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Midterm Exam I

Read the entire exam over carefully before beginning. The value of each question is given. Allocate your time efficiently given the price schedule that is imposed. There are no trick questions.

1. *(25 %) "The Soviet Growth Model was effective at extensive growth but ineffective at intensive growth." What is the difference between extensive and intensive growth?*

   brief answer Extensive growth is due to greater accumulation of inputs. Intensive growth refers to gains due to greater efficiency in the use of inputs. Technically, the latter involves increases in total factor productivity or technical change. It is the residual after deducting the contribution of input growth.

   (a) *Describe the basic features of the Soviet Growth Model and explain why they would be more effective in generating extensive growth rather than intensive growth.*

   brief answer The SGM was designed to mobilize inputs. Central control of the composition of output controlled savings. Consumption could be limited to engage in more capital accumulation. Planners decided how much of output would go to consumption. On the other hand, taut plans discouraged innovation due to cost of not fulfilling plan. Ratchet effect taxed away gains to innovators. Lack of competition and sellers market also reduced incentives to innovate. Foreign Trade monopoly insulated enterprises from foreign competition also reducing incentive to innovate either to be able to export more or due to competition from imports.

   (b) *Economists often speak of an "extensive growth trap." Explain what is meant by this term. What would you expect to find in an economy that is stuck in such a trap?*

   brief answer The extensive growth trap arises because over time it becomes more and more difficult to mobilize resources. Extensive growth requires high input growth. In the early stages of industrialization high input growth can be achieved by shifting labor from traditional sectors, e.g., the countryside, to the modern sector. High growth in the labor force can be achieved by moving people from agriculture to industry. But as this reserve is used up, labor force participation reaches an upper limit. After that, labor force growth is constrained by fertility. One can still accumulate capital at a high rate, but now the capital-labor ratio will rise, and if this causes the marginal product of capital to fall, then the growth of output will lag. This is the extensive growth trap. To see the problem with sustained extensive growth, note that $\frac{I}{K} = \frac{I}{Y}\frac{Y}{K}$, where I is investment, Y is output, and K is the capital stock. Extensive growth implies that capital grows faster than income, so $\frac{Y}{K}$ must be decreasing over time. Thus for constant growth rates of the capital stock the investment-output ratio must rise continuously. In other words the share of investment in total output must keep increasing. This is the trap. So we would expect to find $\frac{I}{Y}$ increasing in an economy stuck in the trap.

(c) *What specific features of the STE contributed to these economies getting stuck in the extensive growth trap?*

brief answer Too many factors to mention. But the fact that investment decisions were not based on the rate of return is critical. In the extensive growth trap the rate of return to capital is falling faster than the capital-output ratio is rising. In a market economy this would cause people to invest in other activities. But there is no capital market in the STE. And the emphasis on growth forces planners to keep devoting more resources to capital accumulation to maintain output growth. One might also point to the effects of limited entry of new firms which are often the source of innovation.*(25 %)* "The Soviet Growth Model was effective at *extensive* growth but ineffective at *intensive* growth." What is the difference between extensive and intensive growth?

2. *(20%) If economic activity was planned in the socialist economy why did they have prices? Explain.*

brief answer Prices were used as an accounting device to monitor plan compliance. You need some units to measure outputs and costs in.

(a) *How were prices determined in a planned economy? How does this compare with a market economy?*

brief answer In a market economy prices are determined by supply and demand. In a planned economy they are set by planners. We have to distinguish between product prices and retail prices. The latter are determined by adding a turnover tax to wholesale prices. The magnitude of the turnover tax is related (though not necessarily, nor even frequently equal) to the difference between wholesale prices and market clearing prices, since supply is fixed independent of demand. Product prices are based on average cost of production (excluding the least efficient producers). To build up the cost one needs to know wages, the prices of raw materials, the cost of capital, and the prices of produced inputs. Wages are set by the planners with some regard to supply. Materials prices are set very low as no rent is attributed to scarcity of materials. The cost of capital is set very low as this is socially owned and depreciation is only counted as physical. Other product prices then follow. [this is perhaps a fuller answer than expected]

(b) *What problems result from the socialist system of prices? Explain.*

brief answer There are too many to list. The most important is that prices do not reflect opportunity costs. The information value of prices is eliminated. The turnover tax means that scarcity in the retail market is not communicated to producers (many other things also do this). Cost calculations are not reflective of opportunity costs. First, because many types of costs are ignored (such as scarcity rents, capital costs, and transportation costs), and second because marginal producers are ignored, but they are the high cost producers.

(c) *Why is price liberalization such an important aspect of transition*?

brief answer If planners are not coordinating economic activities then agents need the information that market prices contain. Hence, it is crucial to liberalize prices. When prices become the terms on which trade takes place – something that is not true under socialist planning – it is important that they reflect opportunity cost. One could also note that given the shortages on retail markets it is important to free prices to reduce queues. This seems like the immediate reason to do it, but the former reason is more fundamental, if less pressing

3. *(15%) In the Soviet-type economies domestic prices were insulated from foreign prices. Why was this an essential feature of the system?*

brief anwer Domestic prices differed from foreign prices because allocation was based on the plan. They reflected regime priorities not market scarcities (as explained above in number 2). If domestic prices were equalized to foreign prices this could induce some enterprises to produce goods that were more highly valued abroad. It could also lead to price increases that were absent in the controlled system. No benefit would arise since domestic production was based on the plan and no enterprise could engage in foreign trade anyway.

(a) *How was foreign trade organized under the Soviet-type system?*

brief answer Countries had a foreign trade ministry that purchased domestic goods for export at domestic prices and purchased imports from the rest of the world at market prices. The income (or deficit) earned by the FTM was part of the state budget. The exports and imports it made were based on the plan. Imports were of items that it was too costly to produce domestically in sufficient quantities. Exports were the cost of obtaining these imports.

(b) *What implications followed from this insulation system*?

brief answer Domestic producers did not know whether their production was going to the domestic or foreign markets. They received the same price. Yet there was a sellers market in the domestic side. Hence, there was no incentive to produce quality goods that would be competitive in foreign markets. This made domestic production uncompetitive with foreign goods.

4. *(25%) What is meant by the term soft-budget constraint? How does it differ from a normal, or hard, budget constraint*?

brief answer A budget constraint is soft when violating it has no adverse consequences – when it does not bind. A hard budget constraint means that an agent must satisfy the constraint. A soft-budget constraint means that if costs turn out to be higher than revenues then someone (usually the authorities) will make up the difference. What matters here is what happens *ex post*. It may be that *ex ante* there is a constraint, but if the agent knows that *ex post* there is no penalty for violation then the constraint has little effect on decisionmaking.

(a) *Why were soft-budget constraints the norm under central planning?*

brief answer Because under planning output fulfillment was the most important consideration (can you explain why?). Hence, if an enterprise were faced with the choice of violating the budget constraint or fulfilling the output plan the planners always insured that they chose the latter. So if an enterprise had insufficient revenues to purchase inputs the State Bank would credit their account to make sure that they fulfilled the plan. Planners had no interest in curtailing production to keep the financial situation from looking bad. Since prices were distorted financial performance was not necessarily a sign of good performance. But output fulfillment was necessary to prevent a chain reaction.

(b) *What important implications about the socialist economy stem from the persistence of soft-budget constraints? That is, why was it so bad? Explain.*

brief answer Soft-budget constraints reduce (eliminate) the incentive to reduce costs. There is no need to be more efficient since you can always get more inputs. So SBC's lead to wasted resources. Because there is no constraint on purchasing they also lead to sellers' markets, which, in turn, reduce quality. Sellers' markets also reduce the incentives to create better products since it is easy to sell the current output. At the macroeconomic level soft-budget constraints require subsidies which worsens the fiscal situation of the government.

(c) Why is the existence of soft-budget constraints problematic for transition?

brief answer If prices are liberalized and SBC's persist then demand will exceed supply. This will lead to price increases and fiscal deficits. Markets work because agents face hard budget constraints – that is they are responsible for the consequences of their actions. This is not true with SBC's, and it makes market reforms problematic.

5. *(15%) Many of the reforms that were implemented to improve the efficiency of the Soviet economy ended up making this worse. Why was this the case?*

brief answer Reforms that increased the discretion of enterprise directors and other attempts to increase autonomy at lower levels of the hierarchy typically made things worse in planned economies. The reason what the prices did not convey information about opportunity cost. Increasing discretion when there is improper information leads to diversion of resources from their best uses. The problem is that the system was designed so that only the planners had economy-wide information. In a market economy prices convey economy-wide information so decentralized decisionmakers can make good choices. In a planned economy prices do not convey information, so discretion can make things worse.

(a) *Why was partial reform in the Soviet-type system problematic?*

brief anwer Partial reforms could not address the fundamental problems in the economy. They could not eliminate the dynamic incentives problems that reduced innovation – these are endemic to hierarchy. They could not reduce the costs of inadequate planning by discretion because prices did not convey information about costs. Agents could use discretion to divert resources to privately valuable but socially less valuable uses. The point is that a market firm in a socialist economy faces all the wrong prices. So it can do very bad things.

(b) *What problems ensued from these reforms that made the problems of transition even more difficult than they otherwise would have been?*

brief answer Weakening of central control led to increased wages that increased excess demand for retails goods. Increased discretion also made it harder for the central government to collect revenue – discretion affords agents more opportunities to hide income. This led to more excess demand in the household sector – in other words, monetary disequilibrium. As revenues fell the governments resorted to printing money, which only exacerbated excess demand and shortage. The upshot was that transition countries faced a stabilization problem at the outset. This was not necessary. Had transition occurred in 1980, for example, countries would have faced lots of problems, but not that of stabilization as well. Liberalization, privatization, hardening budget constraints – these are tough enough problems. But because of the way the socialist period ended, stabilization was dropped on top of these other problems.