Econ 372 Barry W. Ickes

Winter 2000

Midterm Exam I: Answer Sheet

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.

2. *(25%)* In market economies there is no central regulator of quality while in Soviet-type economies there was. Yet the planned economies suffered much more from the poor quality of goods. Why?

   (a) What is the source of the quality problem in planned economies (try to be as precise as you can)?

   brief answer Most important is the sellers market. With chronic excess demand sellers do not have to pay attention to the wishes of customers, and if quality costs, why bother? One could also argue that it is due to the difficulty of central planners *knowing* the quality that needed to be specified. This is an information-cost answer. Finally, notice that producers and consumers do not directly deal with each other. Planners organize such trades.

   (b) Why didn't the specification of the quality of the good in the plan eliminate this problem? Why was this type of regulation ineffective? Try to focus your explanation as much as possible on fundamental features of the STE.

   brief answer Part of the answer is in the second part of (a), but this needs to be augmented with the point that fulfilling output targets always had priority over quality fulfillment. If goods are in short supply nobody rejects inferior inputs. You just produce with them and pass on the inferior product to your customers. If you reject the inferior inputs you will not fulfill your plan.

   (c) Why is quality less of a problem in market economies? Explain.

   brief answer In market economies buyers and sellers can directly negotiate price and quality. With prices clearing market there is no sellers market. Of course where there are monopolies, and hence no competition, quality tends to be poor; think of the post office, or phones prior to the breakup of ATT (if you are old enough to remember).

   (d) Why is the legacy of the quality problem important for transition?

   brief answer low quality goods makes it hard to compete in world markets. Producers are not prepared for competition.

3. *(20%)* Explain the logic, under the conditions of Soviet central planning, behind the division of the money supply into *cash money* and *non-cash money.*

   brief answer Plan fulfillment should not be endangered by lack of credit. So producers have soft-budget constraints. But this could lead to inflation. To prevent this from spilling over to the household sector and increasing shortages of goods, producers use non-cash money.

(a) What was this dual monetary system designed to prevent?

brief answer the spillover described above and inflation.

(b) Why were planners concerned to prevent "too much" *cash money* from circulating? Why weren't they similarly concerned with *non-cash money*?

brief answer too much cash leads to increased shortages of goods and increased queuing. This causes people to take off from work to stand in line. It could reduce production by decreasing labor, and it could cause unrest. Too much non-cash does not cause the enterprise to buy more goods, because enterprises can only purchase what is in the plan. The key difference: households use cash to buy goods, enterprises purchase what is in the plan and non-cash merely records the transaction.

(c) What problems did this system lead to when the autonomy of enterprises was increased under perestroika?

brief answer The cooperatives were used to transform non-cash into cash. Hence, the soft-budgets in the production sector led to more inflation. Cooperatives could do this because they received cash for services sold to enterprises, and the latter were allowed to convert non-cash to pay for the services. If these were non-existent, the spillover arises.

4. *(30%)* The experience of transition is determined by the legacies of the period of central planning. Why is this the case? Explain.

brief answer Industrialization in these economies occurred during the period of central planning, hence the institutions that exist at the start of transition were the result of planning. Behavior was adapted to planning as was the structure of the economy itself.

(a) What are the primary structural legacies from central planning?

brief answer Large enterprises, little competition, emphasis on heavy industry and militarization. High intensity of resource use in production and low quality of production.

(b) What are the primary institutional legacies from central planning?

brief answer financial underdevelopment, lack of private property, foreign trade monopoly, dual monetary system, lack of rule of law.

(c) Can you distinguish those factors which will have a temporary effect on transition from those that will have more permanent effects? Provide an example.

brief answer This is difficult because in the long run all things can change. But factors such as the foreign trade monopoly can be eliminated rapidly. Inefficient enterprises will have an effect until entry and foreign competition can take their effect. The lack of rule of law may take much longer to remedy, especially in countries where this did not exist even prior to socialism.