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AUTHORS	Diana W. Thomas Ryan M. Yonk Stephen K. Young
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Diana W. Thomas (USA), Ryan M. Yonk (USA), Stephen K. Young (USA)

In and out of the commons: public entrepreneurship and the Blue Bikes program

Abstract

In her work, economics Nobel laureate, Elinor Ostrom, suggests that local self-governance institutions can solve common pool resource (CPR) problems. The authors argue here that such solutions can emerge for CPRs as well as for other commons problems. In addition, Ostrom proposes that one of the prerequisites for the solution of CPR problems is the presence of a local leader. The authors argue that such entrepreneurs or leaders will be more likely to facilitate the development of institutional solutions to commons problems, if they can extract private rents in the process. More specifically, the paper combines insights from the literature on private entrepreneurship and the literature on extractive rent seeking to shed light on the motives and the role of the entrepreneur in the emergence of local self-governance institutions. The authors illustrate their theory using the example of a bike-sharing program at Utah State University.

Keywords: entrepreneurship, political economy, publicly provided private goods.

JEL Classification: L26, P48, H42.

Introduction

What motivates individuals to become active in the solution of commons problems? Elinor Ostrom, the 2009 Nobel Prize winner in economics, suggests in her work that the presence of a local leader is one of the prerequisites for the successful solution of common pool resource (CPR) problems (Ostrom, 1990, p. 188). We suggest here, that such leaders are similar to private entrepreneurs in the marketplace. The literature on entrepreneurship in the market place can illuminate the role and motivation of the leaders that become active in the solution of local commons problems. Unlike for entrepreneurship in the private market place, however, the payoff from engaging in entrepreneurial action in the political sphere of local self-governance institutions is not well defined.

We agree with Ostrom that a local leader is a prerequisite for the successful solution of commons problems. Like Elinor Ostrom, we argue that for communities to solve commons problems through local self-governance institutions, the private benefits from such a solution have to be great enough to warrant participation of the affected individuals. We suggest further, however, that the required entrepreneur will only become active in the solution of commons problems, if he expects to be able to extract private rents in the process of establishing such a solution. Extending Ostrom's framework, we suggest that this potential for private rent extraction presents a necessary incentive for entrepreneurs to become active in the solution of local commons problems.

The notion of public or political entrepreneurship has been discussed in the literature as individuals pursuing political (rather than market based) profit opportunities¹. Our discussion of the public entre-

preneur is most similar to the discussion of the political entrepreneur in Frohlich and Oppenheimer (1978). They suggest that the political entrepreneur is willing to provide the selective incentives requisite to coordinate individual action in the production of a public good because he receives indirect benefits from doing so. Our entrepreneur differs from the entrepreneur in Frohlich and Oppenheimer (1987), however, because he operates in the environment of common property regime problems and outside of formal politics, while their political entrepreneur is an actor in the formal political environment.

Our entrepreneur is also similar to the entrepreneur in Simmons et al. (2010), who argue that political entrepreneurship is required for Bruce Yandle's bootlegger and Baptist framework to function. While their discussion suggests that political entrepreneurship is mostly unproductive or destructive however, our discussion of the political entrepreneur here suggests that he can also aid in the creation of private local self-governance solutions to commons problems. Such solutions are not purely extractive, because they facilitate cooperation outside of a framework of established property rights regimes.

We combine this insight regarding the importance of political entrepreneurship for the solution of local self-governance problems with the literature on rent-extraction. The theory of rent extraction suggests that politicians are players in the political game and can extract benefits from private individuals and special interest groups by threatening specific regulation². We argue here that political entrepreneurs, motivated by the prospect of private gain, will create public goods only to be able to extract rents in the process of solving the commons problems associated with the public goods they created. They

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¹ See Holcombe (2002) or Sutter (2002) for a more detailed definition of political entrepreneurship.

² See Fred S. McChesney (2003) for a more detailed discussion of rent extraction.

are similar to McChesney's (2003) rent extracting politicians, because both our entrepreneur and McChesney's politician use the political process to extract private gain. Unlike McChesney's politicians, however, our entrepreneurs do not threaten specific industries with detrimental regulation to extract monetary rents.

In the following sections, we first describe our theory of extractive political entrepreneurship and its role in the solution of commons problems in more detail. In the sections that follow, we use the example of the creation of a bike-sharing program at Utah State University to illustrate our theory of extractive political entrepreneurship. Section 3 describes bike-sharing programs more generally and section 4 describes the details of our case study. The last section concludes.

1. Overcoming commons problems in theory

Mancur Olson (1965) asserts that while some individuals within a group will have sufficient incentives to comply with a group's goals, many will not. *"Indeed, unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in the common interest, rational, self-interested individuals will not act to achieve their common or group interest"* (p. 2). *"Only a separate and "selective" incentive will stimulate a rational individual in a latent group to act in a group-oriented way"* (p. 51).

When these selective incentives are not systematically put in place, some individuals will choose to free ride or extract more than their proportional share of the benefits from the group's action. In that case, the group's common activity will be underfinanced and overused. Garret Hardin (1968) explained that in the absence of such institutions individuals pursue their immediate, short-run interests and a 'tragedy of the commons' is the long-run outcome.

The problem that Olson and Hardin identified almost 50 years ago is what seems to have plagued bike rental programs around the world. They are subject to overuse and generally underfinanced. However, highly profitable private car rental businesses suggest that the renting out of capital resources itself does not necessarily result in an insurmountable commons problem. When private companies choose to punish for some specific aspect of a rentals care, renters usually comply. For example, most car rental companies charge a significant premium for refueling, if the vehicle is returned with less than a full tank. Consequently, most renters respond rationally and make sure they fill up before returning the car. While punishing is not the only way to achieve conformity in this situation, it is one method of providing the requisite incentives for individuals who would otherwise act to undermine

the efficient solution. The selective incentives internalize the externality of common use and create property rights over specific aspects of a good that did not previously exist.

Another mechanism that prevents excess use and is always present in the private market place is to have individual renters bear the full costs of their activity. When rentals are given out on a free or subsidized basis, renters do not bear the full cost of any activity they undertake with the rental. Even if they can be held accountable for any damage done to the rental, they only internalize the liability cost that accrues from misuse or neglect. Only if individuals can be held accountable for the full cost of their use of the resource will they face the requisite incentive that encourages self-selection of individuals who are not just looking for a free ride but are actually interested in the real benefits of the resource (Buchanan, 1967). Many rental programs have made progress simply by charging some kind of a fee and having an improved checkout system (Midgley, 2009).

Private companies can fully capture all of the benefits from solving such commons problems associated with rentals. They, therefore, have a large incentive to do so. Commons problems associated with true public goods on the other hand are harder to overcome. The benefit to the individual user from solving the commons problems associated with true public goods is too small to provide the requisite incentive.

Elinor Ostrom (1990) asserts that the tragedy of the commons associated with public resources can be avoided only if the right kinds of institutions are in place. The specific design of such institutions varies with local circumstances. She suggests furthermore that efficient local self-governance institutions are emergent and discovered in a slow trial and error process. The emergence of the right kind of local self-governance institutions, in Ostrom's framework, is subject to one or more of the following five variables: "1 – the total number of decision makers, 2 – the number of participants minimally necessary to achieve the collective benefits, 3 – the discount rate in use, 4 – similarities of interests, and 5 – the presence of participants with substantial leadership or other assets" (Ostrom, 1990, p. 188). Variable number 5 suggests that individual leadership abilities can be a variable that affects whether or not a CPR problem is successfully overcome. We extend Ostrom's framework and suggest that for the efficient solution of any commons problem, the presence of a public entrepreneur who is incentivized by private gain to discover efficient solutions to commons problems is not just sufficient, it is necessary. Our hypothesis is that solutions to specific commons problems can only emerge if there is a

public entrepreneur, who can discover an efficient solution because of his alertness to public goods problems and the specific local circumstances more generally. We assert that just as entrepreneurship is required for change in the private market place¹, public entrepreneurship is also the crucial factor that makes public governance solutions emerge.

The incentive that drives the entrepreneur in the market place to discover errors and act to bring about a new, economically more efficient distribution of resources is the pure profit opportunity. What equivalent mechanism is at work in the public sphere that guarantees the economically efficient solution of a commons problem? Israel Kirzner suggests that public officials are “not subject to the entrepreneurial profit incentive.” If the profit motive that inspires the discovery of more efficient solutions is absent in the public sphere, how can public entrepreneurship contribute to the solution of commons problems? James Buchanan’s work on constitutional rule formation helps us answer this question. Buchanan and Vanberg (1996) suggest, “Any entrepreneur who organizes co-operative arrangements of whatever sort is, in a real sense, also a constitutional entrepreneur.” They continue by suggesting that “as one moves from collective choice among alternative constitutions to collective choice among constitutional experts to, finally, individual choice among alternative constitutional arrangements, not only are the informational requirements for an intelligent choice dramatically reduced, but the individual’s incentives for making an informed choice significantly increase” (Buchanan & Vanberg, 1996, 47 ff).

This explanation of constitutional entrepreneurship suggests that there is a continuum of organizational forms from purely private to purely public. If we agree with this assessment rather than with Kirzner’s description of a clear dividing line between public and private forms of organization, then the incentives for the discovery of pure profit opportunities might decrease along this continuum but there is not a clear cut dividing line between private and public incentives or the existence or absence of entrepreneurial opportunities². In other words, Ostromian public entrepreneurs can discover pure arbitrage opportunities in the semi-public realm and develop local self-governance institutions to realize these profit opportunities. They might do so less frequently because of the increasingly difficult informational requirements and the lower proba-

bility of the existence of the required incentives, but the existence of a pure profit opportunity in the public realm is not logically precluded³.

Given this understanding of public entrepreneurship, we can formulate the following hypothesis.

Hypothesis: Commons problems will be overcome, if public entrepreneurs discover solutions that allow them to extract private rents in the process of implementing their solution.

Rent extraction opportunities are pervasive in environments characterized by commons problems, because solving such problems goes hand in hand with the internalization of negative externalities. When the negative externalities of overuse are internalized, the cost of providing the public good for the individual who previously already contributed decreases because now more people share in the cost of providing the good. At the same time, the benefits the individual contributor reaps from the use of the public good increase, because there are no longer free riders. If a public entrepreneur can successfully solve a commons problem, he will attempt to do it in such a way as to extract at least some of the benefits of the internalization of the underlying externalities for himself. In the following two sections, we explore the possibility of this type of extractive public entrepreneurship using the example of bike-sharing programs more generally and the Aggie Blue Bikes program at Utah State University more specifically.

2. Bike problems as a response to a commons problem turn into a commons problem

Numerous universities and cities have begun to experiment with bike sharing programs. According to Midgley (2009) there are currently bike-sharing systems operating in 78 cities and 16 countries using around 70,000 bicycles (p. 23). The growing popularity of cycling and the purported benefits from it fuel these programs (Pucher & Buehler 2005). These bike-sharing programs have offered many different services but common to all of them is a system where a person is allowed to use a bicycle that does not belong to them. This has been done through a variety of different ‘check-out’ systems. Despite the fact that these programs have been attempted in a variety of settings and under a variety of conditions, most programs share a common result: financial unsustainability.

¹ Entrepreneurs in the private market place are alert and discover errors in the current distribution of resources. They act to remove the discovered arbitrage opportunity, which allows them to capture pure profits. See Kirzner (1973) for a more detailed discussion of the contribution of private entrepreneurship to the market process.

² Richard Wagner (2007) constructs a similar framework of a more integrated public-private sphere.

³ Boettke, Coyne, and Leeson (2006) make a similar point about the possibility of profit opportunities in the public realm. They suggest however that the existence of profit opportunities in the public realm doesn’t imply that public entrepreneurship results in increased economic efficiency. Rather, such opportunities might lead to increased political efficiency, in which case public entrepreneurship will not systematically result in improved self-governance solutions.

Most programs are justified by their professed positive externalities and are provided as a common property, free of charge, or at little cost to the renter in order to produce more of the desired outcome. This lack of income from the rentals, in addition to the usually higher than estimated costs of vandalism and maintenance, leads nearly all of these programs to be financial black holes that are simply unsustainable.

One of the first bike-sharing programs that has been publically observed and critiqued was the Berry Bikes program at Berry College in Mount Berry, Georgia. In the October 1999 issue of Freeman Magazine, Dan Alban and Frank Stephenson explain how the Berry Student Government allocated funds to purchase 20 bicycles to create a system of convenience bikes to be given out on a 'first-come, first-serve' basis. The goal of the program was to enable students who did not have bicycle on campus to use a bicycle temporarily to get from one end of campus to the other. The school set aside funds to purchase 20 Schwinn Cruiser bicycles at \$190 each. Despite the fact that the bikes were clearly marked with an identifying plate and that the student body was inundated with information about their purpose, after just two months four bikes were lost or stolen and 11 were in a state of disrepair. It was clear that the Berry Bikes program producing a 75% causality rate was financially unviable.

More recently, the University of Southern Mississippi's bike-sharing program lasted only one week before most of the 17 bikes it began with were missing (Walters, 2008, p. 1). The school's Office of Sustainability that organized their program opted for a system of first-come first-serve checkouts similar to that the Berry Bikes program had used. Larry Lee, Chief Sustainability Officer, is quoted as saying: "I can't lie and tell you that I'm not disappointed. We didn't expect it to happen so quickly – or people to blatantly disregard the rules of the program" (Walters, 2008).

Bike-sharing programs are not confined to colleges and universities. Local governments in cities across the world are also attempting to make the programs work. The City of Green Bay, Wisconsin attempted to implement a program for two consecutive years in 2008 (Gomez, 2008) and 2009 (Stephenson, 2009). Both years resulted in dozens of stolen and damaged bikes, which are creating budget concerns. Other cities have seen varying degrees of success depending on their structure.

The Paris Velib bike program is among the largest attempts at providing bicycles in this way. The city of Paris initially funded the project in 2007 and ambitiously supplied it with a fleet of 10,000 bikes, which has recently expanded to 20,000. Under the

Velib system, renters subscribe to an unlimited number of rentals. They check out bikes from automated rental stations using registered credit or debit cards. Bikes can be taken for free for the first 30 minutes and require only a nominal payment for use after that. The unfortunate headline for this project, displayed by the New York Times, reads "*Vandalism Vexes Paris Bike-Rental System*" (Kurczewski, 2009). There are also numerous YouTube videos¹ featuring individuals practicing a new pastime they have dubbed "Velib extreme" where they film themselves vandalizing the bikes by jumping the bikes and riding them down stairs.

Common to all of these programs is the stated goal of resolving negative externality problems associated with high population-density living, i.e., traffic on campus or on the way to work in a large city, or bad air quality as a result of high vehicle density and use. Yet none of the myriad of programs has increased the rate of bicycle use and each has inadvertently created a commons problem of their own regarding the bikes they were renting out. Using the case study of the Aggie Blue Bikes program at Utah State University, we argue in the following that this newly created commons problem represents an opportunity for private rent extraction for the entrepreneur who can successfully implement a solution to the bike-sharing commons problem.

3. Aggie Blue Bikes – extracting private rents through public entrepreneurship

In 2005, a Utah State University undergraduate, began researching bike-sharing programs and decided that USU needed a bike-sharing program. An avid bike enthusiast, he felt that there are so many positive externalities and benefits to riding bicycles that the University should actively encourage more students to ride bicycles. After reviewing past bike-sharing programs, the student developed a system that he felt would overcome the commons problem and be financially viable. His strategy involved three main differences from past programs. First, he felt the Aggie Blue Bikes² program (ABB) needed to have a diversity of funding sources. Second, he felt a system of long-term checkouts with a strict liability contract would incentivize renters to take proper care of the bikes. Finally, the student felt that the management needed to be paid employees instead of neglected and unreliable volunteers or student politicians.

Funding was the first issue that needed to be taken care of if ABB was going to be successful. He and

¹ http://www.youtube.com/watch?v=afE44cHNkEg&eurl=http://www.bikingbis.com/blog_archives/2009/2/9/4087228.html.

² All information on the Aggie Blue Bikes program was gathered through personal communication by the author.

the other founders of the program immediately began petitioning multiple sources for funding. Through the Utah Conservation Corps, ABB began writing grant proposals to AmeriCorps and various other government agencies requesting funds. Utah State University also made numerous donations to the program, including an easy to access location on campus. Beyond these voluntary donations, public grants, and direct federal subsidies through the AmeriCorps program, the student also began work on a student fee that could provide long-term dedicated funding. Working through the AmeriCorps program and other government stimulus programs and coupled by donations of second hand but still-working bicycles from the community the program raised the initial funding necessary to begin the program¹. Because large governmental and charitable contributions provided sufficient funding and in line with some over-arching moral belief, ABB decided to not charge individuals for the use of the bikes or any of its other services. DeMaio (2009) asserts that most programs need to be run in this manner since “(the) agency’s top priority is to provide a successful public transport service, rather than generating revenues” (p. 4). This makes the ABB program similar to the majority of other programs in that they are very dependent on outside funding.

Even with diverse funding sources, if ABB failed to incentivize renters to care for the bikes no reasonable amount of funding would be sufficient to cover the costs of maintenance and replacement that other failed programs had witnessed. The student’s vision for how to overcome the accountability dilemma described earlier involved a contract based long-term checkout system that could better incentivize renters to care for the bikes and hold them accountable for damage done to the bikes. Instead of just providing bikes for a quick trip or a day, like for example with the Paris Velib bike program, the ABB program decided to rent the majority of their bikes out for an entire semester. This was done with a contract that the renter had to sign which indicated that they would be charged for any damage done to the bike beyond normal wear and if the fee for damage were not paid, a hold would be placed on the student’s records at the university².

The final problem that the student’s research revealed was that many of the failed programs had managers and employees who had no ‘skin in the game’ and were usually volunteers who derived non-monetary utility from working for the pro-

grams. Further, it was clear that without longer-term stability the program could easily become as problematic as those at other Universities. He began with partial university funding for each employee (28%) and the rest coming from AmeriCorps. Because of this funding support, ABB was able to hire employees at the competitive market rate and did not have to rely solely on altruistic yet unreliable volunteers.

The student entrepreneur found quickly that this system of employee compensation had a major flaw, however. It only allowed for employment for a limited time since AmeriCorps paid volunteers are only allowed to work for a maximum of 3400 hours before their funding stops. Realizing that the future of the ABB program and more importantly his own employment could potentially be at stake, he also sought other options for further funding outside of AmeriCorps. Since ABB is a student-based system, he approached the student government of USU about possibly raising student fees by \$1 per student in order to raise enough funds to employ a full time USU employee to run the ABB system. This act of political entrepreneurship was not without its costs. The student entrepreneur and the supporters of the ABB programs worked hard to campaign and lobby the student government to get the issue on the ballot for the next student body election. Their efforts were initially successful in getting the fee increase on the ballot but unsuccessful in their attempt to get it passed. It was narrowly defeated by a vote of 1257 against and 1241 in favor.

Not one to become discouraged and having so much on the line himself, the student and the ABB supporters began to lobby for the initiative to be placed on the next ballot. Fortunately, for the ABB supporters the next ballot happened to be a special vote for a substantial fee increase for the athletics department. This provided them a powerful instrument on which to piggyback their initiative. A decision was made to change the proposed increase from \$1 to \$1.25 per student. Strong support for USU athletics in general and vigorous campaigning by nearly every athlete and fan in the school led to a 62% increase in turnout at the polls. The ABB measure was passed with 2897 in favor and 1079 against. Soon after the vote, the student entrepreneur was selected as the first USU full-time ABB employee and offered a full-time salary with generous benefits.

The more than gracious compensation that he was able to extract for himself represents the profit opportunity he had discovered, which incentivized him to pursue the creation of a bike-sharing program for Utah State University. His example suggests that public entrepreneurs can extract public resources in the process of finding solutions for

¹ The Edward M. Kennedy Serve America Act, became public law No: 111-13, <http://thomas.loc.gov/cgi-bin/bdquery/z?d111:H.R.1388>.

² Note that most of the other University-based bike-sharing programs discussed in the previous section have similar provisions that prevent students from graduating unless they pay for damages that they caused.

commons problems. If the commons problem that is solved existed before the entrepreneur got active in pursuing its solution, the creation of such self-governance institutions can be considered socially beneficial. However, in the case of the ABB program, the commons problem for which the public entrepreneur was able to find a solution did not exist before he became active. Instead, he created the commons problem only to then solve it and extract private rents in the process of doing so. The solution to the problem therefore came at the expense of a large share of the student body, which now pays \$1 extra in student fees to finance a program that benefits only a handful of students.

Conclusion

With a stolen or disrepair rate of just 6% over the past four years, the ABB system appears to work much more efficiently than other systems¹. This result has been achieved by creating a substantial incentive to care for the bike by assigning a temporary property right. The assignment of these rights is not a full assignment since the bike must be returned, but they seem to provide sufficient incentive for many of the renters to care for the bike. Further, the long-term nature of the rentals forces the renters to take those rights and liabilities associated with the bike more seriously than short-term rentals where the damage to the bike is likely to be borne by the next user. Instead, the longer-term rental requires that the liability for maintenance and care be largely internalized. In addition, the fact that failure to pay for any damage to a bike will result in a hold being placed on the student's transcript is an important incentive for student renters to care for the bikes they rent. Failure to pay for damages would essentially result in the student being unable to graduate. Similar provisions were also put in place by most other University-based bike-sharing programs and even the Paris Velib bike program held by the individuals who used their credit card to check out a bike responsible for damage that were caused during their rental. The mere fact that students cannot graduate without paying any fees for damages to the bikes can therefore not explain the difference in maintenance cost and viability between the ABB program and the other programs. This incen-

tive is furthermore limited to student renters and does not extend to faculty and staff renters who make up a large part of the renter pool².

To date, things appear to be going well for the ABB program. The bike rentals from ABB are in such high demand that the program cannot meet all requests with its current supply of bikes. The programs finances appear to be in order and it is, as of recently, not sustaining the huge losses from misuse and theft that have doomed past programs. Due to the relative efficiency of this type of system, there are now a number of programs worldwide that follow the same basic model as the ABB system and are attaining similar results. There is even a company that specializes in consulting and managing bike sharing systems for cities that are willing to put up the funding³. However, as sound as the ABB type program may seem it owes its existence to the actions of a political entrepreneur who arguably pursued its creation only for his own gain.

The example of the Aggie Blue Bikes program illustrates well that the opportunity for private rent extraction might be a prerequisite for the discovery of solutions to commons problems. It is doubtful whether the student that started the ABB program would have been able to extract the amount of resources he extracted, if he had initiated an unsuccessful bike-sharing program at Utah State University. His ability to solve the problems that so many other bike-sharing programs faced made it possible for him to extract large private benefits in the process of implementing the solution. Just as a successful solution to the bike problem was required for him to be able to extract rents, the potential for rent extraction was the incentive required to motivate the discovery of a solution.

Our paper points to a number of potential future research opportunities in the area of public entrepreneurship, which could focus on identifying private rent extraction opportunities that are associated with the solution of commons problems more formally using empirical methods.

¹ This stolen and disrepair rate does not take into consideration use. Since the program does not collect information on actual use from the renters, it is impossible to give a more accurate measure of the cost of maintenance relative to use. Note, however, that the numbers reported for other programs in section 3 are similarly limited and that the ABB program outperformed all other programs by a significant margin. Furthermore, lower use for the ABB rentals than for rentals under all other programs would actually support our argument since use of a resource with more developed property rights should, by definition, be less and less intensive than use of a common resource.

² Irrespective of the existence of the entrepreneur, another reason why the program may have been successful is that its organization is essentially collective, because it is financed by a collective fee system that is imposed on the student body. Any higher than expected cost of damages is passed on to all members of the student body. Even this type of collective action will suffer from a commons problem however, because the private cost of damage to a bike is always less than the social cost of the damage. Furthermore, this type of collective fee structure is not unique to the ABB program. All other bike-sharing programs discussed in section 3 are similarly financed through taxes or a collective student fee system. The collective nature of the system can therefore not be the factor that contributed to the solution of the commons problem in the ABB case.

³ MetroBike LLC <http://www.metrobike.net/index.php>.

References

1. Alban, D.L., Frank Stephenson (1999). "The berry bikes: a lesson in private property", *The Freeman*, 49 (10).
2. Buchanan, James (1967). *Public finance in democratic process: fiscal institutions and individual choice*, University of North Carolina Press, pp. 20-21.
3. DeMaio, P. (2009). "Bike-sharing: its history, models of provision, and future", Paper presented at the Velocity 2009 conference, Available at: <http://www.velo-city2009.com/assets/files/paper-DeMaio-Bike%20sharing-sub5.2.pdf>.
4. Frohlich, Norman, and Joe A. Oppenheimer (1978). *Modern Political Economy*, Engelwood Cliffs, New Jersey: Prentice Hall Inc.
5. Gomez, A. (2008). "No easy ride for bike programs", *USA Today*, Retrieved November, 30, 2009, http://www.usatoday.com/news/nation/2008-10-01-bikeprograms_N.htm.
6. Hardin, Garrett (1968). "The tragedy of the commons", *Science*, Vol. 162, No. 3859.
7. Hillman, A.L. (2003). *Public finance and public policy: responsibilities and limitations of government*, Cambridge University Press, U.K.
8. Holcombe, Randall G. (2002). "Political Entrepreneurship and the Democratic Allocation of Economic Resources", *Review of Austrian Economics*, 15 (2/3), pp. 143-159.
9. McChesney, Fred S. (1997). *Money for Nothing: Politicians, Rent Extraction, and Political Extortion*, Cambridge: Harvard University Press.
10. Midgley, Peter (2009). The role of smart bike-sharing systems in urban mobility, *Journeys*, May 2009, p. 23.
11. Olson, Mancur (1965). *The logic of collective action*, Harvard University Press, Cambridge, Massachusetts.
12. Ostrom, Elinor (1990). *Governing the commons: the evolution of institutions for collective action*, Cambridge University Press.
13. Pucher, John and Ralph Buehler (2005). "Cycling trends and policies in Canadian cities", *World Transport & Policy Practice*, 11 (1), pp. 43-61.
14. Simmons, Randy T., Ryan M. Yonk and Diana W. Thomas (2010). "Bootleggers, Baptists and Political Entrepreneurs: Key Players in the Rational Game and Morality Play of Regulatory Politics", *The Independent Review*, Winter 2010.
15. Stephenson, E.F. (2009). Open access bike programs – won't they ever learn? *Division of Labour*, Retrieved November 30, <http://divisionoflabour.com/archives/006012.php>.
16. Sutter, Daniel (2002). "The Democratic Efficiency Debate and Definitions of Political Equilibrium", *Review of Austrian Economics*, 15 (2/3), pp. 143-159.
17. Walters, L. (2008). "Eco eagles bikes missing after one week", *The Student Printz*, Retrieved November 30, 2009, <http://www.studentprintz.com/2.864/eco-eagle-bikes-missing-after-one-week-1.30471>.
18. Yandle, Bruce (1983). "Bootlegger and Baptists: The education of a Regulatory Economist", *Regulation*, May/Jun, pp. 12-16.