



# Challenges that Confront Researchers on Estimating the Social Costs of Gambling

Douglas M. Walker, Ph.D.

## Executive Summary

The social cost of gambling has been at the center of the debate over legalized casino gambling since the mid-1990s. Even now, more than a decade later, little progress has been made in researchers' ability to adequately identify and measure the potential costs of legalized gambling. There are a number of reasons for this lack of significant progress: (1) comorbidity, (2) survey data validity, (3) government expenditures and (4) the counterfactual scenario. Until researchers can address these issues, empirical estimates of the social cost of gambling will continue to be arbitrary. The goal in writing this paper is to provide future researchers, as well as policymakers and voters, with an understanding of the basic problems inherent in research on the social cost of gambling.

## Introduction

“The social costs of gambling” have been a major focus of researchers since the mid-1990s. Politicians and voters like to have dollar estimates of costs and benefits when considering the introduction or expansion of casinos, and such studies have been important in informing politicians, interest groups and voters. Early research estimated that social costs ranged from about \$13,000 per pathological gambler per year in the U.S., up to more than \$30,000 per year. A decade of debate in the literature and in political discourse has resulted in little consensus on the validity of any of the numbers. Critics of social cost research have suggested the actual social costs of gambling are much lower than estimates and, of course, the casino industry tends to side with the critics. Unfortunately, despite the best efforts of researchers, the actual social cost of gambling is still unknown.<sup>1</sup>

To make progress beyond its current state of infancy in determining the social costs of gambling, researchers must address at least four fundamental issues: how to deal with (1) comorbidity, (2) survey data validity, (3) government expenditures and (4) the counterfactual scenario. This paper provides an introductory discussion of these issues, along with examples and references to the literature in which these issues are manifest.

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## Comorbidity (or co-existing disorders)

Investigators usually observe that pathological gamblers<sup>2</sup> have legal problems, often require public assistance in the form of various kinds of welfare payments and may require more medical services than other individuals.<sup>3</sup> These observations are easily verified but prove little. As most researchers would acknowledge, simply observing that gambling is correlated with such problems does not mean gambling causes them.

If gambling were not an option, a person who is predisposed to a pathological disorder may manifest his disorder in other unhealthy ways. Many pathological gamblers have other behavioral disorders — coexisting disorders or comorbidity as it is called in the literature. Examples include alcohol and drug problems, and mood and anxiety disorders. If pathological gambling is simply a symptom of some more basic disorder, then, it is the more basic disorder rather than gambling itself that is the underlying cause of the adverse consequences and social costs of the pathological gambling. However, most social cost researchers (e.g., Grinols 2004, Grinols and Mustard 2001, and Thompson et al. 1997) simply attribute all of the costs to gambling. To be accurate, a mechanism is needed to allocate the harm among coexisting disorders, yet most authors make no such attempt.

In comorbidity cases, pathological gambling may have a range of impacts (from very significant to none at all) on the legal problems, bankruptcy, need for public assistance or the high medical care costs that often characterize pathological gamblers. Since social cost calculations should include only the contribution that pathological gambling makes to destructive behavior, a determination of whether such behavior is caused by, rather than simply correlated with, pathological gambling is crucial to correctly estimating the social cost of gambling.

In large part, this issue revolves around whether pathological gambling is a primary or secondary disorder. Shaffer, et al. (1997) have addressed this issue. They note that the *DSM-IV* (APA 1994) indicates that “a person meeting all of the criteria for pathological gambling is not considered a pathological gambler if he or she also meets the criteria for a Manic Episode, and the Manic Episode is responsible for excessive gambling” (Shaffer et al. 1997, p. 72). The authors explain that pathological gambling may be independent of other afflictions or it may be only a reflection of other problems (p. 73). Obviously, if the conditions for pathological gambling are a subset of another affliction or of a combination of other afflictions, then we cannot legitimately attribute all the social costs of pathological gambling to the gambling *per se*.

New medical research on the brain appears to be illuminating on the causes and effects of addiction. In addition, clinical research has shown that a large proportion of pathological gamblers have coexisting disorders.

The study by Petry, Stinson and Grant (2005) indicates the extent to which pathological gamblers exhibit other behavioral problems. They estimate 73.2 percent of U.S. pathological gamblers have an alcohol use disorder. The lifetime prevalence rate for drug use disorders among pathological gamblers is 38.1 percent, and for nicotine dependence it is 48.9 percent. Other comorbid conditions include mood disorders (49.6 percent), anxiety disorders (41.3 percent), and obsessive-compulsive personality disorder (28.5 percent) (Petry et al. 2005, p. 569).<sup>4</sup> The recent study by Westphal and Johnson (2007) finds that 77 percent of their study subjects with a gambling problem had co-occurring behavioral problems, and 56 percent had multiple problems. Such findings suggest that people who suffer from these conditions may be predisposed to engage in compulsive behaviors. If these individuals did not have a gambling problem, they would likely have other problematic behaviors instead.

Given that many pathological gamblers exhibit other disorders, it is difficult if not impossible to accurately estimate the social costs attributable specifically to pathological gambling. As an example, consider a pathological gambler who is also a drug addict and engages in behavior resulting in social costs of \$5,000. What proportion of the cost should be attributed to the gambling disorder and what proportion to drug use? Although it is critical to deal with this issue, social cost studies rarely, if ever, account for comorbid disorders. Instead, researchers have simply attributed all the costs to pathological gambling. This results in overestimates of the social costs of pathological gambling.

Again consider a drug-addicted pathological gambler. If the person was not a pathological gambler, his behavior from drug use might result in social costs higher or lower than in the case with both disorders. It is theoretically possible that with comorbid disorders, a particular disorder might actually decrease social costs compared to the counterfactual. Or perhaps the drug problem exacerbates the gambling problem. These issues have not been adequately addressed in the literature.

The important implication to be drawn from these studies of multiple disorders is that observing a correlation between social problems or socially costly behavior and pathological gambling is not adequate to attribute the social problems to gambling. Both pathological gambling and the probability that one will run afoul of the law may be symptoms of a more basic (“primary”) disorder. While this point is obvious to most observers, it is typically (and inappropriately) ignored in estimating the social cost of gambling. Studies that fail to address the causality and marginal contribution issues are likely to overstate or understate the actual social costs of gambling. Social cost estimates for gambling that do not address these issues should be viewed with skepticism.

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There is no obvious best way to handle this issue. However, one possibility would be for psychologists to compare pathological gamblers with coexisting disorders to those without other disorders. If a reasonably large sample was studied, the net contribution of gambling to socially costly behavior could be roughly estimated. For example, suppose pathological gamblers with coexisting disorders cause \$1,000 worth of social costs, while pathological gamblers without coexisting disorders cause \$250 worth of social costs. Then for the pathological gamblers with coexisting disorders, researchers could attribute 25 percent of the social costs to pathological gambling, while 75 percent would be attributable to other disorders. Such an analysis must be careful to use valid research methodologies and would still be only a rough estimate of the social costs attributable to gambling. Despite its limitations, this would be a definite improvement over current research practices, which effectively ignore comorbidity.

## **Survey data validity**

Psychologists rely on diagnostic/screening instruments like *DSM-IV* and SOGS to identify potential pathological gamblers. Among the questions asked are how the person financed his/her gambling and the maximum amount lost gambling in a single day. Blaszczynski, Ladouceur, Goulet and Savard (2006, p. 124) explain that clinicians rely on estimates of gambling losses to identify at-risk gamblers. In addition, such measures can be used to measure the reduction in post-treatment gambling activity.

Surveys including questions about sources of money and gambling losses have also been used to make social cost estimates. Examples include Thompson et al. (1997), Thompson and Schwer (2005), and papers used by Grinols (2004) in deriving his social cost of gambling estimate.<sup>5</sup>

This practice is problematic for several reasons. First, it is questionable whether individuals will be honest in answering questions on such sensitive issues. For this reason, it is very important that the survey be carefully designed and administered. Yet, social cost estimates are often based on surveys that use questionable methodologies.

Second, it is unclear whether respondents even understand how to calculate gambling losses. Blaszczynski et al. (2006, p. 127) explain “without specific instructions regarding how gambling expenditures are to be calculated, participants use different strategies.” The obvious problem with this is that “different strategies used lead to variations in the expenditures reported and, therefore, cast doubt on the validity of the data and raise questions that there may be potential serious biases regarding gambling expenditures currently reported in the gambling literature” (Blaszczynski et al. 2006, p. 128).

Examples of financial questions from the *DSM-IV* and SOGS are shown in the table below.

<b>Financial questions from <i>DSM-IV</i> and SOGS screening instruments</b>	
<b>Screening Instrument</b>	<b>Instrument item</b>
DSM-IV8.	"...has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling."
DSM-IV10.	"...relies on others to provide money to relieve a desperate financial situation caused by gambling."
SOGS 2.	"What is the largest amount of money you have ever gambled with on any one day?" Possible responses include: I've never gambled; \$1 or less; more than \$1 but less than \$10; more than \$10 but less than \$100; more than \$100 but less than \$1,000; more than \$1,000 but less than \$10,000; more than \$10,000.
SOGS14.	"Have you ever borrowed from someone and not paid them back as a result of your gambling?"
SOGS16a-k.	"If you borrowed money to gamble or to pay gambling debts, who or where did you borrow from?" Possible responses include: household money; your spouse; other relatives or in-laws; banks, loan companies, or credit unions; credit cards; loan sharks; you cashed in stocks, bonds, or other securities; you sold personal or family property; you borrowed on your checking account (passed bad checks); you have (had) a credit line with a bookie; you have (had) a credit line with a casino.

Sources: *DSM-IV* (1994, p. 618) and Lesieur and Blume (1987, p. 1187)

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**Suppose a gambler buys a car beyond what his budget would allow even if he did not have a serious gambling problem. It is quite possible that in answering or using the *DSM-IV* or SOGS criteria, the person will attribute his financial woes to gambling. But who can determine the extent to which the financial woes are due to gambling or a preference for expensive cars?**

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A third problem is asking survey respondents to accurately identify the source of their gambling money, as is illustrated in some of the questions in the above table. Keep in mind that such surveys ask gamblers who admit to having or who are diagnosed with spending control problems to classify various sources of income used for specific types of expenditures. *Budgets are fungible*. It is unclear whether an individual can really attribute gambling losses to a specific revenue source, since people often have a variety of income sources (paycheck, investment earnings, borrowing, etc.). Even the most fiscally responsible individuals probably do not link specific sources of income to specific expenditures in their household budgets.

Any particular person's financial problems may be due to gambling, but it is not easy to determine that unequivocally.<sup>6</sup> Several examples can illustrate. Suppose a gambler buys a car beyond what his budget would allow even if he did not have a serious gambling problem. It is quite possible that in answering or using the *DSM-IV* or SOGS criteria, the person will attribute his financial woes to gambling. But who can determine the extent to which the financial woes are due to gambling or a preference for expensive cars? Perhaps the person exhibits financial irresponsibility in many aspects of his life. The pathological gambling screening instruments do not distinguish between gambling and other potential causes of financial problems. As a final example, how do the screening instruments handle a situation in which a person secures a loan and then decides to gamble the

money away? The person does not borrow to gamble, but gambles after he has borrowed. In either case the person might have a gambling problem, but these are different situations. How likely is it that the person or the clinician will correctly answer the financial-related survey questions in these situations?

Finally, extrapolating from the experience of the most serious problem gamblers (those who can be classified as pathological) to the general population of problem gamblers, as is often done, is inappropriate (Walker and Barnett 1999). Thompson et al. (1997), Thompson and Schwer (2005) and Grinols (2004) base their estimates, in part, on survey responses by Gamblers Anonymous members. These are arguably the most serious cases and are not representative of the general population of problem gamblers.

The point here is that financial woes and problem gambling may be correlated, but this does not indicate the causal relationship that is implied in the diagnostic instruments or in social cost studies that rely on surveys of gamblers. This is another critical issue that has not yet been adequately addressed in the literature. Ideally, researchers would rely on comparisons of pathological gamblers with no coexisting disorders and a control group of non-problem gamblers. Although there is probably no perfect way to estimate social costs, there is certainly room for improvement over currently used methods, especially gamblers' survey responses.

## **Government expenditures**

Even when particular government-paid costs of gambling are agreed to be “social costs,” measuring them may be tricky. For example, most researchers count government expenditures relating to the treatment of problem gambling as social costs (Walker and Barnett 1999; Collins and Lapsley 2003; Eadington 2003; Single 2003). In fact, such expenditures are a primary focus of cost-of-illness studies. The magnitude of these social costs in a country depends critically on the level of treatment-related expenditures by government. This makes the comparison of social costs across countries difficult. For example, if one country increases its expenditures on problem gambling treatment, according to most studies, the social costs of gambling in that country increase, even if the number of problem gamblers, or the severity of their problematic behaviors, decrease. A country whose government spends nothing to deal with problem gambling may have a significantly lower social cost, everything else constant. Alternatively, suppose one country compensates pathological gamblers 150 percent of their treatment costs. Then the social costs of gambling in this country would be over-estimated.

This is a critical point to understand. Simply because the government spends money on something does not necessarily imply that the expenditure represents a social cost (i.e., a decrease in social wealth), though it may. Yes,

members of society must give money to government (taxes) to fund such expenditures, and so in a sense, it is a cost to society members. However, the benefits also go to society members. For example, education, research, police, unemployment benefits, etc., would all be social costs if government expenditures are sufficient to qualify as social costs. These things are fundamentally different from the social costs associated with problem gambling. Voters may wish to minimize the social costs of gambling, but do not typically seek to minimize education, research, police protection and many other forms of government spending. If government expenditures implied social costs, then the social cost problem would be easily solved — by eliminating government spending! This point hopefully illustrates why social cost must be something other than mere expenditures by a person, or negative consequences to an individual.

Browning (1999) discusses government expenditures as externalities or third-party effects.<sup>7</sup> His discussion is in the context of smoking and the related health care costs that are borne by government. He calls these “fiscal externalities.” In discussing cigarette smoking and medical care subsidies, Browning (pp. 12-13) explains, that “if there is inefficiency associated with the fiscal externality, it reflects the distorting effect of the policy (here, the medical care subsidy) that creates the fiscal externality. Fiscal externalities themselves do not cause any new inefficiency in resource allocation.” In short, Browning argues that the policy regarding the externality is responsible for the inefficiency or social cost. This is an important perspective that must be considered and addressed by gambling researchers, especially since many researchers call for more government support of problem gambling treatment and prevention expenditures.

Social cost studies that simply use government expenditures as the measure of social costs are problematic. Yet, there is no obviously better way to handle these costs. As Kleiman (1999, p. 638) explains in the context of drug and alcohol abuse, “since the costs of remedies are measured, while the suffering they avoid is not, the development of a treatment for an injury or disease can increase, rather than decrease, its measured cost.” Obviously this approach is misguided.

Government expenditures are handled incorrectly in most social cost analyses. One could argue that government expenditures should be handled in a fundamentally different way, since they may be tied more directly to politics than to the level of problem gambling in the country.<sup>8</sup> The necessary data to overcome the inexact cost attribution may already exist. Researchers could use information on the average cost of treatment, as well as information on the average legal costs attributable to problem gambling.<sup>9</sup> The resulting cost estimate may vary drastically from the level of government expenditures allocated to problem gambling.

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If casinos were not legal in a particular county, would there be no gambling and therefore no social costs? Probably not, as gamblers can find other venues, including nearby casinos, internet gambling, illegal gambling houses, etc. Therefore, problem gambling and the related costs should be compared for the cases when casinos are legal to the level of related problems when casinos are not legal. Rather than doing this, most researchers have implicitly assumed there would be no problem gambling in a jurisdiction if there are no casinos.

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## Counterfactual scenario

The primary goal of most social cost studies is to offer an estimate of the marginal or incremental impact of casino gambling on a variety of variables like crime, bankruptcy, theft and so on. In other words, we are interested in the effect of the introduction of casinos on these variables — whether casinos cause an increase or decrease, and to what extent. Most researchers attempt to translate this magnitude into monetary costs.

The “counterfactual scenario” refers to the situation that would have otherwise been.<sup>10</sup> In our context, we are interested in what would have happened if casinos were not introduced. Would some other industry have entered the local market? If so, what would the differences have been between the economic effects of that industry and those of the casino industry? This is the relevant information that should be used for policy decisions pertaining to casino development, not the difference between the situation with casinos and the current situation or past trends — unless the local economy would have remained stagnant without casinos.

In terms of problem gambling and the social costs of gambling, researchers should also consider the counterfactual scenario. If casinos were not legal in a particular county, would there be no gambling and therefore no social costs? Probably not, as gamblers can find other venues, including nearby casinos, internet gambling, illegal gambling houses, etc. Therefore, problem gambling and the related costs should be compared for the cases when casinos are legal to the level of related problems when casinos are not legal. Rather than doing this, most researchers have implicitly assumed there would be no problem gambling in a jurisdiction if there are no casinos. A comparison of problem gambling in casino communities to that in non-casino control communities would be a reasonable way to study this issue.<sup>11</sup>

For example, consider the case of crime. Several studies have examined the effect of casino gambling on crime. A recent study by Grinols and Mustard is entitled “Casinos, Crime and Community Costs” (2006). In this study, the authors use county-level data and find that casinos have caused about 8 percent of crime in casino counties. Their results are invalid because of a variety of serious problems in their data and analysis. The authors simply compared casino to non-casino counties. But they did not control for the volume of tourists, so the crime effect they found may have been caused by tourism generally rather than casino tourism specifically. To show a valid link between crime and casinos, the authors would have needed to compare casino counties to other counties with non-casino tourism.<sup>12</sup>



To illustrate, consider an example with just two counties: one casino county (C) and one non-casino county (N). Researchers and policymakers interested in the effect of casinos on crime will be tempted to compare crime rates through time in C and N. They should at least control for a variety of demographic factors, the number of tourists, etc., in their analysis. But in addition, they should consider what would have happened in C if casinos had not been introduced. For example, suppose that if casino permits had not been issued, a permit for some other type of tourism venue (e.g., a large mall) would have been issued. Then the relevant impact of casinos on crime for C would be the difference between the crime rates with casinos present and the crime rates with the mall present. This difference would give the researcher the marginal impact of casinos on crime. It is this difference, rather than the difference in crime rates between C and N, that is important.

Crime rates are simply the number of crimes committed in an area divided by the population at risk. So if five crimes are committed during the year in a community of 100 people, the crime rate is 0.05. Suppose the crime rate in C is 0.05, and in N it is 0.04; the rate in C is 25 percent higher than in N. Most people would infer from this that casinos cause an increase in crime of 25 percent relative to non-casino counties. But this is not the appropriate conclusion because it ignores the counterfactual. Again, suppose if a casino permit had not been issued, and instead a new mall was constructed. Because of the number of tourists attracted by the mall one would expect the crime rate might also increase. If the crime rate in C would have been 0.05 with a mall rather than a casino, then casinos do not have any impact on crime in that county. This would suggest that it is tourism generally — not casino gambling specifically — which is responsible for the increase in crime. Again the relevant comparison of crime rates for the county are the rates in the situation with a casino versus the rates with whatever alternative would have otherwise been.<sup>13</sup>

To be fair to researchers, it is typically not known what the counterfactual scenario would be. But few, if any, of the researchers cited by Grinols (2004) acknowledge this issue or account for it in arriving at their social cost of gambling estimates. Nor does the recent study by Grinols and Mustard (2006). The result is certainly an overstatement of the social costs of casinos relative to the counterfactual. Other studies have done a much better job in considering the counterfactual. Related to crime, a good example is the paper by Stitt et al. (2003). They compared casino counties to a series of control counties without casinos. Their results were mixed. Future studies should follow this example of comparing casino communities with control communities.

## Conclusion

The issues discussed in this paper are among the most pressing problems that confront social cost of gambling researchers. Past studies have not acknowledged these issues, and consequently, their “social cost of gambling” monetary estimates have been overestimates. Even more troubling, there is currently no ideal way to deal with these issues.

The purpose of this paper is to identify and explain these issues. This exercise should be helpful to researchers, policymakers, the media and others who wish to have a better understanding of the impacts of casino gambling and the complexities of gambling research. Certainly casinos create both benefits and costs. But the cost side of the equation has presented a particularly difficult problem for researchers. Some of these problems have been explained here with the hope that future researchers can begin to address them in methodologically sound ways. The result will be a movement toward more reliable analyses of the social costs of casino gambling, and ultimately, better informed policy on casino gambling.

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## Endnotes

<sup>1</sup>Two academic conferences have been dedicated to examining the social cost issue, with little apparent progress. The conferences were the Whistler Symposium (2000) and the Alberta Gaming Research Institute's conference in Banff (2006). Although a variety of researchers attended and contributed, the differences in opinion on how social costs should be estimated still persist. Three major perspectives have developed on the social cost issue. They are: the "cost of illness," "economic" and "public health" perspectives. Each of these perspectives was represented in Whistler and Banff and each has its foundation in a different academic discipline. The cost of illness approach serves as the basis for much of the substance abuse literature, and is similar to the economic approach in that it attempts to estimate monetary values for harmful effects. The public health approach focuses more on proscribing methods of "harm reduction" than it does on estimating monetary values for social costs. The fact that researchers are approaching the social cost issue from different academic backgrounds contributes to the lack of consensus in the literature. Another major problem is that the different perspectives each rely on a different definition of social cost. As a result, each perspective classifies different effects of gambling differently. Aside from the problems inherent in the cross-disciplinary nature of the subject, there are more fundamental problems that pose significant challenges to social cost researchers. These problems are the primary focus of this paper.

<sup>2</sup> "Pathological gambling" has a specific meaning in the literature. Other terms are used to define problems of different severities. The details of this distinction are beyond the scope of this paper and are ignored here.

<sup>3</sup> For example, see Grinols (2004), Grinols and Omorov (1996), and Thompson, et al. (1997).

<sup>4</sup> Thompson et al. (1997, pp. 87-88) provide some anecdotal evidence from a survey of Gamblers Anonymous members.

<sup>5</sup> The survey questions are typically omitted from published papers so it is difficult to know exactly what questions survey respondents were asked.

<sup>6</sup> Obviously there will be cases where gambling is a clear problem. For example, if a person's gambling losses prevent them from making reasonable mortgage and car payments, most people could agree that this is a problem.

<sup>7</sup> "Externalities" is a complicated field in economics. For more discussion see Walker (2007a, pp. 93-95).

<sup>8</sup> Still, one could argue that the level of government spending can provide useful information for researchers interested in studying the cost-effectiveness of different treatment options.

<sup>9</sup> It is not clear whether reliable estimates of these costs could be provided by government agencies.

<sup>10</sup> "Counterfactual scenario" is a concept common in psychology. It is similar to the economics concept of "opportunity cost."

<sup>11</sup> Studies such as the Gambling Impact and Behavior Study of the National Opinion Research Center at the University of Chicago have assessed casino proximity effects through variables such as bankruptcy filings, crime, employment, etc. A recent discussion of this issue is provided in Abbott (2007).

<sup>12</sup> For a detailed analysis of the Grinols and Mustard crime paper, see Walker (2008).

<sup>13</sup> A comparison of crime rates between C and N would be relevant if one can effectively argue that N is representative of C in its counterfactual scenario.

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*Douglas M. Walker is an associate professor of economics at the College of Charleston in Charleston, S.C. Previously he was a faculty member at Georgia College. He received his Ph.D. in economics from Auburn University. Walker has been at the forefront of the ongoing debate over methodological issues in social/economic impact of gambling analyses. He has been invited to present his research at a variety of forums, including the Whistler Symposium (2000), sponsored by the Canadian Centre on Substance Abuse, and the Alberta Gaming Research Institute conference at Banff (2006), both of which focused on cost-benefit methodology in legalized gambling studies. Walker has done consulting work for industry and a number of government research organizations. His book, The Economics of Casino Gambling, was published by Springer in 2007. His research has been published in peer-reviewed journals including the Journal of Gambling Studies, International Gambling Studies, Review of Regional Studies, and American Journal of Economics and Sociology. He can be reached at WalkerD@cofc.edu. His Web site is <http://www.cofc.edu/~walkerd>.*

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**1299 Pennsylvania Avenue, NW**

**Suite 1175**

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