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Economic issues in a trial of the controlled provision of heroin

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Feasibility Research into the Controlled Availability of Opioids Stage 2

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EXECUTIVE SUMMARY

This paper discusses some economic issues that may be investigated as part of a proposed trial of the controlled provision of heroin in the Australian Capital Territory. Such a trial would provide an opportunity to gather empirical evidence on some aspects of the operation of the market for heroin. Specifically, it would enable the investigation of the extent to which purity, rather than price, is the equilibrating mechanism in this market. If purity is an important equilibrating mechanism, then provision of heroin of constant purity to trial participants would yield important health benefits to those participants. However, if purity on the black market is increased in economic retaliation against a trial, there may be unintended adverse effects on the health of black market users in the short run. In the long run, stabilisation of purity on the black market may be associated with an improvement in the health status of non-trial users. An important issue that cannot be addressed in the context of the proposed trial is the price elasticity of demand for heroin, that is, the responsiveness of demand for heroin to a change in its price. The use of pre–specified criteria to determine eligibility for participation in a trial will preclude any estimation of the increase in demand for heroin attributable to a fall in its price.

FOREWORD

An important aspect of this second stage of the Feasibility Research into the Controlled Availability of Opioids[1] is to consider the potential effects of a trial on the illicit drug market. This is the second of three working papers addressing this issue.

The first reported on a one–day workshop examining Australian research on the structure and economics of drug markets, the interaction of drug markets and law enforcement, and the impact of drug markets on health. Available data bases were reviewed and there was discussion about methodological problems and research gaps[2].

The third working paper[3] will report on data collected about the ACT drug market through interviews with dealers, users, and police.

This second paper discusses some economic issues relevant to a trial of controlled heroin availability and highlights some important empirical work which should be undertaken if a trial eventuates. In particular, a trial would enable the investigation of the extent to which purity, rather than price, is the equilibrating mechanism in the illegal heroin market.

The paper also points out possible ways in which black market suppliers may retaliate if their business is threatened by a trial of controlled availability. There may be economic retaliation in the form of price competition and/or flooding of the market to attempt to increase the number of dependent users. There may also be non–economic retaliation using illegal means that may threaten the security of trial staff and participants. It will be important not only to be able to measure potential forms of retaliation, but also to have ways to counteract them in place. These potential negative effects will have to be weighed in the balance against potential trial benefits in the overall evaluation of trial feasibility.

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Feasibility Research Co–ordinator

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[1] for more information about the Feasibility Research see p.15–17.

[2] Bammer, G. (editor) 1993 *Australian Drug Markets Research: What are we doing? Where are we going? What are the gaps? Proceedings of a one-day workshop held at the Scarth Room, University House, ANU, 22 February 1993.* Feasibility Research into the Controlled Availability of Opioids Stage 2 Working Paper Number 2.

[3] Bammer, G. and A. Sengoz, forthcoming working paper in Feasibility Research into the Controlled Availability of Opioids Stage 2.

1. BACKGROUND

The focus of this paper is on economic issues that may be investigated within the proposed trial of the controlled provision of heroin in the Australian Capital Territory (ACT). As the precise design of a trial is currently under investigation, the paper is concerned with general theoretical discussion of several economic issues or hypotheses that may be addressed by a trial. Of necessity, such a discussion needs to both inform, and be informed by, trial design issues. For example, the determination of eligibility criteria for participation in a trial has implications for the feasibility of investigating the sensitivity of the demand for heroin to a change in its price. The resulting decision on this issue will reflect a variety of legal, social and ethical issues. However, a discussion of the economic aspects will aid in the decision–making process, and provide insight into some of the potential outcomes of a trial.

Conspicuous by its absence from this paper is any discussion of the effects of prohibition, or its relaxation, on crime. A reduction in the costs imposed on third parties by dependent users committing crimes to fund their consumption of heroin is often cited as an economic benefit of removing prohibition (Neri 1992; Baldry 1993). The issues surrounding the measurement of this benefit, however, are outside the scope of this paper.

The paper has two main sections. The first is a theoretical discussion of the operation of the heroin market (section 2). This discussion considers the effects of prohibition of heroin on the market for the drug in comparison with a free market outcome, and considers how the important distinction between pure heroin and the impure substance available at the street level may be integrated into this analysis. This analysis provides some insight into the role of price and purity as adjustment mechanisms in the market for heroin. The second main section then considers research issues suggested by the first section, which may or may not be investigated in a trial (section 3). The paper closes with a summary of the main arguments.

2. THEORETICAL DISCUSSION

The supply and possession of heroin is prohibited in a large number of countries. The effects of this prohibition on the market for heroin can best be understood by first considering how a free market for heroin might operate. Accordingly, section 2.1 provides an outline of the economic analysis of competitive markets. This is then followed in section 2.2 by an analysis of the effects of prohibition. Section 2.3 enhances this discussion by considering the role of purity in the operation of the heroin market.

2.1 Free market for heroin

Considering first the operation of a free market for heroin, the curve labelled D in Figure 1 is the market demand curve for heroin in a given time period. It shows that, as the price (P) of heroin falls, the quantity demanded (Q) rises, if all other factors affecting the demand for heroin, such as income and tastes of each consumer, are held constant. The curve labelled S in Figure 1 is the supply curve for heroin indicating that as the price of heroin rises the quantity supplied increases (associated with movement up the supply curve), if all other factors affecting the supply of heroin, such as the prices of other drugs, are held constant. Taken together, these demand and supply curves indicate that the market price for heroin will be P_1, with the quantity traded of heroin per time period being Q_1. At any price in excess of P_1, the quantity of heroin supplied will exceed the quantity demanded, and competition will drive the price down. Conversely, at any price less than P_1, the quantity of heroin demanded will exceed the quantity supplied and this excess demand will lead to an increase in the price of heroin.[1]

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[1] This discussion does not distinguish between the short–run and long–run response of quantity demanded to a change in the price of heroin. Recent work on the theory of rational addiction in an intertemporal context draws a distinction between the effects of temporary and permanent changes in the price of an addictive substance (Becker & Murphy 1988; Becker, Grossman & Murphy 1991). For further discussion in the context of heroin control policy see Neri (1993).

FIGURE 1
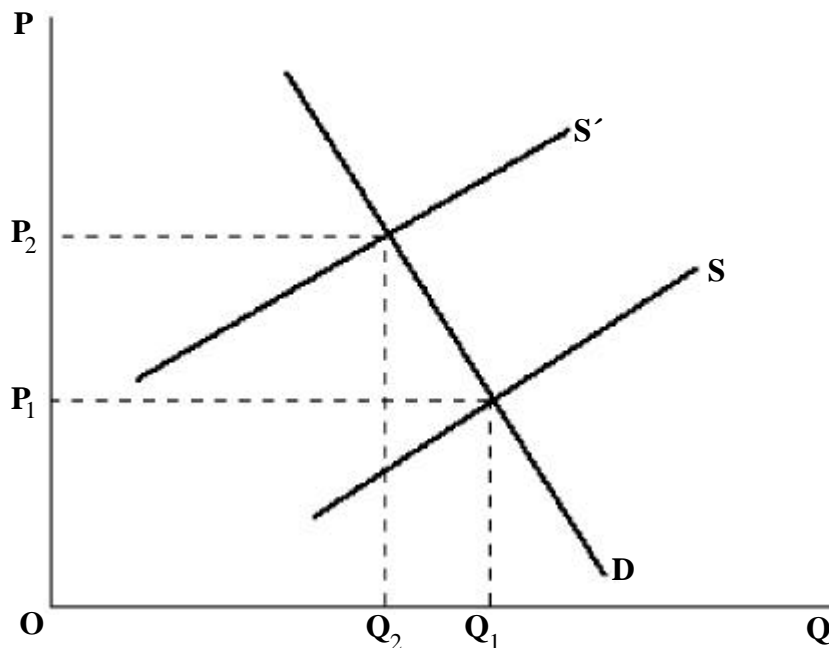
2.2 Effects of prohibition

Now consider the economic effects of a policy which deems the supply of heroin to be illegal. To investigate the effects of such a policy, it is useful to interpret the supply curve in Figure 1 in a slightly different manner. This supply curve was described above as showing the quantity of heroin supplied at any price, with the quantity supplied increasing as price increases. However, the supply curve can also be interpreted as showing the minimum price necessary for a given quantity of heroin to be supplied. That is, for any particular quantity of heroin such as Q_1, the price (P_1) read off the supply curve is the minimum price per unit which suppliers must receive in order to induce them to supply Q_1 to the market.[2] The price of heroin read off the supply curve in this way is also commonly referred to as the supply price of heroin.

A policy which deems the supply of heroin to be illegal will increase the supply price of any given quantity of heroin as dealers will require compensation for additional risks they may incur, including arrest, injury and death. In terms of Figure 1, this will lead to a shift of the supply curve from S to S'.[3] In consequence, the market price of heroin will rise to P_2 while

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[2] Notice, however, that suppliers are prepared to supply all units of heroin between 0 and (Q_1 - 1) for a price less than P_1. Therefore, by obtaining a price P_1 for all units sold, they obtain a producers' surplus on all units up to and including (Q_1 - 1).

[3] As drawn in Figure 1, the new supply curve is parallel to the original supply curve, suggesting that the additional compensation required per unit by suppliers is the same regardless of the quantity of heroin supplied. This need not necessarily be the case. For example, it may be the case that the risk faced by lower level dealers is greater than that of importers due to the greater number of transactions with which they are involved. Under these conditions, there may be a greater relative price increase for deals of smaller quantities. Conversely, if the probability of being successfully prosecuted is lower the smaller the quantity of heroin in possession, and/or the penalties imposed were lower the smaller the quantity of heroin supplied, then the increase in the supply price may be lower at smaller quantities of heroin supplied.

the quantity traded will fall to Q_2. That is, in general the policy will lead to higher prices for heroin, but can be expected to reduce the amount of heroin consumed, and it is upon this basis that supply–side enforcement mechanisms are argued.

The magnitudes of changes in prices and quantities demanded will depend upon the nature of the demand curve for heroin, a topic of much debate in the literature. For example, consider Figure 2, which reproduces the shift in the supply curve from Figure 1, but with a vertical demand curve, that is, with a demand curve that indicates the quantity of heroin demanded is unaffected by price. The policy now has an effect only on the market price of heroin, which increases from P_1 to P_2. The quantity of heroin consumed remains unchanged at Q_1. Under these conditions, the supply–side enforcement policy is ineffective in reducing heroin consumption and simply leads to an increase in the price of heroin. For suppliers who avoid successful prosecution, this may provide a substantial increase in revenue from the sale of heroin.

FIGURE 2
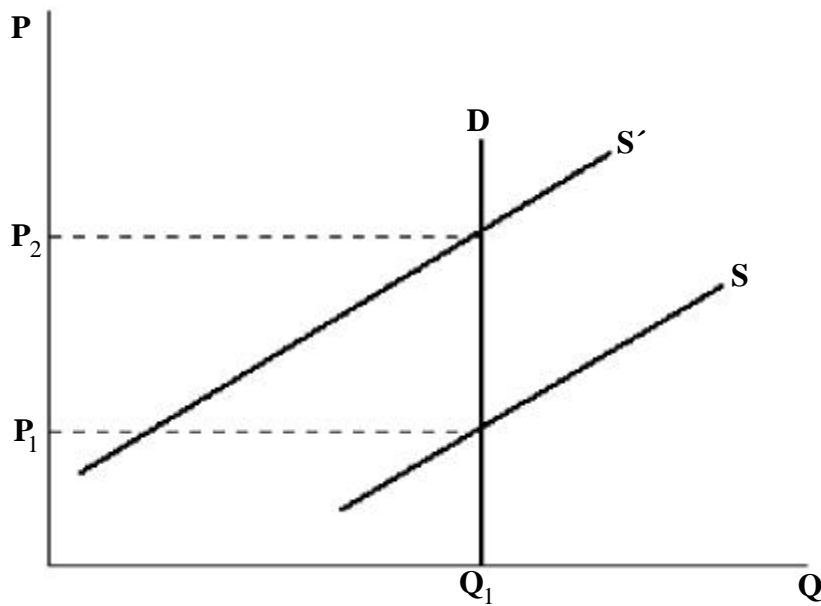
Such a demand curve has been argued for upon the basis of the addictive nature of this drug (Koch & Grupp 1973; Wagstaff & Maynard 1988). However, other studies have argued that only a portion of the demand function may exhibit a low sensitivity of quantity demanded to price (Blair & Vogel 1973; White & Luksetich 1983; Wagstaff & Maynard 1988), with regions of "elastic demand" being associated with different categories of heroin users and heroin users switching to other drugs, taking up treatment options and finding new sources of supply in response to price fluctuations.

A further argument derived from the theory of rational addiction emphasises the distinction between current and future prices of the addictive substance. It is argued that the short–run responsiveness of quantity demanded to price increases resulting from supply–side enforcement policies will depend upon whether such policies are viewed as being temporary or permanent. If permanent, the demand response could be expected to be much larger as the current price rise will be taken as indicative of an increase in future prices (Becker, Grossman & Murphy 1991). The protagonists of this argument then suggest a "permanent war" on the supply side is an appropriate policy response.

It is evident from the foregoing discussion that the sensitivity of the quantity demanded of heroin to a change in its price– termed the price elasticity of demand– is an important parameter in evaluating the effects of policies on markets for illicit drugs. It is postulated that recreational users are affected by price, but not so dependent users, indicating a demand curve with at least one region of higher elasticity. However, there is a paucity of data on the black markets for illicit drugs in Canberra and elsewhere upon which quantitative analysis can be based.

2.3   Price and purity

The foregoing discussion has been predicated on the assumption that the quality of heroin traded is constant. However, at retail level, heroin is "cut" with adulterants. While information on the purity of heroin traded at retail can be acquired, the cost of this information is substantial and is orders of magnitude greater than the purchase price of the substance itself.[4] In any event, because of the illegality of heroin consumption, buyers cannot purchase this information with the result that the purity of the substance consumed is not accurately known.

The purity of the substance sold must therefore be introduced as a variable in any analysis of the market for heroin. Specifically it becomes necessary to distinguish between the demand for pure heroin and the demand for street heroin which contains less than 100 per cent pure heroin. This distinction is illustrated in the four quadrant diagram in Figure 3. The demand curve in quadrant I is the market demand curve for pure heroin as employed in Figures 1 and 2. Given that pure heroin is cut for retailing purposes, the demand for pure heroin must be translated into a demand for impure heroin. This translation is provided by the purity factor p, which is the percentage purity of street heroin, that is, the proportion of the substance that is pure heroin ($0 < p < 1$). Any given quantity of pure heroin is therefore translated into a corresponding quantity of impure heroin by the formula

$$$$

... (1)

Thus, if $p = 0.5$ then 50mg of pure heroin would translate into 100mg of impure heroin.

This translation is illustrated in quadrants II and III in Figure 3. The ray in quadrant II has a slope equal to the percentage purity p. Any given quantity of pure heroin from quadrant I can then be translated into a corresponding quantity of impure heroin in quadrant III by reading off the relevant point on the ray in quadrant II.

FIGURE 3

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4   By way of example, the price of the smallest deal available in the Canberra market is $50. The cost of having this analysed to determine purity is in the vicinity of $150.
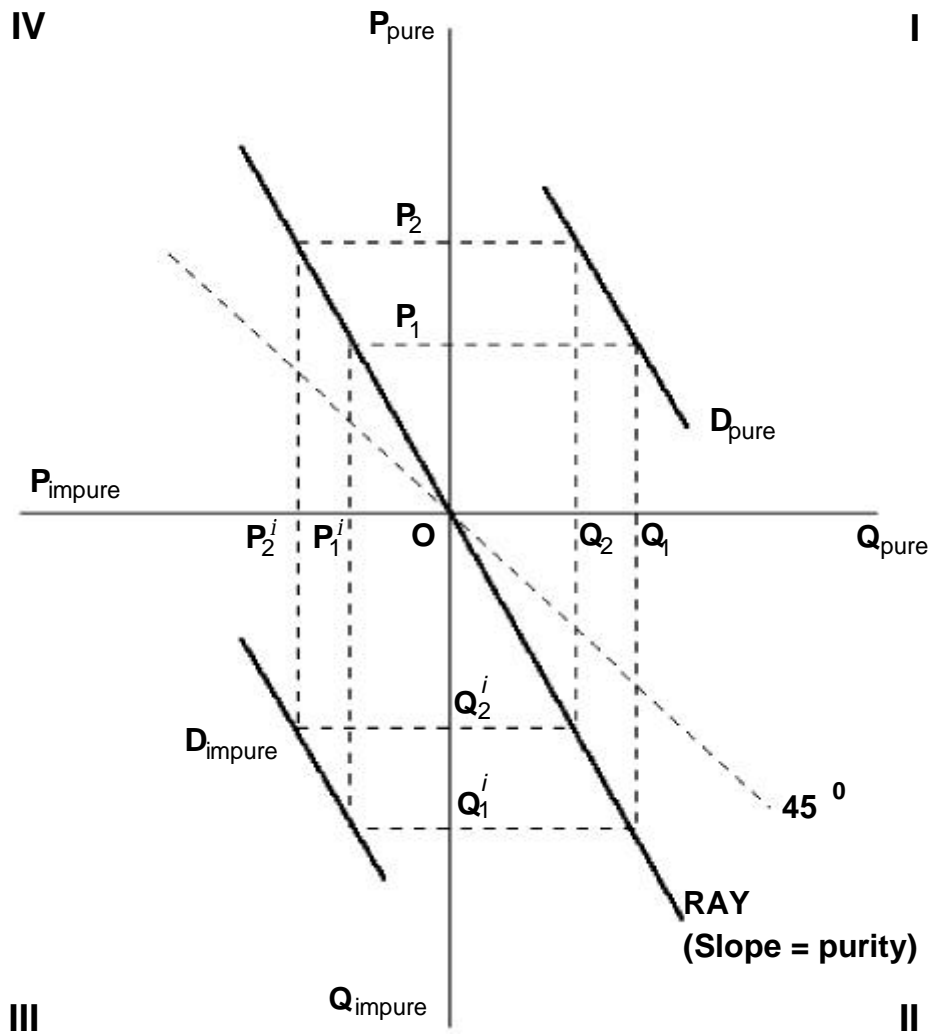
The fourth quadrant in Figure 3 is concerned with the relationship between the prices of pure and impure heroin. Assuming that the cost of the ingredients used in cutting pure heroin is negligible compared with the cost of the heroin itself, the purity factor p can also be used to translate the price of pure heroin into the price of impure heroin. This is accomplished by extending the ray in quadrant II through into quadrant IV, and reading the equivalent price of impure heroin for any given price of pure heroin from the resulting ray in quadrant IV.

These relationships then enable the derivation of a demand curve for impure heroin from the demand curve for pure heroin, for any given level of purity. At a price of P_1 in Figure 3, the quantity of pure heroin demanded is Q_1. Using the purity level indicated by the slope of the ray in quadrant II, this translates into a demand for impure heroin of ☐. Using quadrant IV, the price of pure heroin P_1 translates into a price of impure heroin of ☐. The combination (☐, ☐) then provides one point on the demand curve for impure heroin. Other points on the demand curve for impure heroin can be derived in an analogous fashion by selecting other prices for pure heroin in quadrant I, such as P_2.

In contrast with the analysis in Figures 1 and 2, the model in Figure 3 explicitly introduces purity as a variable, and allows for variation in purity as a mechanism by which the market for heroin can adjust following a change in supply. This proposition is illustrated in Figure 4, where the initial market price for pure heroin is P_1 with quantity traded Q_1. With the level of purity given by the slope of the ray pp, the market price of impure heroin is then ☐ with quantity demanded ☐. Now suppose that the supply of pure heroin is reduced, for example, because of a major "bust" by law enforcement agencies. The supply curve for pure heroin then shifts to S' (assuming that there are no stockpiles of the drug). The price of

pure heroin then rises to P_2 and quantity traded falls to Q_2. The effect of this on the market price and quantity traded of impure heroin depends upon the change in purity. In Figure 4, it is assumed that purity changes to such an extent that there is no impact on the price and quantity demanded of impure heroin. This is shown by the rotation of the ray to p'p'. That is, purity falls so that the price and quantity demanded of impure heroin are unaffected.

FIGURE 4
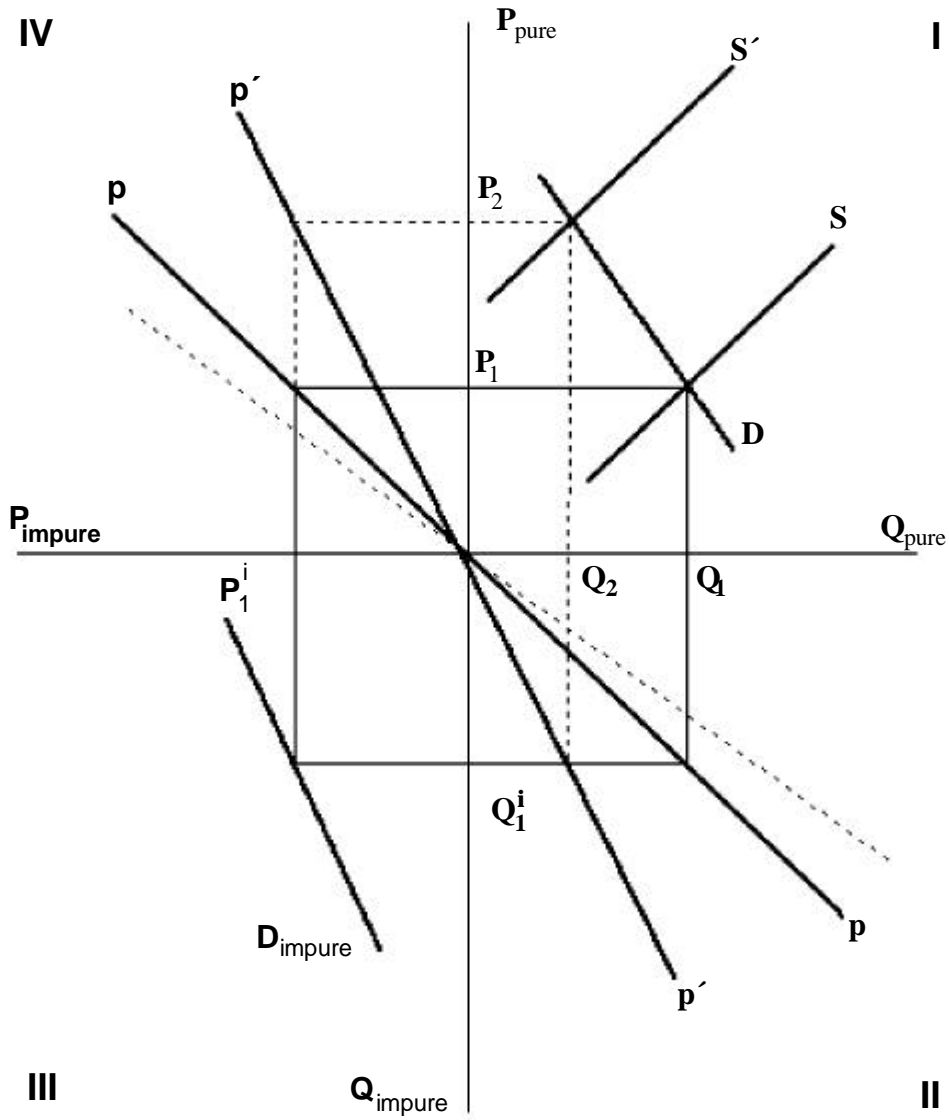
The analysis in Figure 4 illustrates a scenario in which the effect of a change in the supply of pure heroin is reflected entirely in the purity, and not the price, of impure heroin. At the other extreme, purity may remain constant, with the full increase in the price of pure heroin being reflected in the price of impure heroin. Clearly, a market reaction somewhere between these two extremes is also possible, with the increase in the price of pure heroin being reflected partly in a change in the purity of the street substance and partly in a change in its price. The adjustment mechanism that actually characterises the market for heroin is, of course, an empirical matter.

A major limitation of the analysis conducted in Figures 3 and 4 is that the factors determining the extent to which price and purity adjust in response to changing market conditions are unspecified, that is, purity is taken as an exogenous variable in this model. The model therefore provides no theoretical guidance on the extent to which purity will change in response to changing supply conditions.

Recall from previous discussion that the cost of acquiring information on purity for the consumer is some multiple of the price of a "deal".[5] As such, consumers do not have the purity of their "deals" assessed. Because of this asymmetry in information between suppliers and consumers, suppliers are likely to encounter less consumer resistance to an increase in the price of pure heroin if that price increase is passed on in the form of a reduction in purity of street heroin. Such an argument would lead to the observation that the price of a "deal" should remain relatively constant in the face of changing supply conditions for pure heroin. Such a proposal has also been put forward by Rottenberg (1968, p.82). Evidence of such behaviour has recently been obtained in a qualitative study by Bammer & Sengoz[6], in which it was reported that reduced supply was associated with a tightening of the market, and the quality of the street substance "going down".

3.   THE PROPOSED TRIAL

3.1   Price elasticity of demand

The proposed trial of the controlled distribution of opioids in the ACT would result in heroin being made available free of charge, or at a fee commensurate with that imposed on methadone users, to consumers of heroin who satisfy certain pre–specified eligibility criteria. In considering the economic issues that might be addressed as part of this trial, two points should be emphasised about the major design features of a trial. *First,* the distribution of heroin "free of charge" or at a nominal price should not be equated with the establishment of a "free market" for heroin. On the contrary, a free market for heroin would certainly result in a price greater than zero, as suppliers of heroin would require compensation for the costs incurred in supplying heroin, including labour and transport costs. *Secondly*, the use of pre–specified criteria to determine eligibility for participation in a trial indicates that not all who wish to consume heroin at a zero price will be able to do so, that is, non–price rationing devices will be employed to reduce the demand for heroin below what it might otherwise be.

These design features have important implications for any economic analysis conducted as part of a trial. In particular, they will preclude any estimation of the price elasticity of demand for heroin. This proposition will be explained with reference to Figure 5. In that Figure, the supply and demand curves have been reproduced from Figure 1, with the free market outcome being indicated by the price–quantity combination P_1, Q_1 and the prohibition outcome by the price–quantity combination P_2, Q_2. If heroin distributed under a trial has a zero price, the unconstrained quantity demanded would be Q_3.

This unconstrained quantity demanded will not, however, be observed under trial conditions. Since a trial is conceived as a "treatment" program for dependent users, new users will not be admitted to a trial. Hence, to the extent that the increase in quantity demanded from Q_2 to Q_3 encompasses persons who previously did not consume heroin but would now consume heroin, this demand will not be manifested in a trial. Nor will it be possible for those in a trial to satisfy any demand of new users, as consumption is likely to be supervised at the "clinic" so that participants will be unable to pass on

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[5]   See the preceding footnote.

[6]   Forthcoming working paper in Feasibility Research into the Controlled Availability of Opioids Stage 2.

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any heroin issued to them. The net effect of these restrictions will be to constrain the demand for heroin at the zero price to something less than Q_3 in Figure 5, such as the quantity Q_{trial}. As can readily be seen from Figure 5, this quantity bears no necessary relationship to any price–quantity combination on the demand curve, and cannot therefore be used in any estimates of the price elasticity of demand for heroin[7].

FIGURE 5
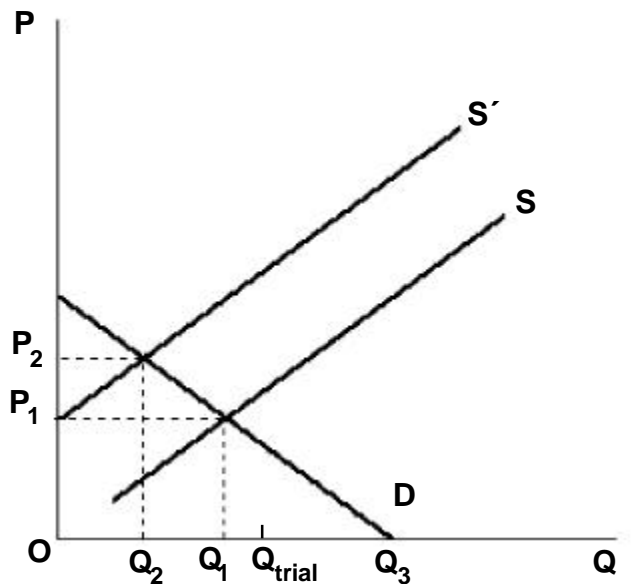
A further complication derives from the theory of rational addiction. Even if non–price rationing was not used in a trial, the very nature of a trial as an experiment is likely to lead users to see the lower current price of heroin in a trial as *not* being indicative of a lower future price. Therefore, even the demand response observed in a trial without non–price rationing may not give an accurate estimate of the increase in quantity demanded of heroin if consumption of the substance was legalised.

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[7]   The same conclusion emerges if heroin under the trial is priced at a competitive level, as the use of non–price rationing criteria to limit entry onto the trial would continue to result in a price/quantity combination not on the market demand curve.

3.2   Price and purity

A trial can potentially provide evidence on the importance of price and purity as adjustment mechanisms in equating supply and demand in the market for heroin. The theoretical discussion earlier in this paper predicted that, following a change in supply, there will be a change in either the price or purity of street heroin, or some combination of the two (see Figures 3 and 4). Establishing which of these reactions occurs requires data on the price of the street substance and its purity. Ideally, such data would be collected through a series of undercover street purchases and subsequent assays to determine purity. Such a study is currently being undertaken in a major heroin distribution area in Sydney (Weatherburn 1993). Issues to be addressed in undertaking such a study include:

- consideration of the time of day, time of month and time of year to make undercover purchases, so as to uncover any cyclical trends in prices and purity (qualitative evidence suggests that seasonal trends are unimportant– Bammer & Sengoz, forthcoming);

- consideration of the geographic area within which purchases are to be made (there is some evidence to indicate that this is not a significant factor in the Canberra/Queanbeyan market– Bammer & Sengoz, forthcoming);

- the effects of quantity for use versus quantity for trade (Fernandez 1969);

- the identification of the level within the supply chain at which purchases are being made (wholesale, middleman, retail, etcetera);

- consideration of changes in other factors that may affect the operation of the heroin market while the data are being collected (for example, changes in the market conditions for other illicit drugs, such as amphetamines); and

- legal and ethical issues surrounding the use of research funds for the purchase of illicit drugs.

One possible study design would be to commence this data collection before the implementation of a trial, but continue the study through to the end of a trial. This would provide evidence on the importance of price and purity as adjustment mechanisms in the market for heroin before and after a trial. As a trial will be providing participants with heroin of constant purity, the observation of black market prices and purity will provide data on the extent to which a trial affects the price/purity adjustment mechanism in the black market.

Consider, for example, the following possible scenario. In Figure 6, time is measured on the horizontal axis. Quadrant I in that diagram measures the price of impure heroin on the vertical axis, while quadrant II measures purity. The time up to T_0 is the pre–trial period. As drawn, the diagram indicates that the price of impure heroin is constant in the pre–trial period and that purity varies, suggesting that purity is the primary adjustment mechanism in the black market. At time T_0 the trial commences, and heroin of constant quality is provided to trial participants. As drawn, Figure 6 indicates that purity in the black market stabilises while the price of impure heroin becomes the primary adjustment mechanism for equating supply and demand during the trial period.

The nature of the adjustment mechanism in the heroin market may have important implications for the health of heroin users. For those on a trial, additional funds will be available for expenditures on food, clothing, shelter and other items, which would be expected to result in major health benefits. The elimination of harmful adulterants in the heroin supplied should further improve health status, and the constant purity will overcome problems associated with accidental overdoses. Some of these benefits may also flow on to users not on a trial. If, as shown in Figure 6, the purity in the black market stabilises, this may also lead to a reduction in accidental overdoses in the long run.

FIGURE 6
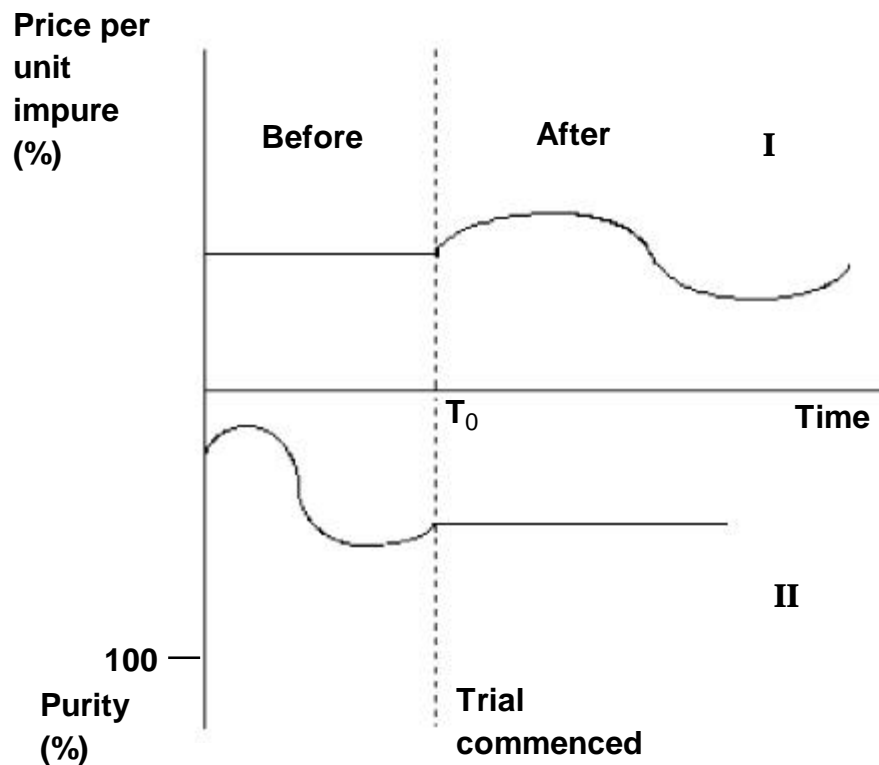
The scenario depicted in Figure 6 is, of course, one of a number of possible patterns that might be observed in the time profiles of price and purity before and after a trial commences. The determination of the actual time profiles is an empirical matter capable of being investigated with data collected from undercover buys as discussed above.

3.3   Black market reaction to a trial

The controlled distribution of heroin at either a competitive or zero price poses a potential competitive threat to black market suppliers. Depending on the number of participants in a trial, the controlled provision of heroin at a markedly reduced price may reduce the demand for heroin from the black market and lead to retaliation. This retaliation can be either economic or non–economic in form.

3.3.1   Economic retaliation

Economic retaliation would take the form of price competition in an attempt to lure trial participants back to illegitimate sources of supply. A simple exposition of this type of response is provided in Figure 7. The demand and supply of heroin in the black market before a trial are given by the curves labelled D_1 and S respectively in that Figure. The resulting price of heroin is P_1 and quantity traded Q_1. Following trial implementation, the demand for black market heroin falls, shown by the leftward shift of the demand curve in Figure 7 to D_2. As a consequence, the black market shrinks with price falling to P_2 and quantity traded falling to Q_2.

FIGURE 7
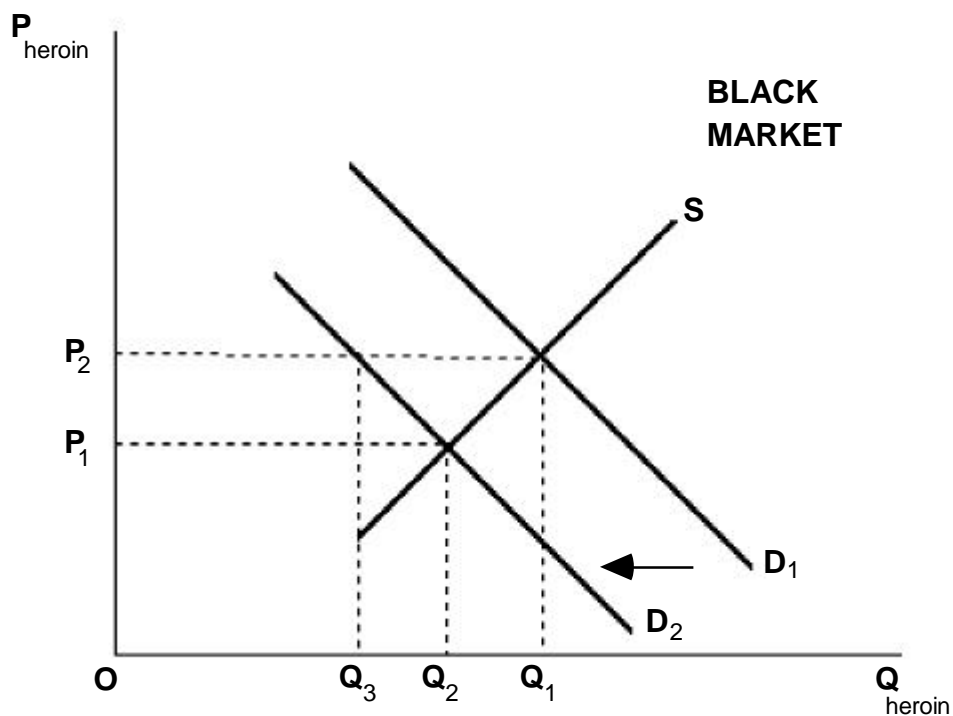
In this analysis, it is assumed that the decrease in demand in the black market is occasioned only by heroin users participating in a trial. Further, it is assumed that users not participating in a trial will still be able to obtain heroin. This latter assumption is based on the following information obtained by Bammer & Sengoz (forthcoming). Firstly, there is a number of locations throughout Canberra where dealers and buyers who do not have established networks can make contact. Secondly, dealers introduce their clientele to alternative sources of supply if they cease activity.

Further, it is assumed that the supply of heroin on the black market in Canberra will not decrease since "bigger suppliers in Sydney and Melbourne (are now) shipping supplies direct" (Bammer & Sengoz, forthcoming). As such, the supply curve in Figure 7 does not shift, and the decrease in demand will reduce the economic welfare of black market suppliers.

Note also that the fall in the black market price of heroin may induce some trial users to drop out of a trial and return to illegitimate sources of supply. This is indicated in Figure 7 by the difference in quantities demanded along the D_2 demand curve at prices P_1 and P_2. That is, had the black market price remained at P_1, the quantity demanded from the black market post–trial would have been Q_3. The fall in the black market price to P_2 will then lure some trial participants back to the black market, as indicated by the increase in quantity demanded from Q_3 to Q_2.

The extent of the actual reduction in demand for heroin from the black market will depend upon the number of participants in a trial, the price of heroin in a trial, and the extent to which trial heroin is perceived as being a good substitute for black market heroin. Considering each of these in turn, it is evident that the larger the number of participants in a trial, the greater is the competitive threat to black market suppliers. Therefore a smaller trial will lead to less economic disturbance in the black market. Against this, of course, must be balanced the necessity for obtaining an adequate sample size in a trial to impart statistical power to the results. Too small a trial may compromise the statistical validity of any results which emerge.

With regard to price, it is evident that the price of heroin on a trial, even if set at the level of the expected price in a free market, will be substantially below the black market price. This characteristic, taken together with the fact that purity will be known and constant, will provide a substantial economic incentive for users to participate in a trial.

The third factor depends upon users' perceptions of the substitutability of trial heroin for black market heroin. Superficially, it might seem that users would perceive trial heroin as being superior, all other things constant, because of its known and constant purity. However, the conditions under which heroin is consumed in a trial may differ in certain significant respects from the conditions under which black market heroin is consumed. Trial heroin may be administered under supervised clinical conditions, for example, to ensure that dosage is known and to ensure that participants do not attempt to re–sell trial drugs. Participants may also be required to provide a urine sample so that possible consumption of other non–trial drugs can be monitored. Such conditions may differ dramatically from those to which users have become accustomed and for which they may have a preference. These considerations have led those involved in trial design to conclude that "... the trial design will need to incorporate recognition of the ritual aspects of drug use" (Bammer 1993, p.473).

One further response of black market operators may be to increase the supply of heroin available. Such an hypothesis is based on assertions of dealers and police that the market is occasionally flooded with heroin to encourage recreational users to try heroin or increase their use (Bammer & Sengoz, forthcoming). The effect of such a response would be a shift in the supply curve to the right in Figure 7 (not shown), causing the price to fall even further, that is, such a response would compound the price fall arising out of the demand response. Demand is expected to increase under this scenario, given that the demand curve for heroin in Canberra is expected to be elastic at lower prices. Whether this increase in quantity demanded from the black market associated with the supply response (if it eventuates) will offset the reduction in demand brought about by the introduction of a trial is a matter for empirical investigation.

Finally, in concluding this discussion of economic retaliation, it must be pointed out that the analysis in Figure 7 relates to heroin of a given purity. As has already been discussed, quality (that is, purity) is an important variable in the heroin market. Part of the competitive response to the trial may, therefore, manifest itself in an increase in, or stabilisation of, the purity of street heroin. Indeed, it is this very phenomenon that was the subject matter of Figure 6 and associated discussion. If equilibration is achieved through purity (the hypothesised mechanism of equilibration under current market conditions), it is likely that stabilisation will lead to a reduction in accidental overdoses among users not on a trial. Increased purity may be associated with a reduction in harmful adulterants and may lead to improved health in the long run. However, in the illegal drug use setting, it is likely that any reduction in price will lead to increased consumption of heroin, rather than increased expenditure on food, clothing or other items. The health consequences of a trial for non–participants are therefore also a matter for empirical investigation.

3.3.2   Non–economic retaliation

The foregoing discussion related to the economic effects of a trial on the black market for heroin. The economic retaliation of black market suppliers, analysed in that context, is the competitive response usually predicted from an economic analysis of markets. However, given that the analysis relates to a black market, non–economic retaliation by black market suppliers is also a possible reaction. Since the black market supply of heroin is itself illegal, suppliers may resort to other illegal activities in an attempt to reduce or eliminate the competition. For example, the sources of supply of trial heroin may be undermined. In examining competitive responses from black market suppliers, it is therefore imperative to consider not only the normal, commercially accepted means of economic retaliation but also other measures not normally associated with commercial practice. Security may then become an issue.

An implication of this is that the costs incurred in conducting a trial may not be indicative of the costs that would normally be incurred in supplying heroin on a legitimate basis. It is therefore important to distinguish between costs incurred specifically because of trial design characteristics which would not be incurred under free market arrangements, and costs which would be so incurred.

4.   SUMMARY

A trial of the controlled provision of heroin in the ACT would provide an opportunity to gather empirical evidence on some aspects of the market for heroin. In particular, it would enable the investigation of the extent to which purity, rather than

price, is the equilibrating mechanism in this market. It is hypothesised that, under present arrangements, purity is an important equilibrating mechanism. The provision of heroin of constant purity to trial participants would then yield important health benefits to those participants. These benefits may also flow on to non–trial users in the long run, although in the short run increased accidental overdoses may occur.

While a trial will enable investigation of this hypothesis, it will not be possible to obtain any estimate of the responsiveness of the demand for heroin to price. The use of pre–specified criteria to determine eligibility for participation in a trial implies that not all who wish to consume heroin at the trial price (be it zero or positive) will be able to do so. This use of non–price rationing devices to limit entry to a trial will preclude any estimation of the price elasticity of demand for heroin.

Black market reaction to a trial through economic and/or non–economic retaliation can be expected to occur. While this retaliation is likely to be weaker the smaller a trial, reducing the number of trial participants may compromise the statistical validity of any results that emerge.

Finally, although crime reduction benefits have not been discussed in this paper, a trial will enable evidence to be collected on the magnitude of such benefits.

In short, a trial will provide an opportunity to study a number of issues concerning the operation of the market for heroin which could not otherwise be investigated.

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FEASIBILITY RESEARCH INTO THE CONTROLLED AVAILABILITY OF OPIOIDS

The Feasibility Research into the Controlled Availability of Opioids arose from a request to the National Centre for Epidemiology and Population Health (NCEPH) from the Select Committee on HIV, Illegal Drugs and Prostitution established by the Australian Capital Territory (ACT) Legislative Assembly.

A first stage of research, conducted in collaboration with the Australian Institute of Criminology (AIC), found that a trial to provide opioids, including heroin, to dependent users was feasible in principle. It was recommended that a second stage of feasibility investigations to examine logistic issues be conducted.

The first stage investigations examined illegal drug use in the ACT, the arguments for and against the controlled availability of opioids as reviewed in the literature, the current Australian political context for a trial, the role of interest groups in social controversies, legal issues, possible options for a trial, ethical issues, attitudes to a trial in the general community and among key interest groups (police, service providers, and illegal drug users and ex–users), and evaluation by a randomised controlled trial.

In addition, a proposal for a trial was developed as the starting point for the Stage 2 investigations.

The research which needs to be conducted to determine Stage 2 logistic feasibility can be divided into five areas:

- core information (for example, estimating numbers of users, determining relevant characteristics of ACT–based users, documenting the known information about the psychopharmacological and toxicological effects of opioids);

- information relevant to trial design and evaluation;

- information relevant to service provision;

- information about relevant legal, law enforcement and criminological matters;

- community and key stakeholder acceptability of a specific trial proposal.

The Stage 2 research is also governed by the following principles:

- the research should have intrinsic value so that, regardless of whether or not a trial goes ahead, the research should be of value to treatment services or to drug policy generally;

- research should be conducted in all relevant disciplines and the disciplinary findings should be integrated to address the central problem;

- the process should involve to the greatest extent possible the key interest groups— illicit drug users, ex–users, service providers, police, policy makers and the community.

Stage 2 of the feasibility research into the controlled availability of opioids has many components. As significant advances are made in each particular substudy, we publish the results as a working paper, so that the information is available for discussion in the public arena.

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