Report on the Research Agenda of the Massachusetts Gaming Commission

Prepared in collaboration with the UMASS Amherst Social and Economic Impacts of Gambling in Massachusetts (SEIGMA) Team

December 5, 2013

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Executive Summary

Background

Massachusetts Expanded Gaming Act

In November 2011, an [Act Establishing Expanded Gaming in the Commonwealth](#) was passed by the Legislature and signed by the Governor (Chapter 194 of the Acts of 2011). This new legislation permits casinos and slot parlors to be introduced to Massachusetts for the first time under the regulatory auspices of the newly created **Massachusetts Gaming Commission (MGC)**.   Three casino licenses are available, with one allocated for the Greater Boston area, one for Western Massachusetts, and one for Southeastern Massachusetts. A single license for a slot parlor is also available, with no geographic restriction as to its location.

Massachusetts Gaming Commission

The mission of the Massachusetts Gaming Commission is to create a fair, transparent, and participatory process for implementing the expanded gaming law. In creating that process, the Commission will strive to ensure that its decision-making and regulatory systems engender the confidence of the public and participants, and that they provide the greatest possible economic development benefits and revenues to the people of the Commonwealth, reduce to the maximum extent possible the potentially negative or unintended consequences of the new legislation, and allow an appropriate return on investment for gaming providers that assures the operation of casino-resorts of the highest quality.

MGC Research Mandate

Section 71 of the Gaming Act requires the Massachusetts Gaming Commission to establish **"an annual research agenda"** to assist in understanding the social and economic effects of casino gambling in Massachusetts and to minimize the harmful impacts. With the further requirement that the Commission and its statutorily-mandated Gaming Policy Advisory Committee make annual, scientifically-based recommendations to the Legislature, the new law is unique in enshrining the role of research in enhancing responsible gambling and mitigating problem gambling in Massachusetts. Section 71 identifies three essential elements of this research agenda:

- Understanding the social and economic effects of expanded gambling;
- Implementing a baseline study of problem gambling and the existing prevention and treatment programs that address its harmful consequences; and
- Obtaining scientific information relative to the neuroscience, psychology, sociology, epidemiology and etiology of gambling.

To oversee the research mandate, the Commission hired Mark Vander Linden as the Director of Research and Problem Gambling in June 2013. To additionally help guide the Commission and the Gaming Policy Advisory Committee on research matters, an informal Gaming Research Advisory Committee (GRAC) was convened at the direction of Chairman Steve Crosby and Director Vander Linden. The GRAC functions as an informal peer review committee to monitor research efforts currently under way as well as to make recommendations to advance the ongoing agenda.

Section 108 of Chapter 194 of the Acts of 2011 is a statutory requirement to submit a report of research activities conducted under Section 71 of chapter 23k of the General Laws not later than two years after

the effective date of the Act (November 22, 2011). **This is the Executive Summary of the Report on the Research Agenda of the Massachusetts Gaming Commission that fulfills the statutory mandate.**

Funding

Section 58 of the Gaming Act requires the Massachusetts Gaming Commission to establish a **Public Health Trust Fund**, which will be used to support social service and public health programs dedicated to addressing problem gambling, including prevention, treatment and research. This includes the annual research agenda required under Section 71 of the Gaming Act. However, the Public Health Trust Fund cannot be established and endowed until fees are assessed to gaming licensees and funds collected from taxes on gross gaming revenues.

Although the Public Health Trust Fund is not yet in place, Section 71 requires the MGC to conduct a Baseline Study of problem gambling prevalence and available treatment services as well as ongoing research on the social and economic impacts of gambling in the Commonwealth. Since the Baseline Study necessitates collecting data ahead of the granting of licenses, the MGC elected to spend significant resources of its own, $3.459 million, to fulfill this statutory requirement ahead of the establishment of the Public Health Trust Fund.

Utility of the Research Findings

The Massachusetts Gaming Commission is committed to fully understand the impacts of expanded gaming in the Commonwealth. The research findings will be essential in developing a strategy to minimize gambling-related harm and bring the greatest possible benefit to the people of the Commonwealth. These findings will:
- Inform how monies from the Public Health Trust Fund (Section 58) are expended;
- Assist in assessing community-level impacts and inform decisions about expenditures from the Community Mitigation Fund (Section 61);
- Improve problem gambling prevention;
- Advance the quality, effectiveness and efficacy of treatment of gambling disorders;
- Inform the ongoing MGC research agenda;
- Provide quantitative and qualitative assessments of a broad range of impacts of expanded gaming; and
- Provide all of the stakeholders in Massachusetts with a neutral database for strategic analysis and decision-making.

Research Team Selection Process

In November 2012, the MGC issued a Request for Response (RFR) for Research Services and received four responses. In March of 2013, the MGC selected UMass Amherst to carry out a comprehensive research agenda. The project, titled the Social and Economic Impacts of Gambling in Massachusetts will be referred to as SEIGMA throughout the rest of this Executive Summary.

The SEIGMA Research Team

The executive management of the SEIGMA team is comprised of experts in research methods and the gambling studies field. These experts include Dr. Rachel Volberg (Co-Principal Investigator), Associate Professor at the UMass School of Public Health and Health Sciences (SPHHS); Dr. Edward Stanek (Co-Principal Investigator), Professor and Chair of the UMass Department of Public Health; Dr. Robert Williams (Co-Principal Investigator), Research Coordinator at the Alberta Gambling Research Institute; and Daniel Hodge (Economic Impacts Lead), Director of Economic and Public Policy Research at the Donahue Institute.

The Executive Management Team collaborates with a larger group of researchers with backgrounds in economics and econometrics, gambling research, public health, statistical analysis, anthropology, psychology, sociology, public policy, and hospitality and tourism. Several team members have direct experience in both researching and conducting socioeconomic analyses of gambling. The SEIGMA team also collaborates with data collection organizations in Chicago, Western Massachusetts and Washington, DC.

SEIGMA Team Members contribute variously to four different facets of the project:

- Social and Health Impacts Analysis
- Economic Impacts Analysis
- Problem Gambling Services Evaluation
- Data Management

This Executive Summary is a synopsis of the progress the SEIGMA team has made in these areas to fulfill the activities and deliverables specified in the SEIGMA Research Plan. To obtain more information about the project or a copy of the full report, please visit the SEIGMA website at:
http://www.umass.edu/seigma/

The SEIGMA Approach to Studying the Impacts of Expanded Gaming

Features of the SEIGMA Project
All of the elements in the MGC research agenda are addressed using a collaborative orientation, a state of the art analytical framework, a mixed methods research strategy, and a comprehensive approach that establishes the impacts of casino gambling at state, regional, and local levels. Data from both primary and secondary sources will be collected, including:

- General Population Surveys (primary)
- Online Panel Surveys (primary)
- Targeted Sample Surveys (primary)
- Focus Groups and Key Informant Interviews (primary)
- Venue Surveys (primary and secondary)
- Economic Impact Data (primary and secondary)
- Social Impact Data (primary and secondary)
- Problem Gambling Services Evaluation (primary and secondary)

Activities to Date

Social and Health Impacts Analysis
- Developed and pre-tested a questionnaire for the general population survey, online panel survey, and targeted population survey;
- Received Institutional Review Board (IRB) approval of the questionnaire and all survey materials;
- Translated the questionnaire into Spanish and converted both language versions to an online format, computerized telephone format, and paper and pencil format;
- Launched the General Population Survey on September 11, 2013;
- Launched the online survey on October 23, 2013;
- Created a matrix of social measures and health services utilization indicators for analysis; and

- Met on a regular basis with the Massachusetts Department of Public Health to discuss secondary data sharing efforts and collaboration.

Economic and Fiscal Impacts Analysis
- Created a detailed matrix of the range of measures that will be collected, tracked, monitored and presented over the course of this multi-year project;
- Coordinated data collection methods, shared database development, and documentation with the Social and Health Impacts Team; and
- Began collecting secondary data across all the measures presented in the data matrix, and organizing the data for integration into the project's data management center.

Problem Gambling Services Evaluation
- Created a study protocol and a questionnaire for treatment providers and obtained approval from the UMass Amherst IRB;
- Established a Memorandum of Understanding (MOU) between UMass and the Massachusetts Council on Compulsive Gambling (MCCG) to establish guidelines for sharing, reviewing, and analyzing helpline and online chat data; and
- Initiated review of de-identified data on helpline calls for analysis.

Data Management
- Established procedures for receiving, reviewing, preparing, and accessing data; and
- Created a public website (http://www.umass.edu/seigma/) to highlight research activities and related content of interest.

Next Steps

Social and Health Impacts Analysis
- Once the location of the slot parlor has been determined, launch the Baseline Targeted Population ABS Slot Parlor Community Survey;
- Once the location of the casinos has been determined, Baseline Targeted Population ABS Casino Community Surveys will begin;
- One year after all of the casino locations have opened, the Follow-up General Population ABS Survey, Online Panel Survey and the Follow-up Targeted Population ABS Surveys will begin; and
- Continue collecting and analyzing secondary data on social indices and health services utilization throughout the course of the study.

Economic and Fiscal Impacts Analysis
- Six months after the new slot parlor opens, begin collecting government data and gambling venue data from the slot parlor;
- Six months after each of the casinos has opened, l begin collecting government data and venue data from casinos;
- Six months after each of the casinos has opened, conduct Gambling Employee Surveys, Patron Surveys, and License Plate Surveys.

Problem Gambling Services Evaluation
- In January 2014, begin the baseline evaluation of existing problem gambling treatment and prevention programs;
- Using the results of help-line calls analysis, report utilization trends of helpline and online-chat services and describe caller characteristics.

Data Management
- Hire a Web Designer, who will maintain the website and design future additions to it.

Recommendations for Future Research Activities

The current cross-sectional research agenda, while robust in many regards, can only provide a population-based "snapshot" of the dynamic processes of behavior change during a time of gaming expansion. A longitudinal cohort study that follows a group of people with a shared experience (exposure to expanded gaming) at intervals over time can provide detailed etiological information about how gambling and problem gambling develops, progresses, and remits. This information has significant value as it highlights risk and protective factors important in the development of prevention, treatment, and recovery support services.

On October 21, 2013 the MGC with the advice of the GRAC recommended to the Gaming Policy Advisory Committee that a longitudinal cohort study be added to the MGC Research Agenda. To capitalize on an opportunity to collect prospective baseline information in advance of expanded gaming in the Commonwealth, the MGC recommended that the cohort study be launched in the near future and well in advance of slot parlor operations. The Gaming Policy Advisory Committee voted unanimously to support this recommendation.

Introduction

Background

Massachusetts Expanded Gaming Act

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The mission of the Massachusetts Gaming Commission is to create a fair, transparent, and participatory process for implementing the expanded gaming law. In creating that process, the Commission will strive to ensure that its decision-making and regulatory systems engender the confidence of the public and participants, and that they provide the greatest possible economic development benefits and revenues to the people of the Commonwealth, reduce to the maximum extent possible the potentially negative or unintended consequences of the new legislation, and allow an appropriate return on investment for gaming providers that assures the operation of casino-resorts of the highest quality.

The Commissioners and all of its employees are committed to a set of **core values**:

- We value an unyielding commitment to a participatory, transparent and fair process for the licensing of expanded gaming in Massachusetts
- We value an environment with a free-flowing and open exchange of ideas in which all are encouraged to question and participate, with the understanding that all will use their best efforts to implement the resulting decisions
- We value an uncompromising commitment to the integrity of the licensing and regulatory process, and strict adherence to the letter and spirit of our Enhanced Code of Ethics, with a thoughtful balance between the need for rigorous regulation and the burden of compliance
- We value a diverse workforce and supplier base, and an inclusive culture internally and among our partners in the Massachusetts Gaming Industry
- We value a deep commitment to customer service that assures a respectful and professional experience for all with whom we come in contact, no matter their point of entry or point of view

MGC Research Mandate

Section 71 of the Gaming Act requires the Massachusetts Gaming Commission to establish "an annual research agenda" to assist in understanding the social and economic effects of casino gambling in Massachusetts and to minimize the harmful impacts. With the further requirement that the Commission and its statutorily-mandated Gaming Policy Advisory Committee make annual, scientifically-based recommendations to the Legislature, the new law is unique in enshrining the role of research in enhancing responsible gambling and mitigating problem gambling in Massachusetts.

Section 71 identifies three essential elements of this research agenda:

- The first is "**to understand the social and economic effects of expanded gambling**". Although there have been hundreds of socioeconomic impact studies of gambling (Williams, Rehm, & Stevens, 2011), almost all of these studies were initiated *after* gambling had already been introduced. The present situation provides a rare opportunity to establish a pre-casino baseline and to conduct world-class research on the true economic and social impacts of casino gambling in Massachusetts.
- Investigating the socioeconomic impacts of casino gambling requires a comprehensive baseline of the pre-casino levels of the social and economic indices that could be potentially impacted. This includes the baseline level of problem gambling.[1] This fits well with the second element of MGC's research agenda which is to implement a "**baseline study of … problem gambling … and the existing programs … that prevent and address the harmful consequences of problem gambling.**" Associated with this mandate is the requirement "to examine the current research as to the causes for problem gambling and the health effects of problem gambling and the treatment methods currently available in the commonwealth."
- The final element of MGC's research agenda is to commission independent studies to **"obtain scientific information relative to the neuroscience, psychology, sociology, epidemiology and etiology of gambling."** This involves facilitating "individual studies conducted by academic institutions and individual researchers … to study topics which shall include … (i) reward and aversion, neuroimaging and neuroscience in humans, addiction phenotype genotype research, gambling-based experimental psychology and mathematical modeling of reward-based decision making; (ii) the sociology and psychology of gambling behavior, gambling technology and marketing; and (iii) the epidemiology and etiology of gambling and problem gambling in the general population." Collaboration among researchers both within Massachusetts and outside Massachusetts is encouraged. The ultimate goal of facilitating this type of broad-based research is to identify methods to enhance responsible gambling and mitigate the impacts of problem gambling in Massachusetts (similar to MGC's second mandate).

Section 108 of Chapter 194 of the Acts of 2011 is a statutory requirement to submit a report of research activities conducted under Section 71 of chapter 23k of the General Laws not later than two years after the effective date of the Act (November 22, 2011). This Report on the Research Agenda of the Massachusetts Gaming Commission fulfills this statutory mandate.

MGC Director of Research and Problem Gambling

To oversee the research mandate, the Commission hired Mark Vander Linden as the Director of Research and Problem Gambling in June 2013. Director Vander Linden has extensive experience in managing state systems to address gambling disorders. Prior to joining the Commission, he worked for the Iowa Department of Public Health where he directed the state Office of Problem Gambling

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[1] Various terms have been use to describe disordered gambling, including 'compulsive gambling', 'addictive gambling', 'problem gambling', and 'pathological gambling'. Problem gambling' has become the preferred term amongst researchers and most clinicians because it has fewer etiological connotations and because it is inclusive of less severe forms where the person has still suffered significant harm. (A search of Google Scholar shows that the term 'problem gambling' is now used in scholarly articles 8 times more frequently than either 'pathological gambling' or 'compulsive gambling'). The terms 'compulsive gambling' and 'pathological gambling' are now primarily used to refer to the most severe forms of problem gambling.

Treatment and Prevention and oversaw state-wide problem gambling treatment, prevention, workforce and research efforts. Additionally, Director Vander Linden has provided consultation and training on the development and improvement of problem gambling service systems throughout the United States. He serves on the Board of Directors of the National Center for Responsible Gaming and the Association of Problem Gambling Service Administrators.

Gaming Research Advisory Committee

To help guide the Commission and the Gaming Policy Advisory Committee on research matters, an informal Gaming Research Advisory Committee (GRAC) was convened at the direction of Chairman Steve Crosby and Director Vander Linden. The GRAC functions as an informal peer review committee to monitor research efforts currently under way as well as to make recommendations to advance the ongoing agenda. The GRAC convened initially on August 1, 2013 and again on September 18, 2013 and November 12, 2013.

Funding

Section 58 of the Gaming Act requires the Massachusetts Gaming Commission to establish a **Public Health Trust Fund**, which will be used to support social service and public health programs dedicated to addressing problem gambling, including prevention, treatment and research. This includes the annual research agenda required under Section 71 of the Gaming Act. However, the Public Health Trust Fund cannot be established and endowed until fees are assessed to gaming licensees and funds collected from taxes on gross gaming revenues.

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Utility of the Research Findings

The Massachusetts Gaming Commission is committed to fully understand the impacts of expanded gaming in the Commonwealth. The research findings will be essential in developing a strategy to minimize gambling-related harm and bring the greatest possible benefit to the people of the Commonwealth. These findings will:

- Inform how monies from the Public Health Trust Fund (Section 58) are expended;
- Assist in assessing community-level impacts and inform decisions about expenditures from the Community Mitigation Fund (Section 61);
- Improve problem gambling prevention;
- Advance the quality, effectiveness and efficacy of treatment of gambling disorders;
- Inform the ongoing MGC research agenda;
- Provide quantitative and qualitative assessments of a broad range of impacts of expanded gaming; and
- Provide all of the stakeholders in Massachusetts with a neutral database for strategic analysis and decision-making.

Research Team Selection Process

In October 2012, the MGC issued a Request for Information (RFI) and received six responses. In November 2012, the MGC followed up by issuing a Request for Response (RFR) for Research Services and received four responses, including a research team from the University of Massachusetts Amherst

(UMass). In January 2013, the MGC invited two teams, including the UMass team, to give oral presentations of their proposed research plans. In March of 2013, the MGC announced that the UMass Amherst team had been selected to carry out a comprehensive research agenda. The project, titled the Social and Economic Impacts of Gambling in Massachusetts will be referred to as SEIGMA throughout the rest of this report.

The SEIGMA Research Team

The executive management of the SEIGMA team is comprised of several experts in research and the gambling studies field. These experts include Dr. Rachel Volberg (Co-Principal Investigator), Associate Professor at the UMass School of Public Health and Health Sciences (SPHHS); Dr. Edward Stanek (Co-Principal Investigator), Professor and Chair of the UMass Department of Public Health; Dr. Robert Williams (Co-Principal Investigator), Professor at the University of Lethbridge and Research Coordinator at the Alberta Gambling Research Institute; and Daniel Hodge (Economic Impacts Lead), Director of Economic and Public Policy Research at the Donahue Institute.

The Executive Management Team collaborates with a larger group of eleven researchers and three research assistants with backgrounds in economics and econometrics, gambling research, psychology, public health, statistical analysis, sociology, public policy, and hospitality and tourism. Several team members have direct experience in both researching and conducting socioeconomic analyses of gambling. A table listing the members of the project team follows (see
Table 1). In addition to these individuals, three organizations will contribute to primary data collection efforts. These include NORC at the University of Chicago, which will lead primary data collection efforts for the SEIGMA study, Ipsos Public Affairs, which will lead the online survey panel component of the study, and Market Street Research, which will lead qualitative data collection once the venues open across the state.

SEIGMA Team Members contribute variously to four different facets of the project:
- Social and Health Impacts Analysis
- Economic Impacts Analysis
- Problem Gambling Services Evaluation
- Data Management

This report contains a summary of the progress the SEIGMA team has made in these areas to fulfill the activities and deliverables specified in the SEIGMA Research Plan.

Table 1 SEIGMA Research Team Members and Roles

Executive Team	
Dr. Rachel Volberg Adjunct Associate Professor Division on Biostatistics & Epidemiology Department of Public Health School of Public Health and Health Sciences University of Massachusetts (Amherst)	• Overall Team Leader • Co-Principal Investigator • Problem Gambling Treatment & Prevention • Team Member • Population Survey Team Member • Key Informant & Focus Group Team Member • Social and Health Impacts Lead (Analysis & Report Writing)
Dr. Edward J. Stanek III Professor and Chair Department of Public Health	• Co- Principal Investigator • Financial Management Lead

School of Public Health and Health Sciences University of Massachusetts (Amherst)	• Population Survey Team Member
Dr. Robert Williams Professor, Faculty of Health Sciences Research Coordinator, Alberta Gambling Research Institute University of Lethbridge (Alberta, Canada)	• Co-Principal Investigator • Population Survey Lead • Consultant to all Sub-Teams • Overall Synthesis Lead (Analysis & Report • Writing)
Daniel Hodge, M.A., MPP Director of Economic and Public Policy Research Donahue Institute, Office of the President University of Massachusetts	• Secondary Data (Economic Indices) Lead • Gambling Venue & Gov't Data Lead • Economic Impacts Lead (Analysis & Report Writing)
Expert Advisors	
Laurie Salame, J.D. Lecturer Isenberg School of Management Hospitality and Tourism Management University of Massachusetts (Amherst)	• Gaming Employee Survey Lead • Patron Survey Lead • License Plate Survey Lead • Gambling Venue & Gov't Data Team Member
Dr. Mark Nichols Professor College of Business Administration & Institute for the Study of Gambling and Commercial Gambling University of Nevada (Reno)	• Consultant to the Donahue Institute
Dr. Natasha Schull Associate Professor Program in Science, Technology, and Society Massachusetts Institute of Technology	• Key Informant Interviews & Focus Groups Lead
Project and Data Management	
Amanda Houpt, MPH SEIGMA Project Manager Department of Public Health School of Public Health and Health Sciences University of Massachusetts (Amherst)	• Project Manager
Martha Zorn, M.S. Biostatistician/Data Manager Division on Biostatistics & Epidemiology Department of Public Health School of Public Health and Health Sciences University of Massachusetts (Amherst)	• Data Manager
Social and Health Impacts Analysis	
Dr. Krishna C. Poudel Associate Professor Community Health Education Division School of Public Health and Health Sciences University of Massachusetts at Amherst	• Problem Gambling Treatment & Prevention Lead
Dr. Rosa Rodriguez-Monguio Associate Professor Health Policy and Management Division	• Secondary Data (Social Indices) Lead

School of Public Health and Health Sciences University of Massachusetts at Amherst	
Economic and Fiscal Impacts Analysis	
Carrie Bernstein, M.P.P.A. Senior Research Analyst Donahue Institute Office of the President University of Massachusetts	• Secondary Data (Economic Indices) Analysis
John Gaviglio, BBA State Data Center Manager Donahue Institute Office of the President University of Massachusetts	• Secondary Data (Economic Indices) Analysis
Lindsay Koshgarian, M.P.P. Research Manager Donahue Institute Office of the President University of Massachusetts	• Secondary Data (Economic Indices) Analysis
Becky Loveland, M.R.P. Senior Research Manager Donahue Institute Office of the President University of Massachusetts	• Secondary Data (Economic Indices) Analysis

Features of the SEIGMA Project

The multidisciplinary, Massachusetts-based team addresses all three of the elements contained in the MGC research agenda using a collaborative orientation, a state of the art analytical framework, a mixed methods research strategy, and a comprehensive analysis that establishes the impacts of casino gambling at state, regional, and local levels. The team will collect data from both primary and secondary sources. *Primary data* is information gathered directly by the research team while *secondary data* is gathered by a public or private source, such as the Census Bureau or the Massachusetts Department of Revenue. The sources from which the team will collect data include:

- General Population Surveys (primary)
- Online Panel Surveys (primary)
- Targeted Sample Surveys (primary)
- Focus Groups and Key Informant Interviews (primary)
- Venue Surveys (primary and secondary)
- Economic Impact Data (primary and secondary)
- Social Impact Data (primary and secondary)
- Problem Gambling Services Evaluation (primary and secondary)

Taken together, the elements of this research plan form the basis for a first-of-its-kind gambling monitoring system that will provide stakeholders in Massachusetts with a neutral database for strategic analysis and decision-making, generate early warning signs of changes in the social and economic impacts associated with new and existing forms of gambling in the Commonwealth, and aid in refining services for problem gamblers.

The SEIGMA Approach to Studying the Impacts of Expanded Gaming

Theoretical Framework

Williams, Rehm, and Stevens (2011) have established a set of principles for measuring the social and economic impacts of gambling. The SEIGMA team has used this theoretical framework to guide their research agenda. The principles of the Framework are as follows:

- Measure impacts rather than costs and benefits.
- Comprehensively assess all potential economic and social impacts.
- Avoid applying arbitrary monetary values to non-monetary impacts.
- Apply basic economic principles to evaluate the positive or negative nature of economic impacts.
- Recognize that assessing overall nature of the observed impacts is sometimes a qualitative assessment that often involves some subjectivity.
- Identify how much money is involved, where it is coming from, and where it is going.
- Establish both the micro and macro geographic impacts.
- Compare changes to those observed in control communities/regions.
- Speculate on what the situation would have been without the introduction of the new form of gambling.
- Assess impacts for years before and for years after the introduction of new gambling venues/opportunities.
- Report the limitations and parameters of these results.

Activities to Date

Social and Health Impacts Analysis

Primary Data Collection

SEIGMA Principal Investigators developed a questionnaire for the general population survey, online panel survey, and targeted population survey. The questionnaire for the General Population Survey, Online Panel Survey, and Targeted Survey was extensively reviewed, edited, and pre-tested by the SEIGMA Research Team, NORC at the University of Chicago, and Ipsos Public Affairs. The questionnaire and all of the survey materials were included in ethics protocols submitted to and approved by the NORC Institutional Review Board and the University of Massachusetts Amherst Institutional Review Board. After approval by both ethics boards, the questionnaire was translated into Spanish and both English and Spanish language versions were converted to an online format, computerized telephone format, and paper and pencil format. The General Population Survey was launched on September 11, 2013. Currently, NORC is ahead of its anticipated target for survey completion. The online survey was launched on October 23, 2013.

Secondary Data Collection

The Social and Health Impacts Team crafted a refined set of social measures and health care services utilization indicators for analysis. The team also met with representatives from the Massachusetts Department of Public Health to discuss secondary data sharing efforts and collaboration. Additionally, the team created a matrix of social measures and health indicators to be collected.

Economic and Fiscal Impacts Analysis

The Economic and Fiscal Analysis team began by crafting a refined set of economic/fiscal measures for the research study. They have worked extensively on creating a detailed matrix of the full range of economic/fiscal measures that will be collected, tracked, monitored and presented over the course of

this multi-year project. Additionally, the Economic and Fiscal Impacts Team has worked closely with the Social and Health Impacts Team to coordinate data collection methods, shared database development, and documentation. This has included multiple meetings to present and discuss data collection and documentation efforts to date. The Economic and Fiscal Analysis team has discussed various options defining regions that surround the host communities, with emphasis on the most appropriate regional definition for economic impacts related to the labor market, suppliers, and consumer spending. Furthermore, the Economic and Fiscal Analysis team has begun collecting secondary data across all the measures presented in the data matrix and is organizing and documenting the data for a seamless integration into the project's data management center.

Problem Gambling Services Evaluation

The Problem Gambling Services Evaluation Team created a study protocol and a questionnaire for treatment providers. These materials were submitted in an application to the UMass Amherst Institutional Review Board (IRB). The study protocol has been approved by the IRB. The team also established a Memorandum of Understanding (MOU) between UMass and the Massachusetts Council on Compulsive Gambling (MCCG) to establish guidelines and roles to facilitate review and analysis of helpline and online-chat services.

Data Management

The Data Management Team established procedures for receiving, reviewing, preparing, and accessing data. They also created a public website to highlight research activities and related content of interest.

Next Steps

Social and Health Impacts Analysis

Primary Data Collection

Once the location of the slot parlor has been determined, the SEIGMA team will launch the Baseline Targeted Population ABS Slot Parlor Community Survey. Similarly, once the locations of casinos have been determined, Baseline Targeted Population ABS Casino Community Surveys will begin. One year after all of the casino locations have opened, the Follow-up General Population ABS + Online Panel Survey and the Follow-up Targeted Population ABS Surveys will begin.

Secondary Data Collection

The Social and Health Impacts Team will continue collecting and analyzing secondary data on social indices throughout the course of the study.

Economic and Fiscal Impacts Analysis

Six months after the new slot parlor opens, the Economic and Fiscal Impacts Team will begin collecting government data and gambling venue data from the slot parlor. Six months after each of the casinos has opened, the Economic and Fiscal Impacts Team will begin collecting government data and venue data from casinos. They will also conduct Gambling Employee Surveys, Patron Surveys, and License Plate Surveys at that time.

Problem Gambling Services Evaluation

After obtaining IRB approval, the Problem Gambling Services Evaluation Team will develop an online survey and invite treatment providers in Massachusetts with problem gambling treatment certification to complete the questionnaire. The Evaluation Team is also in the process of obtaining de-identified data on helpline calls from MCCG for analysis. Using the results of their analysis, the investigators plan to report utilization trends of helpline and online-chat services and describe the characteristics of

callers, geographic locations of callers, common days and times of service utilization, common gambling types and venues used by callers, and the reasons callers contacted service providers.

Data Management

A SEIGMA public website went live on November 6, 2013. The Data Management Team is currently in the process of hiring a SEIGMA Web Designer, who will maintain the site and design future additions to it.

Master Schedule

See page 12 for a copy of the Master Schedule of Research Agenda activities.

Massachusetts Gaming Commission / 2013-11-08 Research Agenda Schedule
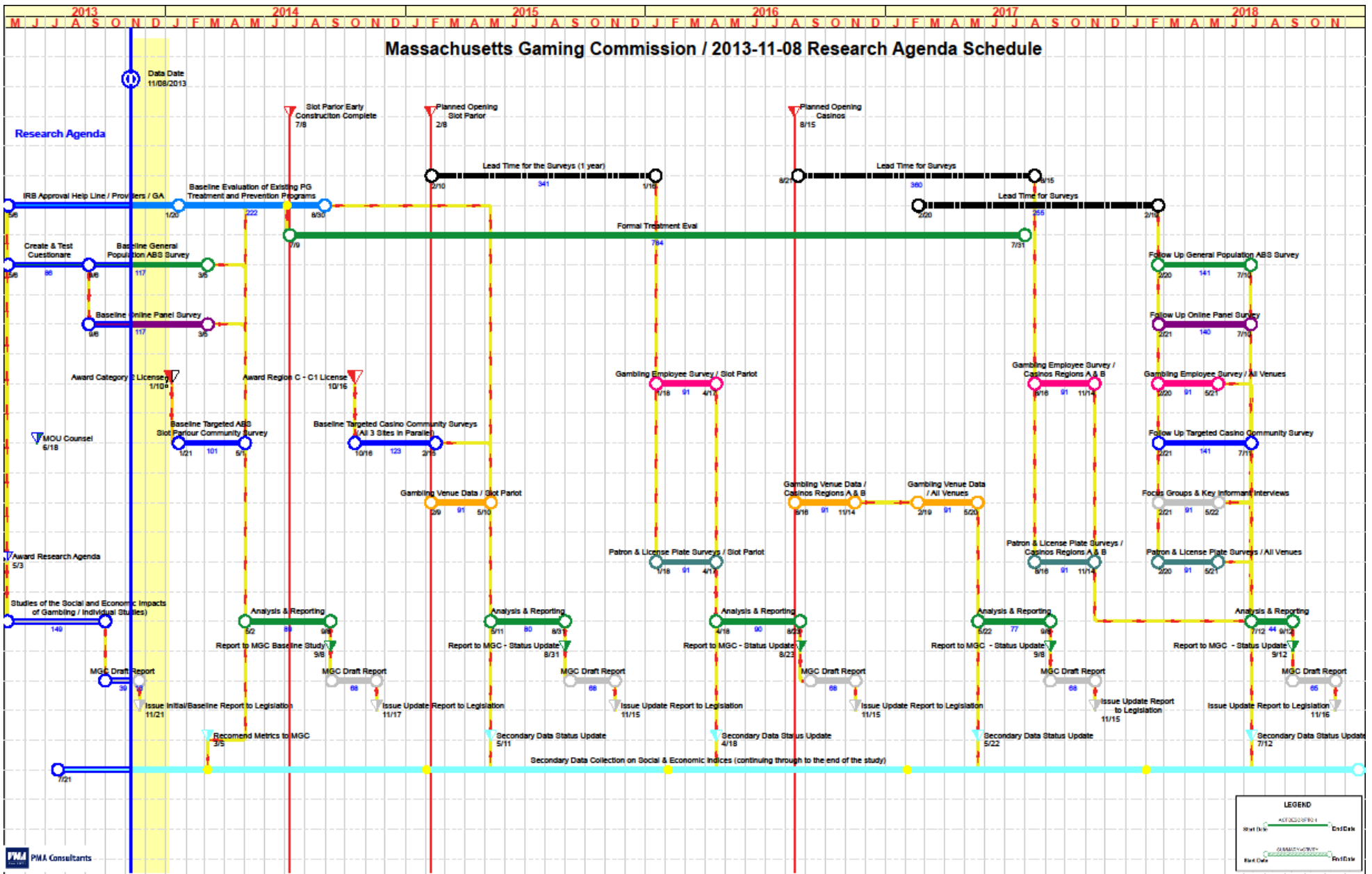
Outline of Report

Following an Executive Summary, this report is organized into four sections: social and health impacts analysis, economic and fiscal impacts analysis, problem gambling services evaluation and data management. Each section contains an introduction to the team of researchers working on each topic, an overview of their approach, a discussion of methodological considerations and data sources, a summary of their progress to date and next steps. The report closes with a timeline of future SEIGMA activities and a set of recommendations for future research activities, with a focus on planning a cohort study of gambling and problem gambling.

Social and Health Impacts Analysis

Primary Data Collection (Population Surveys)

Purpose

The SEIGMA Research Team is collecting primary data through population surveys that will uniquely capture several aspects of information relevant to the impact of expanded gambling in Massachusetts (see Table 2 for a list of measures and data sources to be collected):

- One of these is public **attitudes**. An argument can be made that the general public's current support or non-support of gambling (and the introduction of new casinos) is as important as its objective beneficial or detrimental effects.

- **Current gambling behavior** of the general public is another critical piece of information that can only be determined through population surveys. To understand the impacts of gambling, it is necessary to know who patronizes the various forms of gambling; where they live; what specific games they spend their money on; how much they spend; how frequently they gamble; and whether they have developed problems as a result of their gambling. This data is directly relevant to the nature and magnitude of gambling impacts; the demographic features of these impacts (age, gender, ethnicity, socioeconomic class); their geospatial distribution; and how impacts vary as a function of game type.

- Current gamblers' reported **motivations for gambling** shed light on whether people are engaging in this activity for entertainment, to make money, to escape problems, or for other reasons.

- The perceived value of **gambling as recreational activi**ty will be assessed by asking people to rate how important it is to them and whether it has replaced other leisure pursuits.

- **Awareness of existing efforts to prevent problem gambling** will be captured.

- The SEIGMA team will also assess the overall population **prevalence of problem gambling**, a particularly important impact of gambling. Two instruments will be used for this purpose: the Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001) and the Problem and Pathological Gambling Measure (PPGM) (Williams & Volberg, 2010, 2013). Worldwide, the CPGI is currently the most common instrument for the assessment of problem gambling (surpassing both the South Oaks Gambling Screen and the DSM-IV criteria for pathological gambling)

(Williams, Volberg, & Stevens, 2012). The PPGM is a relatively new instrument with superior sensitivity, positive predictive power, diagnostic efficiency, and overall classification accuracy compared to the CPGI, DSM-IV, and SOGS (Williams & Volberg, 2010, 2013).

- In assessing problem gambling the SEIGMA team will also ask questions that will serve an important triangulating function in establishing the **discrete social and health impacts of gambling** (many of which will also be assessed in our secondary data collection). Whenever a gambler reports financial problems deriving from their gambling, they receive an additional question about gambling-related bankruptcy. Similarly, if they report committing illegal acts because of their gambling, they receive several additional questions asking about type of crime, conviction, incarceration, etc. If they report mental health problems deriving from their gambling, they are asked additional questions about suicide attempts. If they identify relationship problems deriving from gambling, they are asked additional questions about domestic violence, separation and divorce, and child neglect. The data obtained in this matter allow for much stronger association with gambling behavior than our secondary data, as the person is making a direct attribution that the behavior occurred *because* of his/her gambling. These data are also not limited by the need to detect the behavior (i.e., crime). Assuming that the sample is large enough and representative of the population, the figures obtained can be projected to the entire population to obtain an estimated state-wide rate for each index.

- Of final note, the associated **comorbidities** (i.e., the simultaneous presence of more than one diagnosis, disease or condition in an individual) of gambling and problem gambling in the areas of health, mental health, and substance use will also be assessed.

Table 2 Social and Health Impacts Measures—Primary Data Collection

Primary /Secondary	Category	Measure	Geography	Source
Primary	Problem gambling and related Indices	Prevalence of problem gambling	Municipality, County, State	Population Survey, Key Informants, Focus Groups
		Treatment provision	Municipality, County, State	Treatment and Prevention Provider Survey, Key Informants, Focus Groups
	Leisure activity	Percentage of populace who gamble	Municipality, County, State	Population Survey, Key Informants, Focus Groups, Patron Surveys, License Plate Surveys
		Demographic characteristics of gamblers	Municipality, County, State	Population Survey, Key Informants, Focus Groups, Patron Surveys, License Plate Surveys
	Employment	# people directly employed by casinos	Venue	Employee Surveys, Gambling Venue Operators
	Attitude	Toward impacts of future venues	Municipality, County, State	Population Survey, Focus Groups
		Toward impacts of established venues	Municipality, County, State	Population Survey, Focus Groups
		Toward gambling generally	Municipality, County, State	Population Survey, Focus Groups
		Toward further expansion	Municipality, County, State	Population Survey, Focus Groups
	Social capital and values	Perceived social capital	Municipality, County, State	Population Survey, Key Informants, Focus Groups
		Personal values	Municipality, County, State	Population Survey, Key Informants, Focus Groups
	Environmental	Environmental attributes (e.g., noise, traffic congestion, etc.)	Municipality, County, State	Population Survey, Key Informants, Focus Groups

Methodological Considerations

An important consideration in population surveys is that the obtained sample is **representative of the population.** This can only occur if everyone in the population has an equal chance of being sampled. Traditional landline random digit dialing no longer accomplishes this due to the fact that an estimated 15% to 45% of households only have cell phones (21% in Massachusetts) (Blumberg, Luke, Ganesh, Davern, & Boudreaux, 2012). A related concern is the decline in response rate to telephone surveys that has occurred in the past ten years (Massey & Tourangeau, 2013; Peytchev, 2013; Volberg, 2007; Williams et al., 2012).

Door-to-door interviews conducted in households that are randomly selected on the basis of geography are one approach that has been used to address these issues. While door-to-door surveys do typically achieve higher response rates than telephone surveys, they have problems of their own. For one, they are several magnitudes more expensive. For another, their response rates have also declined significantly in the past 10 years. However, the most serious problem is that the methodology does not work well in jurisdictions where a significant portion of the population lives in multi-family dwellings (i.e., apartment or condominium complexes). These dwellings are often excluded or under-sampled in household surveys, as getting access to these buildings can be very difficult (especially for non-government agencies). Because residents of multi-family dwellings are much more likely to be in lower

income groups, this can create a systematic sampling bias, as low income groups have significantly higher rates of pathology, including problem gambling (Williams et al., 2012).[2] In Massachusetts the most recent U.S. Census found that 41.8% of households lived in multi-unit structures, which is significantly higher than the U.S. average of 25.5%.

In the present study, UMass has contracted with the Boston office of NORC at the University of Chicago (NORC) to administer an **Address-Based Sampling (ABS)** methodology, which typically achieves higher response rates than telephone sampling (reducing the potential for bias) but without the same degree of problems associated with a pure door-to-door methodology.   ABS is a relatively new approach that has been made possible by the recent development of a comprehensive listing of most residential addresses in the United States by the U.S. Postal Service (Iannacchione, 2011).[3] A random sample of addresses is first selected. These addresses are then matched with landline telephone numbers (to the best extent possible). The next step is to mail a letter with a monetary incentive that identifies a website where the survey can be taken online. People who do not respond are sent a hard copy of the questionnaire along with return postage. Everyone who fails to complete the survey via mail or online and whose household has been matched with a landline telephone number is then called and given the opportunity to complete the survey over the phone or reminded of the online option. This overall approach is called a web -> mail -> telephone approach. Under this data collection approach, approximately 50% of interviews are anticipated to be completed by web, 35% by mail, and 15% by phone (with an overall response rate ~45%).

A second important methodological consideration in population surveys is that they **contain a sufficient sample size** for the purposes of estimating (a) the prevalence of problem gambling with some degree of confidence; (b) the levels of gambling-related harm associated with problem gambling; (c) whether changes from one survey to the next are attributable to chance; and (d) regionally specific impacts.

After comprehensive analysis of the rates in 202 studies that have ever assessed problem gambling prevalence, with particular attention to rates in recent provincial and state surveys, the SEIGMA team estimates that the current past year prevalence rate of problem gambling in Massachusetts is likely in the **1% to 2%** range (and will likely increase to some extent after the new gambling venues open). Such a low prevalence rate makes it very difficult to detect statistically significant changes from Baseline to Post-Opening. As illustrated in the table below, a doubling of rates can be detected with as few as 1,826 people. However, based on prior research (Williams, Rehm, & Stevens, 2011), the state-wide increase in the problem gambling rate is more likely to be in the 25% to 50% range, which could require up to 22,006 people in order to detect statistical significance. The sample size would have to be three times higher to detect changes in each of the three regions.

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[2] Low income households (particularly in impoverished neighborhoods) also tend to have lower response rates with door-to-door surveys.

[3] There is comprehensive coverage of urban residences, but less comprehensive coverage of rural addresses and people living in group quarters (dormitories, army barracks, etc.) (Iannacchione, 2011).

Table 3 Sample Size Required at Each Time Period to Detect Significant Changes in PG Prevalence

25% change		50% change		100% change	
1.0% to 1.25%	22,006	1.0% to 1.5%	6,104	1.0% to 2.0%	1,826
1.5% to 1.875%	14,587	1.5% to 2.25%	4,043	1.5% to 3.0%	1,208
2.0% to 2.5%	10,877	2.0% to 3.0%	3,013	2.0% to 4.0%	899

One-sided test, with alpha = .05 and power = .80

A sufficient sample size of problem gamblers in the population surveys is also needed to conduct some other important analyses. One analysis mentioned earlier is to identify the impact of problem gambling on persons who are problem gamblers, such as the proportion who report bankruptcy, report committing gambling-related crimes, attempt suicide, divorce/separate, etc. These proportions can then be used to estimate the impact of problem gambling in the Massachusetts population. A second planned analysis is to conduct logistic regressions to identify the demographic, game play, and comorbidity variables that maximally differentiate problem gamblers from non-problem gamblers in Massachusetts. Both of these endeavors require that several hundred problem gamblers be included in the sample.

If a mid-range prevalence rate of 1.5% at Baseline is assumed, then it would require a sample size of 13,333 people to identify 200 problem gamblers. If a mid-range change (1.5% to 2.25%) in region-wide problem gambling from Baseline to Post-Opening is assumed, then a sample size of 4,043 x 3 regions = 12,129 would be required.

To address these sample needs, the SEIGMA team has planned for three separate samples administered at different times as follows:

Table 4: Survey Sampling Strategy

	General Population ABS	General Population Online Panel	Targeted Population ABS	Total
Sep 2013 – Feb 2014	10,000	5000		15,000
Dec 2013 – Feb 2014			1,000	
~Apr 2015			3,000	4,000
Nov 2017 – Apr 2018	10,000	5000	4,000	19,000

During the current Baseline Phase of this study, the SEIGMA team is conducting a **General Population ABS** sample of 10,000 people. The four counties in Western Massachusetts are being oversampled to ensure they make up 25% of the sample rather than the 12% of the population that they constitute.

This is supplemented by a **General Population Online Panel** sample of 5,000 people administered by Ipsos Public Affairs. Online panels, in which people are recruited and then asked to respond to a number of survey requests regularly, are gaining prominence and are now commonly used in market

research, and increasingly in academic studies (Goritz, 2007; Göritz, Reinhold, & Batinic, 2002).[4] Online panels are composed of tens of thousands (sometimes hundreds of thousands) of individuals who have agreed to receive email solicitations to participate in various online surveys in return for compensation (usually a collection of points that have some cash value). Sociodemographic and behavioral information is collected from participants so that the panel can be stratified to match the sociodemographic characteristics of a particular jurisdiction.

The advantages of online panel surveys are that (a) the validity of answers to "sensitive questions" (e.g., gambling) tends to be higher in self-administered formats (Tourangeau & Smith, 1996; van der Heijden, Van Gils, Bouts, & Hox, 2000); (b) everyone has agreed to be and expects to be contacted (unlike most population surveys); (c) the results can be obtained in a much shorter period of time; and (d) they are roughly one-third the cost of telephone surveys.

However, online panels have some problems. The main issue is the non-representative nature of the online panel population. Despite a rapid increase in the proportion of people who use the Internet, a minority of people do not have online access. These individuals are not randomly distributed in the population; they tend to be older, with lower educational attainment and household incomes (Zickuhr, 2013).   Furthermore, although online panelists are carefully structured to be demographically representative in terms of age, gender, and geographic residence (and sometimes education, income, and other basic demographic variables), other important differences have been found to exist (as might be expected considering that only a very small minority of people invited to be part of an online panel agree to participate; Sparrow, 2006). One of the SEIGMA Co-Principal Investigators (Williams) has conducted four separate investigations that have compared data obtained from a random sample of online panelists within the jurisdiction to a comparable random sample of people contacted via random digit dialing. In all four studies, the overall rates of substance use, mental health problems, and addictions were significantly higher in the online panel, which also produced significantly higher rates of problem gambling (4.6% versus 2.1% in Alberta in 2008; 5.6% versus 3.1% in Alberta in 2009; 11.4% versus 1.0% in South Korea in 2011; 8.3% versus 1.0% in Ontario in 2011).

Hence, because of their imperfect representativeness, online panels cannot be used to establish precise estimates of population prevalence (the General Population Survey will be used for this purpose). However, the much higher "yield" of people with problem gambling in online panels does provide larger samples to investigate issues specific to problem gamblers (i.e., social impacts profile of problem gamblers and characteristics differentiating problem gamblers from non-problem gamblers). This is how the online panel sample will be used in the present study (i.e., given a problem gambling prevalence rate of 6.0%, then a sample of 5,000 individuals should yield 300 problem gamblers). Depending on their similarity or dissimilarity to the problem gamblers identified in the General Population Survey, these problem gamblers may be analyzed separately (to replicate the ABS sample results) or potentially combined with the ABS sample.

The third and final sample consists of a **Targeted Population ABS** sample of 1,000 people within a geographically limited radius of each of the four localities where the new venues will be located. The specific geographic radius for each community will be determined once each community is confirmed

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[4] As described below, the Massachusetts Council on Compulsive Gambling administered an Online Panel survey in Oct/Nov 2012 (*n* = 1,054) to assess attitudes toward problem gambling and problem gambling services in Massachusetts.

and it is possible that the radii may be different between communities. The Targeted Population surveys will be administered approximately six months to one year prior to the projected opening of the venues and these "baselines" will be compared to an identical targeted survey of 1,000 people in each of these communities at least one year after all four venues have opened, coincident with the General Population ABS and the General Population Online Panel surveys (anticipated to be in late 2017 and early 2018).

The purpose of the Targeted Population ABS survey is to ensure that there is a sufficient sample size in the host and surrounding communities where the new venues will be located to potentially identify *community specific* impacts. Community-specific impacts include, but are not limited to, patronizing the new venue, obtaining employment at the new venue, and effects of increased traffic, crime and demands on local services. Because the Baseline Population Survey will not contain a sufficient sample of people in several of the communities that could receive the new venues, the SEIGMA Research Team will conduct the supplemental Target Population ABS survey with a random sample of 1,000 people living within a designated radius of each gaming venue. The most recent research on the socioeconomic impacts of casinos shows that the bulk of the impacts tends to occur within a 5 or 10 mile distance of new venues (Williams, Belanger, & Arthur, 2011; Williams, Rehm, & Stevens, 2011). However, given the unique geospatial characteristics of the different potential host and surrounding communities, final decisions about the radius to use in randomly selecting residents for the Targeted Surveys will depend on the licensing decisions of the MGC.

Other MA Surveys

There are three additional sources of information about gambling and problem gambling in the Massachusetts population. These include a module of five questions added to the 2012 Brief Risk Factor Surveillance Survey (BRFSS); an online panel survey conducted by the Cambridge Health Alliance Division on Addictions and funded by the National Center for Responsible Gaming (Nelson, Kleschinsky, LaPlante, Gray, & Shaffer, 2013); and an online panel survey funded by the Massachusetts Council on Compulsive Gambling (Massachusetts Council on Compulsive Gambling, 2013). One concern is how to account for likely differences in estimates of gambling participation and problem gambling prevalence across these different studies.

Table 5 Features of MA Gambling Surveys

	CHA-DOA Panel	MCCG Panel	2012 BRFSS	SEIGMA
Sample size	511	1,054	~15,000	10,000
Sample source	GfK Knowledge Networks	Survey Sampling International	Random Digit Dialing	Address Based Sampling
Survey mode	Web-based	Web-based	Telephone (landline & cell)	Web, mail, telephones matched to addresses
Description to respondents	Not provided in published report	'Gambling' survey	'Health' survey	'Health & recreation' survey
Criterion for asking PG items	Past year gambling	Past year gambling	Past year lottery or 'bet in other ways'	Past year gambling
Problem gambling measure	AUDADIS-IV (16 items)	SOGS (20 items)	BBGS (3 items)	CPGI (9 items) PPGM (18 items)

As the table above makes clear, each of the surveys has unique features that will make direct comparisons with the SEIGMA Baseline Population Survey difficult. These include differences in sample source, survey modality, how the survey is described to respondents, the cutoff for asking questions

about gambling difficulties, and the problem gambling measure. Each of these features has a substantial impact on identified problem gambling prevalence rates (Williams & Volberg, 2009, 2010, 2013).

The vast majority of problem gambling prevalence surveys have used telephone administration, been described to respondents as "gambling" surveys, and used any past year gambling as the criterion for eligibility for the problem gambling questions. In Massachusetts, only the BRFSS used telephone administration; the two panel studies used online administration; and the SEIGMA Baseline Population Survey is using a multimode approach including online administration, postal questionnaires and telephone administration. The questionnaire was variously described as a "gambling" survey, a "health" survey, and as a "health and recreation" survey to respondents in the different studies.   While past-year gambling was used as the criterion for eligibility for the problem gambling questions in all of the studies, the BRFSS questionnaire included only two questions about lottery participation and "other" kinds of betting. Finally, each of the studies included a different problem gambling screen.

While there is some overlap in the problem gambling measures used in the different studies, there are also significant differences. The South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) is made up of 20 items based on the DSM-III diagnostic criteria for pathological gambling. The AUDADIS-IV is made up of 16 items that map onto the 10 diagnostic criteria from the DSM-IV (Petry, Stinson, & Grant, 2005) while the BBGS is composed of three items drawn from the AUDADIS-IV (Gebauer, LaBrie, & Shaffer, 2010). While the CPGI (Ferris & Wynne, 2001) and the PPGM (Williams & Volberg, 2010, 2013) include many items similar to either the SOGS or the DSM-IV, neither measure precisely replicates the wording of items in the other screens.

The SEIGMA team intends to address the question of differences in problem gambling estimates across the surveys in two ways. First, problem gambling items in the different surveys that are worded similarly will be identified and endorsement rates for these items across studies and within important demographic groups (i.e., gender, race/ethnicity, younger and older adults) will be examined. Second, weighting factors that have been developed to adjust for the main methodological elements influencing obtained problem gambling prevalence rates will be used to assess the congruence of prevalence rates obtained across the four Massachusetts gambling surveys (Williams, Volberg, & Stevens, 2012).

Progress to Date and Next Steps

Two of the SEIGMA Co-Principal Investigators (Volberg and Williams) developed a questionnaire for use in the general population survey, online panel survey, and targeted population survey. Following this, the SEIGMA Research Team extensively reviewed, edited, and pre-tested the questionnaire for the NORC ABS General Population Survey, Ipsos Online Panel Survey, and NORC Targeted Survey. Once finalized, the questionnaire was translated into Spanish and both English and Spanish language versions were converted to an online format, computerized telephone format, and paper and pencil format. The General Population Survey was launched on September 11, 2013. The Online Panel Survey was launched on October 23, 2013. As of November 26, there were 4631 completed interviews in the General Population Survey and 1506 completed interviews in the Online Panel Survey. Data collection for both the General Population Survey and the Online Panel Survey is expected to be completed by March 2014.

Once the location of the slot parlor has been determined, the SEIGMA team will launch the Baseline Targeted Population ABS Slot Parlor Community Survey. Similarly, once the locations of casinos have been determined, Baseline Targeted Population ABS Casino Community Surveys will begin. One year after all of the casino locations have opened, the Follow-up General Population ABS and Online Panel

Survey and the Follow-up Targeted Population ABS Surveys will begin. A timeline of all future SEIGMA research activities can be found on page 49 of this report.

Secondary Data Collection

Purpose

A team of researchers from the UMass School of Public Health and Health Sciences (SPHHS) is leading secondary data analysis of the social and health impacts of expanded gaming in Massachusetts for the SEIGMA project. The Social and Health Impacts Team selected two secondary data sources for analysis. The first of these is the Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) datasets from 2007-2012, which contains state-added sections related to suicide, cognitive impairment and gambling. These sections are particularly relevant to the social and health impact analysis of the expansion of gambling in Massachusetts. The second of these is the Center for Health Information and Analysis (CHIA) Case Mix Datasets, which are maintained by the Health Care Financing Division.

The objectives of the social and health impacts secondary data analysis are twofold:
- To measure and track changes in social and health measures over time.
- To identify risk factors for gambling and gambling-related comorbidities and associations across study measures.

This section of the report describes the social and health data research plan, and the measures and health indicators that will be collected and tracked over time. This section also includes a detailed description of each of the available secondary data sources, highlighting the strengths and limitations of each source. Finally, the section briefly describes the research methodology, including the research design, sampling strategy, data collection procedures and analysis plan for assessing the social and health impacts of gambling.

Background

Several previous studies have assessed the social and economic impacts of problem and pathological gambling (Lesieur, 1998; Thompson, Gazel, & Rickman, 1996; Volberg, Moore, Christiansen, Cummings, & Banks, 1998). Studies have found that males have a higher risk of developing gambling-related disorders (Blanco, Hasin, Petry, Stinson, & Grant, 2006; Desai & Potenza, 2008). Racial/ethnic disparities also exist for developing gambling-related disorders with African Americans, Native Americans and Asians having higher overall gambling prevalence rates than Whites or Hispanics (Alegria et al., 2009; Johansson, Grant, Kim, Odlaug, & Götestam, 2009; Potenza, Kosten, & Rounsaville, 2001; Welte, Wieczorek, Tidwell, & Parker, 2004). Problem gambling is associated with marital status and family structure; being separated, widowed or divorced, and having lower levels of social support are associated with increased prevalence of gambling (Afifi, Cox, Martens, Sareen, & Enns, 2010; Petry, Stinson, & Grant, 2005). Additionally, increased educational attainment is associated with reduced risk of developing gambling-related disorders (Scherrer et al., 2007) while unemployment and low socioeconomic status are associated with increased risk for developing gambling-related disorders (Johansson et al., 2009; Potenza et al., 2001; Welte et al., 2004). Lesieur (1998) found that between 69% and 76% of pathological gamblers have missed work at some point in order to gamble. Various studies in his review found that 21% to 36% of gamblers in treatment have attributed a lost job to their gambling problems. These studies suggest that gambling addiction has a strong impact on the quality of life of family members and friends (Wenzel, Øren, & Bakken, 2008).

Studies have also found that pathological and problem gambling is correlated with lower overall health and elevated rates of illness (Lesieur, 1998). For example, 34% of pathological gamblers reported that they were in poor or fair health, while 14% of low-risk gamblers reported poor or fair health. Another research study has estimated that annual health care expenditures are $750 higher for pathological gamblers, with an estimated annual expenditure of about $3,800 per capita (Grinols, 2007).

Psychiatric comorbidities are common among pathological gamblers. The most prevalent gambling-related mental and physical health comorbidities include nicotine and alcohol consumption, substance use and misuse, and mood, anxiety and personality disorders (Ibañez et al., 2001; Johansson et al., 2009; Petry et al., 2005). There are also gender disparities in the risk for developing gambling-related comorbidities ; male pathological gamblers are more likely to drink or smoke heavily (Blanco et al., 2006) while female pathological gamblers are more likely to have co-occurring mood and anxiety disorders (Blanco et al., 2006). Female problem and pathological gamblers have a higher overall prevalence of major depression, dysthymia, panic disorder, and nicotine dependence (Desai & Potenza, 2008).

Finally, increased availability of gambling venues is associated with increased numbers of problem gamblers (Ladouceur, Jacques, Ferland, & Giroux, 1999; Raylu & Oei, 2002; Welte et al., 2004) with casino gambling associated with the highest risk for developing gambling related comorbidities (Welte et al., 2004).

Methodological Considerations

The Social and Health Impacts Team has worked extensively to create a detailed matrix of the full range of social measures and health indicators that will be collected, tracked and analyzed over the course of this multi-year project (Table 6). For each data-driven measure, the matrix includes information about the specific data source, metrics, geographic level of coverage, and source. The Social and Health Impacts Team has worked closely with the Economic and Fiscal Impacts Team at the UMass Donahue Institute to coordinate data collection methods, shared database development, and documentation.

Secondary Data Collection and Tracking

The Social and Health Impacts Team will use three main datasets for the social and health impact secondary data analysis:

- American Community Survey
- Behavioral Risk Factor Surveillance System
- Acute Hospital Case Mix Database

Each survey provides annual estimates for selected measures by specific geographies (e.g., number of women in Suffolk County). Individual measures have been subdivided into two principal classifications; (1) social impact, and (2) health impact.

The American Community Survey (ACS) provides individual and population-level data on communities across the United States. The ACS includes social, economic, housing, and demographic data (e.g. educational attainment, family structure, income level, and labor force and poverty status). In addition, the ACS includes data related to social welfare programs and health insurance coverage.

The 2011 ACS for the state of Massachusetts includes 69,009 individuals representing approximately 1% of the total population of the state living in 31,684 households. The data is representative of the population. Results from the ACS are disseminated on an annual basis. ACS data is available through 2011 and accessible on-line.

Table 6 Social and Health Impacts Measures—Secondary Data Sources

Primary /Secondary	Category	Measure	Geography	Source
Secondary	Problem gambling and related Indices	Treatment/prevention costs	State	Massachusetts Council on Compulsive Gambling
		Personal bankruptcy rates	State	US Bankruptcy Courts: Bankruptcy Abuse Prevention and Consumer Protection Act
		Suicide rates	County, State	CDC - Vital Statistics; Behavioral Risk Factor Surveillance System
		Divorce rates	Census area, State	American Community Survey
		Marriage rates	Census area, State	American Community Survey
		Demographics (age, race, ethnicity, sex)	Municipality (some), County, State	American Community Survey US Census Bureau; CDC -Vital Statistics
		Veteran status	Census area, State	American Community Survey
		Household (Household type; average household and family size; percentage of householders living alone)	Census area, State	American Community Survey
		Health status (Disability; immunization; women's health; body mass index; mental health status)	Municipality, County, State	Behavioral Risk Factor Surveillance System
		Co-morbidities (Arthritis; asthma; cardiovascular disease; cholesterol awareness; colorectal cancer screening; diabetes; hypertension awareness; oral health; prostate cancer)	Municipality, County, State	Behavioral Risk Factor Surveillance System
		Income (Household income; family income; retirement income; self-employment income; public assistance income; supplementary security income; social security income; yearly food stamps)	Census area, State	American Community Survey
		Child welfare involvement rate	To be determined	To be determined
	Crime	Crime rates	To be determined	To be determined
		Cost of gambling-related crime	To be determined	To be determined
	Leisure activity	Other leisure activities	To be determined	To be determined
	Employment	Employment and unemployment rates	Census area, State	American Community Survey
		Labor force participation	Census area, State	American Community Survey

Housing	Owner-occupied vs. rental unit ratio	To be determined	To be determined
	Multi-unit housing and mobile homes	To be determined	To be determined
Education	School enrollments	Municipality, County, State	Massachusetts Department of Elementary and Secondary Education (ESE)
	Education attainment	Census area, State	American Community Survey
	Demand for specific services (e.g., ESL)	Municipality, County, State	Massachusetts Department of Elementary and Secondary Education (ESE)
Socio economic inequality	Poverty rate	To be determined	U.S. Bureau of the Census - Population Survey
	Personal income	To be determined	Bureau of Economic Analysis
	Disposable income	To be determined	Bureau of Economic Analysis
	Health insurance type	To be determined	American Community Survey; MA All Payer Claims Database
Public health	Health care services utilization and cost of gambling related co-morbidities (Inpatient;, outpatient and ED provision of health services and charges)	To be determined	Commonwealth of Massachusetts - Acute Hospital Case Mix Database; MA All Payer Claims Database
	Health care facilities	To be determined	MA Employment and Training Administration (ETA); BLS Quarterly Census of Employment and Wages (QCEW)
	Health care professionals	To be determined	MA Employment and Training Administration (ETA); BLS Quarterly Census of Employment and Wages (QCEW)
	Social welfare programs and unemployment insurance	To be determined	US Social Security Administration; US DHHS, Agency for Children and Families; US and MA DOL, Employment and Training Administration
Quality of life	Happiness and life satisfaction	Municipality, County, State	Behavioral Risk Factor Surveillance System
	Health habits (Self-reported physical activity; fruits and vegetables consumption; tobacco & alcohol consumption)	Municipality, County, State	Behavioral Risk Factor Surveillance System
	Perception of health status	Municipality, County, State	Behavioral Risk Factor Surveillance System
	Perception of mental health status	Municipality, County, State	Behavioral Risk Factor Surveillance System

   The Behavioral Risk Factor Surveillance System (BRFSS) provides individual and population-level data including; demographic information, comorbidities , health behaviors, health care coverage, health status, mental illness, perceptions of health/health-related quality of life, and suicide. The BRFSS also includes data related to gambling prevalence and associated familial, financial, and mental health impact. The BRFSS is a nationwide annual telephone survey of approximately 400,000 adult individuals aged 18 and older. Each State conducts its own telephone interviews using Random Digit Dialing (RDD) of landlines and, as of 2011, cell phones. In 2011, the size of the landline sample in Massachusetts was 20,482 and the cell phone sample size was 1,836. A standardized questionnaire is utilized, with optional modules. The questionnaire is comprised of fixed core (every year) and rotating core (every other year)

questions and individual states may add additional questions. The Commonwealth of Massachusetts has elected to add additional questions related to gambling to the BRFSS since 1999.

In 2011, the CDC made significant changes to the methodology used to collect data for the BRFSS. This change in methodology means that trend analysis cannot be done using survey data from 2010 and earlier with data from 2011 and later.

BRFSS provides state-level data, in addition to data for selected metropolitan and micropolitan statistical areas (MSAs) with 500 or more survey respondents. In Massachusetts, reports are available for the cities of Boston, Springfield, Worcester, Lawrence, Lowell, New Bedford, and Fall River.

The **Acute Hospital Case Mix** database includes cost data by payer source for specific diagnostic and procedural codes. Data are specific to acute care settings at the inpatient, emergency department, and outpatient level. In Massachusetts, acute-care hospitals report patient-level data to the Center for Health Information and Analysis (CHIA). Information is collected on a quarterly basis and made available on a fiscal year basis. The data is contained in three databases; (1) an emergency department database, (2) an inpatient discharge database, and (3) an outpatient observation database. Each database contains comprehensive patient-level data, including sociodemographic characteristics, services provided, and related charge data. Other data elements include hospital and practitioner information. Files are specific to each database and fiscal year (i.e. October 1st through September 30th).

Rationale for Selecting Secondary Data Sources
Several other state and federal data sources are available for describing the demographic features of communities in Massachusetts. Federal datasets include the US Bureau of the Census Population Division's annual estimates of the population and the Centers for Disease Control and Prevention's (CDC) Vital Statistics System, including the CDC WONDER database. State data sources include the Commonwealth of Massachusetts' Vital Statistics System, and marriage and divorce publications, which aggregates marriage certificate registrations and certifications of divorce. Although these alternative data sources could serve the various purposes of the social and health impact analysis of gambling in Massachusetts, each possesses limitations that hinder the SEIGMA Research Team's ability to accurately detect changes in social and health indicators over time.

For example, Census data is well suited to measure and track demographic changes in Massachusetts communities over time because it is a representative sample of the State's population. The US Census Bureau's Population Division offers detailed estimates of the population by age, race, ethnicity, and sex. However, little data is available beyond these metrics. As a result, researchers would need to link data at the population level with other census and survey-based data to identify associations. Survey respondents and census data would not include the same individuals across datasets which would affect the accuracy of the identified associations.

For the purpose of creating snapshots of communities or tracking trends in death, marriage, and divorce metrics, the CDC and Massachusetts Vital Statistics Systems could be a useful source of information. However, only the Federal CDC cause of death data is readily accessible to researchers. Unlike the CDC, Massachusetts does not have an online query system by cause of death. Death, marriage and divorce data are published in a series of annual reports. The inaccessibility of raw data is a major limitation for State-specific data sources. In addition, both the CDC and Massachusetts Vital Statistic Systems do not publish reports in the timely manner necessary to the study. For example, the ACS is current through 2011 while the CDC and Massachusetts Vital Statistics System datasets are only available through 2010.

Similar to the US Census Bureau's Population Division, researchers would also need to link data at the population level with other census and survey-based data to identify associations. Data sources would not include the same individuals which, again, could affect the accuracy of the analyses.

The Social and Health Impacts Team selected the ACS and BRFSS because they provide individual-level data that can be linked across all metrics in a dataset, allowing researchers to accurately assess specific features of the population and identify associations across study measures. Being able to link the same individuals across a breadth of relevant study variables will significantly reduce the complexity of the analyses. Using weights developed for the ACS survey data will allow the research team to make inferences about the population from a relatively small number of observations. To do this, the Social and Health Impacts Team will aggregate ACS data by specific population group. The team will apply published prevalence rates of gambling-related disorders (obtained through a literature review) to better understand the potential effects of expanded gambling on the development of gambling-related disorders in specific populations. ACS individual-level data will also allow the research team to further examine associations with social welfare programs and health insurance coverage. Similarly, the Social and Health Impacts Team will use BRFSS data to identify and analyze associations between gambling prevalence and other health-related comorbidities and health impact factors.

Lastly, the Social and Health Impacts Team selected the Acute Hospital Case Mix Database because it allows the research team to quantify the economic burden of specific gambling-related comorbidities. Gambling-related comorbidities will be identified through a literature review, codes for psychiatric disorders in the AHCM and analysis of the BRFSS data. These data will support analyses of such issues as health care services utilization and costs of gambling-related comorbidities in Massachusetts, cost and outcome disparities among acute care hospitals across the state, preventable hospitalizations and potential cost savings. Analysis of the AHCM will additionally elucidate the scope of treatment reimbursable by public and private insurers to provide a better understanding of the financial impacts of a potential increase in gambling-related disorders on social welfare and public health programs.

Progress to Date and Next Steps

The Social and Health Impacts Team participated fully in the two-day project kick-off meeting in late April. To date, the team has crafted a refined set of social measures and health care services utilization indicators for analysis. The team also met with representatives from the Massachusetts Department of Public Health to discuss secondary data sharing efforts and collaboration. Additionally, the team created matrix of social measures and health indicators to be collected. The Social and Health Impacts Team will continue collecting and analyzing secondary data on social and health care indices throughout the course of the study. A summary of future SEIGMA research activities can be found on page 49 of this report.

Economic and Fiscal Impacts Analysis

Purpose

This section of the report provides an update on the economic and fiscal impact research with a refined and more detailed plan than was presented in the SEIGMA proposal for data collection, measures of impact, and methodologies. This section of the report further defines and refines methodologies, and refines key measures for the economic and fiscal analysis by the SEIGMA research team.

The objective of the economic and fiscal analysis plan is to measure and assess the economic and fiscal impacts of casino facilities[5] at the local, regional, and state level through primary and secondary data collection in addition to the creation of estimates. The research will assess how the introduction and ongoing operations of new casino facilities impact economic and fiscal conditions including government finance, business dynamics, and labor market conditions. The plan includes tracking and quantitatively assessing a wide range of economic and fiscal metrics. Data to be collected and analyzed will include a variety of secondary data measures, including public data sets, along with primary data collected directly from operators and government entities. The quantitative analysis will be complemented by a process to integrate qualitative findings obtained from key informants in a number of settings. Another component will involve the use of primary data to conduct economic impact modeling activities to estimate direct and secondary impacts related to the presence of the new gambling facilities.

This section of the report provides information on: (1) background research to confirm best practices and methodological approaches, (2) a refined research approach and specific methodologies to be utilized in the study, and (3) an organized plan for data collection and tracking. While the initial focus has been on secondary data sources, additional planning activities are underway to organize and prepare for later work on components that will commence once casino facilities have been selected and approved, such as setting economic impact modeling parameters and identifying key informants within a qualitative data collection plan.

Background—Findings from Other Research Studies

The Economic and Fiscal Impacts Team has conducted background research on best practices related to the economic assessment of casinos and other gambling facilities to refine/confirm its research approach, and ensure that its methods and data measures are consistent with peer reviewed, high-quality industry studies and published research. Based on input from the SEIGMA team, and in consultation with Expert Advisor Dr. Mark Nichols, the team targeted a group of best practice studies for review along with additional best practice studies identified through other means. The focus of this review was on useful theoretical approaches to economic research, key measures and data sources, methodological techniques applied to particular measures, and specific limitations and challenges.

Consistent with the theoretical framework developed by Williams and colleagues (Williams, Belanger et al., 2011) (see also Williams, Rehm et al., 2011), the research is designed to examine a wide variety of economic and social measures. The economic and fiscal analysis, in parallel with the social and health impacts analysis, lists impacts in several separate measures to create a profile. The analysis avoids assigning arbitrary money values to non-monetary impacts to result in any overall cost-benefit aggregate value. Instead, multiple measures of impact are tracked over time, and the resulting data and outcomes can be interpreted and their importance appropriately weighted by decision makers. The methodology assesses monetary transfers, such as casino contributions to the private sector and to the local community and government, examining the geographic destination of payments for operating expenses and equipment, and downstream effects of spending. The objective is to measure net new spending and economic activity in Massachusetts. This approach is therefore designed to examine economic activity that actually results in monetary transfers and changes in wealth, as opposed to counting any measurable spending regardless of origin or possible displacement of other economic

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[5] We use the term casino facilities to refer to the full range of activities at gambling-based casinos, including hotels, retail, restaurants, and other mixed uses for the planned development projects.

activity. The research design accounts for costs induced by new activity in addition to measuring positive impacts.

Employment and unemployment rates, business climate, and population changes are the key focus of many studies concerned with economic impacts of gambling, as well as those focused on economic development and resurgence. As will be detailed later in this report, specific series of these measures have been developed to create a picture of economic well-being and economic change before and after casinos are introduced, in order to track potential casino impacts. These measures are consistent with prior research in the field. Although casino economic impact research can sometimes be a contentious field, many studies have examination of several economic variables or concepts in common: economic impact (often using regional modeling), government revenue, employment, and local business dynamics examined over time. Many reputable studies also track additional economic measures that reflect possible areas of change pursuant to the introduction of casinos. These include: examining tourism impacts vs. local spending, and noting recapture of dollars that might have otherwise traveled with residents visiting casino locations elsewhere; an analysis of potential substitution effects in spending on leisure and other industries, as well as tracking substitution between existing versus new gambling types; evaluating the level of compensation of the new casino jobs; and making sure that in addition to potential positive impacts, costs associated with the introduction of casinos are recorded, so that a view of the whole becomes possible. The use of both primary and secondary data sources and qualitative sources of information are also common across many high-quality studies.

Best-Practice Research Techniques to Be Used
The literature review supplemented the team's own research expertise and helped to determine research techniques that will be utilized in the study. The following range of techniques will be used to compile a full economic picture of the effects of the introduction of casinos and other gambling:
- The use of a defined set of economic and fiscal indicators to monitor and track trends in economic measures, gathered from the most reliable sources of secondary data, primarily through government and administrative sources.
- Economic impact analysis using directly measured data from the casinos' actual spending, and employing a REMI model of how that money flows through regional and statewide economies.
- Key informant interviews to verify and enrich the quantitative analysis and selected questions in the surveys to obtain direct measures of economic activity.
- For selected measures, construction of comparison communities to create a counterfactual 'what-if' scenario (i.e., What would have happened economically had casinos not been introduced to these communities?).
- Further in-depth analysis of phenomena of particular interest, such as workforce changes, property values, business dynamics and local indicators of economic well-being.

Overview of Economic Research Approach

Phases of Research
The economic and fiscal impact research will be conducted over time from (1) baseline analysis to (2) development/construction analysis to (3) the operations phase when gambling operations are fully up and running. Current research is focused on the baseline analysis, to take place in the first one to two years, and involves an analysis of existing conditions within the Massachusetts economy, its regions and the host communities. Once the gaming facilities have been selected, an analysis of pre-development, development and construction impacts (the development/construction analysis) will take place. In

subsequent years of the research, gaming facilities will be fully operational and data will be available to estimate and track current and ongoing impacts made by gaming facilities (the operational analysis).

The analysis plan is careful to distinguish between economic and fiscal impacts. This is consistent with some of the original objectives of introducing casinos to Massachusetts, which included the potential for economic development benefits (jobs, investment), and revenue generation (new source of government revenue). The assessment of *fiscal* impacts (costs and revenues of governmental units that occur with the introduction of new gambling facilities) will provide a direct estimate of the effects of new gambling facilities in the state since spending and revenue data will be collected directly from operators and government agencies. Assessing changes in *economic* conditions (including local employment, business activity/revenues, personal income and earnings) will involve tracking broader economic activity before and after the start of new gambling activities in the state.

Dimensions of the Economic and Fiscal Analysis

A comprehensive economic analysis of newly introduced casino facilities is complex and requires an organized framework and accounting of various economic benefits and costs. Unlike many casino economic analyses that are based on forecasts of predicted economic impacts, the research agenda in Massachusetts allows the opportunity to measure the *actual* spending and economic activity of the planned casino facilities. The economic evaluation will thus recognize the following dimensions:

Time – as mentioned, the Economic and Fiscal Impacts Team will first develop a baseline of economic conditions prior to casino construction, followed by measurement of a construction phase and, finally, a focus on impacts related to the ongoing operations of the new facilities.

Geography – casino-related impacts will be measured and estimated at multiple levels of geography from the casino facility itself to the local municipality (host community), to the surrounding region, and ultimately statewide.

Impact Concepts – impacts will be grouped as economic impacts (changes to the economy) and fiscal impacts (changes to government revenues and expenditures).

Direct and Secondary Impacts – some impacts are measured through primary data collected directly from the casino-related operations such as their employees, wages, construction investment, and expenditures back to the local/regional economy. Other impacts are measured through secondary data sources including public government data sets and will reflect broader economic conditions such as the unemployment rate, household income, and property values.

Net New Impacts and Sources of Spending –the research focuses on net impact, reflecting the potential for a redistribution of economic activity within a region or the state. For example, one of the most fundamental determinants of the net economic impacts of casinos is the amount and geographic distribution of spending by visitors to casino facilities. New visitor trips to Massachusetts or the recapture of casino trips from Massachusetts residents (e.g., instead of visiting Foxwoods, going to a Massachusetts casino) represent *new* economic activity for the state. Changing the spending pattern of Massachusetts residents from one activity (movies, sports) to a casino or from one area of the state to a casino reflect *re-distribution* of economic activity within the state.

Data Collection Plan

Due to the complexity and long time frame of the effects being analyzed, data will be collected and analyzed in a multi-pronged and multi-phased approach. Activities are currently underway to customize and enhance in-house data systems for use in the baseline analysis with metrics to be tracked throughout the project. The Economic and Fiscal Impacts Team has developed a detailed data tracking plan for secondary data measures to enable the collection and organization of economic and fiscal variables over the course of the project. Working from the initial economic concepts described in the RFR and proposal, the Economic and Fiscal Impacts Team has identified a precise set of economic and fiscal measures that can credibly and reliably be used to track economic conditions for host communities, regions of Massachusetts, the state, and possible non-Massachusetts "control" areas. The secondary data plan identifies specific sources for the most relevant and current data measures available. These data measures will be shared and coordinated with the SEIGMA team's Data Management Center to develop detailed parameters for data collection, statistical analyses, the creation of linking variables among data sets, documentation, security and confidentiality, storage, and the sharing and dissemination of files.

Use of Primary and Secondary Data—Two Complementary Approaches

The data plan involves two complementary approaches towards measuring economic and fiscal impact through the inclusion of both primary and secondary data. Measuring and tracking economic and fiscal measures from secondary data sources will allow us to assess impacts over time over standard levels of geography. The use of various comparison methods (for example, comparisons within Massachusetts, with the U.S., and with specially selected control locations), will allow analysis to isolate and estimate the impacts of casinos over time.

In addition to the collection of secondary data, primary data will be collected from new gambling facilities, from host communities, and from employee and patron surveys to provide direct measures of impacts. Some important primary data measures to be collected directly from gambling facilities include construction-related spending, ongoing operations, total numbers of employees hired, payroll spending, spending by visitors and other variables. These "direct" effects will be used as inputs to the REMI model which will be used to estimate total economic impacts at regional and state level.

These two approaches will provide different methods to measure the economic impacts of casinos, allowing for comparison, more detailed assessments, and more refined estimates of the actual impacts of introducing casino facilities to Massachusetts.

Economic and Fiscal Secondary Data Measures

As shown in the tables below, the Economic Impact team will conduct secondary data collection and analyses related to a variety of economic outcome measures (see Table 7 and Table 8). These measures have been chosen to provide a comprehensive, yet detailed view of the economic and fiscal conditions of a community and its residents, both before and after the introduction of a casino and related facilities. Measures range from numbers of employees and wages to property taxes and revenues, and have been divided into two major categories: *economic*, or those factors that reflect the overall economy and the economic well-being of area residents and businesses, and *fiscal*, or those factors that are directly tied to government revenues and expenditures (local and/or state).

The tables present the secondary data measures that will be collected and analyzed over time and include information about the specific data source, metrics, geographic level of coverage, and source. The tables and discussion address all of the measures included in the SEIGMA team's original proposal,

and some new ones determined to be of value to the analysis. It is worth noting that while geographic issues are addressed in the tables and discussion below (i.e. whether data are available for municipalities, counties, etc.) the specific areas to be studied will be identified more clearly after casino applications for specific sites have been approved. Finally, the tables refer to the categorization of each data measure discussed in the original proposal. Some measures originally considered "social" in nature have been determined to fit better within the economic framework for both analytical and practical data collection reasons. These include employment and some housing and income measures.

Economic Measures

Economic measures have been organized into four major categories:
- Economic indicators for businesses
- Economic indicators for residents
- Housing and real estate markets
- Tourism and visitation

Economic Indicators for Businesses

Measures for businesses speak to a region or community's ability to retain, grow and attract businesses and in turn create jobs for area residents, generate tax revenues, and create vibrant local economies. The data in this category is explicitly based on the location of businesses and industries (as opposed to where employees reside). Measures will include total employment down to the municipal level, industry-specific analysis of employment, number of establishments, and wages, with a specific focus on industries likely to be impacted by the siting of a casino (e.g., entertainment, retail, accommodation).

Data for employment, number of establishments, and wages will come from the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW), also known as ES-202. The QCEW, produced as a collaborative effort between the federal Bureau of Labor Statistics and state employment agencies, provides a frequently updated (quarterly) source that accounts for the largest number of employers and provides data at the municipal level. All establishments covered under the Unemployment Insurance (UI) Program are required to report wage and employment statistics quarterly. While other sources (notably the Current Employment Statistics, or CES) provide updates as often as monthly, they are based on survey samples and therefore can be considered less accurate. QCEW is widely recognized as the most timely, trustworthy data source for employment and establishment data.

The Economic Impact team has considered a range of public and proprietary data sources to obtain information on business start-ups and closings, but unfortunately, a readily available data source on that exact concept does not exist. However, it is possible to track the total number of establishments at the municipal level (e.g., host communities) over time from QCEW data. Additionally, the team plans to measure business distress by tracking business bankruptcies using the U.S. Courts' business bankruptcy data or the Federal Court System PACER database. These measures will be complemented by qualitative research and findings from interviews with local development experts.

Economic / Fiscal	Category	Measure	Geography	Source
Economic	Business Indicators	Employment (Total and by 2-digit NAICS and selected 4-digt NAICS)	Municipality, County, State	Massachusetts Office of Labor and Workforce Development, Labor Market Information, ES-202/QCEW
		Business Establishments (Total and by 2-digit NAICS and selected 4-digit NAICS)	Municipality, County, State	Massachusetts Office of Labor and Workforce Development, Labor Market Information, ES-202/QCEW
		Wages (Total and by 2-digit NAICS)	Municipality, County, State	Massachusetts Office of Labor and Workforce Development, Labor Market Information, ES-202/QCEW
		Business Bankruptcies	County, State	United States Courts, Administrative Office of the U.S. Courts on behalf of the Federal Judiciary, Bankruptcy Division. OR Federal Judiciary Public Access to Court Electronic Records (PACER) if historical data required
	Resident Indicators	Unemployment Rate	Municipality, County, State	Massachusetts Office of Labor and Workforce Development, Labor Market Information, Local Area Unemployment Statistics (LAUS)
		Labor Force	Municipality, County, State	Massachusetts Office of Labor and Workforce Development, Labor Market Information, Local Area Unemployment Statistics (LAUS)
		Employment	Municipality, County, State	Massachusetts Office of Labor and Workforce Development, Labor Market Information, Local Area Unemployment Statistics (LAUS)
		Household Income (Median, Quintiles)	Municipality (some), County, State	U.S. Census American Community Survey
		Poverty Rates	Municipality (some), County, State	U.S. Census American Community Survey
		Per Capita Transfer Payments	County, State	U.S. Department of Commerce Bureau of Economic Analysis Personal Income Accounts
	Housing / Real Estate	Assessed Property Values, Commercial and Residential	Municipality, County, State	Massachusetts Department of Revenue (MA DOR) Division of Local Services
		Residential Building Permits	Municipality (some), County, State	Massachusetts State Data Center/U.S. Census Building Permit Survey
		Rental Housing Costs (by type of unit)	Municipality (some), County, State	U.S. Census American Community Survey
		Property Sales Value	Parcel	Warren Group
		Net Market Absorption (retail and commercial)	Municipality (some)	C.B. Richard Ellis
		Vacancy Rate	Municipality (some)	C.B. Richard Ellis
		Lease Rate Per Square Foot	Municipality (some)	C.B. Richard Ellis
	Tourism/ Visitation	Tourism spending	Municipality (some), County, State	Patron surveys; Massachusetts Office of Travel and Tourism; Chambers, RPAs (qualitative)
		Number of visitors	Municipality (some), County, State	Patron surveys; Massachusetts Office of Travel and Tourism; Chambers, RPAs (qualitative)
		Leisure/Hospitality Jobs at Non-Casino Gaming Facilities	Municipality, County, State	Employee surveys, Massachusetts Office of Labor and Workforce Development, Labor Market Information, ES-202/QCEW

Economic Indicators for Residents

Measures for residents will show how broad changes in the business environment or overall economy impact those who live in the community or region where a casino is established. These measures include unemployment rate, employment and labor force, household income, poverty rate and transfer payments. This category of data is explicitly based on the location of residence of people and employees (as opposed to where businesses are located).

Unemployment rate, labor force and employment data are available from Local Area Unemployment Statistics (LAUS) program from the U.S. Bureau of Labor Statistics. The LAUS program is a Federal-State cooperative effort to release monthly estimates of total employment and unemployment in small areas such as counties, cities and towns, and is the official source for unemployment data. This is a household data series pertaining to individuals and where they reside. Labor force and employment data will also be collected from this source to provide context and interpretation for unemployment data.

Household income measures (median and distributive measures, such as quintiles) and poverty rates for selected municipalities and/or regions will be collected from the American Community Survey. The Economic Impact team is particularly interested in poverty rates and income effects of casino introduction at the bottom or middle of the income scale. Important features of the American Community Survey have already been described in the Social Impact Analysis section. Transfers payments data, which represent income from entitlement programs like welfare, will be collected at the county level from the Bureau of Economic Analysis.

Housing and Real Estate (Residential and Commercial)

The establishment of a casino in a community may influence property values and real estate activity (including building permits and sales or lease activity), with important consequences for local municipalities, businesses and residents. Included in this analysis will be measures of property values (residential and commercial), housing starts or residential building permits, rental housing costs, and commercial real estate measures (e.g., net market absorption, vacancy rates).

Assessed property values for commercial and residential properties are tracked at the municipal level in Massachusetts. Although there are occasionally changes in assessment levels, changes in assessed values are expected to largely track with change in the actual (sales) values.[6] Assessed property values determine the level of property tax, the major source of revenues for cities and towns, and are an important source of economic stability and wealth for residents. The Economic Impact team considers analysis of the effects of casino introduction on area residential property values as a likely idea for more in-depth study as the impacts to property value will likely not be uniform across a community. The Economic Impact team plans to do additional data collection based on the parcel-level tax assessor databases that most (if not all) municipalities maintain. While detailed methodological and data issues related to such an analysis still need to be considered, the team anticipates some form of customized geographic analysis of property values at the sub-municipal level to better understand if and where property value impacts are most prevalent.

Residential building permit data are available by municipality through the U.S. Census Bureau. Rental housing costs, as an indicator of affordability, will be collected from the American Community Survey

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[6] These data are generated by each municipality and are supposed to track changes in property value market conditions over time, informed by property sales and re-evaluations of assessed values.

and are available for select municipalities and/or regions as multi-year estimates. For commercial properties (office and retail, possibly industrial), the Economic Impact team is currently investigating proprietary data sources such as CB Richard Ellis to obtain customized real estate data on vacancy rates, lease rates and net market absorption as these kinds of real estate data are not readily available for most cities/towns in Massachusetts.

Tourism and Visitation

Measures for the effects of casinos on tourism will include tourism spending and number of visitors to casinos and independent facilities, including leisure and hospitality establishments and employment (available from QCEW mentioned above). There is no publicly available data source that provides tourism data at a municipal or similar level. The Economic Impact team will collect county-level data from the Massachusetts Office of Travel and Tourism (MOTT). Primary data for the number of visitors and related spending will be available from the patron and employee surveys, and the team will also conduct stakeholder interviews to understand the impacts to tourism and visitation due to the introduction of casino facilities.

Fiscal Measures

Fiscal measures focus on government revenues and expenditures including where revenues and expenditures come from and whether they are in balance. These occur in three major categories:

- Gambling revenue
- Non-gambling revenue
- Government expenditures

Table 8: Fiscal Measures

Economic/ Fiscal	Category	Measure	Geography	Source
Fiscal	Gambling-Related Revenue	Gambling Fees, Tax	Municipality, County, State	Operators, Massachusetts Gaming Commission
		Lottery Sales	State	U.S. Census Department, Annual Survey of State Government Finances
		Lottery Revenue Distributed Locally	Municipality	Massachusetts State Lottery Commission
		Charitable Gambling Revenue	State	Massachusetts State Lottery Commission
		Horse Racing Revenue	State	Massachusetts Gaming Commission
	Non Gambling Revenue/ In-Kind Received	Sales Tax	Municipality, County, State	Massachusetts Department of Revenue (MA DOR) Division of Local Services
		Personal Income Tax	State	U.S. Bureau of Economic Analysis, Regional Data, Annual State Personal Income and Employment
		Property Tax	Municipality, County, State	Massachusetts Department of Revenue (MA DOR) Division of Local Services
	Government Expenditures	Services spending (Police, Fire, Ambulance, Sewer & Water Maintenance, etc.)	Municipality	Massachusetts Department of Revenue (MA DOR) Division of Local Services
		Built Infrastructure Costs	Municipality	Massachusetts Department of Revenue (MA DOR) Division of Local Services, Agreements
		Regulatory Costs, including offset of fees within gambling-related revenue	State	Massachusetts Gaming Commission

Gambling Revenue

Measures of gambling revenue include regulatory fees and taxes, lottery sales, lottery revenue distributed as local aid, charitable gambling revenue, and horse racing revenue. A key element of the state legislation allowing for casino facilities in Massachusetts is a specific requirement that 25% of gross gaming revenues will be allocated to the Commonwealth[7]. Analyzing revenues for the full spectrum of gambling and similar activities will allow the Economic Impact team to determine whether spending in casinos is to some degree offset by decreases in lottery, charitable gaming or horse racing spending. The team expects to collect state-level lottery sales data from Census data and lottery revenue disbursements to local communities from the Massachusetts State Lottery Commission. The team will collect additional data such as horse racing revenue from the Massachusetts Gaming Commission.

Non-Gambling Revenue

Sources of non-gambling revenue will track how the largest sources of revenue for the state and municipal areas change over time. These measures will likely be related to but indirectly affected by the introduction of a casino. For instance, changes in local property values or wages after the introduction of a casino would affect property taxes or income taxes, respectively. Proposed measures include state sales tax, state personal income tax, local property taxes, and in-kind infrastructure improvements.

Sales tax and property tax data for municipalities are available from the Massachusetts Department of Revenue, Division of Local Services Data Bank. Personal income tax data is available from the Bureau of Economic Analysis. The value of any in-kind infrastructure improvements made in local communities by casino developers will be collected from host community agreements, developer's plans (as available), or from casino operators or developers directly.

Government Expenditures

It is possible, or even likely, that the introduction of casino facilities will result in higher levels of government expenditures (services, investment, maintenance) for host communities based on the activity directly at the facilities but also to serve potential new residents or other activity (e.g., greater need for police services due to increased tourism). Government expenditure measures include expenditures for services (including police, fire, ambulance, road maintenance, and sewer and water maintenance) and built infrastructure (building, operations and maintenance). Municipal expenditure data are available from the Massachusetts Department of Revenue Division of Local Services. Related primary data will be collected on municipalities as needed.

There are also state expenditures made to regulate gambling, namely, the costs associated with running the Massachusetts Gaming Commission. The Economic and Fiscal Impacts Team will collect expenditure data directly from the Massachusetts Gaming Commission.

Additional Research

In addition to collecting and tracking the secondary data described above, there are other economic research steps and analyses needed to determine and measure economic and fiscal impacts of casino facilities.

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[7] The statute requires that 40% of gross gaming revenues from the slot parlor will be allocated to the Commonwealth.

REMI Model

For this project, the Economic Impact team proposes to include a customized Regional Economic Models, Inc. (REMI) PI+ model for the state with appropriate sub-state regions to capture the casino facility regions and the rest of the state. Using REMI allows for dynamic, multi-year modeling, and the REMI PI+ software is specifically customized to generate realistic year-by-year estimates of the total regional effects of specific initiatives, such as casinos.[8] A further strength of this analysis is that it will be based on real data from the casino operators and patrons reflecting actual conditions, measuring impacts as they occur over time. This approach is unique as most gaming facility studies are done in advance of the development and operation meaning that actual data are not yet available and the resulting estimates are based on prospective assumptions. Obtaining the REMI model also allows for a unique opportunity to measure the *predicted* economic impacts once the casino locations are selected and then compare these predictions with actual outcomes measured in the SEIGMA project.

Over the coming months, the Economic and Fiscal Impact Team will work to finalize an economic modeling plan focused on the acquisition, configuration and use of a REMI model for Massachusetts. This plan will describe the planned uses of the model, geographic configuration, and options for purchasing the model, and then determine the best approach based on feedback from the full SEIGMA team and MGC. The Economic and Fiscal Impact Team will then work with REMI to obtain and customize the model and complete initial testing and review of the model data, functionality, etc.

Several considerations have emerged during preliminary planning for the REMI analysis, which affect the time frame for purchasing the model and finalizing the methodology. The time frame for purchase of the model must take into account that selection and awards for licensees is not scheduled to be complete until 2014 (phased in over time with the slot parlor first in January 2014, and the Southeast region facility not until much later in 2014). The model needs to be customized according to clear specifications about the geographic regions needed in the analysis. The Economic Impact team recommends waiting for the final specifications and purchase of REMI until Spring 2014. Based on investigation to date, the team will likely recommend purchase of a 70 industry sector model rather than a 160 sector model as this will provide the level of industrial detail necessary (in particular within the leisure and hospitality sector) for planned research purchases. The team also now anticipates a model that configures one region surrounding each of the four anticipated casino facilities, likely built up from municipalities, and then a "rest of state" region to compose the full state.

Local/Regional Informant Interviews

The Economic Impact team will supplement quantitative analysis with qualitative information provided by local informants. Once the casino facilities are selected and host communities are identified, the team will identify a selected group of "key" contacts from each location. Likely key informant types include officials from local economic development offices, chambers of commerce, casino liaisons, local government, and real estate developers. Over the course of the project, interviews will be conducted with key informants to gain information on a variety of possible effects related to the presence of the new gambling establishment in their community. Information from local experts with on-the-ground knowledge of economic and fiscal conditions will provide contextual information on expected and actual impacts. Also, since many official data sets lag behind immediate conditions, key informants will function as a useful source of up-to-date information on observed economic and fiscal impacts in the

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[8] More information on PI+ can be found on the Regional Economic Models, Inc. web page at: http://www.remi.com/products/pi

host community. The Economic Impact team will develop questions and protocols for the key informant interviews in coming months in cooperation with other members of the SEIGMA team. Interview topics may include changes observed in the business community, changes in the amount of tax revenue collected, impacts on property values, changes in the utilization of public services, effects on numbers and types of visitors to the community, and impacts on the perceived overall direction of the economy.

Obtaining Official Information Providers

The REMI analysis will rely on several types of primary data to be collected from the new gambling facilities. Important types of primary data for the model include information on construction spending during the construction phase, information on operating and capital expenditures during regular operating years, information on employment and payroll spending (including the residential location of employees), and information related to patrons, their origins and their spending patterns. In the coming months, the Economic Impact team will work to identify which data measures can be obtained via surveys and which data measures will be obtained via officially designated data and information providers for host communities and gambling facilities. Ideal data contacts will have the authority to release the data and will be able to quickly identify and delegate data collection activities to fiscal administrators who can assemble the necessary data. Ideal fiscal administrators will have full access to and knowledge about the various types of fiscal data needed as inputs for the analysis. The fiscal administrators must also be available to answer follow-up questions about the data released. Establishing official information providers for the project will be a key step in setting up the primary data collection plan for the REMI modeling process.

Review of Relevant Host and Surrounding City Agreements and Casino Developer Applications

Once casino licenses are awarded (phased in over time), the Economic Impact team plans to undertake a review of the host and surrounding city agreements and applications by the successful candidates. Careful review of these documents will help the team develop a framework for data collection related to the new casino facilities, and the range and scale of activities proposed in each development project. This information will be used to do the "predictive" REMI modeling mentioned above. Host and surrounding city agreements will provide information on the types of fiscal and other arrangements agreed upon between these communities and the new facilities.

Planning for Statistical Analysis

As secondary data is collected, organized and analyzed, it will be important to separate economic effects related to the new gambling facilities from those caused by other factors. In order to present analyses that make this distinction, the Economic Impact team will utilize methods that will allow some distinction to be made between effects that are likely related to the presence of the new facility and those that would likely have happened without the casino. In doing this type of analysis, researchers typically create a comparison of the region of interest (e.g., the host community or surrounding region) as the "treatment group," and a comparison region as the "control group."

Special attention will be paid to defining appropriate control jurisdictions, and the team plans to conduct both simple comparisons (such as trends in host communities compared to Massachusetts statewide or to the U.S.) and more complex statistical methods. In Massachusetts, comparisons could be made between casino jurisdictions and non-casino jurisdictions and non-surrounding community jurisdictions. In other cases, comparison regions could be chosen using various social and demographic variables for casino and non-casino jurisdictions, choosing control jurisdictions that are most similar to the casino jurisdiction. Analysis at the county level will be conducive to choosing control jurisdictions (counties) outside of Massachusetts since many of the variables analyzed and/or used in the matching

model will be more typically available from secondary sources (e.g., U.S. Census, Bureau of Economic Analysis). In some cases, simply comparing trends over time in the treatment region against behavior of the same measures in the control region will allow a distinction to be made. In other cases, more robust methodologies like regression analysis will be warranted. These methods will continue to be investigated by the Economic Impact team with more detailed recommended approaches still to be developed.

Progress to Date and Next Steps

The Economic and Fiscal Analysis team participated fully in the two-day project kick-off meeting in late April. In preparation for that meeting, the team began crafting a refined set of economic/fiscal measures for the research study, including more specific information and discussions about data sources. At the meeting, the Economic and Fiscal Analysis team provided input to the larger SEIGMA Research Team regarding primary data collection procedures that will be critical for economic and fiscal analysis, with emphasis on the need for cooperation from the casino developers/operators in providing data on visitors, employees, and expenditures.

Since the project's kickoff, the Economic and Fiscal Analysis team has worked to create a detailed matrix of the full-range of economic/fiscal measures that will be collected, tracked, monitored and presented over the course of the project. For each data-driven measure, the matrix includes information about the specific data source, geographic-level of coverage, frequency of updates, and other relevant information. Additionally, the Economic and Fiscal Analysis team has worked closely with the Social and Health Impacts Team to coordinate data collection methods, shared database development, and documentation. This has included multiple meetings to present and discuss data collection and documentation efforts to date. The Economic and Fiscal Analysis team has also discussed various options defining regions that surround the host communities, with emphasis on the most appropriate regional definition for economic impacts related to the labor market, suppliers, and consumer spending.

To plan data analysis, the Economic and Fiscal Impacts Team has begun investigating options for the REMI model purchase and learned that it is possible to develop sub-county regional models (e.g., based on municipalities), which is likely more appropriate for Massachusetts. The team has elected to delay the purchase of the model until the MGC awards licenses to slot parlor and casino operators. The team has developed a technical memorandum describing their refined approach with greater detail about how they will conduct their analyses, including a refined matrix of secondary economic and fiscal measures, a discussion of more complex analytical methods needed to establish control/comparison groups to isolate the effects of casinos, and anticipated primary data collection needs. Furthermore, the Economic and Fiscal Analysis team has begun collecting secondary data across all the measures presented in the data matrix (described above), and is organizing and documenting the data for a seamless integration into the SEIGMA team's data management center.

Six months after the new slot parlor opens, the Economic and Fiscal Impacts Team will collect government data and gambling venue data from the slot parlor. Six months after each of the casinos has opened, the Economic and Fiscal Impacts Team will collect government data and venue data from casinos. They will also conduct Gambling Employee Surveys, Patron Surveys, and License Plate Surveys at that time. A summary of all future SEIGMA research activities can be found on page 49 of this report.

Problem Gambling Services Evaluation

Primary Data—Treatment Provider Survey

A team of researchers from the UMass School of Public Health and Health Sciences (SPHHS) is leading an evaluation of problem gambling treatment providers. The Problem Gambling Services Evaluation Team began their work by identifying the number of people in Massachusetts who have been trained to treat problem gamblers. They identified 46 such treatment providers. This part of the SEIGMA study aims to describe characteristics of problem gambling treatment providers, existing problem gambling treatment services, and problem gambling treatment client populations. The team will also collect and summarize treatment providers' recommendations for the most effective treatment approaches and organization of services for problem and pathological gamblers in Massachusetts.

All trained treatment providers will be asked to voluntarily participate in this study. Those who are willing to participate will give informed consent and provide answers to the online survey questions. The research team will then analyze the data and prepare a study report. The results of the proposed study will be useful in improving current services.

Secondary Data—Helpline/Chat-room

In addition to individual treatment services, the Massachusetts Council on Compulsive Gambling (MCCG) offers free and confidential helpline and online chat services. Through these venues, service providers offer necessary information and referrals for self-help, treatment providers, and other community resources to people experiencing problems with gambling and to those concerned about someone else's gambling. Service providers record the characteristics of the clients, including their socio-economic information, residence (ZIP code), type and venues of gambling, reasons for the call/chat, and other information. In addition to the primary data collection strategies outlined above, the Treatment Provider Evaluation Team will collect and analyze secondary data from the MCCG's helpline and online-chat databases.

Progress to Date and Next Steps

The Treatment Services Evaluation Team participated fully in the two-day project kick-off meeting in late April. To date, the Treatment Services Evaluation Team has prepared a study protocol and a questionnaire for online administration. The study protocol has been approved by the UMass IRB. The next step is to develop the online survey and invite treatment providers in Massachusetts with problem gambling treatment certification to participate in the study.

UMass and the MCCG have signed a Memorandum of Understanding to establish guidelines and roles to facilitate the review and analysis of the helpline and online-chat services databases. The study protocol has been approved by the UMass IRB. The research team is in the process of obtaining de-identified data from MCCG for analysis. Using the results of the analysis, the team plans to report trends in the utilization of helpline and online-chat services and describe the characteristics of the clients of these services, geographic locations of the clients, common days and times of the service utilization, common gambling types and venues used by the clients, and the reasons they contacted service providers. The results will be useful in improving current services.

Data Management

The Data Management Center (DMC) is the central repository and coordination center for data and research reports generated by the SEIGMA Research Team. This section describes the process for the

DMC to receive data, review and prepare data, and make data accessible to the SEIGMA Research Team, other interested researchers and the general public.

Receiving Data

As mentioned in previous sections of this report, the SEIGMA Research Team will be collecting both primary and secondary data. Primary data will be collected by the team members, using the following tools: population surveys, treatment and prevention provider surveys, key informant interviews, focus groups, patron surveys, license plate surveys, employee surveys, and gambling venue operator surveys. Secondary data have been collected by sources outside the SEIGMA team and made available to the SEIGMA team.

Tables 2, 6, 7, and 8 display the social and economic impact indicators that the SEIGMA Research Team will collect. The units for the data records will typically be municipality, county and state. For some of the primary data, the record unit will be individual or household, with appropriate weighting variables included. The metrics used for each indicator are shown in these tables, along with the metric's data source.

Primary Data

All primary data collection efforts will seek human subject ethics approval from the UMass Amherst IRB prior to collecting data. Documentation of applications and approvals will be stored with the DMC. The DMC will be responsible for assuring that all applications have been approved and are up-to-date before any data collection begins. Changes in any aspect of the primary data collection approach (i.e., project design, procedures, consent forms, advertising materials, additional key personnel or subject population) will be submitted to the IRB for approval before instituting the changes.   As of this report, applications have been submitted to the UMass IRB for the *Baseline Population Survey, Online Panel Survey,* and *A Survey of Substance Abuse and Mental Health Treatment Providers* and approval on all three applications has been received.

Once primary data has been collected and prepared, final data files will be delivered to the DMC electronically, together with a description of the collection methods, sampling and weighting activities, and codebooks. The DMC will record the date of receiving files and store them on the School of Public Health and Health Sciences (SPHHS) secure server. Only SEIGMA Research Team members within the SPHHS will have access to these files.

Secondary Data

Both the social and economic analysis teams will be collecting secondary data. This data will be delivered to the DMC in excel format. Each Excel file will contain four worksheets: *source data* which contains the final dataset in excel format; *label* which lists all the variable names and their corresponding labels and formats; *description* which includes information about the description of series, data source, metric used, link to data, geographic basis, availability of data outside of Massachusetts, periodicity of updates, years included and available, time basis, date of download, alterations, and additional notes; and *code-A* which provides any coding information for variables. The DMC will record the date that files are received and store them on the School of Public Health and Health Sciences (SPHHS) secure server.

Reviewing and Preparing Data

Once data has been received and recorded by the DMC, each data file will be assigned a name, based on the source of the data and the type of the data. A naming convention will be used to allow for useful sorting and version control. The DMC will have a list of all data files accessible for the SEIGMA Research

Team on the team web page and the U-drive, which are described in more detail in the data accessibility section.

Data Accessibility

Most jurisdictions that regulate legal gambling activities collect and post some information on sales, gross revenues, and tax revenues. A few jurisdictions collect and disseminate information on other characteristics of legal gambling operations, such as job numbers and quality and workforce diversity. Even fewer jurisdictions collect or disseminate information on the social and health impacts of legal gambling. As a result, decision makers, researchers and interested citizens often find it difficult to find information on which to base decisions about the potential impacts of proposed policies related to the regulation of legal gambling. The Expanded Gaming Act places research and empirical evidence at the center of the regulatory and oversight process and creates an ongoing monitoring system that can be queried over time to assess the positive and negative impacts of gambling expansion and the effects of measures that are taken to maximize the economic benefits and minimize the social and health consequences.

SEIGMA Team Website

The SEIGMA Research Team website is used to share information and data between team members. It is not meant for public use; hence, the layout is not elaborate. The website is extremely secure, with a multi–level process to access the website and frequent changes to logon information. This website is accessible to all SEIGMA Research Team members but files can only be uploaded by the DMC.

There are five areas included on this website; conversations, meeting notes, methods, data and results. *Conversations* include links to articles in regional newspapers, along with summaries of discussions SEIGMA team members have had with other key players involved in this research project. *Meeting notes* include minutes from SEIGMA team meetings and *Methods* contains information about research methods and surveys used for primary data collection. *Data* displays the data that will be collected for social and economic indicators. Team members will be able to download ASCII files and a SAS or SPSS setup file to use the data for analyses. *Results* will display the results and reports of analyses.

U-drive

The U-drive is UMass Amherst's web-based file storage and sharing system. The DMC created an account on the U-drive for SEIGMA team members to share files. This is the best way to share files online and maintain a high level of security and confidentiality. Permission has been granted to SEIGMA Research Team members who are on the UMass campus to access the SEIGMA folder on the U-drive. SEIGMA Research Team members who are not located on the UMass campus have received electronic tickets to allow them access to the folder.

This account will be used for works in progress (ex: reports, timelines, questionnaires, etc.). Data files will not be stored on this account. SEIGMA Research Team members are able to upload and download files to/from this account. Editing of files cannot be done on the U-drive.

SPHHS Secure Server

The SPHHS secure server is a networked UMass data storage system, overseen by the Office of Information Technology at UMass. The SEIGMA Research Team has been given dedicated space on this secure server to store information. This information will only be accessible by School of Public Health and Health Sciences SEIGMA Research Team members through the on-campus network.

SEIGMA Public Website

The SEIGMA public website is intended to share information and data with the general public. Since this website is accessible to the public, attention has focused on the look and feel of this site. A more detailed description of the development of the public website follows. The website went live on November 6, 2013.   The SEIGMA team will publicize this website to ensure a wide and varied audience.

In addition to the six content areas described below (the homepage, the news page, the people page, the publications page, the links page, and the contact page) more pages will be added in the future to share the data and reports generated by the SEIGMA team. Data will be displayed in both numerical and graphical form.

Development of SEIGMA Public Website

The SEIGMA website utilizes a template created by UMass University Relations on the Drupal content management system (CMS). The process began with Medeiros, the web content manager, and Zorn, the Data Management Center director, taking a training course with University Relations.

After this introduction to the CMS platform, the website team outlined the overall organization of the site. This began with a discussion of constituencies likely to use the site, including: activists for and against gambling, Massachusetts Gaming Commission (MGC) representatives, and other researchers. With a defined audience, the next step was brainstorming content areas of the website. The website team determined key content areas of the site, which are divided amongst six areas: the homepage, news page, people page, publications page, links page, and contact page. The homepage is a nexus for recent notable project activity and basic information on the study. The news section will showcase media coverage of the study and important related events, other research findings, and other relevant new academic studies from outside researchers. Sidebars in the news section provide links to other media coverage relating to gambling in Massachusetts. The people page provides biographies of all of the SEIGMA Research Team members. The publications page provides links to publications that are relevant to the study, including the SEIGMA Research Plan and a 2011 Social and Economic Impacts of Gambling Report that provides the theoretical framework for the SEIGMA study. The links section is divided into three sections: research links, for information on academic and governmental studies of gambling and its impacts; regulator links, for links to regulatory agencies in New England and elsewhere; and problem gambling links, which includes links to the National Council on Problem Gambling as well as to all of the New England councils. Content areas will likely evolve through the course of the study. The contact page features contact information for general and media inquiries.

In terms of overall look and feel of the site, one chief visual component is the project logo, created by On Design Studio in Leeds, Massachusetts. This logo is present on all pages on the SEIGMA website, along with text in a footer specifying that SEIGMA is funded by the MGC. Additional visual flare is added through a series of header images on the six content pages. The series of photos, downloaded from copyright-free image libraries, illustrate positive, negative, and neutral images relating to legal gambling. Positive photos include images evocative of cash winnings of gamblers and construction jobs and development related to gambling venues. Neutral photos include gambling imagery such as cards, horse races, and slot machines. Negative photos include automobile congestion and images evocative of increased crime related to gambling.

The URL for the site is: www.umass.edu/seigma.

Timeline of Future SEIGMA Activities

The timeline below combines the MGC's anticipated timeframe for the issuance of expanded gaming licenses and the opening of new gambling venues with future SEIGMA research activities. This is because many of the research activities are contingent on decisions that will be made by the MGC over the next 12 months.

Date	Activity
May 2013 - Jan 2014	IRB Approval of Problem Gambling Treatment Evaluation study protocols
Jul 2013 - Nov 2018	Beginning of Ongoing Collection of Secondary Data on Social & Economic Indices (continuing through to the end of the study)
Sept 2013 - Mar 2014	Baseline General Population ABS + Online Panel Survey
Dec 2013 – Feb 2014	Slot Parlor license awarded*
Jan 2014 - May 2014	Baseline Targeted Population ABS Slot Parlor Community Survey (1 year prior to anticipated opening)*
Jan 2014 - Aug 2014	Baseline Evaluation of Existing PG Treatment and Prevention Programs & beginning of ongoing collection of prevention/treatment stats
April 2014	Boston and Western Massachusetts casino licenses awarded*
Aug 2014 - Feb 2015	Slot Parlor Opens (1 yr after announcement)*
Oct 2014 - Nov 2014	Southeastern Massachusetts casino license awarded*
Oct 2014 - Feb 2015	Baseline Targeted Population ABS Casino Community Surveys (2 communities) (minimum 1 year before anticipated opening)*
Feb 2015 - May 2015	Collection of Gambling Venue data from Slot Parlor and Gov't data regarding the new Slot Parlor (6 months after opening)*
May 2015	Secondary data status update
Jan 2016 - Apr 2016	Gambling Employee Survey of Slot Parlor (6 months after opening)*
Jan 2016 - Apr 2016	Patron Survey & License Plate Survey of Slot Parlor (6 months after opening)*
April 2016	Secondary data status update
Aug 2016	Boston and Western Massachusetts casinos opening (2 years after announcement)*
Aug 2016 - Nov 2016	Collection of Gambling Venue data from the 2 new casinos and Gov't data regarding the 2 new casinos (6 months after opening)*
Oct 2016 - Nov 2016	Southeastern Massachusetts casino opening (2 years after announcement)*
Feb 2017 - May 2017	Collection of Gambling Venue data from the Southeastern casino and Gov't data regarding the new Southeastern casino (6 months after opening)*
May 2017	Secondary data status update
Aug 2017 - Nov 2017	Gambling Employee Survey of the 2 new casinos (6 months after opening)*
Aug 2017 - Nov 2017	Patron Survey & License Plate Survey of the 2 new casinos (6 months after opening)*
Nov 2017 - Apr 2018	Follow-Up Evaluation of Existing PG Treatment and Prevention Programs (1 year after all casinos have opened)*
Feb 2018 - May 2018	Patron Survey & License Plate Survey of the Southeastern casino (6 months after opening)*

Feb 2018 - May 2018	Conduct focus groups and key informant interviews
Feb 2018 - July 2018	Follow-up General Population ABS + Online Panel Survey (1 year after all casinos have opened) *
Feb 2018 - July 2018	Follow-up Targeted Population ABS Surveys (1 year after all casinos have opened) *
July 2018	Secondary data status update

***Denotes that the date of this activity may change depending on the licensure process

Recommendations for Future Research Activities

The methodology of the current cross-sectional research agenda, while robust in many regards, can only provide a population-based "snap shot" of the dynamic process of behavior change during a time of gaming expansion. In other words, it can give detailed information at a given point in time but cannot inform about processes of change along the way.

In contrast, a longitudinal cohort study follows a group of people with a shared experience (exposure to expanded gaming) at intervals over time. This type of study can provide detailed etiological information about how gambling and problem gambling develops, progresses, and remits. The information collected through a cohort study has significant value as it will highlight risk and protective factors important in developing effective prevention, treatment, and recovery support services.

On October 21, 2013 the MGC with the advice of the Gaming Research Advisory Committee recommended to the Gaming Policy Advisory Committee that a longitudinal cohort study be added to the MGC Research Agenda. Additionally, in order to capitalize on an opportunity to collect prospective baseline information in advance of expanded gaming in the Commonwealth, the MGC recommended that the cohort study be launched in the near future and well in advance of slot parlor operations. The Gaming Policy Advisory Committee voted unanimously to support this recommendation. A copy of a memo from Robert Hubbard, Chairman of the Gaming Policy Advisory Committee, that details this recommendation closes this report.

Robert Hubbard, Chairman
Gaming Policy Advisory Committee

November 21, 2013

Stephen Crosby, Chairman
Massachusetts Gaming Commission
84 State Street
Boston, MA 02109

Re: Recommendation on Annual Research Agenda for the purposes of M.G.L. c. 23K, §71

Dear Chairman Crosby:

I am writing to provide official notice that the Gaming Policy Advisory Committee (GPAC), created pursuant to M.G.L. c. 23K, §68, concurs with the Commission's recommendations, as presented to the GPAC at its October 21, 2013 meeting, regarding the Commission's annual gaming research agenda and scientifically-based recommendations. As you are aware, M.G.L. c. 23K, §71 states (in part) that:

> "The commission, *with the advice of the gaming policy advisory committee*, shall develop an annual research agenda in order to understand the social and economic effects of expanding gaming in the commonwealth and to obtain scientific information relative to the neuroscience, psychology, sociology, epidemiology and etiology of gambling." (*emphasis added*)

> and that,

> "The commission *and the committee* shall annually make scientifically-based recommendations which reflect the results of this research to the house and senate committees on ways and means, the joint committee on economic development and emerging technologies, the joint committee on mental health and substance abuse and the joint committee on public health." (*emphasis added*)

The following is a motion that was voted on at the October 21, 2013 Gaming Policy Advisory Committee meeting and was passed unanimously:
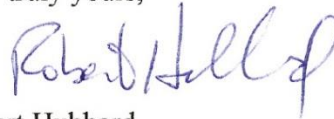
> "…the Gaming Policy Advisory Committee advises the Massachusetts Gaming Commission to add a longitudinal cohort study to its research agenda and that this scientifically-based recommendation be conveyed by the Commission to the house and senate committees on ways and means, the joint committee on

economic development and emerging technologies, the joint committee on mental health and substance abuse and joint committee on public health.

I further move that the Gaming Policy Advisory Committee advises the Massachusetts Gaming Commission to continue the scope of its current research agenda into 2014 with the addition of a longitudinal cohort study."

Very truly yours,

Robert Hubbard

cc: Members of the Gaming Policy Advisory Committee
        Mark Vander Linden, MGC Director of Research and Problem Gambling
        John S. Ziemba, MGC Ombudsman

References

Afifi, T. O., Cox, B. J., Martens, P. J., Sareen, J., & Enns, M. W. (2010). Demographic and social variables associated with problem gambling among men and women in Canada. *Psychiatry Research, 178*(2), 395-400.

Alegria, A. A., Petry, N. M., Hasin, D., Liu, S. M., Grant, B. F., & Blanco, C. (2009). Disordered gambling among racial and ethnic groups in the US: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *CNS Spectrums, 14*(3), 132-142.

Blanco, C., Hasin, D. S., Petry, N. M., Stinson, F. S., & Grant, B. F. (2006). Sex differences in subclinical and DSM-IV pathological gambling: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychological Medicine, 36*, 943-953.

Blumberg, S. J., Luke, J. V., Ganesh, N., Davern, M. E., & Boudreaux, M. S. (2012). Wireless substitution: State-level estimates from the National Health Interview Survey, 2010-2011. *National Health Statistics Reports, 61*.

Desai, R. A., & Potenza, M. N. (2008). Gender differences in the associations between past-year gambling problems and psychiatric disorders. *Social Psychiatry and Psychiatric Epidemiology, 43*, 173-183.

Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. Ottawa: Canadian Centre on Substance Abuse.

Gebauer, L., LaBrie, R. A., & Shaffer, H. J. (2010). Optimizing DSM-IV-TR classification accuracy: A brief bio-social screen for detecting current gambling disorders among gamblers in the general household population. *Canadian Journal of Psychiatry, 55*(2), 82-90.

Göritz, A., Reinhold, N., & Batinic, B. (2002). Online panels. In B. Batinic, U.-D. Reips & M. Bosnjak (Eds.), *Online social sciences* (pp. 27-47). Göttingen: Hogrefe & Huber Publishers.

Goritz, A. S. (2007). Using online panels in psychological research. In A. N. Joinson, K. McKenna, T. Postmes & U.-D. Reips (Eds.), *The Oxford handbook of internet psychology*. London: Oxford University Press.

Grinols, E. L. (2007). Social and economic impacts of gambling. In G. Smith, D. C. Hodgins & R. J. Williams (Eds.), *Research and Measurement Issues in Gambling Studies* (pp. 515-539). London: Elsevier.

Iannacchione, V. G. (2011). The changing role of address-based sampling in survey research. *Public Opinion Quarterly, 75*(3), 556-575.

Ibañez, A., Blanco, C., Donahue, E., Lesieur, H. R., Pérez de Castro, I., Fernández-Piqueras, J., et al. (2001). Psychiatric comorbidity in pathological gamblers seeking treatment. *American Journal of Psychiatry, 158*, 1733-1735.

Johansson, A., Grant, J. E., Kim, S. W., Odlaug, B. L., & Götestam, K. G. (2009). Risk factors for problematic gambling: A critical literature review. *Journal of Gambling Studies, 24*(4), 67-92.

Ladouceur, R., Jacques, C., Ferland, F., & Giroux, I. (1999). Prevalence of problem gambling: A replication study 7 years later. *Canadian Journal of Psychiatry, 44*(8), 802.

Lesieur, H. R., & Blume, S. B. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry 144*(9), 1184-1188.

Lesieur, H. R. (1998). Costs and treatment of pathological gambling. *Annals of the American Academy of Political and Social Science, 556*, 153-171.

Massachusetts Council on Compulsive Gambling. (2013). *Massachusetts statewide gambling behavior and opinion survey report*. Boston, MA: Massachusetts Council on Compulsive Gambling.

Massey, D. S., & Tourangeau, R. (2013). Where do we go from here? Nonresponse and social measurement. *Annals of the American Academy of Political and Social Science, 645*(1), 222-236.

Nelson, S. E., Kleschinsky, J. H., LaPlante, D. A., Gray, H. M., & Shaffer, H. J. (2013). *A benchmark study for monitoring exposure to new gambling opportunities: Final report scientific content*. Cambridge, MA: Cambridge Health Alliance, Division on Addiction.

Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry, 66*, 564-574.

Peytchev, A. (2013). Consequences of survey nonresponse. *Annals of the American Academy of Political and Social Science, 645*(1), 88-111.

Potenza, M. N., Kosten, R. R., & Rounsaville, B. J. (2001). Pathological gambling. *Journal of the American Medical Association, 286*(2), 141-144.

Raylu, N., & Oei, T. P. S. (2002). Pathological gambling: A comprehensive review. *Clinical Psychology Review, 22*, 1009-1061.

Scherrer, J. F., Slutske, W. S., Xian, H., Waterman, B., Shah, K. R., Volberg, R. A., et al. (2007). Factors associated with pathological gambling at 10-year follow-up in a national sample of middle-aged men. *Addiction, 102*(6), 970-978.

Sparrow, N. (2006). Developing reliable online polls. *International Journal of Market Research, 48*(6), 659-680.

Thompson, W., Gazel, R., & Rickman, D. (1996). *The social costs of gambling in Wisconsin*. Hartland, WI: Wisconsin Policy Research Institute.

Tourangeau, R., & Smith, T. W. (1996). Asking sensitive questions: The impact of data collection mode, question format, and question context. *Public Opinion Quarterly, 60*, 275-304.

van der Heijden, P. G. M., Van Gils, G., Bouts, J., & Hox, J. J. (2000). A comparison of randomized response, computer assisted interview, and face-to-face direct questioning: Eliciting sensitive information in the context of welfare and unemployment benefit. *Sociological Methods and Research, 28*, 505-537.

Volberg, R. A. (2007). Population surveys. In G. J. Smith, D. C. Hodgins & R. J. Williams (Eds.), *Research and Measurement Issues in Gambling Studies* (pp. 33-51). San Diego, CA: Elsevier.

Volberg, R. A., Moore, W. L., Christiansen, E. M., Cummings, W. E., & Banks, S. M. (1998). Unaffordable losses: Estimating the proportion of gambling revenues derived from problem gamblers. *Gaming Law Review, 2*(4), 349-360.

Welte, J. W., Wieczorek, W., Tidwell, M.-C., & Parker, J. C. (2004). Risk factors for pathological gambling. *Addictive Behaviors, 29*(2), 323-335.

Wenzel, H. G., Øren, A., & Bakken, I. J. (2008). Gambling problems in the family: A stratified probability sample study of prevalence and reported consequences. *BMC Public Health, 8*(1), 412.

Williams, R. J., Belanger, Y. D., & Arthur, J. N. (2011). *Gambling in Alberta: History, current status, and socioeconomic impacts*. Edmonton: Alberta Gaming Research Institute.

Williams, R. J., Rehm, J., & Stevens, R. M. G. (2011). *The social and economic impacts of gambling*. Winnipeg: Canadian Consortium for Gambling Research.

Williams, R. J., & Volberg, R. A. (2009). Impact of survey description, administration format, and exclusionary criteria on population prevalence rates of problem gambling. *International Gambling Studies, 9*(2), 101-117.

Williams, R. J., & Volberg, R. A. (2010). *Best practices in the population assessment of problem gambling*. Guelph: Ontario Problem Gambling Research Centre.

Williams, R. J., & Volberg, R. A. (2013). The classification accuracy of four problem gambling assessment instruments in population research. *International Gambling Studies, online first*.

Williams, R. J., Volberg, R. A., & Stevens, R. M. G. (2012). *The population prevalence of problem gambling: Methodological influences, standardized rates, jurisdictional differences, and worldwide trends*. Guelph: Ontario Problem Gambling Research Centre.

Zickuhr, K. (2013). *Who's not online and why*. Washington, DC: Pew Research Center.