

University of Toronto
Economics 336 – Public Economics

Midterm examination
March 1, 2011

Part A. Answer THREE questions in this part. (20 points each.)

1. (a) If people care about the welfare of their children, then a deficit-financed reduction in current taxes will have no impact on consumption, investment, and national income. Intuition: Taxpayers will recognize that current increase in disposable income will be offset by future increase in taxes of same present to retire debt. Assumptions: people can borrow and lend at same rate as government; people care about children and make bequests accordingly; deficit-financed tax reforms redistribute across generations but not across families/dynasties.
- (b) Rich taxpayers will increase current saving by full amount of temporary tax cut. No change in consumption by anyone, and no change in private investment.
2. (a) (Any discussion that emphasizes the concept of Nash equilibrium, and that increased government contributions are offset by increased taxes on private consumption. A full answer includes the first-order condition/best response function

$$MRS_i(W_i - G^* + g_B, G^*) = 1$$

for all agents with positive contributions, regardless of government contributions; or else includes a graph in (x_i, G) -space making the same point.

- (b) The tax credit appears to decrease the marginal after-tax price of G to individual contributors. But this ignores how taxes must change to finance the tax credit. If contributors “see through” the government budget constraint, then this policy is also neutral.
3. (a) Condorcet paradox: although all voters have consistent (transitive) preferences over alternatives, there exists a voting cycle in which, e.g. a majority prefers A to B and B to C and C to A. Show the “Condorcet triple” with 3 voters and 3 alternatives each ranked in one of 3 places by 1 of the 3 voters. For counterexample, show any other preference triple.
- (b) A majority voting equilibrium might not exist, because high income voters might prefer high spending to low spending to middle spending, if they would opt out of the public system when spending falls to middle. Whether a MVE exists then depends on preferences of lower-income types, and whether a coalition of rich and poor to support low spending is viable. (But this assumes complete opt out; if private purchases top up the public system then the answer would be different. Any good answer that discusses the differing views of the rich who might purchase privately is acceptable.)
4. (a) Borda counts:

$$V_A = 2 + 10 + 8 = 20$$

$$V_B = 4 + 5 + 12 = 21$$

$$V_C = 6 + 15 + 4 = 25$$

So A wins. If 2 reports $B > C > A$ then C wins which is worse. If 3 reports $C > B > A$ then B wins which is worse. No strategic voting.

- (b) Under AV, A is dropped from “first ballot” and B wins. But if 3 reports $A > C > B$ then A wins with 6 first choices over 5. Hence strategic voting is optimal.

Part B. Answer both questions in this part. (20 points each.)

5. (b),(d) efficient; (a),(c),(e) inefficient.

6. (d) $(1, 3/4, 1/4)$