The Principle of Minimum Differentiation

(cf. *Persson and Tabellini*, 3.1 – 3.3)

result : parties will choose the median of the voters' preferred policies

when policies can be represented as points on a line, and when all voters have single–peaked preferences

Assumptions

1. 2 parties

2. parties care only about getting elected (“ego rents”)

3. policy space is one–dimensional (the level of public spending per capita g)

4. parties can commit to a policy (before the election)

5. voters differ only in income and the parties know the distribution of income

Voters' Preferences

public spending is financed by a **proportional income tax**

each voter's preferences can be represented by the (quasi–linear) utility function

$$w^i = c^i + H(g)$$

where c^i is person i's after–tax income (her spending on private goods), and g is government spending per capita, and $H(g)$ is some increasing, concave function, which is the same for everyone

so

$$\frac{dw^i}{dg} = \frac{dc^i}{dg} + H'(g) \tag{1}$$

Government Budget Constraint

τ : proportional income tax rate

so tax revenue collected per person is
$\tau \bar{y}$
where $\bar{y}$ is **average** (mean) income of all the voters

if the government balances its budget

$$\tau \bar{y} = g \tag{2}$$

differentiating 2

$$\frac{d\tau}{dg} = \frac{1}{\bar{y}} \tag{3}$$

Private Consumption

since

$$c^i = (1 - \tau) y^i \tag{4}$$

$$\frac{dc^i}{dg} = -\frac{d\tau}{dg} y^i$$

or (using equation (3))

$$\frac{dc^i}{dg} = -\frac{y^i}{\bar{y}} \tag{5}$$

which means that equation (1) becomes

$$\frac{dw^i}{dg} = H'(g) - \frac{y^i}{\bar{y}} \tag{6}$$

Characteristics of Voters' Preferences

1. The assumption that $H(g)$ is concave ($H''(g) < 0$) means that everyone's preferences are single–peaked :

$$\frac{d^2 w^i}{dg^2} = H''(g) < 0 \tag{7}$$

2. The preferred policy of a person of income i is the level of government spending g^{i*} for which

$$H'(g^{i*}) = \frac{y^i}{\bar{y}} \tag{8}$$

(that's equation 3.4 in *Persson and Tabellini*)

3. higher income $\rightarrow$ lower preferred level of public spending

why? if $y^j > y^i$, then $\frac{y^j}{\bar{y}} > \frac{y^i}{\bar{y}}$, so that the right side of equation (8) is higher for the richer person
that means the left side of equation (8) is higher (for the rich person), so that

$$H'(g^{j*}) > H'(g^{i*})$$

which means that

$$g^{j*} < g^{i*}$$

(since $H(g)$ is concave)

[I needed the assumption that preferences were *quasi–linear* here : this means that the income elasticty of demand for public expenditure is 0 ; so rich people don't have a stronger taste for public expenditure here, but they pay a higher share of the cost, so they want less]

The Median of Voters' Most–Preferred Policies is...

the preferred policy of the voter with median income

if y^m is the median income, then everyone with income $y^i > y^m$ has a preferred policy g^{i*} which is less than g^{m*}, and everyone with income $y^j < y^m$ has a preferred policy g^{j*} which is greater than g^{m*}

so a party proposing to spend g^{m*} per person will defeat any other party in an election, if the other party proposes any other $g \neq g^{m*}$

Equilibrium Party Platforms

each party chooses its proposed level of spending : g^A for party A and g^B for party B

so a voter, of income y^i, will vote for party A if and only if she likes the proposed spending level g^A more than the other party's spending level g^B

i.e., if and only if $(1 - \tau^A)y^i + H(g^A) > (1 - \tau^B)y^i + H(g^B)$

(where $\tau^A = \frac{g^A}{\bar{y}}$ and $\tau^B = \frac{g^B}{\bar{y}}$)

each party wants to maximize its chances of winning, given the policy chosen by the other party

so a (Nash) equilibrium pair of party platforms (g^A, g^B) is a pair such that party A can't increase its chances of winning, given that party B chose g^B and party B can't increase **its** chances of winning, given that party A chose g^A

Theorem (Hotelling–Black–Downs) : The only equilibrium pair of party platforms is $g^A = g^B = g^{m*}$; each party chooses the same policy, the preferred policy of the voter of median income.

Prediction

the more skewed is the income distribution, the higher will be government spending per capita

why?
the level of spending is that chosen by the winning party : g^{m*}

and $H'(g^{m*}) = \frac{y^m}{\bar{y}}$