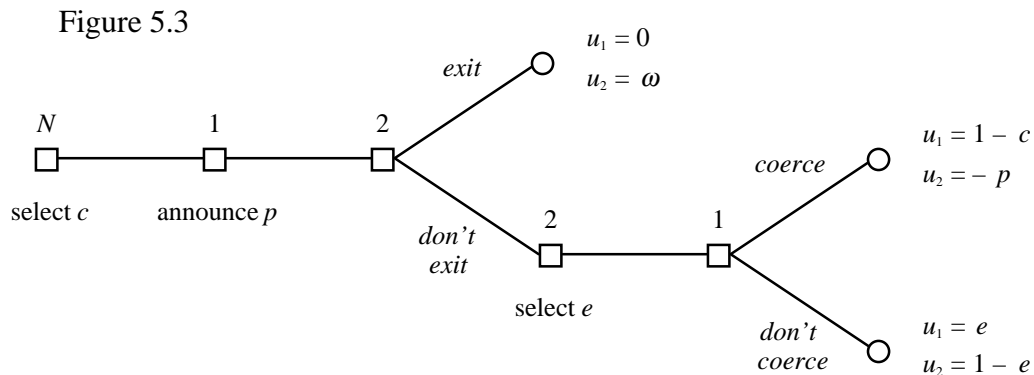
§ 31. MODELING DEPENDENCY

Now we can again expand the model to include the element of dependency. This will be done by adding two new stages to the game, between the determination of c and the wage laborer's move.

Before selecting a level of surplus effort to offer, the wage laborer will have the opportunity to take an outside option from a set of such options, Ω . In this model, taking an outside option may be interpreted as the wage laborer's quitting his job and taking the best outside offer. (In other versions of the model, this must be adjusted accordingly. For example, in a slave-master and slave game, it may be interpreted as a slave's attempting escape; in a peasant and nobility game, it may be interpreted as a peasant's flight from the countryside to the city; and so forth.) If the wage laborer takes the best outside option in Ω , let us suppose he receives an expected payoff of ω , and the foreperson receives a payoff of 0; if the wage laborer does not take the outside offer, the game continues as before. We should keep in mind that the value of ω depends on at least two factors: first, the intrinsic value of the best alternative; and second the cost of making the switch itself. In many cases, the players may not know these values exactly: for example, the wage laborer might not know how long it will take to find a new job, nor what his prospects at that new job will be. In this case, we must interpret ω as simply his best-guess estimate.

Chapter V: A Static Model of Political Domination

In this version of the model, we will allow the foreperson an opportunity to discourage the wage laborer from exiting the social relationship. After nature's move, but before the wage laborer decides whether to take an outside option or not, the foreperson announces a level of punishment p , previously assumed to be fixed (negative



punishments amount to positive inducements). To keep things simple, I will assume that the foreperson must adhere to the announced punishment level later in the game.¹² With these two additional stages, the complete game can be represented as in figure 5.3 above.

The strategies open to the players are now correspondingly more complex. A complete strategy for the foreperson must include both a level of p to announce contingent on ω and c ; and a decision of whether or not to coerce, contingent on ω , c , and the wage laborer's move. A complete strategy for the wage laborer must include a decision of whether to exit the social relationship or not, and if not a level of surplus effort to offer, both contingent on ω and p .

To determine the solution to this version of the model, we again proceed by backwards induction from the last stage of the game. In this stage, as we have seen, the foreperson will coerce the wage laborer if and only if $1 - e > c$.

¹² If this were not assumed, the announcement would be “cheap talk,” conveying no information to player 2 at all (thus rendering the announcement useless). On a more elaborate model, the commitment problem could be endogenized by allowing player 1 to sink costs in some manner.

Chapter V: A Static Model of Political Domination

Moving back a step, we must determine whether the wage laborer will take his outside option or not. Suppose he does not. In this case, his optimal level of surplus effort is given by equation 5.4 above, and his expected payoff by equation 5.5. The wage laborer will exit, therefore, if and only if

$$\frac{p^2 - 2p + 1}{4} < \omega \quad (5.9)$$

(assuming that if he is indifferent, he will not exit). Keeping in mind that no matter how high p is, the wage laborer can always secure a minimum payoff of 0 without exiting by offering the maximum level of surplus effort 1, it is clear that he will never exit if $\omega \leq 0$. In this case, the wage laborer is effectively stuck in the existing social relationship. This corresponds to a situation we may describe as *complete* (or total) dependency. To add a degree of realism, suppose the maximum surplus effort allowed in the game corresponds to working as much as is humanely possible (say, every waking hour, every day of the week), for bare subsistence wages. If the wage laborer suffers complete dependency on his employment situation, this means that — taking into account exit costs — no other available opportunity is better than this.

Suppose, however, the wage laborer has a positively valued outside option. In this case, for any $p > 1$, he will always exit the social relationship, because his expected payoff for continuing the game for any $p \geq 1$ is 0. The foreperson will therefore be forced to announce some $p < 1$ if she wants the wage laborer to remain in the social relationship. But what level of punishment is optimal? Solving equation 5.9 above for p and discarding the irrelevant root, we find:

$$p^* = 1 - 2\sqrt{\omega} \quad (5.10)$$

Chapter V: A Static Model of Political Domination

Note the foreperson will set p as high as possible without causing the wage laborer to exit. As we would expect, the better the outside option, the less severe the punishment announced by the foreperson. Interestingly, if $\omega \geq 0.25$, she will have to start offering positive incentives in order to keep the wage laborer at his job. At this threshold, we may safely say that the wage laborer's dependence on the social relationship is zero, for he will in effect be paid for any effort he offers. Between these two limits, there is a continuous range of dependency levels.

Some representative payoffs for the wage laborer in this version of the model are given in figure 5.4 below.

Figure 5.4

ω	p^*	e^*	Eu_2	Eu_1
0.200	0.106	0.553	0.200	0.653
0.100	0.368	0.684	0.100	0.734
0.050	0.553	0.777	0.050	0.802

Note his expected payoff is exactly equal to ω (substituting equation 5.10 into equation 5.5 confirms this). This is quite simply because the foreperson will adjust the punishment level such that the wage laborer is exactly indifferent between remaining on the job and taking the outside offer: setting p higher than this triggers exit, while setting p lower than this deprives the foreperson of any surplus labor she might extract. This result depends, however, on ω being common knowledge. A more sophisticated version of the model would not have to make this assumption, but I will leave this aside for now.

Chapter V: A Static Model of Political Domination

§ 32. ADDING MORE THAN ONE SUBJECT

Before concluding this chapter, I will consider one other modification of the model. In this version, there will be more than one subject of political domination. Let n be the number of wage laborers, and let i represent any arbitrary one of them. With appropriate interpretation, this version of the model can apply to any case in which the subjects of political domination outnumber the agents, and n can then be taken as the ratio between the two groups. I will further suppose the foreperson can only exercise her coercive powers over one of these wage laborers at a time (i.e., in one round of the game).¹³

Even though the foreperson's powers are limited in this manner, our earlier results are not necessarily invalid. Why might this be the case? Suppose for the moment that each wage laborer must decide on his level of effort independently, without being able to coordinate with the other wage laborers. Also, let us ignore outside options for the moment. Under these conditions, each wage laborer will probably end up offering exactly the same level of effort as they would if they were facing the foreperson alone. This is because the foreperson could adopt the strategy of coercing whichever worker puts forward the least surplus effort (and, let us suppose, choosing randomly among any set of workers whose surplus effort levels are equally low).¹⁴ By working slightly harder than one's fellows, any individual wage laborer can avoid being coerced himself. The only possible equilibrium in this situation will thus see every worker adopting the strategy $s_i = (1 + p)/2$. This is because, on the one hand, if any worker put forward less surplus effort, he would guarantee being coerced, while on the other hand, no worker can do better by

¹³ As stated in n. 8 above, I ignore repeated versions of the game here.

¹⁴ Indeed, in equilibrium, her strategy must include this rule of thumb, for in this model the greatest gains to be had will always lie in coercing the worker offering the least surplus effort.

Chapter V: A Static Model of Political Domination

offering more than he would if he faced the foreperson alone. So long as coordination among the workers is impossible, therefore, the foreperson can maintain tight control, even with limited powers.

Now let us suppose the wage laborers manage to coordinate their strategies. In particular, suppose they can somehow commit to each offering the same level of surplus effort, perhaps by agreeing to internally sanction one another in case of defection. We must now modify equation 5.3, because the probability of being coerced has changed. Again, assume that among a set of persons offering the same level of surplus effort, the foreperson decides who to coerce randomly. With this assumption, the objective function for each wage laborer becomes:

$$Eu_i = (1 - e_i) \left(1 - \left(1 - e_i \right)^{\frac{1}{n}} \right) - p \left(1 - e_i \right)^{\frac{1}{n}}$$

$$Eu_i = 1 - e_i - \frac{1}{n} \left(1 - 2e_i + e_i^2 + p - pe_i \right) \quad (5.11)$$

Setting the first order partial to zero and solving for e_i , we find:

$$\frac{\partial Eu_i}{\partial e_i} = -1 + \frac{2}{n} - \frac{2e_i}{n} + \frac{p}{n} = 0$$

$$e_i^* = \frac{2 + p - n}{2} \quad (5.12)$$

Note that, as one would expect, when $n = 1$, this reduces to exactly equation 5.4 above. Increasing the number of wage laborers n has the effect of lowering the level of surplus effort offered by each individual wage laborer. The foreperson can compensate for this effect, however, by increasing the punishment level.

Considering outside options now, and assuming these options are equivalent for all the wage laborers, we can easily determine the conditions under which the wage laborers

Chapter V: A Static Model of Political Domination

will remain in their present situation. After substituting equation 5.12 into equation 5.11 above to determine each wage laborers' expected value for continuing the game, we find they will exit if and only if:

$$\frac{p^2 - 2np + n^2}{4n} < \omega \quad (5.13)$$

Note again, when $n = 1$, this reduces to equation 5.9 above. Solving 5.13 for p and discarding the irrelevant roots, we find the optimal level of punishment for the foreperson to announce is as follows:

$$p^* = n - 2\sqrt{\omega \cdot n} \quad (5.14)$$

When $\omega \leq 0$ — i.e., when there are no viable outside options for the wage laborers, and so their dependency is complete — the foreperson's optimal punishment level, $p^* = n$, will increase as the number of wage laborers increases. This is precisely to compensate for the above-mentioned depressing effect of multiple subjects.

§ 33. CONCLUSION

This concludes part one, the descriptive analysis of political domination. I have argued for a conception of political domination that is structure-based, qualitative, and modal. According to this conception, a person or group suffers political domination to the extent that they are dependent on a social relationship in which some other person or group wields arbitrary powers over them.

If political domination is something we are interested in reducing, we see from this analysis there are (at least) three methods of combating it. First, we can reduce dependency by making exit easier for subjects (see equations 5.9 and 5.13 above). Second, we can reduce agents' power over their subjects, by reducing their capacity to

Chapter V: A Static Model of Political Domination

inflict harm on the latter (see equations 5.4 and 5.12 above). Third, we can eliminate the element of arbitrariness from agents' powers over their subjects, by forcing them to exercise those powers according to rules known to the latter (see figure 5.1 above). We have not yet established whether or not reducing political domination is a good thing, however; that is the task in part two.