

Keynote lecture for Workshop for Small Arms Survey and Quaker UN Office  
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The 'economic theory of demand' as it relates to small arms  
by Jurgen Brauer

1. Thank you
  - a. I believe it was in the first of what is now an annual production of the Small Arms Survey yearbook, that it was estimated that as many as 500,000 people per year die on account of small arms misuse and abuse.
    - i. This is a staggering number.
    - ii. I have not looked up the figures, but I believe since WW II, there has been no war with that number of fatal casualties per year
    - iii. 500,000 people a year amounts to the **equivalent of a sum of major wars** being fought every year - I don't know if that's a useful way of describing the problem to such governments as you might work with, but that is about the scale and magnitude of what we are working with ...
  - b. ... and I am grateful to those who bring this issue before the public at large, and the policy-making community in particular ... grateful to and for the Small Arms Survey project, grateful for the small-arms researchers generally as scholars, field researchers, and support personnel and those working at, with, and for various governmental, inter-governmental, and non-governmental organizations.
2. My brief is to talk about the 'economic theory of demand' as it relates to small arms.
  - a. By way of motivation: supply of conventional arms - I have found in my research that somehow or other countries subject to supply-restrictions have always managed to acquire arms, be it
    - i. ... by finding willing sellers nonetheless
    - ii. ... by black market acquisition
    - iii. ... by self-production (e.g., Turkey, Brazil, South Africa)
  - b. ... that is when there is sufficiently urgent DEMAND, the supply will be forthcoming, somehow, even in spite of restrictions.
  - c. ... and this suggests that the demand side needs to be investigated seriously: why do countries demand conventional and non-conventional weaponry?
3. Then along came, during the 1990s, a new topic: that of small arms
  - a. Initially, the emphasis was on the supply-side: production, distribution channels, supply-restrictions
  - b. ... and I argued that small arms are even harder to reign in from the supply-side since, by definition, they are relatively easy to produce, transport, hide and smuggle, they are durable and last long, and, moreover, control regimes require a sophistication of internal and global coordination beyond the capacity of many states to implement so that, once more,
  - c. ... we need to at least ask about the DEMAND side
  - d. Even if we were to learn that absolutely nothing can be done on the demand side, we would still have done the world a favor.

- e. I don't think that we will find that nothing can be done. After all, most communities most of the time live in relative peace, and not because of supply-side restrictions but because of lack of demand for small arms. Most of the time, there is no particular point in owning or possessing a gun and shooting someone.

#### 4. Demand

- a. Definition: ... is a relation between quantities that buyers are willing and able to acquire at various possible prices. Quantities and prices; there is something we wish to get, and there is something we have to give up.
  - b. Example: I ask my students the following question: how much would you be willing and able to pay per semester of university study? And I ask for a show of hands. Who would be willing and able to pay \$5,000 for a semester of study? \$4,500? \$4,000. Etc. And I write down the information on the blackboard.
  - c. I tabulate the information; I draw, and visualize, the information. With price on the vertical axis and quantity demanded on the horizontal axis, a downward sloping line emerges. The law of demand states that a lower price calls forth a larger quantity demanded.
  - d. What would happen if the cost went down to \$1,000, \$800, \$500? What would happen if the state subsidy were eliminated?
  - e. So students recognize within 10 minutes of my first class that they participate in the market for higher education as demanders. But how come? What is it that makes them demanders? And so I ask them, and the answers usually, and tellingly, revolve around their motivation; primarily - since I teach in the United States - their anticipated opportunity eventually to be able to obtain a better, and better-paying job.
  - f. **And they do not recognize - even after I just asked them - that their demand is conditioned by the resources available to them, that their demand is conditioned by the price asked of them; the monetary price and the non-monetary price of the effort that it takes and the opportunities they forego while they sit in the classroom taking notes!**
  - g. And likewise we do not recognize that the demand for small arms is conditioned by the resources available to the demanders and the monetary and non-monetary price asked of these demanders. There is no demand for small arms unless there are resources to acquire them, and there is no demand for small arms if the price asked is too high!
  - h. ... it is not enough merely to be willing to acquire a good or service, one must also be able to do so. One of my sons, when he was 16 or 17 years old, was desperately willing to acquire a Porsche sports car. Fortunately, he was not able to do so. In contrast, his world famous, rich father - Professor Brauer - would have been able to buy the car but was unwilling to do so.
  - i. When the economist speaks about DEMAND, we mean that you must be WILLING AND that you must be ABLE to acquire; both aspects have to come together. THAT is what we mean by DEMAND, and that is the 'economic theory of demand'.
5. When you understand the definition of demand not as a student or non-economist but when you understand the definition as an economist understands it,
- a. ... then you also understand that it is NOT economics VERSUS the other disciplines - as,

regrettably, session 2 is entitled - but that it is economics AND the other disciplines. Willingness. Preferences. It is not competition between, but cooperation among the disciplines. It is NOT inter-disciplinary, but multi-disciplinary research we need to carry out.

- b. ... indeed, without the other disciplines, economists THEMSELVES would never understand demand because the very definition of demand requires us to examine preference formation (the willingness aspect).
- c. It is a mantra: demand is formed by preferences, resources, and prices
- d. Granted, historically economists have taken “preferences” as given.
  - i. We are not criminologists, anthropologists, scholars of religion, sociologists, psychologists, neuro-scientists ... to study just how preferences are formed ...
  - ii. ... but when they are formed, we can confront preferences with constraints such as (monetary and non-monetary) resources and prices ...
  - iii. AND we can PREDICT that when your resources are squeezed, your preferences may never be revealed, and when your resources are augmented, preferences we never knew you had may “suddenly” come to the fore.
  - iv. For example, is it that entire communities “suddenly” break out with bad cases of mass armed violence, is it that a community’s collective state of mind has suddenly, dramatically, and inexplicitly changed - or is it that one of the existing, effective constraints that kept certain preferences from being revealed has been removed?
  - v. Is it that a community is simply flooded, or is it that a sea-wall broke and no longer retains the water that was already there?

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- 6. I said that, historically, economists have left the study of preference formation to others.
    - a. Preferences were taken as “given.” They were viewed as a “black box” into which it is difficult to peer, at least with the exactitude required to conduct economic analysis.
    - b. Indeed, in the beginning economists were not able to measure income and prices either! Governments did not produce the CPI, and PPI, and GDP and other economic statistics.
    - c. And when you go back to Adam Smith and Alfred Marshall, stalwarts of classic and neoclassic economics, you will find a good deal of discussion about preferences.
    - d. Increasingly, however, progress is made on the front of measuring preferences, preference formation, preference shifts. In economics, we call this behavioral economics and I will just point out that a share of the 2002 Nobel prize in economics was awarded Daniel Kahnemann, a psychologist at Princeton University, for his work in behavioral economics and that the John Bates Clark medal of the American Economic Association - a medal that is harder to get than our Nobel prize - was awarded to Matthew Rabun, a behavioral economist.]

- 7. Demand is a function of preferences, resources, and prices - the willingness aspect and the ability aspect.
  - a. Preferences refers to ‘state of mind’ research, a state of mind that is not always deliberately arrived at, a state of mind that is of course shaped by culture, by generational transfer of values, by peer-groups, by education and reflection as much as by personal experiences. And it is in these areas that the ‘economic theory of demand’ **REQUIRES** the participation of the other disciplines. It is indeed not **merely** rational choice theory,

- but **also** rational choice theory.
- b. Economics is often viewed as a materialistic, even cynical, science; I hope I have made clear that this is a mistaken notion: we could not even talk about demand unless we took into account, somehow, people's preferences for certain goods and services (the use of which may result in bads and disservices for others), and these goods and services of course can be material but often are not. I love my children. I want to feed my children, but I do not have the income, the resources, to do so. Economics is not materialistic at all ...
  - c. ... I want to protect my children, and I DO have the resources to do so ... hence I acquire and use a firearm if necessary.
  - d. But if economics is not a cynical science, it is certainly a skeptical science: if one were to study nothing but preferences - particularly in the absence of constraints - we would not get very far in our understanding of people's actual behavior and of the communities they form ...
  - e. ... and when we study the demand for small arms, we must study not only the underlying preference formation but also the effect of constraints and the effect of the removal of constraints.
8. Now let me say a few words about resources and prices, both monetary and non-monetary.
- a. [Resources. Non and proto-monetary.] What do we mean by resources? Well, we literally mean "resources." This can refer to my innate talent, my education, my strength, my convictions, my drive ... it refers to a set of personal attributes or to a set of personal or institutional resources of others that I may have recourse to (my connections, in other words). Importantly, all of these are non-monetary. Sometimes, economists and others use the phrase human and social capital to capture these facets of resources. It would not be surprising to find that communities cut off from the rest of the world are weaker and more vulnerable to attack and exploitation than otherwise comparable communities that can call on outside assistance. One of the strength of well-regulated states is in fact that any one of its constituent communities is not alone.
  - b. Resources. Monetary. These include
    - i. ... earned income (including appropriation, e.g., theft, pillage, looting)
    - ii. ... grants and inheritance (i.e., unearned income)
    - iii. ... credit and other advances (i.e., conditional income, income conditional on repayment on credit, specified repayment such as joining a gang of bandits, a kind of debt service)
    - iv. ... and income from accumulated wealth or the depletion of wealth (i.e., generation of cash flow for the present by taking it from the future) [savings defers consumption into the future and wealth depletion brings consumption into the present]
  - c. [Resources: how does rob a community of its resources? One steals its horses, slaughters its cattle, burns its fields, and cuts of communication to its neighbors. That community understandably will develop a "preference" for revenge, but will not have the resources to retaliate. But if that community somehow were able to get in touch with its brothers and sisters in the diaspora, it may suddenly be enabled to take revenge. The constraint is removed.
  - d. Resources of course can also work the other way around so that the causality runs not

from resources as one condition for arms acquisition but from arms acquisition as one means of obtaining income. In that case, for example, the armed violence associated with the drug trade is like a lottery: a few will get fabulously wealthy, but every other participant loses, perhaps even their lives as so do innocent bystanders.]

9. Preferences, resources, prices - more specifically relative prices:
  - a. ... relative to substitute goods and services [if I wish to purchase genuine defense, what are my alternatives? I can move - that's expensive; I can work hard to create a neighborhood-watch organization, which extracts a non-monetary and expensive price in itself and also costs me the opportunity to do something else; I can buy a knife - that's inexpensive but ineffective; in a word, in our applied research we MUST ask for and enumerate what the feasible available alternatives are; I suspect that, once a community has broken down, there are few feasible alternatives]
  - b. ... relative to complementary goods and services [is it useful to work on ammunition restrictions? Probably not. Explosives and shell casings are easy to manufacture. Is it useful to restrain firearms training which is complementary to firearms use? Probably not, since almost no training is required. I suspect that, once a community has broken down, there is little that can be done to reign in products that are complementary to firearms use]
  - c. So the issue is very hard: substitute products for genuine defense, i.e., substitutes to small arms, are expensive and complementary goods to small arms are cheap! This suggests that we really cannot expect to do a whole lot on the price side - but prices nonetheless serve as a constraint, although perhaps less and less so, and that would be one question we would need to answer.
  - d. But we may be able to supplement budgets, i.e., alleviate budget constraints e.g., for community policing and self-monitoring. But even here there is a caveat: if economic development leads to HIGHER average incomes, the relative prices of small arms has just fallen.
  
10. The 'economic theory of demand' is
  - a. ... complex (i.e., it is not merely open to but requires a multi-disciplinary approach) and
  - b. ... complete (i.e., it leaves nothing out), it is nonetheless
  - c. ... compact (i.e., it provides a common language: preferences, resources, prices). And because the theory is complex, complete, and yet compact, it also serves to
  - d. ... comprehensively guide research and to serve as its own control; we cannot just increase resources because that may increase the demand for small arms; we cannot just increase firearms prices because that may induce people into the acquisition of substitute small arms.
  
11. Personally, I view the small arms problem as akin to environmental problems: it takes but a few minutes to destroy a valuable natural resource but a hundreds years to restore it. Similarly, it takes but minutes to carry out a massacre but a hundred years to rebuild a community. I am skeptical that much can be done from the resource and prices side of the problem of small arms demand, and that would leave as the only lever of intervention the reduction of preferences for small arms and so I support preference research - but preference research cannot be done in isolation from resource and price considerations because if we do

so we will likely come to very mistaken conclusions about what it is that ENABLES people to pursue their preferences and which one of a variety of alternatives they choose to fulfill their deep preferences for security and punishment.

12. Thus, when we conduct research on the demand for small arms, the fundamental research questions that we must always bear in mind are the following:
  - a. First, what are people's deep preferences? (E.g., for security but perhaps also for revenge, and there is increasingly good psychological evidence that punishment is part of our psychological make-up and that the option of punishment contributes to community stability)
  - b. Second, how do changes in relative prices reveal or hide derived preferences?
  - c. Third, how do changes in resources reveal or hide derived preferences?
  - d. What are derived preferences? Those derived from deep preferences. If my deep preference is for security, security may be obtained in a number of alternate ways. And that leads to the fourth question: what feasible alternatives do people actually have? We may find that their opportunity set may be narrow. Can intervention enlarge it? And how? Can intervention foreclose some and open up other alternatives for security and punishment other than through the recourse to small arms?
  - e. Fifth, what factors, other than relative prices and resources, trigger apparent preference shifts? For example, from one sort of defense (non-violent) to another sort of defense (violent).
  - f. Sixth, are the behaviors we observe reversible in a symmetric or asymmetric way? Are there ratchet effects that make behavior reversals unusually difficult to achieve? Are they reversible at all?
  
13. In all this we must, I believe, engage in comparative study ...
  - i. ... of communities that fell victim to inordinate violence and failed to recover
  - ii. ... of communities that fell victim to inordinate violence and that did recover
  - iii. ... of communities that have not fallen victim to inordinate violence because we can show that they have taken certain 'protective' measures that might be replicable or unique and non-replicable
  - iv. ... of communities that have not (yet) fallen victim to inordinate violence but that we can show are vulnerable because certain key attributes are missing or cannot be mobilized in times of crisis
  - v. ... and we should perhaps follow a select group of communities over a number of years the better to understand the dynamics of how problems arise and how they are addressed.
  
14. My final point is this: the research agenda is obviously vast, and the Small Arms Survey - flush with money and researchers as it is - cannot take on in its entirety the explicit and implicit research agenda my remarks suggest. It follows that we must choose: we must choose subject to our own preferences, and subject to our own resource and price constraints, and that discussion I believe must be the major part of the remainder of this conference as indeed the draft agenda suggests. Thank you.