

Economic Calculation and Surplus Extraction: A Reply to Crampton and Farrant

Guinevere Nell

Abstract

Traditionally, economic calculation has been understood to be a major problem of socialist economies, reducing social welfare of the population. Eric Crampton and Andrew Farrant argue in their 2006 paper that in fact, if non-benevolence of the planner is assumed, the problems of calculation actually restrain the planner from extracting the entire “consumer surplus”, leaving the people better off. However, this would only be true if the size of the pie remained constant, or if the minimal level of welfare which the dictator left the population was below the starvation level conceivable under pure socialism plagued by the inability to calculate, and neither of these is the case.

Introduction

Eric Crampton and Andrew Farrant¹ introduce an important and interesting twist to the traditional analysis of economic calculation under socialism. A complete comparison of economic systems, producing robust² conclusions, must analyze them under all conceivable assumptions regarding relevant non-economic factors. The benevolence of the planner is an important one, and so it is critical that not only the system work under benevolence (the concession made by critics initially) but also, counter-intuitively, that the arguments against it don't fall apart under the reverse assumption.

So, the critique is welcomed. However, the conclusion is incorrect. Crampton and Farrant argue that “when planners are non-benevolent, calculation ceases to be a relevant argument against the desirability of central planning.” But this conclusion is not consistent with a complete analysis of the problem. The planner may extract a larger portion of surplus under perfect calculation, but the initial pie will also be significantly larger. The outcome is dependent on several factors, and it is not obvious at all that perfect calculation would not serve the people better, with the assumption of a profit-maximizing non-benevolent planner.

Crampton and Farrant argue that the planner will have a monopoly which he could use to extract the complete surplus with, under perfect calculation. But the planner can do this without perfect calculation too, just less efficiently. Less efficient extraction means dead weight loss, but it doesn't mean that the people will be left with more for themselves. Indeed, if there is much less total output, then both planner and population could be left with less, in a world without perfect calculation.

The closest thing to pure extraction of surplus, to the point of starvation, is the system of prison camps known as gulags, that littered the Soviet Union under communism. But, gulags were not

¹ Crampton and Farrant (2006)

² For a discussion of “robust” political economy, see Leeson and Subrick (2006)

economically efficient³. They were used for political reasons and to fill holes in production caused by problems of economic calculation. Under an efficient market system, or under perfect calculation, the appropriate utilization of resources would have made gulags unnecessary. And, if the projects were still indicated, incentives could have been used to more efficiently achieve the same goals.

Real world socialism does not allow perfect calculation but nor is there purely zero calculation. Loopholes such as black markets, markets for wage labor, foreign prices and private plots have allowed planners to obtain some useful prices and relative scarcities, and engage in makeshift calculation. Here I will compare the pure cases and indicate what this means for the real world implications of bad (but non-zero) calculation.

An Epsilon of Utility

Crampton and Farrant describe the situation under a non-benevolent planner with perfect calculation, where “all surplus is transferred to the planner”:

While making sure that all goods flow to their highest-valued uses, the planner only pays sellers their reservation price, while charging buyers their willingness to pay; the spread between the two values is captured by the central planner for his own use. And, of course, the central planner pays only reservation price for any goods purchased for his own consumption.

The planner is maximizing output of the system, and then extracting the maximum that he can, without reducing total output. In order not to reduce total output, he must pay the reservation price (not less) for all inputs and goods, including labor. He captures the total surplus, but not more. The minimum value which each agent in the system requires in order to play his part is conceded. We can

³ See for example Gregory and Lazarev (2003),

call this epsilon utility (E), as Crampton and Farrant do.

What is this value? This value is, of course, determined within the system. If the system produces only eggs and bread, the value demanded for wages will be denominated in eggs and bread. So, the actual real goods produced within the system of course matter. But the quantitative value is also determined by the system. Within that system, which depends upon voluntary transacting, it is the most frugal that the planner can be and still maximize his surplus. But it is not the least utility that a worker could conceivably receive. In a different system the utility level would be different. In relative terms, it is the smallest imaginable utility a worker in that system could have and still work. But, in absolute terms it is quite conceivable that a person could be left with less⁴.

Total output plays a role in determining the amount demanded by workers. The higher the output, the higher the reservation wage. The reservation wage is determined by the marginal productivity of the worker. If total output of a 3 person economy is only one loaf of bread, it doesn't help a worker to demand the entire loaf, he will know that he won't get it and would starve if he demands it all, so he will only demand a slice or a few slices. If total output is 12 loaves, then he can demand a whole loaf, so long as he has the leverage to do so, meaning that his utility within the economy is worth epsilon more than that amount (his marginal productivity is slightly more than the wage).

It is in the planner's interest to concede to this as he cannot maximize his extraction surplus (S) otherwise. The planner will extract all additional surplus, but the worker will have the bargaining power to demand just under his marginal productivity in wages⁵. Without calculation, the worker does not have this power, because without calculation his productivity is not known. In addition, without calculation the output might be one loaf and not 12 loaves.

If the economy produces M total output, and perfect price discrimination allows the planner to

⁴ Crampton and Farrant admit this, but dismiss this case as only under complete non-calculation, and in this case, they argue, the planner would retreat. I will return to this argument later.

⁵ If he demands exactly his marginal productivity it may be in the planner's interest to fire him in order to assert a credible threat against further demands (making him not indifferent).

extract total surplus ($M - nE$) for a population of n persons, the consumers will still be left with goods at their willingness to pay, and will be voluntarily working, being paid at the rate at which they are willing to work (E).

Furthermore, if the planner wants to maximize the output M , the willingness to work becomes the willingness to work at a certain level of productivity. This is additional leverage of the worker, who can express a marginal willingness to work additional hours or with increased capacity, for higher pay (increasing both M and E). The non-benevolent planner with perfect calculation would have to take this into account if he wants to maximize total output and his total share. If the new M is M_p and the new E is E_p then as long as $(M_p - nE_p) > (M - nE)$ it is in the planners interest to concede to these demands. Under perfect calculation, the workers are empowered by their ability to enrich (or refrain from enriching) the planner.

Workers don't have this power when calculation is impossible, because the planner cannot know which workers are enriching him, nor how much to pay them for higher output, nor which output is most necessary toward the maximum wealth of the economy. So, without calculation, workers have no leverage with a maximizing planner with which to demand greater compensation.

But again, the worker in an economy without calculation cannot even demand bare subsistence or marginal productivity compensation, because the planner doesn't even know whether the worker is contributing to the economy at all, or whether he is actually a drain on the economy. The worker has zero leverage if the planner has no information about his productivity.

Utility Without Calculation

Crampton and Farrant argue:

The planner cannot transfer all surplus to himself and so instead engages in less efficient forms of taxation, which do create deadweight losses but also leave room for individual citizens to enjoy non-trivial levels of utility. Total output declines, but the median citizen's lot improves.

In a sense it is true that planners engage in “less efficient forms of taxation,” what they do, put simply, is expropriate all output (a total tax) and then redistribute the goods. Indeed this is less efficient than perfect discrimination. However, it does not leave room for citizens to enjoy non-trivial levels of utility any more obviously than it leaves room for them to enjoy lower than epsilon utility. Just because the planner cannot perform perfect price discrimination does not mean that he cannot extract a great surplus, even as large a portion of output as under perfect price discrimination – after all, he is both seller and employer, and has control over all goods in the economy. If he doesn't mind seeing the total output shrink to nothing, he *could* keep all of it.

The reason for perfect price discrimination is to maximally extract surplus while simultaneously maximizing output. If the planner cannot calculate then he cannot maximize output. Instead he considers output as exogenous, and determines S with little regard for what is left for the population. If the total output in the economy without calculation is X , and the planner determines that he wants to keep for himself S , then he will redistribute $(X - S)$ to the population (n). If $(X - S) / n < E_p$ then the consumer in this economy is worse off than under perfect calculation. What matters here is, again, how much lower output is under no calculation (X) than under perfect calculation (M_p).

The planner under conditions of no calculation does not know that the worker will produce more given E_p , than given an arbitrarily smaller amount including starvation rations – nor does he know which workers he needs to feed properly to increase output, and which are useless to him in their current positions. It is *expensive* to try to determine which workers are useful, because he cannot calculate, so he is unlikely to make any serious attempt. Instead, he may assume that he can give everyone near-starvation rations except a few near him who are obviously useful who can share some

of his surplus. This would look like conditions under Mao, Stalin or Kim Jong Il. Meanwhile, under perfect calculation it is cheap to distinguish the workers who will respond to higher pay with more work, and it is expensive to create inefficient gulags to imprison slackers. It is cheaper to use incentive pay than it is to use punishment.

The rations that the population under conditions of no-calculation receive come from X not from M_p and may contain goods which the population does not want, because calculation was impossible. Indeed, if the planners preferences differ from the population then much of M_p may contain goods that the population doesn't want, but the maximizing planner under perfect competition does provide the rations equal to marginal willingness to work and goods which the population has a marginal willingness to pay for. No such outcome is required by the maximization of the no-calculation planner.

The worker is not paid his reservation wage when there is no calculation, as the economy is not rational in this sense. Reservation wages (which are really demands by the workers) and the spread between them and the willingness to pay of consumers (which is also a reflection of demand) cannot be used, as prices are not reflective of actual demands. Instead, the unknown output is expropriated by the planner, who then redistributes at his own will whatever he decides at the moment is expedient. If he accidentally kills some of the workers he does not know whether or how much this may have reduced his surplus – perhaps they were parasitic anyway.

Similarly, If the planner wants to create more surplus, he may build prison camps and feed the workers starvation wages, and see whether it appears to him that more output is created. He cannot compare this output against the opportunity costs of not having well fed workers in the factory, nor compare the inputs used and the value of the intermediate products created within the economy – all he can know is that the prison camp workers appeared to create additional surplus. Hence he is far more likely to utilize such a resource.

Further Considerations

Crampton and Farrant argue the following, based on arguments of Mancur Olson: “the permanent bandit who ensures a stable property structure and levies reasonable taxes earns higher tax revenues in the long run than the temporary bandit who extracts maximally in any given period.” The problem with this argument is that the planner without the tool of calculation who attempts this will extract the most surplus the following way: set flat tax rates (or expropriation) equally and maximally, then allow the overtime worker to keep some larger portion of his additional working surplus. Without calculation it must be uniform and harsh enough to force all able workers to work overtime. This kind of system was used in the gulags.

With calculation, the planner could see that such harsh conditions and such a uniform system does not maximize productivity and so will not maximize his surplus S ; but without calculation the planner – even if he knows this academically – cannot improve upon this system. In order to increase productivity and his surplus, the planner would have to know which kinds of workers produce well in overtime; the best rate to set the initial tax at and the best marginal rate which may differ in different industries; he must understand incentives and know which industries are most important for overall output, so that he can relax conditions there in order to get the best output from the workers.

Crampton and Farrant assume that with poor calculation, the planner would offer looser conditions to all workers, but it is just as likely that he would use such a system to extract maximally from all workers in a sustained fashion.

They argue:

Surely in the case where calculative efficacy is so low as to cause generalized starvation on the implementation

of any plan, the planner, even if nonbenevolent, would quickly retreat from wholesale planning and liberalize the economy to the extent compatible with secure planner tenure as the classic Olson-type permanent bandit.

But, (1) they have skipped over a partially starving population, or a population that includes portions with utility less than epsilon, or who are all below E_p but not starving and still capable of some work. If the planner cannot calculate, he does not know that they are under-producing due to malnourishment (he may not even know that they are malnourished) and he cannot know how to improve their condition without resorting to a complete pullback from planning (which would mean loss of power). And (2), they are ignoring reality, in which many planners with imperfect calculation have allowed the population to starve without “quickly retreating.” For example, consider the famines under Stalin, Mao and Kim Jong Il. Not only didn't they retreat, but they allowed it to happen again and again to either portions or to the entire population.

Why would they do this? Well, if they were indeed trying to maximize S , it must be that either they did not expect the starvation to occur (because calculation was so poor) or they did not know how to prevent it (again, due to lack of calculation) or they did not expect it to reduce S (once again, most likely due to lack of calculation, as S is more likely to be maximized if workers are alive to produce output).

Crampton and Farrant argue that “When genocide is a likely policy option, rather than an unfortunate accident, restrictions on the set of tools available to the policy-maker are quite desirable” but economic calculation is hardly necessary for the carrying out of genocide. If it is a political choice then it is already expected to be inefficient, and calculation isn't likely to be an important factor. Perhaps it can be made more efficient, but it would still be secondary to the political motive if it is done for policy reasons, so this would only save funds for other uses.

At the margin, it may allow a dictator to choose genocide over another political choice however this depends critically on two things: (1) that it is actually affordable compared with other options

which are also made cheaper under perfect calculation and (2) that the planner would still require such political tools, given his ability to control the economy under perfect calculation. The likely increase in willingness to commit genocide under these assumptions appears less than the likely increase in accidental genocide under poor calculation. Most of the approximately 100 million deaths that have been caused by communism are deemed accidental by historians⁶.

While Crampton and Farrant seem to think that planners under poor calculation are likely to reduce surplus extraction in order to tame rowdy and uncontrollable populations, it is also possible to use genocide and terror for this purpose⁷. Rather than assuming that calculation problems led to non-trivial levels of utility, it is more reasonable to explain the increase in standard of living after Stalin died as an increase in benevolence.

While Stalin could calculate no better or worse than his successors, he chose terror and gulags to control the population. The fact that they chose to decrease the level of extraction instead of terrorizing the population indicates that they were more benevolent than Stalin was. Evidence for this is found easily, with a review of policy enactments after Stalin's death, which began with a reduction of planned extraction and an introduction of the priority of consumption⁸. While planners after Stalin should not be regarded as completely benevolent, they could be seen as partially benevolent⁹.

Finally, Crampton and Farrant discuss the calculative efficiency as analogous to cooperative efficiency, they miss a primary distinction. The cooperative efficiency problem of introducing public goods does not have a variable pie in the equation. The public's total pie is affected by the addition or

6 Courtois (1999) attributes most of their estimated 100 million to famines, with a much smaller number attributed to gulags which may not be purposefully causing the deaths but are more certainly malign, and even fewer to executions and other direct killings. However, some of the deaths due to famine may have also been intentional.

7 See Lskavyan (2007), for a rational choice explanation of Stalin's "great terror." The idea is that the terror was used purposely to resolve principal-agent problems. This suggests a reasonable alternative to ceding more surplus to workers when faced with low productivity.

8 For discussion and examples of greater interest in the material well-being of the Soviet citizen starting at the end of Stalin's reign and increasing thereafter, see Reid (2002), Chamberlin (1963) and Towster (1954). It was made a priority "task" in the 1961 program of the CPSU (see Krushev (1963), pp 96-104). For official statistics of increased consumption, see Central Statistical Board (1969), especially pp. 246-253; These statistics should not be taken as reliable, but indicate the desire for the appearance of an increase in consumption. It was made a greater priority, despite continued military build up (for discussion of the increased priority of military, see Lee (1981)), probably the appearance of each was an important political priority for retaining power.

9 Leeson (2006) discusses what it means to be partially benevolent.

subtraction of the cooperative efficiency of the legislature; but the planner's calculative efficiency not only extracts surplus differentially, but also determines the initial size of the pie. Hence, while cooperative efficiency may be worse as it creates additional public bads, calculative efficiency first creates much more output, and then may lead to extraction of a larger portion. So, the assumption that the outcome is worse is not warranted as Crampton and Farrant have slipped in a zero sum fallacy.

The Real World

Neither perfect calculation nor the perfect absence of calculation have been witnessed in real world implementations of socialism. So, what does this analysis imply about how calculation affects “really existing socialism” under the assumption of a non-benevolent dictator¹⁰?

The question of calculation under socialism was recognized as important first because advocates of socialism believed that socialism was such a rational and perfect economic system that, when directed by the workers (who would not be corrupted by it) and the people were led to prosperity and abundance under this system, human nature itself would change. The conditions would be so humane and freeing that it would provide room for a shift from a mode of survival to a mode of living. To strike down the system's rationality and leave the question of nature until afterwards, the critics of socialism dealt a terrible blow to believers.

Really existing socialism is not perfect, but nor is it a perfect model of common ownership – without any market prices to depend on. Dictators have opened up limited markets and depended on outside prices in order to introduce some level of calculative efficiency. They have, in fact, taken this path rather than retreating entirely from socialism, when faced with famine. Socialism is what gives the dictator power, and every step toward markets reduces this power and jeopardizes his position.

¹⁰ Note that I have not argued the point that a non-benevolent dictator is more or less likely to come to power under either assumption about calculation. This is an interesting question which I have not addressed.

Hence, the non-benevolent dictator is not likely to travel far down this path. In this partial retreat from socialism, we can say that in practice, perhaps the outcome isn't as bad as in theory. But, the rest of the conclusion is maintained.

While retaining power, the planner under perfect calculation maximizes his surplus by providing consumers with their reservation level of utility; the planner without calculation, or with a very low level of calculation obtained while still maintaining his power in a dictatorial planned economy, need not and may not be able to provide consumers with this level of utility.

Consumer products may be of a lower quality and in shortage; goods may be produced that are not demanded in place of goods which are highly valued; workers may be organized in prisons or labor battalions for convenience of organization; food may be in scarce supply in areas far from where it is grown; total output may be very low, frustrating the planner and encouraging him to expropriate more of it and punish the people for under-performing; and the people will have no ability to express their demand, nor any leverage based on their productivity.

Conclusion

Eric Crampton and Andrew Farrant make interesting arguments in their paper which attempt to show that if non-benevolence of the planner is assumed, the problems of calculation actually restrain the planner and leave the people better off. However, their conclusion is based on zero-sum fallacies and assumptions which cannot be substantiated. Economic calculation problems reduce the size of the pie, remove the bargaining power of the worker, and create chaos that leaves the planner unwilling and unable to keep the population alive. Hence, even with an entirely selfish, profit-maximizing non-benevolent planner, the calculation problem still reduces the welfare of the population.

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