

Windle, J. and Farrell, G. (2012). 'Popping the Balloon Effect: Assessing Drug Law Enforcement in Terms of Displacement, Diffusion and the Containment Hypothesis'. *Substance Use and Misuse*, 47(8/9), pp. 868-876. Pre-publication copy

Popping the Balloon Effect: Assessing Drug Law Enforcement in Terms of Displacement, Diffusion, and the Containment Hypothesis

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The final version of the paper as published in the print edition can be found at: <http://informahealthcare.com/doi/abs/10.3109/10826084.2012.663274>

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Abstract

The 'balloon effect' is an often used but rather dismissive representation of the effects of drug law enforcement. It implies a hydraulic displacement model and an impervious illicit drug trade. This paper reviews theoretical and empirical developments in policing and crime prevention. Based on this, 10 types of displacement are identified and four arguments developed: (1) Displacement is less extensive and harmful than often contended; (2) Where displacement may occur it preferably should be exploited as a policy tool to *delay* the illicit drug industry and *deflect* it to less harmful locations and forms; (3) The opposite of displacement occurs, termed a *diffusion of drug control benefits*, wherein law enforcement has benefits that extend further than envisaged, and has 10 types mirroring those of displacement; (4) The net impact of drug law enforcement is often underestimated, and a *containment hypothesis* may offer a more accurate framework for evaluation.

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INTRODUCTION

"The story ... is told of a Western European Minister of the Interior, who was briefed by a senior civil servant about the phenomenon of displacement. He was advised that preventing a major crime in one place might merely move it somewhere else. His reply was, 'Try to displace it as far as the border.' "

(Barr and Pease, 1990; 282)

Displacement is a possible reaction of crime to a preventive intervention. When it refers to the effect of law enforcement upon the illicit drug trade, it is colloquially known as the 'balloon effect'. In the experience of the writers, the term is accepted parlance amongst analysts, researchers and policy-makers. Yet it incorrectly implies an extreme-case-pessimist position (Barr and Pease, 1990) wherein law enforcement's efforts simply move the illicit drug trade around with no net impact. It suggests drug law enforcement is implicitly fruitless, a waste of time, money, effort and even lives. As such, however, we argue here that the 'balloon effect' seems to be used dismissively rather than as a concept properly informed by theory and evidence.

In the metaphor, the size of the balloon is the size of the illicit drug trade, the volume of air is the volume of illicit drug production, and pressure on the balloon is from law enforcement. When one part of the balloon is pushed, it expands elsewhere to an equal extent. There is no net reduction in total air, so it is a hydraulic model. One commentator writes

"Why have billions of dollars and thousands of anti-narcotics agents around the world failed to throttle the global traffic in cocaine, heroin and marijuana? Blame wrong-headed policies,

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largely driven by the United States, and what experts call the balloon effect." (Debusmann, 2009)

The Centre for International Policy notes:

"Critics of U.S. drug policy often speak of the "balloon effect" – a term that refers to squeezing one part of a balloon, only to see it bulge out elsewhere – to describe drug crops' constant tendency to pop up in new areas in response to forced eradication campaigns." (CIP, 2005)

and concludes that

"... the balloon effect is still with us." (CIP, 2005)

Box 1 reproduces the *Wikipedia* entry for 'balloon effect', accessed at the time of writing on 12 May 2009. It is proposed in what follows that this *Wikipedia* entry may perpetuate the problem by its unquestioning presentation. A more accurate entry should, surely, state that the balloon effect is an overly simplified characterisation, a popular misconception and misrepresentation.¹

Box 1: Perpetuating the Misrepresentation in *Wikipedia* (accessed 12 May 2009).

Balloon effect

From *Wikipedia*, the free online encyclopaedia

The **balloon effect** is an often cited criticism of United States drug policy. The balloon effect describes what happens when a person squeeze some part of a latex balloon, the balloon will bulge out elsewhere. This describes drug crops' tendency to move to new areas in response to local eradication campaigns.

¹ The second author confesses to using the term "balloon effect" in the sense criticized here in Farrell (1998b), and the present study represents a development of thinking on the issue.

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This effect happened:

- With fumigation of marijuana in Mexico, in which the drugs migrated to Colombia.
- With marijuana in the Sierra Nevada de Santa Marta, which migrated to Cauca.
- In the late 1990's coca was largely eradicated in Peru and Bolivia, only to be replaced by new crops in Colombia.^[1]
- Recently, with the intense spraying in the Colombian department (state) of Putumayo, coca has been planted in other departments including Arauca, Cauca, Caquetá, Guaviare, Huila, Meta, Nariño, and Santander.

A United Nations Development Programme Colombia described the balloon effect this way:

"The economic mechanism underlying the global effect is quite simple: the success of eradication in one area temporarily reduces the supply, and that translates into a price rise. Then, given that the supply function is fairly elastic, higher prices stimulate people to plant crops in other places." The costs to start planting are quite low "given that the majority of property rights on land planted with illicit crops are ill defined."^[2]

[Note to table: At http://en.wikipedia.org/wiki/Balloon_effect , accessed 12 May 2009. The whole article contained two additional bullet points on other contexts in which the term has been applied plus the notes referring to Economist (2001) and UNDP (2003) for ^[1] and ^[2] respectively.

There is a yet more negative version of the balloon effect hypothesis wherein the balloon gets bigger when poked. In this version, efforts to intercept trafficking lead to both more and better trafficking. Only inept traffickers are arrested so the strong ones not only survive but increase their market share and profits. This 'expanding balloon' presents law enforcement as inadvertently pumping air in, reinvigorating the illicit drug and leaving the

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strong to prosper. Consider the following statement by the Drug Policy Alliance Network:

"Developed efforts of drug control authorities in some countries have merely moved drug trafficking operations to weaker jurisdictions and forced greater organizational sophistication. Economists call this the balloon effect since squeezing by law enforcement in one area only leads to a rise elsewhere." (DPAN, undated, accessed 12 May 2009)

At least two aspects of the DPAN statement are questionable. The first is the undue emphasis given by the term 'merely'. While the statement acknowledges that law enforcement can move drug trafficking operations, there is nothing mere or trivial about forced relocation, as any disrupted traffickers would attest. If traffickers have been forced to relocate away from their first choice location and their first choice set of routes and methods, then they have been forced to incur significant additional costs. These costs are not just those of relocation, but also those of the delay, of developing new connections and contacts, routes and *modus operandi* that are not the existing preferred ones. Presumably the DPAN's hypothetical trafficking organization was not located in the 'weaker jurisdiction' beforehand for good reason. Perhaps because the trafficking routes are longer and more time-consuming to traverse? Perhaps because the route is costlier to operate and riskier or hazardous in other ways? There is strategic law enforcement mileage in the adage '*location, location, location*': Shift or displace the illicit traffic to where it does not choose or like to be.

A second questionable aspect of the DPAN quote is the notion that the outcome is "forced greater organizational sophistication". This implies a

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version of the expanded balloon effect wherein law enforcement has - oops! - inadvertently but apparently inevitably generated more sophisticated trafficking organizations. However the very notion of being 'forced' suggests traffickers were unwilling to move, and this is for good reason. The organizations will fall into three types. First there will be some who are unable to achieve a new level of sophistication and will fold. A second set may continue to struggle along at a lower level of activity. While these continue to operate their inability to effectively reorganise make them more vulnerable to law enforcement. The third somehow reorganize but will necessarily incur significant costs to do so. These costs will include, at minimum, a lot of time and effort plus the cost of human and capital resources to replace staff, to develop new routes, new *modus operandi*, new contacts, and new security at a new location. For such groups it is, by definition, not an easy step to make or else they would have started there to begin with to avoid detection and disruption. In short, the picture drawn by DPAN seems to be a rather flawed caricature.

A clear statement of the expanded balloon effect hypothesis is Seccombe's (1995) study which examines experience of opium supply-reduction efforts in Pakistan. Seccombe concludes that

“[I]nternational efforts to reduce the supply of drugs are ineffective, inadvertently promote the use of more dangerous forms of drugs and exacerbate health problems in supplier countries. In addition, source country supply reduction activities are associated with serious unintended negative consequences, including corruption and poor governance in supplier countries. This leads to a negative circle as these adverse social

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consequences make it harder to restrict drug production."
(Seccombe, 1995; 311).

The present study does not address the specifics of Seccombe's work, though whether corruption and poor governance are the consequence or cause of the illicit drug trade can be debated. We acknowledge that malign displacement effects are noted in a range of studies of the illicit drug industry. Our argument is that the emphasis given to them, and the absence of recognition of more positive effects or interpretations, may be a symptom of much of that research. However, this essay does not offer a comprehensive review but, rather, has the more modest aim of offering some concepts, frameworks and evidence that are drawn from the existing literature in other areas of policing and crime prevention. Together these should shed additional light on the nature of the impact of drug law enforcement and how it should be assessed.

There is common ground between the argument presented here and that of Friesendorf (2005) who argues that the balloon effect is a misrepresentation, with displacement caused by factors *in addition* to law enforcement. Friesendorf concludes that "a complex empirical picture means that the popular metaphor of the balloon effect whose air, when squeezed, simply moves elsewhere is misleading" (p. 35). The present writers acknowledge an intellectual debt to the models of adaptive responses developed by Cave and Reuter (1988) and Caulkins et al. (1993) and others, and hope that the present study is complementary or, perhaps more ambitiously, might help inform future iterations of such models. The next section presents a key conceptual development for considering positive 'diffusion' effects of drug law enforcement.

The Diffusion of Drug Control Benefits

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Displacement is only one side-effect effect of law enforcement. The opposite is now widely acknowledged to occur and is known as the 'diffusion of crime control benefits' (Clarke and Weisburd, 1994; Farrell et al., 1999; Ratcliffe and Makkai, 2004; Weisburd et al., 2005). For example, interrupting trafficking along one route may induce a cessation of trafficking along other routes because of the perceived increased and uncertainty, or because the vehicle of preference (whether boat, plane, car, truck, or individual traveller) and means of concealment has been detected.

A diffusion of benefits can be envisaged in relation to illicit cultivation. When one farmer's crops are eradicated this may induce others to cease or reduce illicit cultivation locally, and deter still others from entering the market. This could occur due to an assessment that they would be wasting time, effort and money on a crop that seems likely to be destroyed. It could be because the geographical location of their cultivation has been revealed, or because their usual means of camouflaging illicit crops has become apparent - a particular type of inter-cropping, for instance. It could be that local transportation networks and personal connections with traffickers appear riskier. This is not an exhaustive examination of the potential mechanisms by which a diffusion of benefits could be induced, but is intended to be illustrative.

Diffusion effects could conceivably occur in relation to all aspects of the illicit drug industry when subject to law enforcement pressure. This could include the stages of illicit cultivation, diversion and shipment of precursor chemicals, trafficking at various levels, connections along the trafficking chain, dealing, and illicit consumption. A controlled delivery, for example, seems likely to trigger uncertainty amongst local trafficking networks and their connections which could lead them to cease or reduce activity, and to increase their

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surveillance, security and other costs (see Moore, 1990, for a classic statement on disrupting connections; see also Murji, 1993).

A related and similarly positive theoretical concept is that of 'anticipatory benefits' (Smith et al. 2003) wherein reductions in trafficking occur in anticipation of a law enforcement intervention. There are many instances in other areas of policing and crime prevention where the publicity that precedes an intervention has prompted a dramatic decrease in illegal activity that preceded the intervention itself. It suggests that publicity can and should be used to significantly enhance law enforcement interventions where possible (Bowers and Johnson, 2003). The extent to which this applies in the context of tackling the illicit drug industry can be expected to vary. However where alternative development efforts are reinforced by law enforcement, for example, one can envisage an important role for publicity that informs farmers, in advance, of the risks of illicit cultivation. In terms of offender decision-making, anticipatory benefits are induced by a perceived increase in risk even though the actual risk is yet to change (Smith et al., 2003). It is reasonable to expect that publicity might play an important role in highlighting the risk of eradication among farmers who might break a negotiated agreement, or imposed ban, relating to illicit cultivation in a local area. For example, it has been suggested that a key ingredient underpinning the Taliban crackdown on opium production in 2001 was the rapid spread of information about the enforcement of the ban (see Farrell and Thorne 2005).²

A further integral concept is that of 'residual benefit'. Sherman's (1990) review of police crackdowns on street drug markets noted what he termed residual deterrence. He observed that drug dealing was significantly reduced during periods of high intensity police crackdowns. Yet he also observed that,

² This is not to suggest that any Taliban tactics should be adopted.

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because dealers did not know when police resources had moved or whether they were likely to return, that dealing did not immediately resume at its previous levels. Sometimes it could take a considerable time for dealing to resume, and it might only gradually increase over a prolonged period of time. Hence there was a 'residual benefit' to the enforcement activity which is a component of the broader concept of the diffusion of benefits. In this framework, anticipatory and residual benefits are the bookends that precede and follow an intervention. A key policy implication of Sherman's work on residual deterrence was that the rotating of police resources between areas would maximise such effects. Sherman concludes that keeping offenders guessing may be our best means of keeping them honest.

The diffusion of benefits has clear relevance to drug law enforcement. Rotating law enforcement resources from one place to the next is a means of maximising uncertainty among offenders. When combined with publicity one could envisage law enforcement efforts that induced an anticipatory benefit beforehand, induced more widespread spatial or other diffusion during their commission, and resulted in a prolonged residual benefit afterwards when the resources were already being put to good use elsewhere.

This section emphasised anticipatory and residual benefit because they are concepts that have evolved primarily in relation to diffusion. However, they have parallel displacement forms, as the next section explains. For simplicity the remainder of this paper tends to refer simply to 'diffusion' as the one-word complement to 'displacement'.

Ten Types of Displacement and Diffusion

Thomas Repetto (1976) is credited with pioneering a typology of displacement which can now also be applied to diffusion effects. He proposed five types:

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temporal, tactical, target, territorial, and functional. Here the term 'spatial' is preferred to territorial, and the term 'crime-switch' to functional. The types are listed in Table 1 with illustrative vignettes relating to either displacement or diffusion. Caulkins (1992) has explored similar concepts of displacement relating to drug markets. The anticipatory and residual benefits described above have been added along with three other aggregate-level effects to make a total of 10 types.

Spatial displacement is the most commonly evaluated type. Farmers relocate planting to avoid eradication; Traffickers switch roads to avoid a new checkpoint; dealers shift street corners to avoid a regular patrol; precursor chemicals are shipped to an alternate port when computerised tracking and accounting are introduced at the preferred port. The opposite effect, a spatial diffusion of benefits, would occur when, for examples, a new checkpoint induces a reduction in trafficking along other routes as well, or other farmers also reduce new planting due to the perceived risk, or the volume of precursors shipped to other ports is also reduced due to uncertainty.

A hypothetical example of temporal displacement is when a drug street market changes operating times but not location due to the new routine police patrol. Alternatively, a temporal diffusion of benefits occurs if dealing at other times is also reduced due to a realisation that the site, the main dealers and methods, are now known to be a focus of law enforcement attention.

Clearly the types of displacement and diffusion overlap. If dealers change the time and location then both spatial and temporal displacement have occurred. Likewise, it is possible that both displacement and a diffusion of benefits can occur as a result of the same law enforcement activity because different mechanisms can be at work at the same time.

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With this introduction to two of the individual-level types, it is anticipated that the remainder of the first seven rows of Table 1 should be self-explanatory. However, the final three require clarification.

Barr and Pease (1990) identified what is here termed 'offender' displacement wherein, if a criminal opportunity still exists then a different offender may take the opportunity even if one is arrested. So a new trafficking mule may be recruited to replace one that is intercepted, and another farmer recruited if one switches to growing legal crops. Yet it is also conceivable that a more general deterrent effect could be induced wherein mules or farmers are deterred when some are arrested, their shipment or crops seized.³

The price mechanism arguably drives much displacement relating to the illicit drug industry. If law enforcement efforts to reduce supply are effective then illicit drug prices increase as risks increase. This is the essence of the risks and prices model (Reuter and Kleiman, 1986; see also Farrell et al., 1996). The increased price stimulates more production and trafficking. For example, when illicit opium production in Turkey was effectively halted in the 1970s, the reduced supply is suggested to have stimulated prices that induced cultivation elsewhere. Likewise, reductions in illicit opium production in Thailand are suggested to have stimulated supply in Lao PDR and perhaps Afghanistan in the longer term. The latter example identifies that the price mechanism can induce a form of displacement which need not necessarily be geographically contiguous or undertaken by the same farmers and trafficking groups, and is thus distinct from the types focused on the same individual offenders.

³ Barr and Pease (1991) noted that a switch to legal activity is also a form of displacement, humorously illustrating this by noting that displacement from burglary to mowing the lawn would be a good thing.

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The domino effect or agency effect identified in Table 1 is either a negative or positive spiral. In theory, effective law enforcement, or in the case of illicit cultivation 'alternative development', can lead by example, causing other agencies and actors to realise that it is possible to tackle particular aspects of the illicit drug trade. While reductions in Thailand may have inflated production elsewhere the Thai experience illustrates what can be achieved. Additionally, agencies operating in Thailand have extended 'lessons learned' to Afghanistan, Lao PDR and Myanmar. Conversely this could occur as a negative diffusion, that is, displacement, if a negative spiral is induced as the result of what appears to be unsuccessful law enforcement efforts.

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Table 1: Ten Types of Displacement and Diffusion

Type and short definition	Displacement/Deflection	Diffusion of Benefits
Spatial Change of location	Trafficking moves to different routes; dealing moves to other street corners.	Trafficking also stops elsewhere due to perceived risk; dealing also reduced on other corners.
Temporal Change of time	Trafficking moves to a different schedule; street dealing changes times.	Trafficking also stops at other times; street dealing also stops at times other than those targeted.
Crime-switch Change of crime type	Traffickers/dealers switch to other drug types.	Traffickers reduce trafficking in other products as well (and commit less of other crime types).
Tactical Change of modus operandi	Traffickers switch the means of concealment; Dealers change payment/dispensing tactics to reduce risk.	Other means of drug concealment are also reduced when one is detected; dealers reduce volume of trade when forced to change tactics.
Target Change of target	Different customers are targeted by drug dealers; different but similar airports targeted by mules.	Other customers are also targeted less by dealers; similar airports are targeted less by mules.
Anticipatory Any change in advance of enforcement activity	Anticipatory displacement: e.g. Offenders shift crime location or form in advance of law enforcement.	Anticipatory diffusion: e.g. Offenders reduce activity in advance of law enforcement. e.g. Publicity induces dealers to stop before crackdown; Traffickers halt shipment due to anticipated improvement in interception.
Residual	Trafficking/dealing /farming resumes at	Uncertainty delays return of street drug

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Change continues after enforcement stops	higher levels after enforcement.	dealing (or cultivation / trafficking) after law enforcement has rotated elsewhere.
<i>Aggregate Effects</i>		
Offenders Other offenders influenced	Arrested agents (traffickers, mules, farmers etc) quickly replaced because opportunity still exists.	Additional agents deterred due to perceived increase in risk.
Market price Price causes change in supply or demand	Reduced supply increases prices and profit, causing more agents (traffickers, mules, farmers etc) to enter the market.	Reduced supply reduces market size and uncertainty, causing additional agents (traffickers, mules, farmers etc) to cease. Farmers accept support for development of more stable cash crops.
Domino effect or agency effect Change in enforcement induces more change	Vicious spiral: Other law enforcement agencies view efforts as ineffective and so reduce efforts.	Positive spiral: Other agencies recognise positive effects and so increase activities.

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The Impact of Displacement and Diffusion

The impact of any displacement and diffusion can vary widely. It is not as simple as displacement being negative and diffusion being positive. In fact, many displacement effects can be viewed as positive, as explained below.

To simplify the assessment of impact, consider the following three types of outcome which can occur: Displacement Only; Displacement and Diffusion, and; Diffusion Only. However, these do not correspond with negative, neutral and positive impact. Rather, the balance of probabilities seems tipped towards a positive outcome, for the reasons detailed below.

First, in many instances there may be no displacement. This suggests that there is a 'pure' reduction effect upon the aspect of the illicit drug industry in question. For example, if the disruption of farmers, traffickers or dealers results in incapacitation of the key illicit actors then there may be no displacement. Many examples relating to crime prevention and policing efforts are given in the classic reviews by Eck (1993) and Hesseling (1994) and more recently by Mazerolle et al. (2007) and Guerette (2009). It is not necessarily easy to simply relocate, to re-tool or re-train and find another *modus operandi* by which to commit a crime. It may be simpler and easier to quit the illicit behaviour and do something else.

Second, displacement should be viewed positively because it demonstrates that the illicit drug trade can be prevented, deterred, or reduced. To return to the quote at the start of this paper, for many politicians, being able to displace the illicit drug trade as far as the border would be viewed as a success.⁴ It captures the essence of the fact it is possible to do something. Barr and Pease

⁴ For example, The Thai Government realised several drug, and non-drug, policy objectives by reducing illicit opium production to practically nil, regardless of whether production subsequently increased in a foreign nation (see Renard, 2001).

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propose the term *deflection* as preferable to displacement because it embodies the notion of deflecting illegal behaviour away from its most damaging targets or forms, and utilising displacement as a policy tool. Hamilton-Smith (2002) and Brantingham and Brantingham (2003) argue for deliberate anticipation of displacement as part of the formulation of policing and prevention efforts. The Brantinghams conclude that "interventions undertaken with probable displacement sites, times and situations included have the potential to increase their preventive power" (p. 119).

Third, when it does occur, displacement is often less than 100 percent (Eck 1993, Hesseling, 1994; Brantingham and Brantingham, 2003; Gurette and Bowers, 2009). This means that even when some displacement does occur, there is still a significant net benefit in terms of the net impact of law enforcement. It might be expected that some partial displacement occurs and would be an indicator of the more general effectiveness of the intervention.

Fourth, diffusion effects are all positive. Even when any negative displacement effects occur they could be cancelled out or exceeded by diffusion effects.

Guerette and Bowers (2009) conducted the most comprehensive examination of this field to date. They reviewed 102 studies of evaluated crime prevention efforts. They found no displacement in 68 studies, and that where displacement did occur it was never complete. Moreover, they found that a diffusion of benefits occurred for 39 of the studies. This is a landmark study which suggests these concepts need to be seriously addressed in the evaluation of drug law enforcement. In relation to the illicit drug industry, much research remains to be undertaken. There are initial signs, however, that efforts to suppress the illicit drug industry that are usually interpreted in

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a negative light, may require reinterpretation. For example, Pakistan successfully reduced illicit opium production for many years even though there may be signs of recent increases (Windle, 2009). Many of the national-level efforts to reduce opium production in Asia have produced national-level successes (Windle, 2011). The concepts outlined herein might usefully inform further work along these lines, and, we suggest, might incorporate an understanding of 'containment' as outlined below.

The Containment Hypothesis

Having made an argument as to why displacement and diffusion effects may often be misunderstood and that they are often assessed in an unduly negative framework, a key question remains: Why has law enforcement had little impact on the global drug trade? However, the problem here is that this is a leading question and it makes two incorrect assumptions. First, it assumes that law enforcement has had little effect. Second, it assumes that a stable or increasing illegal drug trade must represent a failing of drug law enforcement. Neither of these assumptions are, however, necessarily correct.

There are many factors that drive the illicit drug trade. In recent decades, during which significant increases in the illicit drug trade have been observed, socio-economic progress has inadvertently been the key facilitator. That has occurred via the provision of new opportunities and appears considerable in relation to each element of the illicit drug industry. A few examples will be outlined here to illustrate the nature of the argument, the related theory and evidence.

Improvements in agronomy have led to improved illicit crop yields. There is evidence that seed management, irrigation, and other areas have all improved. In the Andean region (in relation to the coca bush) and southeast

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and southwest Asia (in relation to the opium poppy) there may even have been some seepage of knowledge from that provided by technical experts working on crop substitution and alternative development projects. In relation to cannabis, Bouchard and Dion (2009), for example, show how the illicit use of hydroponic techniques has followed hot on the heels of the use of hydroponics to grow vegetables and flowers. Growth of the Internet has almost certainly facilitated access to relevant information for any would-be growers.

The last two decades have seen tremendous increases in international trade and commerce. The number, volume and speed of international aviation and seaborne shipments has increased rapidly, year on year. This has provided greatly increased camouflage for illicit drug trafficking (Keh and Farrell, 1996). Likewise, political change such as the increased democratisation of much of Eastern Europe, and trade agreements including those relating to NAFTA and the EC, have reduced the likelihood of border checks while also increasing the traffic considerably, with commensurate reductions in risk for traffickers. Hence spatial patterns and variation in trade and commerce can provide useful insight into variation in the traffic and use of illicit drugs (Farrell, 1998). Many of these issues are well known, and Paul Stares provided some early and insightful coverage in his landmark book *Global Habit* (1996).

The effect of socio-economic progress in relation to crime more generally is well known. Routine activity theory (Cohen and Felson, 1979) offers the most compelling explanation of the post-WWII increased in crime that occurred in much of the industrialised world. In brief, progress caused many inadvertent increases in criminal opportunities that arose due to changes in lifestyles and the availability of consumer goods. Large increases in the volume of consumer goods provided many new, attractive and tempting targets for

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theft. The increase in car ownership and car crime is probably the clearest example. Cars are stolen for joyriding, for transportation, for breaking and sale of parts, and for re-sale. Cars are also broken into for theft of contents, and are a frequent target for vandalism. In addition, cars facilitate other crime types because they can be used, inter alia, to drive to the suburbs to commit a burglary, as getaway vehicles, to drive to a drug market, and to take stolen goods to a fence. Alongside increases in consumer goods, changing lifestyles promoted crime. For example, increased workforce participation also meant that on average there was less daytime home guardianship, leading to increased daytime burglaries (see Felson and Boba 2010 for a recent statement on routine activities). In more recent years, with declining rates of many types of crime in industrialised countries, explanations are once again returning to routine activity theory (see e.g. Farrell et al., in press).

Globalization and socio-economic progress, and the theoretical context provided by routine activity theory, have been introduced here to provide a broader context for the present study. They offer rather compelling theory and evidence that the growth of the illicit drug industry has been, in large part, an inadvertent result of socio-economic progress. The crux of the issue for present purposes is that it is reasonable to infer that increase in the size and scope of the illicit drug industry would have been far greater in the absence of law enforcement. This is the essence of a *containment hypothesis*.

A key implication of the containment hypothesis is that a true measure of the effectiveness of law enforcement would require knowledge of the size of the illicit drug trade in its absence. This cannot be known. However, it does not seem unreasonable to anticipate that the illicit drug trade, at least as measured in terms of consumption, would be considerably larger than it is at present. That is, law enforcement has proven effective in containing the illicit

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drug trade but to an unknown extent. It is perhaps because this is rarely recognised that some commentators conclude that a hydraulic balloon effect is the cause of a stable or increasing global drug trade. This is why the arguments presented here relating to displacement and diffusion effects offer key concepts that may inform a more positive re-interpretation of many, if perhaps far from all, aspects of drug law enforcement.

CONCLUSION

This essay is a preliminary foray into the nature of displacement and diffusion effects in relation to the illicit drug trade. Though these concepts and the relevant theory and evidence are generally well known in the broader literature of policing and crime prevention, they appear less well known in relation to drug control policy and drug law enforcement. The present authors suspect that, if this set of concepts is more widely adopted, that it could influence the outcome of many evaluations of effectiveness relating to drug law enforcement and drug control policy. It is also likely there will be many existing instances, both in practice and in the literature, where displacement has been minimal, less harmful or less than 100 percent, and where diffusion of benefits has occurred but has been overlooked or attributed to other factors.

The present study should not be interpreted as suggesting that displacement never occurs. It does. However, we conclude that the 'balloon effect' is often a highly misleading term. It is formulated on a rather shallow understanding of the dynamic nature and dimensions of displacement and diffusion effects. In some instances it has led to an extreme-case-pessimist characterisation of law enforcement as being entirely ineffective, and it is possible that an uncritical use of the term may have gained credence among parties that have a preference and an interest to perceive drug law enforcement efforts as failing

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REFERENCES

- Barr, R. and K. Pease. 1990. 'Crime placement, displacement and deflection' in M. Tonry and N. Morris (Eds.) *Crime and Justice: An Annual Review of Research*, volume 12. Chicago: University of Chicago Press.
- Bouchard, M. And C.B. Dion. 2009. 'Growers and facilitators: Probing the role of entrepreneurs in the development of the cannabis cultivation industry'
- Bowers, K.J. and S.J. Johnson. 2003. *The Role of Publicity in Crime Prevention: Findings from the Reducing Burglary Initiative*. Home Office Research Study 272. London: Home Office.
- Brantingham, P.J. and P.L. Brantingham. 2003. 'Anticipating the displacement of crime using the principles of environmental criminology' in M. J. Smith and D.B. Cornish (Eds.) *Theory for Practice in Situational Crime Prevention*, volume 16 of *Crime Prevention Studies*. Monsey, NY: Criminal Justice Press. (pp. 119-148).
- Caulkins, J.P. 1992. 'Thinking about displacement in drug markets: Why observing change of venue isn't enough' *Journal of Drug Issues*, 22, 1: 17-30.
- Caulkins, J., G. Crawford and P. Reuter. 1993. 'Simulation of Adaptive Response: A Model of Interdictor-Smuggler Interactions' *Computer and Mathematical Modelling*, 17, 2; 37-52.
- Cave, J. and P. Reuter. 1988. *The Interdictor's Lot: A Model of Drug Interdiction* RAND, Santa Monica.
- Centre for International Policy. 2005. 'That stubborn balloon effect', CIPonline, 10 January 2005, Web site: <http://www.ciponline.org/colombia/blog/archives/000044.htm> accessed 12 May 2009.

- Windle, J. and Farrell, G. (2012). 'Popping the Balloon Effect: Assessing Drug Law Enforcement in Terms of Displacement, Diffusion and the Containment Hypothesis'. *Substance Use and Misuse*, 47(8/9), pp. 868-876. Pre-publication copy
- Clarke, R.V. and D. Weisburd. 1994. 'Diffusion of crime control benefits: Observations on the reverse of displacement' in R.V. Clarke, *Crime Prevention Studies*, volume 2. Monsey, NY: Criminal Justice Press. (pp. 165-184).
- Cohen, L. E. and M. Felson 1979. 'Social Change and Crime Rate Trends: A Routine Activity Approach', *American Sociological Review*, 44: 588-605.
- Debussman, B. 2009. 'Drug wars and the balloon effect' *Reuters News*, 28 Match 2009. Web site: <http://blogs.reuters.com/great-debate/2009/03/26/drug-wars-and-the-balloon-effect/> accessed 12 May 2009.
- Drug Policy Alliance Network. Undated. 'Drug trafficking and interdiction', Drug Policy Alliance Network. Web site: <http://www.drugpolicy.org/global/drugtraffick/> accessed 12 May 2009.
- Eck, J. 1993. 'The threat of crime displacement'. *Problem-Solving Quarterly*, 6(3), 1-2.
- Farrell, G. 1998. 'A global empirical review of crop eradication, crop substitution and alternative development policy' *Journal of Drug Issues*. 28(2), 395-436.
- Farrell, G. 1998. 'Routine activities and drug trafficking: the case of the Netherlands' *International Journal of Drug Policy*, 9, 21-32.
- Farrell, G., K. Mansur and M. Tullis. 1996. 'Cocaine and heroin in Europe 1983-93: A cross-national comparison of trafficking and prices' *British Journal of Criminology*, 36(2), 255-281.
- Farrell, G., S. Chenery, and K. Pease. 1999. *Consolidating Police Crackdowns: Findings from an Anti-Burglary Project*. Police Research Series Paper 113. London: Home Office.

- Windle, J. and Farrell, G. (2012). 'Popping the Balloon Effect: Assessing Drug Law Enforcement in Terms of Displacement, Diffusion and the Containment Hypothesis'. *Substance Use and Misuse*, 47(8/9), pp. 868-876. Pre-publication copy
- Farrell, G. and J. Thorne. 2005. 'Where have all the flowers gone?: Evaluation of the Taliban crackdown against opium cultivation in Afghanistan' *International Journal of Drug Policy*, 16(2), 81-91.
- Farrell, G., N. Tilley, A. Tseloni and J. Mailley. forthcoming. 'The crime drop and the security hypothesis' *Journal of Research in Crime and Delinquency*.
- Felson, M. and R. Boba. 2010. *Crime and Everyday Life*. Thousand Oaks: Sage.
- Friesendorf, C. 2005. 'Squeezing the balloon: United States Air Interdiction and the Restructuring of the South American Drug Industry in the 1990s' *Crime, Law and Social Change*, 44: 35-78.
- Guerette, R.T. 2009. *Analyzing Crime Displacement and Diffusion*. Problem Oriented Guides for Police Problem-Solving Tools Series No. 10. Washington D.C.: Department of Justice Office of Community Oriented Policing Services.
- Guerette, R.T. and K. Bowers. 2009. 'Assessing the extent of crime displacement and diffusion of benefits: A review of situational crime prevention evaluations' *Criminology*, 47(4); 1333-1366.
- Hamilton-Smith, N. 2002. 'Anticipated Consequences: Developing a Strategy for the Target Measurement of Displacement and Diffusion of Benefits' in N. Tilley (ed.), *Evaluation for Crime Prevention*. Monsey, NY: Criminal Justice Press.
- Hesseling, R. 1994. 'Displacement: A Review of the Empirical Literature' in R.V. Clarke (Ed.) *Crime Prevention Studies*, volume 3. Monsey, NY: Criminal Justice Press. (pp. 165-184).
- Mazerolle, L., Soole, D., & Rombouts, S. 2007. 'Drug law enforcement: a review of the evaluation literature'. *Police Quarterly*, 10(2); 115-153.
- Moore, M. 1990. 'Supply reduction and drug law enforcement' in M. Tonry and J. Q. Wilson (Eds.) *Drugs and Crime*. Chicago: University of Chicago Press.

- Windle, J. and Farrell, G. (2012). 'Popping the Balloon Effect: Assessing Drug Law Enforcement in Terms of Displacement, Diffusion and the Containment Hypothesis'. *Substance Use and Misuse*, 47(8/9), pp. 868-876. Pre-publication copy
- Murji, K. 1993. 'Drug enforcement strategies' *The Howard Journal of Criminal Justice*, 32(3); 215-230.
- Ratcliffe, J. and T. Makkai. 2004. 'Diffusion of Benefits: Evaluating a Policing Operation'. *Trends and Issues in Crime and Justice* no. 278. Canberra: Australian Institute of Criminology.
- Repetto, T.A. 1976. 'Crime prevention and the displacement phenomenon' *Crime and Delinquency*, 22; 166-177.
- Renard, R. 2001. *Opium reduction in Thailand: A thirty year journey*. Chiang Mai: Silkworm Books.
- Reuter, P. and M.A.R. Kleiman. 1986. 'Risks and prices: An economic analysis of drug law enforcement' in M. Tonry and N. Morris (eds), *Crime and Justice: A Review of Research*, vol. 7. Chicago: University of Chicago Press.
- Secombe, R. 1995. 'Squeezing the balloon: international drugs policy' *Drug and Alcohol Review*, 14; 311-316.
- Sherman, L.W. 1990. 'Police crackdowns: Initial and residual deterrence' in M. Tonry and N. Morris (eds). *Crime and Justice: An Annual Review of Research*, vol. 12. Chicago: Chicago University Press.
- Smith, M., R. Clarke and K. Pease. 2003. 'Anticipatory Benefits in Crime Prevention' in M. Smith and D. Cornish (Eds.) *Theory for Practice in Situational Crime Prevention*, volume 16 of Crime Prevention Studies. Monsey, NY: Criminal Justice Press.
- Stares, P. 1996. *Global Habit: The Drug Problem in a Borderless World*. Washington D.C.: The Brookings Institution.
- Weisburd, D., L.A. Wyckoff, J. Ready, J.E. Eck, J. Hinkle, F. Gajewski. 2005. 'Does crime just move around the corner? A study of displacement and diffusion in Jersey City, NJ' Report to the National Institute of Justice, U.S. Department of Justice.

Windle, J. and Farrell, G. (2012). 'Popping the Balloon Effect: Assessing Drug Law Enforcement in Terms of Displacement, Diffusion and the Containment Hypothesis'. *Substance Use and Misuse*, 47(8/9), pp. 868-876. Pre-publication copy

Windle, J. 2009. 'Pakistan: Islamic militants and a resurgence in the illicit opiates trade' *Internet Journal of Criminology*, at http://www.internetjournalofcriminology.com/Windle_Pakistan_Militants_and_Opium_Production.pdf

Windle, J. in preparation. 'Successful' Illicit Opium Production Suppression Interventions: A Comparative Analysis of China; Iran; Turkey; Thailand; Pakistan; Vietnam and Laos. Doctoral Thesis. Loughborough University: Midlands Centre for Criminology and Criminal Justice.

Glossary: Brief, scientific definitions of key terms/processes.

Adaptive response: Largely synonymous with the term displacement, in this context, 'adaptive responses' refers to changes made by actors of the illicit drug industry as the result of law enforcement interventions.

Anticipatory benefits: Anticipatory benefits are reductions in criminal behaviour that occur before, and in anticipation of, an intervention. They may occur due to uncertainty on the part of offenders and a perceived increase in risk, perhaps induced by publicity of a forthcoming intervention.

Containment hypothesis: The hypothesis that, in the absence of law enforcement efforts, the illicit drug industry would be larger than at present, and that therefore its size and growth have been at least partially controlled by law enforcement.

Deflection: A term that better illustrates how displacement of criminal activity can be positive when it is moved to a place or form that is less damaging.

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Diffusion of benefits: A concept similar to that of externalities, wherein law enforcement intervention can have positive effects that extend beyond the intended parameters in either scope or duration.

Disrupting connections: In this context, this refers to law enforcement activity that deliberately breaks links in the chain of the illicit drug industry that are often difficult to rebuild, such as those between traffickers and distributors.

Displacement: In this context, displacement is a response of the illicit drug industry to law enforcement intervention, that cause the industry to change location or form.

Domino effects; These are positive knock-on effects of law enforcement activity, particularly as they relate to other agencies or teams. So, for example, policing of street markets might be spurred on in an effort to build on a large seizure by a customs agency.

Residual benefits: The crime reductive benefits of a law enforcement intervention that continue beyond the period that the intervention is in place.