SEIGMA SOCIAL AND ECONOMIC IMPACTS OF GAMBLING IN MASSACHUSETTS

Report on the Social and Economic Impacts of Gambling in Massachusetts (SEIGMA) Study

Report to the Massachusetts Gaming Commission

April 9, 2014

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Introduction

Since the SEIGMA Study's inception in April 2013 and its first formal report to the Massachusetts legislature on behalf of the Massachusetts Gaming Commission (MGC) in December 2013, the SEIGMA Research Team has made substantial progress. The baseline population survey is nearly complete and early efforts are underway to test different approaches to analyze the data once it is transferred to the Data Management Center, SEIGMA's central data repository and coordination center. A multitude of secondary data has been collected for a variety of social, health, economic, and fiscal measures. The Problem Gambling Services Evaluation Team has nearly completed its analysis of the Massachusetts Council for Compulsive Gambling's helpline data. Lastly, the SEIGMA team has initiated a series of meetings with representatives from the State Police, the Massachusetts Department of Transportation, and MGC's Mitigation Committee to create a plan for measuring the transportation and crime impacts of expanded gambling. This report details progress in each of these areas from December 2013 through March 2014 and offers a summary of the SEIGMA team's next steps.

Social and Health Impacts Analysis

Primary Data Collection (Baseline 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. These include:

- Public **attitudes** towards gambling which can be as important as objective beneficial or detrimental effects;
- **Current gambling behavior** of the general public (e.g., 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) along with the **demographic features** of these behaviors (e.g., age, gender, ethnicity, socioeconomic class); their **geospatial distribution**; and **how impacts vary as a function of game type**;
- Current gamblers' reported **motivations for gambling**;
- The **perceived value of gambling** as recreational activity;
- **Awareness** of existing efforts to prevent problem gambling;
- The overall population **prevalence of problem gambling**, or the number of people in Massachusetts who are currently experiencing a gambling problem;
- The **discrete social and health impacts of gambling** (many of which will also be assessed in our secondary data collection) to provide triangulation with the secondary data; and
- Associated **comorbidities** of gambling and problem gambling in the areas of health, mental health, and substance use.

Summary of Methods

An important methodological consideration in population surveys of gambling and problem gambling 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 prevalence rates in studies that have assessed problem gambling, the SEIGMA Research Team estimated that the current past year prevalence rate of problem gambling in Massachusetts is likely in the **1% to 2%** range. Based on prior research (Williams, Rehm, & Stevens, 2011), we estimate that the

state-wide increase in the problem gambling rate is likely to be in the **25% to 50%** range after the introduction of expanded gambling. Such low prevalence rates make it very difficult to detect statistically significant changes from Baseline to Post-Opening.

A sufficient sample size of problem gamblers is also needed to conduct some other important analyses. One analysis is to identify the impact of problem gambling on persons who are problem gamblers, such as the proportion who report bankruptcy, committing gambling-related crimes, attempted suicide, divorce/separation, 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.

To address these sample needs, the SEIGMA team planned for three separate surveys administered at different times as outlined in the following table:

Table 1: Survey Sampling Strategy

	General Population ABS*	General Population Online Panel	Targeted Population ABS*	Total
Sept 2013 – May 2014	10,000	5000		15,000
Apr – July 2014			1,000	
~Apr 2015			3,000	4,000
Sept 2017 – Apr 2018	10,000	5000	4,000	19,000

*ABS=Address-Based Sampling methodology

During the current Baseline Phase of the study, the SEIGMA team is conducting a **General Population Survey** administered by NORC at the University of Chicago with a 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.

The General Population Survey is supplemented by a **General Population Online Panel Survey** of 5,000 people administered by Ipsos Public Affairs. The third and final survey consists of **Targeted Population Surveys** with a 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 and it is possible that the radii may be different between communities. The purpose of the Targeted Population Surveys is to ensure that there is a sufficient sample size in the host and surrounding communities where the new venues will be located to identify **community-specific** impacts. 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 Post-Opening General Population Survey and the General Population Online Panel Survey (anticipated to be in late 2017 and early 2018).

Status of the Surveys

General Population Survey

Starting in April 2013, the SEIGMA Research Team developed a questionnaire for use in the General Population Survey, the General Population Online Panel Survey, and the Targeted Population Survey. The questionnaire was extensively reviewed, edited, and pre-tested. 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. All of the advance materials to be sent to eligible households received ethics approval from both the NORC and UMass Amherst Institutional Review Boards (IRB). The General Population Survey was launched on September 11, 2013 and the Online Panel Survey was launched on October 23, 2013.

At the end of December 2013, NORC alerted the SEIGMA Research Team that lower than projected self-administered questionnaire (SAQ) returns (especially from Eastern MA) were a cause for concern. The reason for the shortfall was not entirely clear but was likely related to the extended holiday season due to Christmas Day and New Year's Day both falling on Wednesdays. The recommendation from NORC was to release a fourth batch of sample in early January 2014 and to extend the data collection period to address the potential shortfall in completed interviews. While this would result in a somewhat lower response rate, there were no cost implications for the project since NORC had budgeted for this contingency. The SEIGMA Research Team agreed that this step was necessary in order to reach the final sample size and the fourth batch of sample was released in mid-January.

In February 2014, NORC shared an analysis of the completion rates for Batches 1-3 with the SEIGMA Research Team. This analysis suggested that both the SAQ completes and the telephone (CATI) completes for Batches 1-3 were falling well below projections. In addition to Batch 4, NORC felt that a fifth batch of sample should be released to ensure that the final sample size could be achieved. However, addition of a fifth batch of sample would have significant financial implications and would further lower the final response rate.[1] In conjunction with Grants and Contract officials at UMass Amherst, the SEIGMA team negotiated with NORC to share the total additional cost for the fifth batch of sample. UMass Amherst agreed to move half of the cost of the fifth batch of sample into NORC's subcontract from other areas of the budget and NORC agreed to cover the other half of the cost from its existing subcontract. There was no change to the overall budget for the project.

The SEIGMA Research Team and NORC discussed numerous additional measures that could increase the likelihood of achieving the final sample of 10,000 completed interviews. With regard to fieldwork activities, NORC implemented an experimental change in the SAQ letter to be sent to half of Batch 4. The letter acknowledged that the survey was about gambling and encouraged individuals who did not gamble or were not interested in gambling to complete the survey. This change was based on an analysis of responses from individuals who had contacted the SEIGMA team or NORC to explain why they did not wish to complete the survey. Another measure that NORC implemented was to move known households in Batches 1-3 that had not yet completed the survey (all of these had moved into the telephone modality) back to the Web and to send another letter to these households offering a final opportunity to obtain the $10 "early bird" incentive by completing the survey online. A third measure was to provide additional training to the telephone interviewers in gaining cooperation and refusal conversion as well as to deliver "soft refusal" cases to a small number of

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[1] In the original proposal, NORC anticipated reaching a CASRO (Council of American Survey Research Organizations) response rate of approximately 45%. Addition of two batches of sample is expected to result in a final CASRO response rate of approximately 35%.

interviewers known to be especially effective at refusal conversion. A fourth measure was to focus project resources on telephone cases in Batches 1-3 where an eligible respondent had already been identified rather than continue to dial through telephone numbers that went straight to answering machines. A final measure, still under consideration, is to release Batch 4 and 5 cases to the telephone modality earlier in the field period than was the case with Batches 1-3.

Beyond fieldwork, another measure involved revisions in the definition of completed interviews. An analysis by NORC showed that the rules for determining whether an interview was complete were somewhat different for the Web and SAQ modalities. The SEIGMA Research Team had originally specified that a SAQ would be considered complete if the respondent answered all nine of the CPGI problem gambling severity items while a Web interview would be considered complete if the respondent answered all of the questions through the first three demographic items. Due to the ability to refuse to answer or skip questions in the Web modality, not all of the Web completes included the entire set of Canadian Problem Gambling Index (CPGI) questions. Revising the definition of a completed interview to align the SAQs with the Web completes yielded several hundred additional completed SAQs.

As of April 7, 2014, there were 8,182 completed interviews in the General Population Survey. Data collection for the General Population Survey is expected to be completed by May 13, 2014. The following table provides detailed information about the status of the General Population Survey sample as of April 7, including the current status of all released sample and current production rates.

Table 2: SEIGMA Key Indicators Report

	Measure	Total		S1 (Western)		S2 (Rest of MA)		SEIGMA Day 210 / Tuesday / End of Day 4/07/2014 — Definition
	Released Cases							Total released cases
	Cases Attempted	33,368	100.0%	8,342	100.0%	25,026	100.0%	
	Current Status of All Released Cases							
U1	Unconfirmed/Uncontacted (CATI only)	1,232	3.7%	259	3.1%	973	3.9%	Cases whose address has not been confirmed
U2	Assumed Household/No Contact	19,207	57.6%	4,383	52.5%	14,824	59.2%	Cases which have not logged into web or have been mailed to and no mail has been returned/no contact has been made
U0	Confirmed address, known household, unscreened	708	2.1%	162	1.9%	546	2.2%	Known households, confirmed address, unscreened
NR	Non-residential	2,807	8.4%	797	9.6%	2,010	8.0%	Non-residential
	Screener Complete, Member Selected	9,414	28.2%	2,741	32.9%	6,673	26.7%	Known household, at least one eligible member in the household
ER	Eligible Household, no Member Completes	147		45		102		Households that have not completed any member interviews
MM	Mail Received – Complete Status TBD	905		255		650		Complete Status TBD
C	Complete	8,362		2,441		5,921		Members that have completed the interview
	MA Residents	8,182	81.8%	2,403	96.1%	5,779	77.1%	Member completes that live in MA 6+ months out of the year
	Case Status Undetermined	0		0		0		Case needs review and category assigned
	Complete Target	10,000		2,500		7,500		
	Production Rates							
	Resolution Rate	38.75%		44.35%		36.88%		(NR+U0+ER+C+MM) / (Resolved addresses / all attempted addresses)
	Residential Address Rate	78.29%		78.46%		78.22%		(U0+ER+C+MM) / (NR+U0+ER+C+MM) (Confirmed households / all confirmed addresses)
	Screener Completion Rate	93.01%		94.42%		92.44%		(ER+C+MM) / (ER+C+MM+U0) (Screened households / all confirmed households)
	Interview Completion Rate	88.83%		89.06%		88.73%		C/ (C+ER) (Completed Interviews / All Screened Households)
	AAPOR Response Rate 3 (CASRO Assumpt.)	32.01%		37.30%		30.25%		Resolution Rate * Screener Completion Rate * Interview Completion Rate

General Population Online Panel Survey
Data collection for the General Population Online Panel Survey was completed on March 28, 2014. Work is underway to clean the data and prepare a codebook for use by the SEIGMA Research Team.

Targeted Population Survey

The successful applicant for the slot parlor license (Penn National in Plainville) was announced by the MGC on March 7, 2014. Prior discussion between the MGC and the SEIGMA Research Team had focused on the best method to employ in determining the radius for the Slot Parlor Targeted Population Survey. The final decision was to use the Host and Surrounding Communities designated by the MGC as the geographic boundaries for the Targeted Sample. This decision is both scientifically justifiable and efficient. It is scientifically justifiable in that the radius encompasses all of the communities in the immediate 5 - 10 mile area that prior research would suggest are most likely to be impacted. It is efficient in that it provides specific examination of the impacts in communities that the MGC has designated as "surrounding communities." The Slot Parlor Targeted Sample is confined to residents of the Host Community of Plainville, and of the designated Surrounding Communities of Wrentham, Foxborough, Mansfield, Attleborough and North Attleborough.

Adding the Targeted Population Survey to the General Population Survey required executing amendments to both the agreement between the MGC and UMass Amherst and to the contract between UMass Amherst and NORC. Additionally, ethics approval for the Targeted Sample materials is required from both NORC and the UMass Amherst IRBs. We are currently awaiting ethics approval from both NORC and UMass Amherst of a revised Web letter that will be sent to the Targeted Sample. This revision is due to the need to explain to eligible respondents that the sample for this survey will be geographically limited. Once we receive ethics approval, the Targeted Sample Survey will be fielded. Data collection for the Targeted Sample Survey is expected to be completed by July 31, 2014.

Next Steps

Next steps in completing the surveys and reporting results include:

- Continue work on creating the **analytic syntax** using an early batch of completed interviews received in 2013. Analytic syntax is used to construct variables from the raw cleaned data and can include generalized gambling participation and expenditure variables, scores on problem gambling screens, levels of alcohol and drug use and experiences of depression and help-seeking;
- Formalize the outline of the **Methodology Report** and begin drafting sections. The Methodology Report is a detailed overview of all of the activities associated with the survey, including construction of the sample frame, development of the questionnaire, sample management and interviewing procedures and statistical analysis of differences across sample batches. This information is useful to other researchers interested in understanding the details of the study's data collection effort and/or in replicating the methods employed in the survey;
- Begin **data preparation** for the General Population Survey and Targeted Population Survey including data editing and cleaning, data formatting, weighting, imputation, and calculation of final sample disposition and response rate;
- Prepare for **enhanced data delivery** for the General Population Survey and Targeted Population Survey which will include information on the final disposition of every released sample line using the same codeframe as the Key Indicators Report along with a "geography" variable for all sample lines. This information will be helpful in determining the likely impact of non-response on key survey results;
- Develop a detailed **data analysis plan**;
- Complete **data analysis**; and
- Complete **draft and final reports** on the results of the surveys.

With regard to reporting, we expect to be able to present topline results of the Baseline General Population Survey, the Online Panel Survey and the Targeted Population Survey in the contractually required September 2014 report to the MGC. Once the topline results are reported, we will pivot to developing a manuscript for publication in an academic journal.

Secondary Data Collection

Introduction
In addition to the primary data we are collecting through the General Population and Targeted Surveys, the SEIGMA team is also collecting secondary socio-demographic and health data from a variety of sources including the American Community Survey (ACS), the Behavioral Risk Factor Surveillance System (BRFSS), the Acute Hospital Case Mix (AHCM), and the All Payer Claims Database (APCD). As described in previous reports, the Social and Health Impacts Team will be tracking a broad range of socio-demographic and health measures over time.

The Social and Health Impacts Team is collecting secondary socio-demographic and health indicators data for three primary reasons.
1. To provide descriptive statistics and trends in social and health indicators for MA. We have collected aggregated (i.e., summary level) one-year and five-year data to measure and track changes in select social and health metrics over time. This will enable us to provide descriptive statistics at the state and municipal level. We have collected aggregated data for a 10-year period when available, which will allow us to describe baseline trends in social and health indicators for the ten years prior to gambling expansion in the state of Massachusetts as a whole.
2. To identify characteristics that place individuals at greater risk of experiencing problem gambling (risk factors) and other co-occurring conditions (comorbidities).
3. To triangulate and verify social and health data from the General Population Survey.

The Social and Health Impacts Team has spent several months collecting, organizing, and conducting preliminary analyses of secondary data. Of the 60+ measures that the team will track over time, six measures were selected for this report. The remainder of this section discusses why these six measures were selected and presents example summary tables for them. Massachusetts state-level data are compared with US data to illustrate how state baseline trends compare with national trends. The section closes with a description of other secondary data analyses being undertaken by the Social and Health Impacts Team and a summary of their next steps.

Selected Social and Health Indicators
For the tables and figures below, we selected three socio-demographic indicators, including age, race/ethnicity, and educational attainment. We also selected self-reported health and disability status as two measures of physical health, and suicide rate as a measure of suicide. We chose these measures for three reasons: 1) They represent risk factors identified in the literature that may influence gambling behavior; 2) We wanted to show a mix of demographic measures, social measures, and health measures; and 3) We had approximately ten years of data for each of these measures.

The overall purpose of selecting a handful of measures for this report was to give us an opportunity to interact with the data and experiment with ways of displaying it. It is important to note that for some of the measures included, we are working to get more precise and supplemental metrics. For example, we may look for a more precise estimate (i.e., not self-reported) of disability status. It is also possible that we may use a self-reported measure of suicide attempts to supplement the suicide rates presented here. Going forward, the team aspires to select the most fitting and precise measure for each socio-demographic, social, and health indicator. It is also important to note that although this report presents data only for larger geographies (i.e., MA and US), once the new gambling venues have been selected, we will analyze these data for smaller geographies such as regions, counties, and municipalities.

Summary Tables of Data Measures

The tables and figures below are meant to illustrate the types of tables and figures that we plan to create for the purpose of ongoing data tracking and reporting. For each data source, we gathered data for Massachusetts and the US for the past ten years, starting with the most recent year in which data were available. For each measure, we also present the total percent change for this period.

Table 3 shows the main socio-demographic indicators for the US (50 states and DC) and MA from the American Community Survey (ACS). Selected study measures include sex, age, race/ethnicity, and educational attainment. ACS data were only available from 2006 to 2012.

Table 3: Socio-demographic Indicators, US and Massachusetts 2006-2012

	Category	Location	2006	2007	2008	2009	2010	2011	2012	Percent Change 2006-2012
Age	Under 5 years	MA	6.0%	5.9%	5.9%	5.8%	5.6%	5.5%	5.5%	-8.3%
		US	6.8%	6.9%	6.9%	6.9%	6.5%	6.4%	6.3%	-7.4%
	5 to 17 years	MA	16.5%	16.3%	16.1%	15.9%	16.0%	15.8%	15.6%	-5.5%
		US	17.8%	17.7%	17.4%	17.4%	17.5%	17.3%	17.1%	-3.9%
	18 to 24 years	MA	10.0%	10.1%	10.3%	10.2%	10.4%	10.3%	10.4%	4.0%
		US	9.9%	9.9%	9.9%	10.0%	10.0%	10.0%	10.0%	1.0%
	25 to 34 years	MA	12.7%	12.6%	12.6%	12.9%	12.9%	13.1%	13.3%	4.7%
		US	13.3%	13.3%	13.3%	13.5%	13.2%	13.3%	13.4%	0.8%
	35 to 44 years	MA	15.4%	15.2%	14.7%	14.2%	13.5%	13.2%	12.9%	-16.2%
		US	14.7%	14.4%	14.1%	13.6%	13.3%	13.1%	13.0%	-11.6%
	45 to 54 years	MA	15.1%	15.3%	15.4%	15.6%	15.4%	15.4%	15.1%	0.0%
		US	14.5%	14.6%	14.6%	14.5%	14.5%	14.3%	14.1%	-2.8%
	55 to 64 years	MA	11.0%	11.3%	11.5%	11.9%	12.3%	12.7%	12.8%	16.4%
		US	10.6%	10.9%	11.1%	11.3%	11.9%	12.2%	12.3%	16.0%
	65 to 74 years	MA	6.4%	6.4%	6.6%	6.8%	7.0%	7.2%	7.7%	20.3%
		US	6.3%	6.4%	6.6%	6.8%	7.1%	7.2%	7.6%	20.6%
	75 years and over	MA	6.9%	6.9%	6.8%	6.7%	6.8%	6.8%	6.8%	-1.4%
		US	6.1%	6.1%	6.1%	6.1%	6.0%	6.1%	6.1%	0.0%
Race	White alone	MA	84.3%	84.2%	82.5%	82.4%	81.1%	80.5%	80.1%	-5.0%
		US	75.7%	75.6%	75.0%	74.8%	74.2%	74.1%	73.9%	-2.3%
	Black or African American alone	MA	7.0%	6.1%	6.3%	6.3%	6.8%	6.8%	7.1%	1.8%
		US	13.1%	12.7%	12.4%	12.4%	12.6%	12.6%	12.6%	-3.6%
	American Indian and Alaska Native alone	MA	0.6%	0.2%	0.2%	0.1%	0.2%	0.2%	0.2%	-65.6%
		US	1.4%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	-44.7%
	Asian alone	MA	5.2%	4.9%	5.0%	5.0%	5.4%	5.6%	5.7%	9.5%
		US	4.9%	4.5%	4.4%	4.5%	4.8%	4.8%	5.0%	2.1%
	Native Hawaiian and Other Pacific Islander alone	MA	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%
		US	0.3%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	-26.4%
	Some other race alone	MA	4.7%	4.6%	3.9%	3.8%	3.7%	4.3%	4.1%	-12.2%
		US	6.8%	6.3%	4.9%	4.9%	4.8%	4.7%	4.6%	-32.8%
	Two or more races	MA	1.7%	1.9%	2.1%	2.3%	2.8%	2.6%	2.8%	63.8%
		US	2.0%	2.2%	2.3%	2.4%	2.7%	2.8%	2.9%	42.0%
Ethnicity	Not Hispanic or Latino	MA	92.1%	91.8%	91.4%	91.2%	90.4%	90.1%	89.9%	-2.4%
		US	85.2%	84.9%	84.6%	84.2%	83.6%	83.3%	83.1%	-2.5%
	Hispanic or Latino	MA	7.9%	8.2%	8.6%	8.8%	9.6%	9.9%	10.1%	27.4%
		US	14.8%	15.1%	15.4%	15.8%	16.4%	16.7%	16.9%	14.3%
Educational Attainment for population 25 years and over	Less than high school	MA	12.1%	11.6%	11.3%	11.0%	10.9%	10.8%	10.3%	-14.9%
		US	15.9%	15.5%	15.0%	14.7%	14.4%	14.1%	13.6%	-14.5%
	High school graduate (includes equivalency)	MA	28.2%	27.8%	26.7%	26.3%	26.2%	25.9%	25.9%	-8.2%
		US	30.2%	30.1%	28.5%	28.5%	28.5%	28.4%	28.0%	-7.3%
	Some college or associates	MA	22.7%	22.7%	24.0%	24.4%	23.9%	24.2%	24.4%	7.5%
		US	26.9%	26.9%	28.8%	28.9%	28.9%	29.0%	29.2%	8.6%
	Bachelor's degree	MA	21.4%	21.9%	21.7%	21.8%	22.3%	22.3%	22.2%	3.7%
		US	17.1%	17.4%	17.5%	17.6%	17.7%	17.9%	18.2%	6.4%
	Graduate or professional	MA	15.6%	16.0%	16.4%	16.4%	16.7%	16.8%	17.1%	9.6%
		US	9.9%	10.1%	10.2%	10.3%	10.4%	10.6%	10.9%	10.1%

Source: ACS 2006-2012. Demographic and Housing Estimates. Percentage & +/- (Standard deviation). Available at: http://factfinder2.census.gov
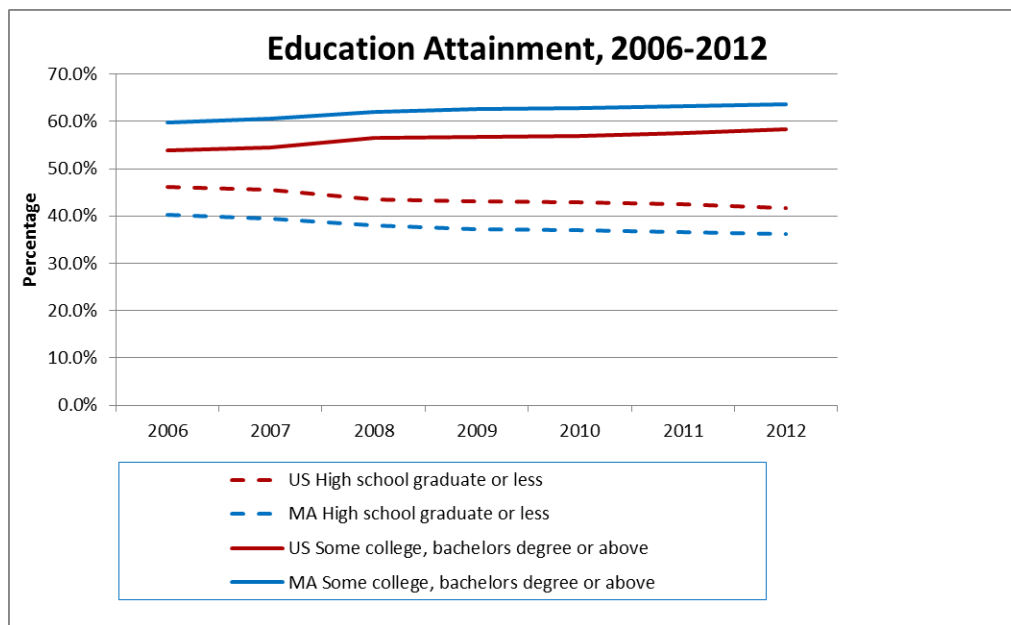
Table 3 shows that of the nine age groups examined, 5-17 year olds represented the largest age group, both in MA and the US. The smallest population groups were those under the age of 5 and those ages 75 years and

older. The 35-44 year old population group declined by the largest percentage over the study period, both in MA (16.2%) and the US (11.6%); in contrast, the 65-74 year old population group increased by the largest percentage over the study period both in MA (20.3%) and the US (20.6%). This is in line with other studies which have found that the US population as a whole is aging, both because people are living longer and because individuals who were born in the post-war baby boom are aging (CDC, 2013).

Table 3 also includes information on seven racial groups and two ethnicities. From 2006-2012, Whites represented the largest racial group both in MA and the US. Although African Americans represented the second largest racial group both in MA and the US, they represent a lower percentage of the MA population (7.1% in 2012) than the US population (12.6% in 2012). Both individuals who reported having Two or More Races and those who identified as Hispanic/Latino increased by the largest percentage over the study period, indicating that in both MA and the US, the population is becoming more diverse. These increases were greater in MA than in the US for both groups.

With regard to educational attainment, Table 3 illustrates a trend towards higher educational attainment in both MA and the US. The proportion of the population with some college or more saw general increases over the study period while the proportion of the population with less than a high school education saw an overall decrease. Moreover, the population with less than high school saw the steepest percent decline and the population with graduate or professional education saw the steepest percent increase over the study period in both MA and the US. This trend is illustrated in Figure 1. It is important to note that the MA population, both historically and currently, has a generally higher level of educational attainment than the US as a whole (U.S. Department of Education, 2012).

Figure 1: Education Attainment, 2006-2012

Table 4: Self-Reported Health Status, US and Massachusetts 2002-2012

	Category	Location	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Percent Change 2002-2012
Self-reported health status	**Excellent**	MA	27.2%	26.5%	26.7%	25.0%	25.2%	25.4%	24.9%	26.2%	26.6%	22.6%	23.6%	-13.2%
		US	21.8%	22.0%	21.0%	20.4%	20.7%	20.1%	20.2%	21.0%	20.2%	18.6%	18.8%	-13.8%
	Very good	MA	34.2%	33.6%	35.7%	33.8%	35.9%	35.6%	36.1%	35.7%	35.7%	34.4%	34.3%	0.3%
		US	34.1%	33.6%	33.9%	33.9%	34.4%	34.1%	34.9%	35.0%	34.6%	32.8%	33.4%	-2.1%
	Good	MA	25.4%	27.4%	25.6%	28.0%	26.6%	26.3%	26.7%	26.1%	26.2%	29.0%	28.7%	13.0%
		US	29.8%	29.3%	29.9%	30.2%	30.2%	30.4%	30.1%	29.9%	29.8%	31.5%	30.9%	3.7%
	Fair	MA	9.7%	9.2%	9.1%	10.0%	9.2%	9.5%	9.3%	9.2%	8.6%	10.5%	10.4%	7.2%
		US	10.4%	10.8%	10.6%	10.8%	10.9%	10.9%	10.6%	10.5%	10.9%	12.3%	12.5%	20.2%
	Poor	MA	3.6%	3.3%	3.0%	3.3%	3.2%	3.2%	3.0%	2.8%	3.0%	3.6%	3.0%	-16.7%
		US	3.9%	3.9%	3.9%	4.0%	3.7%	3.9%	3.8%	3.7%	4.0%	4.7%	4.4%	12.8%

Source: BRFSS data extracted from CDC, 2000-2012. Available at: http://apps.nccd.cdc.gov/brfss/.

Table 4 shows a key health metric from the Behavioral Risk Factor Surveillance System (BRFSS) for the period 2002 to 2012. The health status metric is a self-reported measure of an individual's perception of his/her own health. Responses range from excellent through very good, good and fair to poor. Both nationally and in MA, self-reported excellent health saw the largest percent decreases over the course of the study period while self-reported fair health saw the largest increase. Despite these changes, the majority of respondents reported their health as good or very good.

Disability status, which is displayed in Figure 2, is another self-reported measure from the BRFSS. It reflects the percentage of the adult population who are limited in any daily activities due to physical, mental, or emotional problems. The disability indicator is only available for 2001, 2003, 2005, and the period 2007 to 2012. Within this limited study period, self-reported disability status increased in both MA and the US. This percent increase was larger in the US than in MA, which partly reflects an overall lower rate of self-reported disability in MA over the study period.

Figure 2: Self-Reported Disability, 2007-2012

Source: BRFSS data extracted from CDC, 2000-2012. Available at: http://apps.nccd.cdc.gov/brfss/.
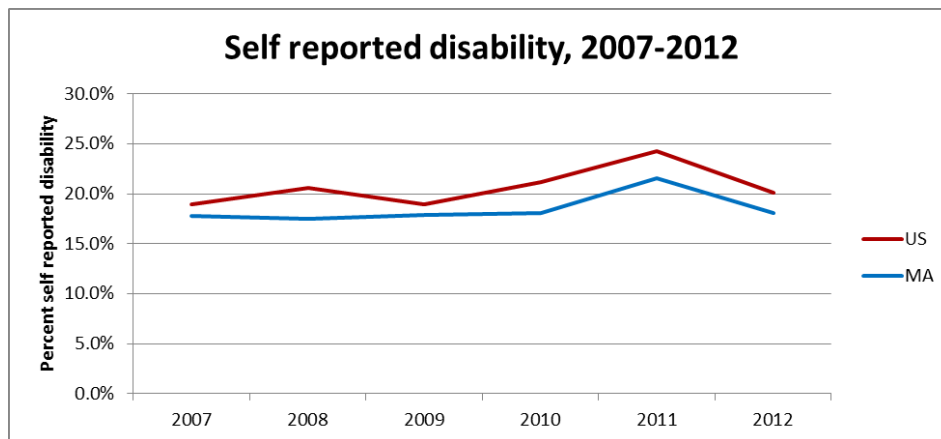
Table 5: Suicide Indicators, US and Massachusetts 2000-2010

	Location	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Percent Change 2000-2010
Adult Population	MA	6,349,097	6,397,634	6,417,206	6,422,565	6,412,281	6,403,290	6,410,084	6,431,559	6,468,967	6,517,613	6,547,629	
	US	281,421,906	284,968,955	287,625,193	290,107,933	292,805,298	295,516,599	298,379,912	301,231,207	304,093,966	306,771,529	308,745,538	
Number of suicide deaths	MA	387	426	436	433	425	480	450	516	509	530	598	
	US	29,350	30,622	31,655	31,484	32,439	32,637	33,300	34,598	36,035	36,909	38,364	
Suicide Rate (per 100,000)	MA	6.1%	6.7%	6.8%	6.7%	6.6%	7.5%	7.0%	8.0%	7.9%	8.1%	9.1%	49.2%
	US	10.4%	10.7%	11.0%	10.9%	11.1%	11.0%	11.2%	11.5%	11.8%	12.0%	12.4%	19.2%

Source: CDC 2000-2010. Available at: http://wonder.cdc.gov/.

Table 5 shows the annual population, number of suicide deaths, and the suicide rate per 100,000 people. Population and suicide data were collected from the Centers for Disease Control and Prevention's Vital Statistics program from 2000 to 2010. The table and figure below clearly show an overall increase, both in the number of suicide deaths and in the suicide rate in MA and the US across the study period. Indeed, from 2000 to 2010 suicide rates increased by 49.2% in MA, while the US as a whole increased by 19.2%.

Figure 3: Suicide Rates (per 100,000 population), 2000-2010
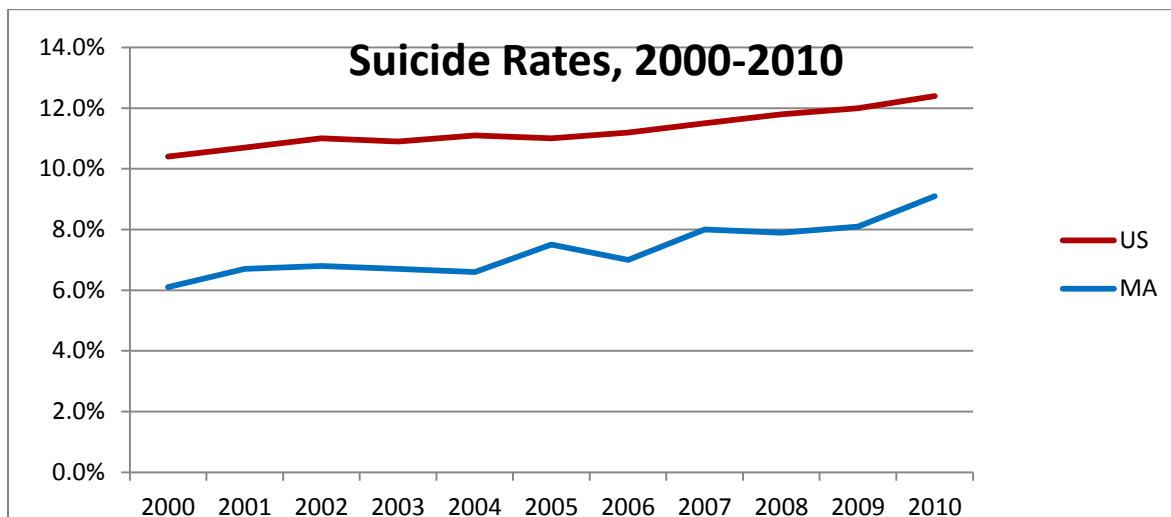
Source: CDC 2000-2010. Available at: http://wonder.cdc.gov/.

Other Secondary Social and Health Impact Analyses

Health Care Utilization and Economic Burden of Gambling-Related Comorbidities

A key piece of SEIGMA's examination of the health impacts of expanded gambling involves analysis of patient data from both the Acute Hospital Case Mix (AHCM) and the All Payer Claims Database (APCD). These datasets include cost data by payer source for specific diagnostic and procedural codes and are both reported to and maintained by the Center for Health Information and Analysis (CHIA). We will use this information to assess utilization of healthcare services among problem gamblers and patients with associated comorbidities. We will also use this information to assess the economic burden of gambling-related conditions and comorbidities. These analyses will aid us in better evaluating existing prevention and treatment services for individuals with gambling problems and associated comorbidities in MA and making recommendations for improving the state's capacity to care for these populations. The Social and Health Impacts Team has been working with CHIA to gain access to this data since the start of the SEIGMA study. In January 2014, CHIA amended its application form to include several data security questions, for which they requested answers from the SEIGMA team. We have contacted the UMass Office for Information and Technology (OIT), the UMass Amherst IRB and the UMass

Amherst Office of Research Compliance regarding these additional questions and are awaiting response. Once the application is complete, we will submit it to CHIA for approval.

Using BRFSS Data to Triangulate General Population Survey Data

A significant secondary data source currently available to investigators is the Massachusetts Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS provides individual data including demographics, health conditions, health behaviors, health status, and behavioral health status. The Massachusetts Department of Public Health (MA DPH) provided BRFSS survey data to the Social and Health Impacts Team in late November 2013 and the Data Management Center now has BRFSS data from 1999 to 2011

Of particular interest to SEIGMA is that two gambling-related questions were included in BRFSS surveys conducted in 1999, 2005 and 2008. The first question is "In the last 12 months have you gambled or played games of chance for money?" The second question is "At any time in your life would you or anyone else in your family say that the money or time you have spent gambling has led to financial problems or any other problems in your family work or personal life?" Unfortunately, neither question provides a perfect measure of gambling or problem gambling,[2] so they cannot be used to establish gambling or problem gambling prevalence rates. However, using these data as a proxy for gambling and problem gambling rates and examining how patterns of correspondence between these items and other social and health indicators change subsequent to casino openings will help triangulate the data from the SEIGMA population surveys.

In 2012, the MA BRFSS included five gambling-related questions in an effort to establish a more detailed baseline assessment of gambling and problem gambling prior to the introduction of casinos in the Commonwealth. The first two questions are related to gambling participation ("In the past 12 months, how often have you purchased lottery tickets, including scratch tickets, instant tickets or keno?" and "In the past 12 months, how often have you bet money in any other way such as on sports, at race tracks, playing card games or bingo, purchasing high risk stocks, day trading on the stock market, or internet gambling?"). The other three questions make up a brief screen for problem gambling developed by a group of MA researchers (Gebauer, LaBrie, & Shaffer, 2010). The items assess three of the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) diagnostic criteria for pathological gambling in a current or past year format (i.e., Withdrawal, Lying and Borrowing Money). SEIGMA researchers will work with MA DPH to obtain data from the 2012 MA BRFSS.

It is important to note that several methodological changes were implemented in 2011 to enable the BRFSS to provide more accurate population estimates of health conditions and behaviors across the state. These changes make it difficult to compare BRFSS data collected before 2011 with data collected since that year. Despite these changes, this data source will provide an important means for triangulating data from the General Population Surveys and clarifying baseline trends in gambling behavior. The Social and Health Impacts Team will perform separate analyses of BRFSS data for years before and after 2011.

To better understand this data and to focus their analyses, the Social and Health Impacts Team first conducted a literature review and designed a conceptual model. We chose 2008 BRFSS data because it is the most current gambling-related data available for the state of Massachusetts until our General Population Survey is completed. We used the 2008 BRFSS data to familiarize ourselves with the data set and experiment with assessing possible

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[2] The gambling prevalence question produces a significant underestimate of true gambling prevalence (e.g., compared to what is currently found in the 2013/2014 SEIGMA population survey) due to the aggregation of all gambling activities into a single question. The problem gambling question will similarly produce a significant underestimate of lifetime problem gambling for much the same reason.

associations between the two gambling measures, respondent characteristics, and social and health impact measures. To this end, the team cleaned and coded the 2008 BRFSS data and conducted univariate and multivariate regression analyses to identify independent predictors of gambling and assess the strength of these associations.

Next Steps
In the coming months, the Social and Health Impacts Team will continue selecting groups of measures from the list of 60+ social and health measures identified in earlier reports. Similar to the trends presented in this report, the team will continue assessing 10-year baseline trends among these data.

Upon receipt of the CHIA data, the Social and Health Impacts Team will perform the data cleaning and management tasks necessary to carry out gambling-related health care services utilization and cost analyses. In support of this goal, the team has had continuing conversations with MA DPH regarding the possibility of future data-sharing and collaboration.

Two thesis manuscripts are currently being drafted by graduate student research assistants using the 2008 BRFSS individual-level data for MA. The objectives of the first study are to estimate the prevalence of gambling, behavioral health additions (i.e., nicotine and alcohol dependence, drug use), and mental health disorders (i.e., depression, anxiety, mental health problems) in MA and, where possible, to evaluate potential associations between gambling, mental health, and other co-occurring conditions. The objectives of the second study are twofold. First, the study seeks to estimate gambling participation rates, self-reported health status and quality of life, and co-morbidities (i.e., hypertension, heart disease, overweight/obesity) in MA. Second, the study aims to evaluate potential associations between gambling participation, physical health and quality of life, and co-morbidities.

Economic and Fiscal Impact Analysis

Introduction
A major component of the overall SEIGMA research and evaluation project is to measure and assess the economic and fiscal impacts of casino facilities at the local, regional and state level. As noted in previous reports, the metrics to be tracked and assessed for this study include a wide range of both economic and fiscal measures. Economic measures are organized into four major categories: 1) economic measures for business; 2) economic measures for residents; 3) housing and real-estate markets; and 4) tourism and visitation. Fiscal measures, which focus on government revenues and expenditures, occur in three major categories: 1) gambling revenue; 2) non-gambling revenue; and 3) government expenditures.

The economic research team has spent the months since the December 2013 report focused on collecting, organizing and analyzing secondary data. Based on the detailed tables of key data measures essential for the economic and fiscal analysis, the team has collected and built an extensive archive of available secondary data. A well-documented, standardized set of data files has been created and archived for in-house use and data files have also been shared with the SEIGMA project's Data Management Center for broader access to the secondary data that will be used in the analysis. In order to allow comparative analysis across geographies, secondary data has been collected for a full range of places of interest – at the municipal-level, at the county-level and for the Commonwealth and the United States as a whole.

While a few of the key measures to be collected will not be available for data collection until after the casino and slots venues have been opened, the majority of secondary data sets are available for collection to start

developing the baseline analysis of "pre-casino" conditions. Most of the identified key data measures have been collected through a variety of publically available government data systems providing economic, fiscal and socio-demographic data. The remaining secondary data measures are not available in standardized formats or are not available as public data sets. For example, lottery sales data and data related to tourism are collected and developed by Massachusetts state agencies for state-level reporting. Comparable United States data series are not available. Other measures, like government revenue data, are available in summary form but the team is seeking much more detail than is made available by the source agency. The collection of these non-standard forms of data has required special effort to pursue. Customized data requests have been made to government agency contacts and intensive conversations have taken place to obtain special data sets for the purposes of analysis for the SEIGMA project.[3]

The remainder of this section presents example summary tables of key economic and fiscal measures, more detailed illustrative graphs and tables for the six key measures included in the summary, followed by a data discussion of two important aspects of this work (lottery sales and tourism) that require more customized data collection from Massachusetts agencies. Of note, although many data measures are available at the municipal and/or county-level, this report focuses on Massachusetts state-level data with comparisons to the US This is largely due to the fact that most of the casino locations have not yet been selected.

Summary Tables of Data Measures

A major purpose of this report, in addition to providing an update of our activities, is to illustrate the kinds of tables and figures we plan to create for the analysis to track changes in data measures over time. With many of the data sets in-hand, the team has begun developing tables and figures to inform the baseline analysis of measures indicating economic and fiscal conditions in the state. One element is using summary tables of data measures to present an aggregate view of trends across multiple measures and geographies. These summary tables include key metrics organized under the headings of business indicators, resident indicators and fiscal indicators.

As shown in the tables and figures that follow, Massachusetts business indicators grew at a slower rate than those in the US as a whole over the ten year period from 2002 to 2012. But over the last five years, Massachusetts has recovered more swiftly from the Great Recession, with payroll employment and business establishments growing at a faster rate than the nation. For the key resident indicators, it is clear that Massachusetts residents are doing better than their counterparts nationwide. State unemployment is lower and median household income is higher than seen in the nation as a whole.[4] Personal income taxes and sales taxes, two key fiscal indicators, also grew faster in Massachusetts than in the nation over the ten year period.

Selected Economic and Fiscal Indicators

This section introduces six data measures as a way to illustrate our work on the baseline analysis of measures. Data measures presented in this section include payroll employment; business establishments; unemployment rate; median household income; personal income taxes; and sales taxes. We have collected annual data for each of the measures to allow a ten-year time-series analysis beginning with 2002 and ending with 2012, the latest annual data available at this time. We have collected data at multiple levels of geography to allow analysis at the municipal-level, county-level and state-level. For comparative purposes, US-level data have also been collected.

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[3] We are pursuing the following special secondary data sets: lottery sales, charitable gaming and distribution of lottery revenue from the Massachusetts Lottery Commission; tourism spending and visitation data from the Massachusetts Office of Travel and Tourism; operator fees, commission budget and horse racing revenue from the Massachusetts Gaming Commission; and sales taxes and infrastructure/services expenditures from the Massachusetts Department of Revenue.
[4] Note that dollar values in this report have been standardized to 2013 dollars. Stagnant income growth has resulted in a slight loss in recent years in real dollars both at the national level and within Massachusetts.

In this report we present figures focused on Massachusetts and US trends to illustrate a range of figures that are useful for baseline analysis

Business Indicators

Payroll employment

Payroll employment data provide a count of total Massachusetts jobs (excluding the self-employed). This measure shows trends of growth (or decline) in total employment, a central element of economic activity. There is also detail available on jobs found in specific industries, some of which may be affected by the introduction of casinos (e.g., hotels and restaurants). Tracking employment and details on employment by industry, which we will do in subsequent reports, will allow the SEIGMA team to detect if there are changes after casinos are introduced.

We draw the data for this measure from the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) series,[5] which serves as one of the most useful and authoritative sources of information on business establishments, payroll employment supported, and wages paid. Payroll employment data in this series include the vast majority of employees in the Commonwealth.[6, 7] Information in this series is collected from all businesses in Massachusetts required to have unemployment insurance with the exception of those employed by agricultural operations and the self-employed. This series provides employment data in remarkable industrial detail through the use of industry codes within the North American Industrial Classification (NAICS) system. Another feature which makes the QCEW series valuable is that it covers all states as well as the nation, so industrial structure can be compared across US states and regions.

The Economic and Fiscal Impacts Team will be examining payroll employment data to look for changes in employment overall and in particular industries. Our baseline figures examine total payroll employment trends in Massachusetts compared to the United States as a whole, to provide a sample of some of the figures we'll be using to assess growth trends over time.

Table 6: Payroll Employment, Massachusetts and US, 2002-2012

| Employment (ES-202, QCEW)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Percent Change 2002-2012
MA	3,171,815	3,110,706	3,106,453	3,127,113	3,160,389	3,195,808	3,202,339	3,095,144	3,114,879	3,148,635	3,199,328	1%
US	128,233,919	127,795,827	129,278,176	131,571,623	133,833,834	135,366,106	134,805,659	128,607,842	127,820,442	129,411,095	131,696,378	3%

Sources: *Massachusetts* – Massachusetts Office of Labor and Workforce Development (OLWD), Labor Market Information, ES-202; *U.S.* – U.S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)

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[5] In Massachusetts, these data are released for customized geographic regions as the ES-202 series.

[6] QCEW employment data provide a measure of jobs rather than a count of individual workers. Workers holding more than one job can be counted for each of those jobs as follows: "the data represent the number of covered workers who worked during, or received pay for, the pay period that included the 12th day of the month….Persons on the payroll of more than one firm during the period are counted by each UI-subject employer, if they meet this employment definition." See: http://www.bls.gov/cew/cewbultn10.htm#Employment.

[7] According to the Bureau of Labor Statistics' Quarterly Census of Employment and Wages FAQ pages, "employment covered by UI programs nationwide represents about 99.7% of all wage and salary civilian employment in the country." See http://www.bls.gov/cew/cewfaq.htm#Q01.

Figure 4: Payroll Employment, 2002-2012
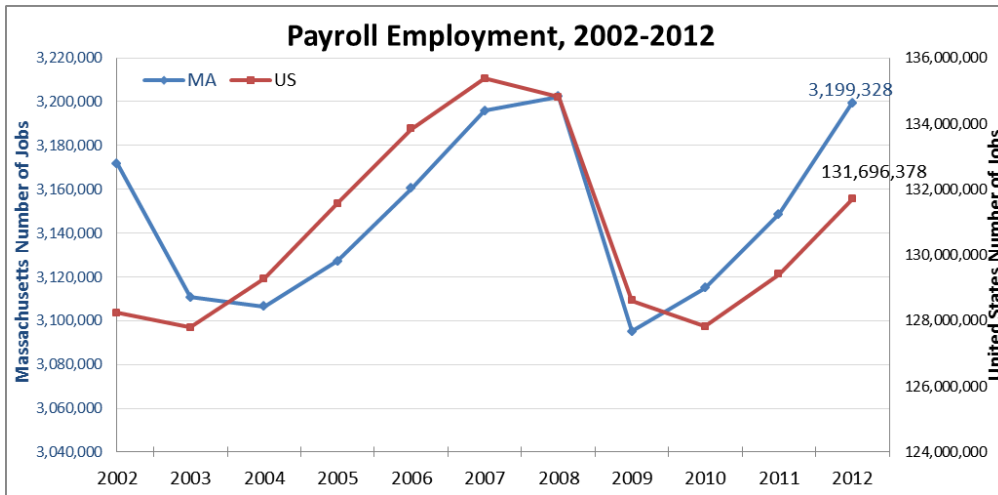
Sources: OLWD, ES-202; BLS, QCEW

Table 6 shows that payroll employment in Massachusetts had almost completely recovered to pre-recession levels by 2012, whereas over the same period, the rest of the country grew but had not yet regained its 2007 peak. As shown in Figure 4, economic cycles have caused large peaks and troughs in overall employment trends. Over the course of the last two recessions in Massachusetts, employment totals have risen and fallen by more than 150,000 jobs.

Business establishments

The number of business units or establishments is another core measure of overall business activity. Tracking the total number of establishments over time develops a picture of the economic base, the companies that provide jobs in a community or other geographic region. It also provides information on economic dynamics in a region, if, for example, the number of businesses are growing or decreasing. As in the case of payroll employment, detailed industry information allows for a more in-depth view of sectors which may be affected by the introduction of casinos, including accommodations and food service businesses.

The data on business establishments for this measure are provided by the QCEW/ ES-202 data series, which provides a count of all businesses which report to the Unemployment Insurance (UI) programs of the United States. Data for agricultural operations and 'non-employers,' mostly self-employed individuals operating very small unincorporated businesses, are not included. According to information provided about the QCEW series, an establishment is understood as a single economic unit, such as a factory or a store that produces goods or services. Establishments are typically located at one physical spot and engaged in a single, or predominantly one type of economic activity to which a single industrial classification may be applied. A firm or a company may consist of one or more establishments, and establishments within a company may participate in different predominant economic activities.[8]

The Economic and Fiscal Impacts Team will collect data on business establishments at the municipal, regional and state level to monitor business growth and decline. The figures in this section present business establishment data for Massachusetts compared to the United States as a whole, to provide an illustration of figures that assess growth trends over time.

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[8] See "What is the difference between a company, a firm and an establishment in QCEW data?" Quarterly Census of Employment and Wages FAQ pages: http://www.bls.gov/cew/cewfaq.htm#Q20

Establishment Count (ES-202, QCEW)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Percent Change 2002-2012
MA	190,114	195,347	200,875	196,630	197,171	199,174	200,518	200,967	209,261	211,514	207,548	9%
US	8,101,872	8,228,840	8,364,795	8,571,144	8,784,027	8,971,897	9,082,049	9,003,197	8,993,109	9,072,796	9,121,868	13%

Sources: *Massachusetts* – Massachusetts Office of Labor and Workforce Development (OLWD), Labor Market Information, ES-202; *U.S.* – U.S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)

Figure 5: Establishments, 2002-2012
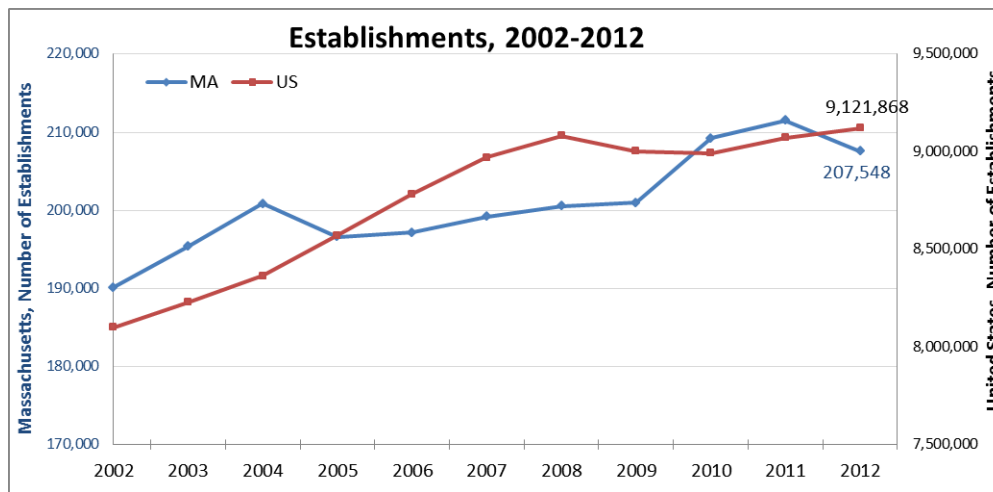
Source: OLWD, ES-202; BLS, QCEW

On the whole, numbers of business establishments have been growing in Massachusetts, and in the nation as a whole (see Table 7). As Figure 5 shows, despite a small dip in 2012, growth in the number of Massachusetts businesses appears to be continuing based on the first half of 2013.

Household Indicators

Unemployment rate

Unemployment rate trends are a common barometer of the labor market and prevalence of job opportunities. Unemployment rates account for workers who have lost their jobs and are looking for new ones within a set amount of time from their job losses (and thus exclude people who are not looking for work). When unemployment is brought together with labor force participation rates, this broader view provides a more encompassing measure of labor market dynamics that includes people who are no longer looking for work. In a recession, the labor force participation rate drops when people leave the labor force because they have stopped searching for work (because they have become discouraged workers or they have retired), while the unemployment rate rises as it captures those who are continuing to search. As jobs return, the unemployment rate drops and at the same time, the labor force participation rate may rebound as unemployed workers are more encouraged to look for work.

The unemployment rate and labor force participation rate are produced by the Bureau of Labor Statistics (BLS) which uses state and national-level information from the Current Population Survey (CPS). Estimates for counties and municipalities are developed from the CPS by the BLS, in a special set they call the Local Area

Unemployment Statistics (LAUS) series. Special techniques of estimation are required for geographies that are smaller than the state level. The labor force participation rate estimates the relationship between the civilian population available for work (aged 16 and older, non-institutionalized) and the engaged labor force. The BLS labor force participation rate is not calculated for sub-state geographies, because the BLS does not create the population estimates necessary for this series at smaller geographic levels.

Table 8: Unemployment Rate, US and Massachusetts, 2002-2012

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Relative Percent Change 2002-2012
Unemployment Rate												
MA	5.3%	5.8%	5.2%	4.8%	4.8%	4.5%	5.3%	8.2%	8.3%	7.3%	6.7%	**27.2%**
US	5.8%	6.0%	5.5%	5.1%	4.6%	4.6%	5.8%	9.3%	9.6%	8.9%	8.1%	39.7%
Labor Force Participation Rate												
MA	68.4%	67.7%	67.0%	66.8%	67.1%	66.8%	66.8%	66.3%	66.1%	65.5%	65.0%	-4.9%
US	66.6%	66.2%	66.0%	66.0%	66.2%	66.0%	66.0%	65.4%	64.7%	64.1%	63.7%	**-4.3%**

Sources: *Massachusetts* – U.S. Bureau of Labor Statistics (BLS), Local Area Unemployment Series (LAUS); *U.S.* – BLS Labor Force Statistics from the Current Population Survey (CPS)

Figure 6: Unemployment Rate with Labor Force Participation, 2002-2012
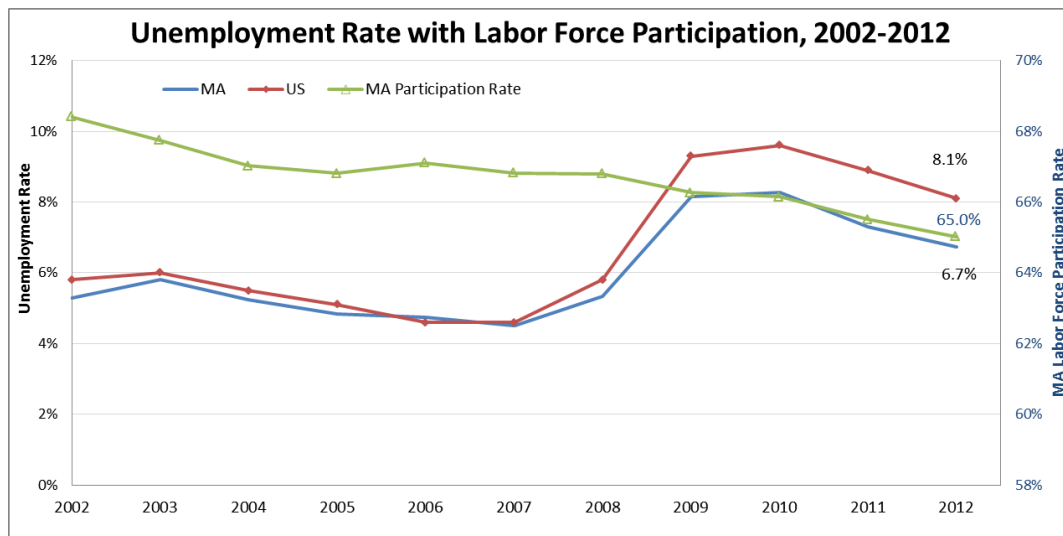
Sources: BLS, LAUS; BLS, CPS

Table 8 illustrates that annual unemployment rates in Massachusetts have risen since 2002, following a similar trajectory to the United States as a whole. The Commonwealth experienced its lowest unemployment rate of the ten-year period in 2007 but rates subsequently climbed as a result of economic recession to a peak of 8.3 percent in 2010. Since that year the state rate has decreased to 6.7 percent. Over this time, Massachusetts unemployment rates have been slightly lower than those seen nationally. Furthermore, state unemployment rates have grown at a slower pace and until 2012 decreased in a steeper manner. Continued higher unemployment rates in both regions in recent years are troubling, including for the fact that labor force participation rates continue to decline in both the US and in Massachusetts (see Figure 6). Even while people are

leaving the labor force, unemployment rates have remained high. The BLS anticipates that labor force participation rates in the US will continue to drop, even in the long-term.[9] In just this ten year time period, the Massachusetts labor force participation rate in 2002 was 68.4 percent but by 2012 it had decreased by 3.4 percentage points to 65.0 percent.

Household income
Median household income data provide a clear trend to assess resident incomes over time. The financial resources available to Massachusetts residents are closely tied to income for the majority of households, so income is a good measure of financial success and the well-being of households. The median illustrates a middle point around which the household incomes in the area are clustered.[10] Increasing median incomes are also likely to support additional economic activity when we view residents as consumers whose spending is an important economic driver in their region.

Household income data is from the U.S. Bureau of the Census' American Community Survey. Since 2006, Census has provided this data annually at a number of geographic levels. For the purposes of analyzing state- and national-level data, ACS 1-year sets are ideal, as they permit a simple year-to-year time series. When it comes time to examine data for municipalities, 5-year sets will be used because estimates for smaller places require a larger sample than can be obtained in a single year. The pool of multiple years in the 5-year data sets allows for the examination of small regions and municipalities.

Table 9: Median Household Income, US and Massachusetts, 2006 -2012

Median Household Income	2006	2007	2008	2009	2010	2011	2012	Percent Change 2006*-2012
MA	$69,290	$70,070	$70,764	$69,583	$66,314	$65,100	$66,296	-4%
(Margin of error)	$720	$573	$646	$738	$436	$934	$654	
US	$55,987	$57,008	$56,295	$54,533	$53,466	$52,302	$52,123	-7%
(Margin of error)	$95	$84	$79	$80	$68	$76	$54	

Source: U.S. Census Bureau, American Community Survey (ACS) 1-year data
Adjusted to 2013 dollars
*Note: Unlike other data used in this study, the 1-year ACS data is only available and comparable from 2006, so data do not go back 10 years. Therefore we calculate the longest term change possible over the 7 years of data, for a 6-year change percentage and level summary. Data for places with fewer than 65,000 people are not available from the ACS 1-year data series. Margins of error (MOEs) are not concerning in this data at the State and U.S. level due to sufficient sample size.

Income growth in *real* dollars (adjusted for inflation) has declined in recent years in both the US and in Massachusetts. Roughly following recent periods of national economic growth and decline, median household income in Massachusetts, available from 2006 to 2012, increased through 2008 but then declined each year through 2011 in real dollars (see Table 9). Only in 2012 did Massachusetts median household income begin to grow again. Massachusetts median household income levels have been consistently higher than income levels for the US and the difference between the two has become even more noticeable over the period. For example, in 2006, Massachusetts median household income was 23.7 percent higher than the US median. But by 2012,

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[9] U.S. Bureau of Labor Statistics, *Labor force projections to 2022: the labor force participation rate continues to fall.* Monthly Labor Review, December 2013. <http://www.bls.gov/opub/mlr/2013/article/labor-force-projections-to-2022-the-labor-force-participation-rate-continues-to-fall-1.htm>
[10] The median is a preferable measure to the average because medians remain relatively stable even when there are a few incomes that are exceptionally high while the rest generally cluster together at lower levels.

the Massachusetts median household income of $66,296 was 27.2 percent higher than the US level. This trend is likely due to the Commonwealth's innovation-driven economy, with strong technology-oriented sectors and a highly educated labor force.

Fiscal Indicators

Personal income taxes

State personal income taxes provide the largest single contribution to the state's tax revenue.[11] These taxes are therefore tracked as a critical fiscal measure. Any boosts to resident income from increased economic activity could increase the state's overall fiscal well-being, even if tax rates remain stable.

Personal income tax data is made available by the U.S. Bureau of Economic Analysis (BEA), which provides national and state level data. The BEA provides information on the total taxes paid, including federal taxes, as well as information about relevant specific taxes. In this case the SEIGMA team is most interested in state personal income taxes paid in case there is a measurable effect from activity in and due to casinos.

Figure 7: Personal Income Taxes Paid, MA, 2012 Employment Series

In the decade preceding 2012, personal income taxes grew in the United States and Massachusetts by 12 percent and 17 percent, respectively (see Table 10). However, national economic downturns have left both the nation and the Commonwealth with personal income tax receipts below their pre-recession peaks (although changes in tax policy and tax rates also impact tax collections). In Massachusetts, approximately 74% of personal income taxes paid in 2012 were collected by the federal government, 25% by the state government, and the remainder was collected by local governments through property taxes (see Figure 7).

Table 10: Personal Income Taxes Paid, US and Massachusetts, 2002-2012

Personal Income Tax	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Percent Change 2002 -2012
MA ($b)	$45.1	$42.5	$43.2	$46.9	$50.1	$55.8	$49.9	$42.6	$44.8	$50.9	$52.7	17%
Federal	$34.5	$31.3	$31.3	$34.4	$37.3	$41.7	$36.0	$30.7	$32.4	$37.5	$39.0	13%
State	$10.3	$10.9	$11.6	$12.2	$12.5	$13.8	$13.6	$11.6	$12.1	$13.0	$13.4	29%
Local	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	35%
Property	$0.2	$0.3	$0.2	$0.3	$0.3	$0.3	$0.3	$0.2	$0.2	$0.3	$0.3	10%
US ($b)	$1,358.7	$1,265.8	$1,288.6	$1,440.1	$1,560.9	$1,670.1	$1,551.5	$1,242.0	$1,271.6	$1,452.5	$1,518.4	12%
Federal	$1,071.4	$978.7	$983.4	$1,110.3	$1,211.4	$1,306.7	$1,190.6	$929.5	$953.6	$1,113.8	$1,164.5	9%
State	$254.8	$252.8	$268.6	$290.7	$309.7	$321.2	$321.1	$275.2	$279.3	$300.6	$315.4	24%
Local	$25.7	$27.1	$29.5	$31.6	$32.2	$34.4	$32.1	$29.2	$30.6	$30.5	$31.2	21%
Property	$6.7	$7.3	$7.1	$7.4	$7.7	$7.8	$7.6	$8.1	$8.0	$7.5	$7.4	10%
Per capita												
MA	$7.0	$6.6	$6.7	$7.3	$7.8	$8.7	$7.7	$6.5	$6.8	$7.7	$7.9	13%
US	$4.7	$4.4	$4.4	$4.9	$5.2	$5.5	$5.1	$4.0	$4.1	$4.7	$4.8	2%

Source: U.S. Bureau of Economic Analysis, Regional Data, Annual State Personal Income and Employment Series, SA50 Personal Income and Taxes, Personal Current Taxes

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[11] According to the Massachusetts Department of Revenue, 56.4 percent of state tax revenue collections in FY11 came from personal income taxes. See: Pitter, Amy, Commissioner. Trend of Tax Revenue Collections in Recent Years. Massachusetts Department of Revenue. January 20, 2012. <http://www.mass.gov/dor/docs/dor/stats/revenue-collections-forecasts/ytd-summaryoffy12-collections.pdf>

Sales taxes

Sales taxes accrue to the state from local purchases, contributing to the state's fiscal health. Sales taxes represent the second largest source of revenue for the state of Massachusetts. Increases in local economic activity increase the sales taxes collected, so they also indicate conditions for local businesses. However, tax policy changes, including the increase in the Massachusetts sales tax rate in 2009, can also impact sales tax collections and may obscure business trends. In Massachusetts several goods are excluded from sales taxes, including clothing and groceries, but specific exemptions vary across states. Gross sales receipts data may thus be a better indicator of trends in retail and other types of spending activity because they reflect all sales.

Sales tax data is available from several sources including the U.S. Bureau of the Census and the Massachusetts Department of Revenue. The Census reports on the broad category of *general sales and gross receipts* which covers taxes collected on both goods and services, exclusive of specially taxed items like alcohol, gas, and pari-mutuels. The Massachusetts Department of Revenue has provided the research team with comparable state-level data. In addition, the Census provides break-out detail on pari-mutuel (pooled betting) taxes which we will also collect for this study (see Table 11). As Figure 8 shows, pari-mutuel collections have been in decline nationally and within Massachusetts.

As casinos are introduced into the state, changes in pari-mutuels sales tax may be particularly interesting. These sales taxes represent collections from gambling using a pooled system of betting, where the final payout is not determined until the pool is closed. Horse racing uses this system, and some lottery games (Mega Millions, for example) use a modified pari-mutuel system. These tax revenues have been steadily declining over the past decade.

Table 11: Sales Taxes, US and Massachusetts, 2002-2012

| Sales Tax	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Percent Change 2002-2012
MA												
Population (thousands)	6,413	6,420	6,399	6,399	6,437	6,450	6,498	6,594	6,557	6,588	6,646	**4%**
General sales and gross receipts ($k)	$4,797,661	$4,654,148	$4,752,325	$4,744,040	$4,669,512	$4,599,971	$4,300,964	$4,543,261	$5,236,208	$5,136,413	$5,239,580	**9%**
Pari-mutuels taxes ($k)	$8,878	$8,289	$7,026	$5,579	$4,831	$4,336	$3,783	$3,011	$2,241	$1,509	$1,659	**-81%**
Per capita general sales tax receipts	$748	$725	$743	$741	$725	$713	$662	$689	$799	$780	$788	**5%**
US												
Population (thousands)	287,377	290,231	295,860	295,860	299,398	301,621	304,060	307,007	309,350	311,592	313,914	**9%**
General sales and gross receipts ($k)	$232,653,025	$233,712,473	$244,116,304	$253,975,589	$265,347,000	$267,743,524	$259,857,716	$246,253,004	$238,281,136	$244,349,406	$246,252,042	**6%**
Pari-mutuels taxes ($k)	$399,365	$382,493	$372,285	$366,874	$275,908	$260,799	$236,505	$196,792	$157,905	$141,814	$137,740	**-66%**
Per capita general sales tax receipts	$810	$805	$825	$858	$886	$888	$855	$802	$770	$784	$784	**-3%**

Sources: *Massachusetts general sales and gross receipts* – Massachusetts Department of Revenue (DOR); *Massachusetts per capita general sales tax receipts* – SEIGMA calculations using population and DOR data; *All other data* – U.S. Census Bureau, Survey of State Government Tax Collections; U.S. Census Bureau, American Community Survey (ACS) single year estimate, table B01003 for U.S. population estimates after 2005.
Adjusted to 2013 dollars; per capita in dollars
Note: General sales and gross tax receipts are based on general sales only and do not include taxes applied to select items such as motor fuels, tobacco products, alcohol, etc.
Note: Population estimates provided in the data set are the same in years 2004 and 2005. In subsequent years, no population data was provided; this table utilized single year ACS data to fill this gap. Sales and gross tax receipts are based on general sales only and do not include taxes applied to select items like motor fuels, tobacco products, alcohol, etc.
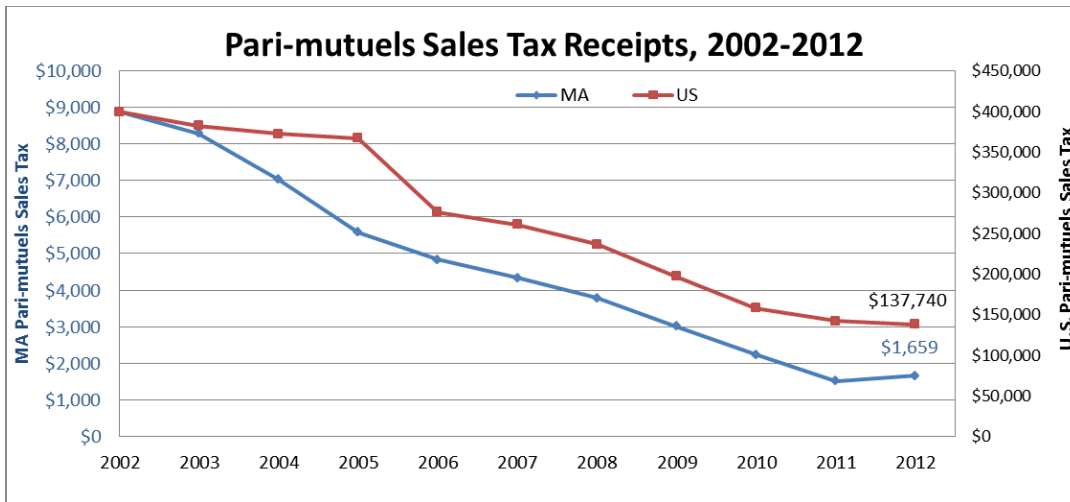
Source: Census
Adjusted to 2013 dollars, in thousands

Update on Data Collection

The data measures presented above have been collected through a variety of public data sets, and the economic team expects to be able to obtain updates to these measures on a regular basis through internet queries and direct data downloads from public data sources. Another group of data measures we intend to track for this project are not as readily available. Some data we need do not exist as organized, downloadable data sets; others are not available in standardized formats; and still others are not readily available at the level of detail necessary for our purposes.

The collection of these harder-to-assemble data sets is requiring special effort to pursue and organize. Through the course of the project period, the Economic and Fiscal Impacts Team has been working to assemble a variety of datasets in collaboration with data providers at various Massachusetts agencies. The economic team obtained lottery data directly from the Massachusetts Lottery Commission and is working to create datasets on charitable gambling for analysis using charitable gambling sales data from various Massachusetts State Lottery Commission reports. Separately, we have been in contact with the Massachusetts Office of Travel and Tourism to obtain time series data related to tourism, including numbers of visitors, spending, and economic impact estimates. We are also working with the Department of Revenue to obtain more detailed municipal finance records, particularly to examine government expenditures. In the coming months, we will obtain data to conduct time-series analysis of horse racing revenue in the Commonwealth.

Most of these special measures are unique within Massachusetts and don't lend themselves to comparisons with the US. Consequently, a slightly different format for tables and figures will be developed. To provide an example of how we'll approach these less standard forms of data, we have presented some tables and figures showing lottery sales data and tourism data.

Lottery Sales

Lottery sales data are collected by the Massachusetts State Lottery Commission, and since this series represents a special collection within Massachusetts, it cannot be compared to the US. Trends in lottery sales will provide a baseline to determine if there are any changes after casinos are introduced. Lottery sales data was provided directly by the Massachusetts Lottery to the SEIGMA research team, organized by municipality for 2003-2012 (see Table 12). This set covers all the games made available by the Lottery, except for charitable gambling. The

games are as follows: Powerball, BG Mega Millions, Mass Cash, Instant Games, Lucky for Life, Numbers Game, Keno, Daily Race, Cash Windfall, Raffle (which is not the same as charitable raffles), and Jackpot Poker. Figure 9 shows an overall decline in total sales of lottery products since 2004, followed by a mild uptick in 2012.

Table 12: Massachusetts State Lottery Sales, 2003-2012

Lottery Sales	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Percent Change 2003 -2013
MA	$5,373.2	$5,506.6	$5,415.3	$5,134.0	$5,140.4	$4,942.0	$4,768.4	$4,680.9	$4,726.9	$4,857.2	**-10%**
Per Capita	$851.2	$872.5	$859.4	$815.3	$816.3	$784.3	$756.6	$743.0	$727.5	$747.6	**-12%**

Source: Massachusetts State Lottery Commission
Adjusted to 2013 dollars, in millions

Figure 9: Lottery Sales, 2003-2012
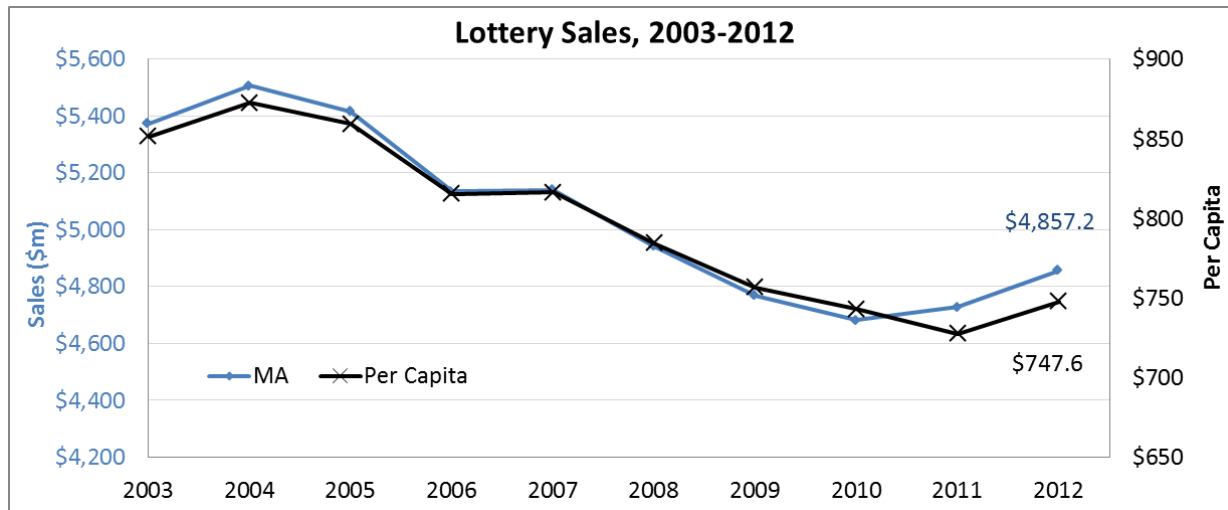
Source: Massachusetts State Lottery Commission
Adjusted to 2013 dollars, in millions; per capita in dollars

Tourism

The Massachusetts Office of Travel and Tourism (MOTT) gathers data from a range of public and private sources, focusing on Massachusetts as a travel destination and the economic impacts that are generated as a result. MOTT provided the SEIGMA team with several sets of data relating to travel volume and origins, lodging, travel-related expenditures, and economic impacts within the Commonwealth. The travel and tourism data shown in this report, domestic household trips to Massachusetts by state of origin and domestic and international travel expenditures by industry, are areas likely to experience effects as gambling facilities are introduced. Therefore, these data sets could help provide a useful baseline from which to measure tourism in the years ahead.

Currently, approximately 30% of all domestic household trips to Massachusetts originate from within the State, and 55% come from within New England (see Table 13). Domestic travel expenditures in Massachusetts currently outnumber international travel expenditures by almost 7:1 (see Table 15). By industry, the largest portion of travel expenditures is characterized as public transportation, which is defined as including air travel (in addition to intercity buses, rail, boats or ships, taxis, and limousines) (see Figure 10). The entertainment and recreation industry commanded only 6% of total travel expenditures in 2012 (see Table 14).

Table 13: Massachusetts Travel Volume by State, 2012

Domestic Household Trips to Massachusetts, 2012	Volume (thousands)	Percent of Total
Massachusetts	6,084	29.4%
New York	2,218	10.7%
Connecticut	1,985	9.6%
New Hampshire	1,133	5.5%
New Jersey	999	4.8%
Maine	976	4.7%
California	854	4.1%
Rhode Island	768	3.7%
Pennsylvania	595	2.9%
Florida	541	2.6%
Vermont	393	1.9%
Virginia	204	1.0%
All Other States (U.S. traveler, not one of above 12)	3,956	19.1%
All New England states	11,339	54.8%
All Mid-Atlantic states	3,811	18.4%
Totals	20,706	100%

Source: Massachusetts Office of Travel and Tourism (MOTT), Total Domestic Trips (TNS, Travels America)

Table 14: Massachusetts Expenditures by Industry, 2008-2012

Direct Domestic Travel Expenditures in Massachusetts by Industry Sector, 2008-2012	2008	2009	2010	2011	2012	Percent Change 2008-2012
MA Total Expenditures ($m)	$14,649.7	$13,485.5	$14,395.8	$15,140.9	$15,631.5	6.7%
Expenditures						
Public Transportation	$4,781.3	$4,227.6	$4,617.3	$4,913.8	$5,081.5	6.3%
Auto Transportation	$2,181.8	$1,967.5	$2,086.0	$2,320.6	$2,363.9	8.3%
Lodging	$3,085.2	$2,679.4	$2,914.7	$3,024.1	$3,211.8	4.1%
Foodservice	$2,819.0	$2,825.0	$2,936.6	$3,009.7	$3,075.8	9.1%
Entertainment & Rec.	$855.0	$859.1	$882.4	$900.2	$910.5	6.5%
General Retail Trade	$927.3	$927.0	$958.5	$972.6	$988.0	6.5%
MA year-to-year percent change		-8%	7%	5%	3%	

Source: MOTT and U.S. Travel Association, The Economic Impact of Travel on Massachusetts Counties, 2012
Adjusted to 2013 dollars, in millions
Notes: (from The Economic Impact of Travel on Massachusetts Counties, 2012, p. 12)
"1. Auto transportation sector includes privately-owned vehicles that are used for trips (e.g., automobiles, trucks, campers or other recreational vehicles), gasoline service stations, and automotive rental.
2. Foodservice sector includes restaurants, grocery stores and other eating and drinking establishments.
3. Public transportation sector comprises air, intercity bus, rail, boat or ship, and taxicab or limousine service.
4. Lodging sector consists of hotels and motels, campgrounds, and ownership or rental of vacation or second homes.
5. General retail trade sector includes gifts, clothes, souvenirs and other incidental retail purchases.
6. Entertainment and recreation sector includes amusement parks and attractions, attendance at nightclubs, movies, legitimate shows, sports events, and other forms of entertainment and recreation while traveling."

Table 15: Massachusetts Expenditures by Industry Sector ($m), Domestic and International, 2012

Direct Travel Expenditures in Massachusetts by Industry Sector, 2012	Domestic	International	Percent Domestic
MA Total Expenditures	$15,631.5	$2,368.0	87%
Expenditures			
Public Transportation	$5,081.5	$290.1	95%
Auto Transportation	$2,363.9	$34.8	99%
Lodging	$3,211.8	$824.0	80%
Foodservice	$3,075.8	$448.7	87%
Entertainment & Rec.	$910.5	$189.6	83%
General Retail Trade	$988.0	$580.8	63%

Figure 10: Direct Travel Expenditures in MA by Industry Sector ($m), 2012
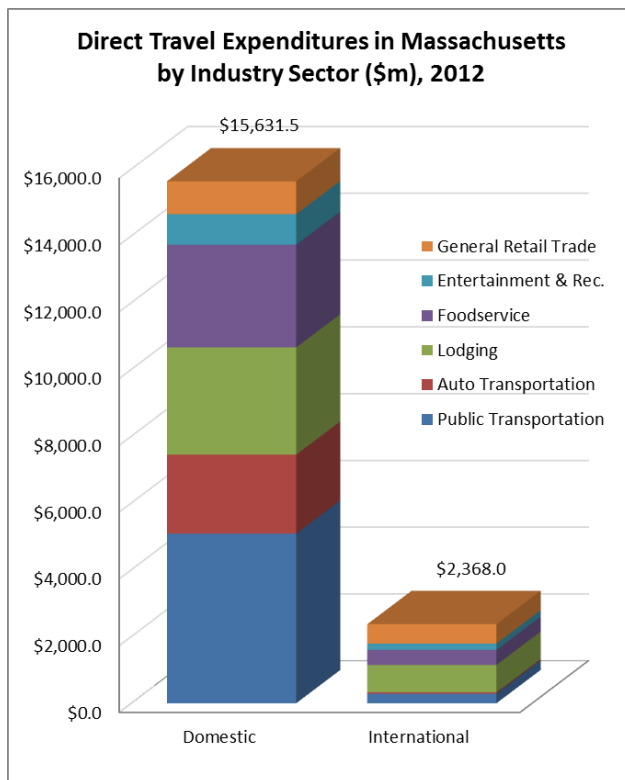
Source: MOTT and U.S. Travel Association, The Economic Impact of Travel on Massachusetts Counties, 2012
Adjusted to 2013 dollars, in millions

Next Steps

Future steps for the economic team include making regular updates to the data sets covering each measure as new annual data become available. In many cases, there is a significant lag between the end of the calendar year and the release of annual data; however, new data sets are continually becoming available. Once the final casino host communities have been identified, the team can move forward on other major components of the study including the comparison community analysis and the economic impact modeling of the chosen casino locations. In the meantime, methods for both approaches are being refined.

Comparison Community Analysis

Comparing host communities with non-casino comparison regions will allow the team an additional way to infer casino impacts beyond a straightforward before-and-after look at economic conditions in the host sites from time-series observation and analysis. The use of counterfactuals to analyze economic trends will help to better distinguish impacts from a casino's introduction from economic changes that would have occurred in its absence.

Led by Dr. Mark Nichols, the economic research team is developing a plan to compare casino communities with matched non-casino communities (counterfactuals). A set of matched non-casino communities will be chosen for each host community based on economic and demographic similarity to the casino communities prior to casino introduction. Dr. Nichols has developed a matching method to select control jurisdictions for comparison with the state's casino host sites. Trends in the comparison communities will be examined during the same period of time that host community casinos begin operating. The resulting analysis will help to better distinguish changes resulting from the casino introduction with changes resulting from broader economic trends. The small number of casino sites to be selected in Massachusetts will create a very small sample, so the comparison community analysis will provide descriptive analysis rather than inferential results. Differences between casino and control communities are better thought of as correlational rather than causal.[12]

Matching method

Several matches for each Massachusetts host community will be identified and grouped together. This will increase the overall amount of information and ensures that if at some point one of the matches can no longer be used, that the others can still provide a reasonable comparison.[13] Economic aspects of the jurisdictions will be used as selection variables to determine similarity, including: population size, demographics, workforce and industrial features. These factors will be used to create the matches by a method called **nearest neighbor matching**, also known as **covariate matching**. The small number of host sites in MA prevents the use of propensity score matching, the other major method of matching most commonly used in such studies. Once matches are selected for each host community, they will be examined in several economic areas (outcome variables) particularly focused on employment and income. The economic well-being of matched jurisdictions will be tracked over time for comparison to the selected casino host communities.

Problem Gambling Services Evaluation

Purpose

The objectives of the Problem Gambling Services Evaluation are to document existing prevention and treatment services for problem gambling in the state of Massachusetts and to assess the adequacy of these services in addressing and mitigating the impacts of problem gambling. Currently, the SEIGMA team plans to achieve these goals in two primary ways. The first is by analyzing data collected through the Problem Gambling Telephone Helpline of the Massachusetts Council on Compulsive Gambling (MCCG). The second is by interviewing and surveying treatment providers across the state about their training to treat problem gamblers, experiences treating these patients, the context in which they deliver treatment, and the barriers they face in treating problem gamblers.

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[12] Sekhon, Jasjeet S. (2009). "Opiates for the Matches: Matching Methods for Casual Inference." Annual Review of Political Science. 12:487-508.

[13] For example, if a casino later is sited very nearby, perhaps directly across a border from a matched jurisdiction.

A summary of these efforts is presented in this section. We first share select preliminary data and recommendations from our analysis of MCCG helpline data. These data will be presented in more detail in a future stand-alone report, for which a timeline is presented. We also share our revised plan for evaluating treatment provision across the state and summarize our next steps to achieving the objectives of this component of the study.

Helpline Data Analysis

Context

The MCCG has been providing helpline services in Massachusetts since 1987 and is one of the major existing problem gambling prevention and treatment services in the state. The helpline is a toll-free telephone service that is offered free of charge 24 hours a day, 7 days per week. It offers information, referrals, and other community resources to problem gamblers, treatment providers, and anyone concerned about someone else's gambling.

When a caller dials the helpline, they receive a live and confidential response. The service providers who respond to the helpline are trained to respond empathetically to callers. Based on the needs of each caller, helpline responders offer information and referrals for self-help, treatment providers, and other community resources. To the extent possible, helpline responders record the date and time of call, type of caller (e.g., gambler, family member), reason for the call, referrals made, and the type of information sent to the caller after the call. If possible, helpline responders also collect information on the characteristics of callers, such as socio-demographic information (e.g. gender, age, marital status, ethnicity, employment), residence (e.g. city, state, zip code), gambling type, gambling venue, how callers learned about the helpline, previous experience with the helpline, and willingness to participate in a follow-up survey. They record this information using a form that was developed for this purpose in 1996.

It is important to note that helpline responders are trained to let the caller guide the telephone call based on their unique needs. For example, one caller might express concern about a loved one's gambling habits while another caller may be in crisis about their own gambling behavior. These issues require unique and tailored responses. The main goal of helpline responders is to adequately address each caller's needs and provide them with resources through which they can seek more help. Data collection is a secondary goal of helpline responders.

Two groups receive and respond to helpline calls. MCCG staff members respond to helpline calls from 9:00a.m.-5:00p.m Monday through Friday. A company called Bensinger, DuPont and Associates (Bensinger Dupont) based in Chicago staffs the helpline from 5:00p.m.-9:00a.m. Monday through Friday, and 24 hours a day during weekends and public holidays. Although data from each responding agency are eventually integrated, each agency records data differently.

Although MCCG has maintained a database of helpline data since July 1996, the data have never been analyzed. We anticipate that analyses of these data will be useful in understanding and improving the quality of MCCG's helpline. As mentioned earlier in this section, SEIGMA investigators are currently working on a stand-alone report which presents comprehensive analyses of MCCG helpline data and a set of detailed recommendations. For the purposes of this report, we have selected a handful of findings that reflect key themes in our broader analysis.

Methods

After a series of initial discussions, the SEIGMA Team and MCCG signed a Memorandum of Understanding to establish guidelines to facilitate review and analysis of helpline data. After obtaining approval from the UMass Amherst IRB, UMass investigators obtained de-identified data from MCCG in Excel files.

We used the STATA 12SE statistical package to clean, prepare, inspect, and analyze the data. We first examined the types of callers and their reasons for calling. We then examined the distribution of calls by time of day, day of the week, month, and year. We looked at patterns between the dates and times of calls and the types of callers (i.e., gamblers versus non-gamblers). Finally, after noticing a large amount of missing data, we looked at the frequency of missing values for several important variables. The results of these preliminary analyses are presented below.

Results

In total, 31,410 calls were made to the Massachusetts Problem Gambling Telephone Helpline from July 1996 to September 2013. Of these, 4,444 concerned lottery results and 291 were media-related calls[14]. These calls were excluded from our analyses. Table 16 shows that of the 26,675 calls included in the analysis, 19,114 calls (71.7%) were answered by MCCG and 7,561 calls (28.3%) were answered by Bensinger Dupont.

Table 16: Types of callers

Variables	MCCG (n=19,113)*		Bensinger (n=7,561)	
	n	(%)	n	(%)
Gamblers	9,023	(47.2)	4,174	(55.2)
Relatives of Gamblers†	4,050	(21.2)	867	(11.5)
Clinicians	2,021	(10.6)	40	(0.5)
Personal network members‡	1,387	(7.3)	186	(2.5)
Other¥	2,632	(13.8)	2,294	(30.3)

*Information on type of caller was missing for one call
†Parent, child, spouse or significant other of gambler
‡Friends, interested persons, employers, students, roommates
¥Anonymous/other

Table 16 also shows the types of callers who called the helpline between July 1996 and September 2013. Approximately half of the calls were made by gamblers (47.2% of MCCG calls and 55.2% of Bensinger calls). During this same time period, relatives of gamblers, clinicians, members of gamblers' personal networks, and others also called the helpline.

Distribution of calls

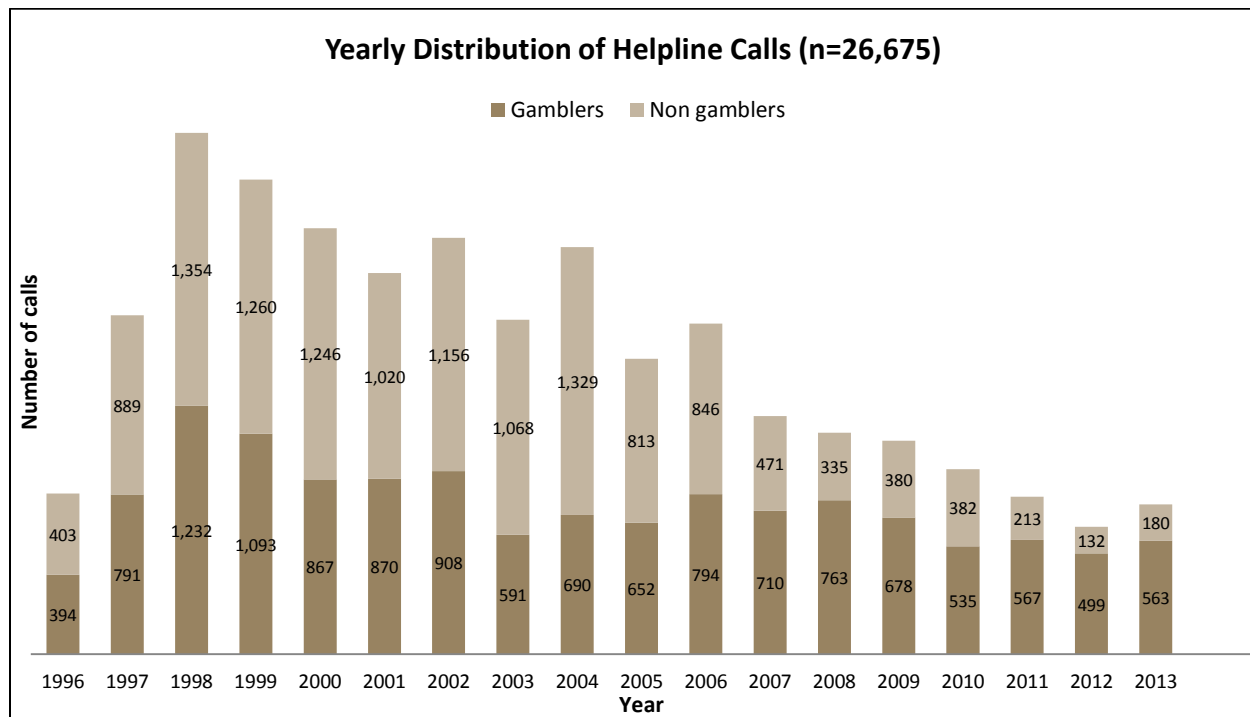#### Yearly Distribution of Helpline Calls:
Figure 11 illustrates that the number of helpline calls increased from 1996 to 1998. Following this initial increase, the number of calls steadily declined from 1999-2012, with few exceptions. It is interesting to note

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[14] Because the MCCG helpline number is listed on MA lottery tickets, individuals mistakenly call the helpline to obtain information about lottery results. In 2011, MCCG decided not to count these calls; since that time, helpline call counts do not include calls regarding lottery results.

that this pattern is remarkably consistent with the rate of problem gambling in North America which peaked in the late 1990s and has been in decline since then (Williams, Volberg, & Stevens, 2012). Overall, the number of calls from gamblers remained stable throughout the period while the number of calls from non-gamblers declined. A portion of this decline can be explained by a shift in potential callers seeking information and referrals to MCCG's website, which was created in 2007.

Helpline call volumes are strongly influenced by media campaigns. As we continue drafting the full report on MCCG helpline data, we will investigate whether there were years in which concerted advertising and helpline-related media occurred.

Figure 11: Yearly Distribution of Helpline Calls

Monthly Distribution of Helpline Calls:
The monthly distribution of calls remained stable over the study period averaging about 2,000 calls per month in aggregate. Unlike yearly calls, stratification of monthly calls by types of callers (gamblers *versus* non gamblers) showed no significant variations.

Daily Distribution of Helpline Calls:
Overall, a higher proportion of calls were made during weekdays (e.g., an average of 3,953 calls on Thursday and 5,020 calls on Tuesday) as compared to weekends (e.g., an average of 2,115 calls on Sunday and 2,306 calls on Saturday). When we looked for patterns between caller type and daily distribution, we found that the distribution of calls was similar for gamblers and non-gamblers.

Hourly Distribution of Helpline Calls:

Figure 12 shows the hourly distribution of calls. In total, 61.1% of the calls from gamblers and 63.7% of the calls from non-gamblers were made between the hours of 9:00 AM and 5:00 PM. The remaining calls were made outside of regular business hours (39% of the calls from gamblers and 36.3% of the calls from non-gamblers).

Figure 12: Hourly Distribution of Helpline Calls

Hourly Distribution of Helpline Calls (n=24,222*)
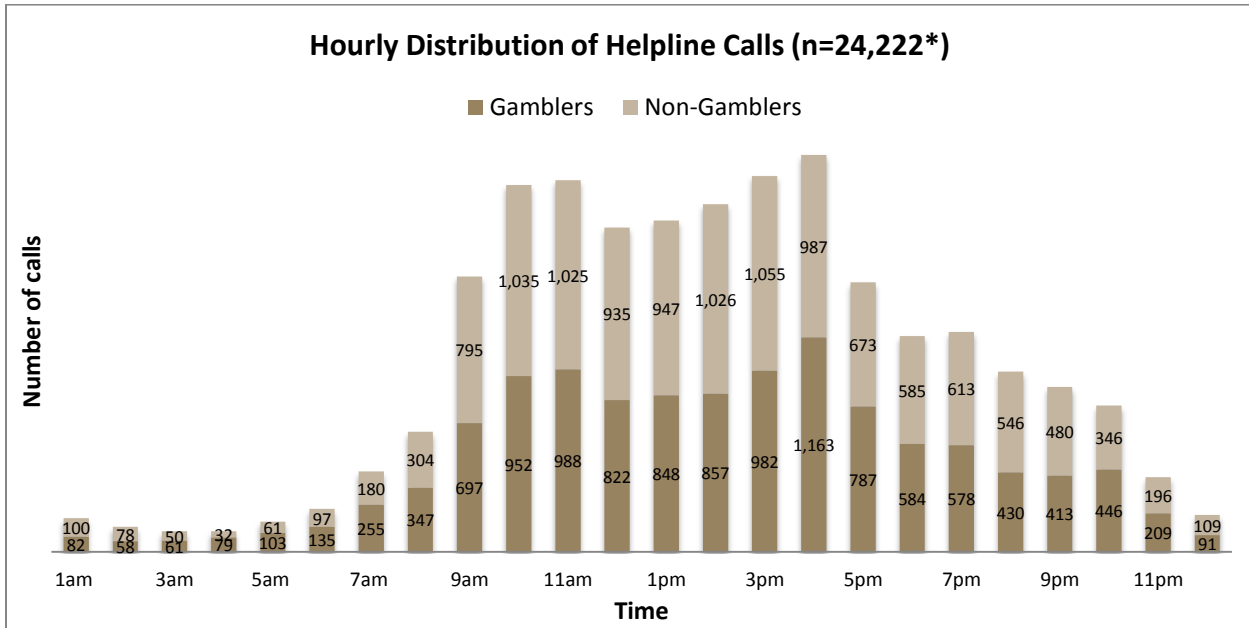
* The time of call was missing for 2,453 calls

Missing information

Table 17 shows the percentage of missing information for each caller type according to which agency collected the information. The call recipient—whether MCCG or Bensinger Dupont—was recorded for all of the calls. Additionally, the type of caller—whether gambler or non-gambler—was missing for only one call. As the table shows, there was a substantial amount of missing data for both gamblers and non-gamblers. In reviewing information collected about gamblers, the data illustrate that when MCCG receives calls from gamblers, they record a smaller proportion of data than Bensinger Dupont, particularly callers' ethnicity, age, county, and associated problems. For example, ethnicity is a missing value for 62.5% of gamblers when MCCG records the data and for 9.4% of gamblers when Bensinger Dupont records the data for these calls. However, the converse is true of Bensinger Dupont; when Bensinger Dupont receives calls from non-gamblers, they record a smaller proportion of data. For example, gender is a missing value for 57.4% of the gamblers about which non-gamblers are calling when MCCG records the data, and for 72.3% of callers when Bensinger Dupont records the data for these calls.

Table 17: Missing Helpline Information

Variables	Call Recipient			
	MCCG (n=19,113)		Bensinger (n=7,561)	
	Type of caller*		Type of caller	
	Gambler	Non-gambler	Gambler	Non-gambler
Number of calls received	9,023	10,090	4,174	3,387
Gender of gambler (%)	2.7	57.4	1.9	72.3
Ethnicity of gambler (%)	62.5	84.2	9.4	76.0
Age of gambler (%)	55.5	77.9	8.0	77.9
Associated problems with gambling (%)	7.6	32.8	1.3	37.3
County call originated from (%)	30.2	44.3	18.1	74.4

MCCG: Massachusetts Council on Compulsive Gambling
*Information on type of caller was missing for one call
Associated problems with gambling refers to financial, relationship, work-related, time-related, school-related, health-related, and mental health-related problems.

Preliminary Recommendations

Based on the results of these preliminary analyses, we have three recommendations for maintaining and improving helpline services in Massachusetts. It is important to note that the recommendations listed below are *preliminary recommendations* that may change as we continue our analyses and draft our full report.

1) The Massachusetts Problem Gambling Telephone Helpline **should be continued for the foreseeable future**. Although the total number of helpline calls declined from 1996-2013, the number of calls from gamblers remained stable throughout the study period. The raw number of calls is currently several hundred a year (which we anticipate will increase subsequent to casino openings). This suggests that a significant number of problem gamblers prefer speaking with trained helpline providers about their problems and strategies to reduce associated harms.

2) The results of these analyses may be useful to **plan or re-allocate resources to the helpline**. We found that higher proportions of calls are received during weekdays and office hours as compared to weekends and after office hours. Allocating more resources during peak hours could help to improve the helpline's quality of service.

3) It may be possible to **improve the quality of data collection for the helpline**. Although helpline staff members have collected information on several important variables, there is a high frequency of missing values. It is understandable that the main priority of helpline responders is to offer need-based information and referrals for various services during the limited time they have with callers. Nevertheless, better documentation would be helpful both to tailor helpline services for callers and to tailor the training and certification that MCCG offers to clinicians. For example, knowing trends in callers' gender, age, and gambling-related problems could aid in tailoring referrals and training clinicians. In line with recent efforts by the National Council on Problem Gambling, MCCG may want to consider creating a minimum dataset for its helpline, which would consist of a small number of variables for which it wants responders to collect information on every call. Revising the data collection form to include only key variables could also help to improve the quality and consistency of data collection. Lastly, standardizing training for helpline responders—both MCCG and Bensinger Dupont staff—may help to ensure consistency in helpline response, data collection, and reporting. MCCG is already making headway on this recommendation. In the coming months, MCCG and Bensinger Dupont will roll out a new helpline form and reporting process designed to capture a consistent set of data from callers and improve the efficiency of resource delivery to callers.

Next Steps

As mentioned previously, we are in the process of writing a separate report that includes detailed results of our full analysis of MCCG's helpline data as well as a complete list of recommendations. Both to ensure that this report is completed in a timely manner and to ensure that MCCG is fully engaged in the reporting process, we have created a timeline for our efforts (below).

Table 18: MCCG Helpline Analysis Timeline

Date	Action(s)
4/1/2014—4/20/2014	Continue drafting stand-alone helpline report
4/21/2014-4/25/2014	Submit draft of Helpline Report to SEIGMA Project Manager and Data Manager for review
4/28/2014-5/2/2014	SEIGMA Project Manager will conduct preliminary edits, format report, and send to the SEIGMA Executive Team for review
5/5/2014-5/8/2014	The SEIGMA Executive Team will review the report
5/9/2014	Integrate edits, prepare for MCCG meeting, and print report
5/12/2014-5/16/2014	Meet with MCCG to review report
5/19/2014-5/23/2014	Integrate MCCG feedback, finalize report, and send to MCCG and SEIGMA Executive Team for Review
5/26/2014-5/30/2014	MCCG and SEIGMA Executive Team review report
6/2/2014-6/6/2014	Integrate edits and submit to MGC for review
6/9/2014-6/11/2014	Submit final report to MGC; discuss dissemination strategy
6/16/2014-6/20/2014	Disseminate report

Evaluating Problem Gambling Treatment Provision in MA

Introduction

The purpose of the Problem Gambling Treatment evaluation is to describe, to the best extent possible existing problem gambling treatment services in the Commonwealth of Massachusetts and to make recommendations for maintaining and improving these services over time. Our initial approach to achieving this goal was to create an online survey and distribute it to all of the treatment providers in MA who have received Massachusetts Problem Gambling Specialist (MAPGS) Certification from MCCG. To this end, we created a survey instrument and research plan and submitted them for UMass Amherst IRB approval.

Following approval, we piloted the survey with a treatment provider in MA who has a reputation for receiving a high volume of clients with gambling problems. In addition to asking her to complete the survey, we conducted a key informant interview with her to learn more about the context in which she provides treatment, her experience taking the survey, and any suggestions she had for improving it.

This conversation was extremely valuable. In addition to receiving critical feedback about the survey format and length, we learned a great deal about the context in which clinicians provide problem gambling treatment. The ultimate result of the conversation, which is summarized below, was a decision to modify our methods and approach to evaluating problem gambling treatment in the state of Massachusetts. Following a summary of this key informant interview, we describe other progress we have made to date and our next steps for achieving this component of the SEIGMA study.

Progress to Date

The agency in which the clinician we interviewed provides treatment to individuals with gambling problems collects a substantial amount of patient data. Everyone who is admitted to treatment completes a lengthy intake packet. The intake packet includes a number of forms, which collect information about the patient's reason for seeking treatment, insurance, and the clinician to whom they are assigned. Based on the initial information provided through the intake process, a patient may fill out additional screenings.

For example, anyone who comes in for gambling treatment fills out the South Oaks Gambling Screen (SOGS), a twenty item questionnaire based on the criteria for pathological gambling in the Diagnostic and Statistical Manual of Mental Disorders III (DSM-III) (Lesieur & Blume, 1987). In addition to completing the SOGS, each patient's number of visits, history of substance use, mental health disorders, whether they have received treatment before, and gambling participation are recorded by their assigned clinician.

The clinician interviewed did not know if this practice was common at other agencies. She did tell us that she did not think a large enough number of clinicians are trained to work with problem gamblers in MA and that buy-in is needed to increase the number of clinicians who become MAPGS certified. She articulated a perceived lack of awareness about gambling problems and available treatment among treatment providers, potential patients, and the general public. She emphasized the need for more clinician training and public education to improve awareness of gambling problems.

Regarding her experience completing the online survey, she acknowledged that she found the online survey to be cumbersome and stated that it took her a substantial amount of time to complete it. She told us that the length of time needed to complete the survey would pose a barrier to potential respondents for a variety of reasons. One is that many clinicians work within a fee-for-service structure and as such, see a high volume of clients. For a provider that relies on the fees received from each treatment session, time spent on such a survey could result in fees lost. She identified a lack of agency resources to support and supervise clinicians as an additional barrier faced by many clinicians, even those who are salaried. Moreover, she stated that due to having such a high volume of clients, treatment providers often fall behind on paperwork and struggle to complete it between patients. She also identified lack of internet access in some agencies as a potential barrier.

When asked how she would attempt to evaluate problem gambling treatment in MA, she suggested that we attempt to talk to treatment providers face-to-face, particularly those who serve the largest number of patients with gambling problems. When asked how an evaluation like this would be useful to treatment providers like herself, she identified two primary areas of interest: 1) Understanding length of stay for patients with gambling problems; and 2) Creating a set of guidelines and best practices for training. In her experience, clients with gambling problems often drop out of treatment quickly and providers are interested in ways to better retain these clients. She expressed an interest in using this information to create a set of guidelines and best practices for providers to aid them in their efforts to retain and treat problem gamblers.

At the end of the interview, the clinician recommended some additional key informants for us to talk to. She reiterated the importance of collaborating with MCCG to connect with treatment providers in MA. Following this interview, we decided to take a different approach to evaluating treatment services in the state. The first step was to draft a formal evaluation plan using the Center for Disease Control and Prevention's (CDC) Framework for Program Evaluation, a tool widely used by public health professionals to evaluate programs and policies. The framework utilizes a structured and systematic approach to evaluate program processes, and outcomes (US DHHS, 2011). The Framework is comprised of six steps: 1) engage stakeholders, 2) describe the program/service, 3) focus the evaluation design, 4) gather credible evidence, 5) justify conclusions, and 6) ensure use and share

lessons learned. We chose this framework because it emphasizes stakeholder engagement before, during and after the evaluation, and is utility-focused to ensure immediate use by stakeholders.

Once we had a rough draft of the evaluation plan, we scheduled a meeting with Alicia Barron, the MCCG's Intervention and Treatment Support Manager, to review the draft and discuss the best methods for evaluating treatment across the state. We discussed three distinct groups of treatment providers that the evaluation should target: 1) providers that are MAPGS certified; 2) providers who have received some training from MCCG but that are not MAPGS certified; and 3) providers who have not received problem gambling training or certification. To target these populations, we discussed the possibility of collaborating on some focus groups with treatment providers after MCCG's annual conference in early April. We further discussed using the conference as an opportunity to connect with treatment providers across the state. In addition to the three groups of treatment providers identified above, our evaluation plan will examine other treatment services across the state of MA, such as Gambler's Anonymous, Gam-Anon, and MA DPH.

Next Steps
Over the next month, we will continue to refine our evaluation plan in collaboration with MCCG. As a part of this process, we have identified other jurisdictions that have conducted similar evaluations. In addition to reviewing their evaluation reports, we have reached out to individuals with experience conducting evaluations in other jurisdictions. Currently, we are looking at Iowa, California, and Connecticut as potential models for SEIGMA's evaluation effort. In addition to this, we contacted Dr. Beth Moracco, an evaluation expert who evaluated the North Carolina Coalition Against Domestic Violence. Dr. Moracco used the CDC framework to evaluate North Carolina treatment providers who serve individuals experiencing domestic violence and sexual assault. In addition to sharing a copy of her evaluation plan for this project, Dr. Moracco shared many insights about her experience with treatment providers, many of whom work in similar contexts to problem gambling treatment providers in MA.

The final evaluation plan will likely include a mixed methods approach in which we will use a mix of key informant interviews (qualitative), focus groups (qualitative) and surveys (quantitative) to better understand and evaluate existing problem gambling treatment services in the state. Once our evaluation plan is finalized, we will submit another application to the UMass IRB. After obtaining IRB approval, our team will begin collecting data and analyzing results. We hope to finalize our evaluation plan and begin implementing it over the summer.

In addition to these efforts, we have also reached out to Mt. Auburn Hospital's Prevention and Recovery Center about the possibility of doing retrospective analysis of data collected from patients with gambling problems. We produced a memo in mid-February that explained the SEIGMA study and our interest in using patient data to better understand those who seek treatment for gambling problems. We have a meeting scheduled with a representative of Mt. Auburn in early May and are looking forward to building this relationship.

Data Management

Data Accessibility Efforts
As the previous sections of this report illustrate, the SEIGMA team has been collecting secondary data on a multitude of social and economic impacts. Once collected, team members send data to the Data Management Center (DMC), the central repository and coordination center for data and research reports generated by the SEIGMA team. The DMC stores data on the School of Public Health and Health Sciences (SPHHS) secure server, which is a networked UMass data storage system, overseen by the Office of Information Technology at UMass. Efforts have been taken to make this data accessible to both the SEIGMA team and external stakeholders.

SEIGMA Team
Some SEIGMA team members have direct access to the dedicated space on the secure server, while the remaining SEIGMA team members have access to the data using Virtual Private Networking. Virtual Private Networking (VPN) software creates a secure, encrypted connection between their off-campus computer and the campus network.

External Stakeholders
External stakeholders will have access to the unrestricted data through the SEIGMA public website (http://www.umass.edu/seigma/). SEIGMA is in the process of hiring a web designer who will help design a method to disseminate the data on the public website. One method we have been exploring is using *rstudio* with the *shiny* application. This application allows us to transform analyses into interactive web applications that anyone can use. External stakeholders will be able to choose input parameters using friendly controls like sliders, drop-downs, and text fields that easily result any number of outputs such as plots, tables, and/or maps. For example, a user may want to examine a map which displays the distribution of poverty rates across all 351 of the municipalities in Massachusetts. *Rstudio* and *Shiny* would allow the user to choose to display the distribution for a given year, or the change over several years. Figure 13 displays a prototype of a map that was created using the *Shiny* application.

Figure 13: Prototype of Map Produced with *Shiny* Application
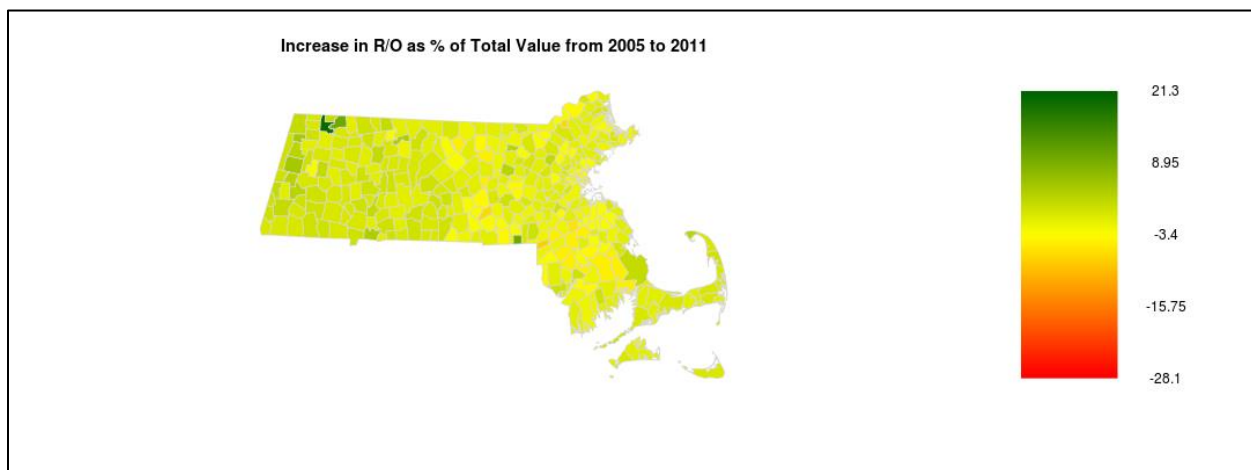
Data Collection and Storage to Date
Many secondary data measures have been collected to date, including *Business Indicators* (employment, business establishments, wages, and business bankruptcies), *Resident Indicators* (unemployment rate, labor force, employment, household income, poverty rates, per capita transfer payments), *Housing and Real Estate Indicators* (assessed property values, residential building permits, rental housing costs), *Non-gambling Revenue* (personal income tax, property tax), *Problem Gambling and Related Indices*(age, race/ethnicity, Hispanic/Latino, sex, personal bankruptcy rates, suicide rates, self-reported health status, disability), *Education* (educational attainment, school enrollment, demand for specific services, student mobility rates), and *Social Economic Inequality Indices* (poverty rates, household income).

The DMC maintains a set of Standard Operating Procedures, including two matrices that display the social and economic impact indicators that the SEIGMA Research Team collects. 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, and the data use agreements and data sharing restrictions associated with them. below is an excerpt from one of the tables.

Table 19: Excerpt from Economic Impacts Table in Standard Operating Procedures

Category	Measure	Geography	Period	Source (p=primary, s= secondary data)	Person/group responsible for collecting data	Data use Agreement	Data sharing restrictions	Current data file
Business Indicators	Business Bankruptcies	County, District, Circuit	Calendar year 2012	S: Federal Judiciary Public Access to Court Electronic Records (PACER) if historical data required	Donahue Institute	Historical data must be purchased from PACER for 10 cents per page. It therefore is use-restricted and cannot be shared publicly. (for details see J:\Projects\Gambling\data center\data\secondary\economic\Business Indicators\pacermanual.pdf)	Only share with SEIGMA team	J:\Projects\Gambling\data center\data\secondary\final\AP002 \AP002_01
		Municipality, County, State in MA (a few outside of MA)	Fiscal year 2012	S: United States Courts, Administrative Office of the U.S. Courts on behalf of the Federal Judiciary, Bankruptcy Division	Donahue Institute	No		J:\Projects\Gambling\data center\data\secondary\final\AP001 \AP001_01

If there is no a data use agreement or restriction, then the data will be accessible to the SEIGMA Research Team (through the SEIGMA secure server) and external stakeholders (through the SEIGMA public website). If there are restrictions on data use, then data will only be accessible to the SEIGMA team (through the SEIGMA secure server). This restricted data will be stored on the secure server, within a restricted folder. SEIGMA team members who access the restricted data must first read and sign the SEIGMA Team Data Use Agreement, which states that SEIGMA data may only be stored within secure folders on the SPHHS secure server, may not be removed from the SPHHS secure server and may not be stored on any other devices, such as desktop computers, laptops, flash drives, or compact disks. SEIGMA team members who access the restricted data must also sign any forms listed under data sharing restrictions. A copy of all forms must be given to the DMC before access is allowed.

SEIGMA Public Website
Since the SEIGMA public website went live in early November 2013, there have been 633 visits, with 316 unique visitors and 1899 pageviews. Visitors of the website have come from 10 different countries, including the United States, Canada, Australia, United Kingdom, Sweden, New Zealand, Singapore, Iceland, the Netherlands and South Africa.

The SEIGMA team recently added a regular blog to its public website. The first blog posted introduces the blog to visitors and discusses how slot parlor selection affects the SEIGMA research project. In upcoming editions we hope to feature voices from our team and regular updates about our progress with the study.

Additions to SEIGMA's Scope of Work

In addition to the efforts described above, the SEIGMA team plans to add two additional components to their scope of work for Fiscal Year 2015—assessing transportation and crime impacts. Transportation impacts, which include traffic, were not included in the original Request for Response (RFR) for Research Services (MGC-RA-2012) that the MGC solicited and the SEIGMA team did not include them in their original research plan. Although crime impacts *were* included in the RFR, and the SEIGMA team included them in their original research plan, difficulties in contractual negotiations between MGC and UMass Amherst led the SEIGMA team to eliminate the crime component in their present research plan. However, the SEIGMA team and MGC always intended to reintegrate measuring crime impacts into the research evaluation. Indeed, because both crime and transportation impacts are of critical concern to stakeholders, particularly those living in communities that will host or surround new gambling venues, both SEIGMA and the MGC are eager to establish a formal mechanism for tracking these impacts over time as new gambling venues are implemented.

At recent meetings, several members of the SEIGMA Research Team met with representatives from the Massachusetts Department of Transportation (MassDOT) and the State Police to start discussing these topics. Initial discussions focused on developing a scope of work for measuring the transportation and crime impacts associated with gambling expansion. Below, we describe the details and outcomes of those meetings as well as a summary of next steps in the planning process.

Assessing Transportation Impacts of Expanded Gambling

Progress to Date

The SEIGMA team began by reviewing the Expanded Gaming Act for references to traffic and transportation. We found that Section 9a of Chapter 194 of the Expanded Gaming Act states that traffic reports are required as a part of the application package. However, while the legislation is clear about what traffic-related data should be collected as a part of the application process, it offers very little information regarding traffic data collection once licenses have been awarded and venues built. The legislation does call for the creation of a Mitigation Committee that will review materials related to social, environmental, traffic, and infrastructure impacts of the new venues and make recommendations for mitigating these impacts.

We followed our review of the legislation by searching Phase I application materials that had been submitted to MGC for traffic studies and traffic-related materials. We reviewed all of the existing materials and developed a list of questions and an early draft of possible measures to track over time. We used these questions and measures to initiate conversations with members of the Mitigation Committee and MassDOT. Since January 2014, the SEIGMA team has had 2 meetings with MassDOT to discuss measuring transportation impacts of expanded gambling in the Commonwealth. Initial discussions focused on existing data, MassDOT data collection policies and procedures for new developments, and possible data measures.

From these conversations, we learned much about MassDOT's regulatory obligations. Under Section 61 of the General Laws, "All agencies, departments, boards, commission and authorities of the Commonwealth shall review, evaluate, and determine the impact on the natural environment of all works, projects, or activities conducted by them and shall use all practicable means and measures to minimize damage to the environment." In this case, MassDOT is the agency charged with reviewing the applications and traffic studies submitted by license applicants and generating a Section 61 Finding, which summarizes the existing condition of the project, projects impacts, and specifies what operators have to do to mitigate potential impacts.

Based on these initial meetings, the SEIGMA team drafted a list of possible transportation data measures to track over time. This initial list was used to facilitate discussion with MassDOT about: 1) the most important and relevant transportation/traffic measures to include; 2) the most appropriate organizations and mechanisms to collect this data; and 3) related topics such as defining the transportation facilities or geographies to include in the study and other measures that relate to transportation.

Discussing possible data measures and how best to collect them revealed a set of shared goals among MGC, SEIGMA and MassDOT. One such goal is monitoring transportation infrastructure at baseline and comparing baseline measurements with both projected and actual transportation impacts. When MassDOT generates a Section 61 finding, a monitoring program is set up in which MassDOT reviews projected counts against actual counts. However, often time and resources do not permit a comprehensive review. Thus, the SEIGMA study could create a more comprehensive understanding of the extent to which projected transportation impacts were actualized post construction and operation.

Another shared goal concerns measuring transportation-related health impacts of the casinos, such as smog and asthma rates. Promoting health through transportation planning is in line with MassDOT initiatives such as GreenDOT, a sustainability initiative designed to reduce greenhouse emissions, promote healthy transportation options, and support smart growth development. One component of GreenDOT is the Healthy Transportation Compact, an inter-agency initiative that facilitates transportation decisions to expand mobility, improve public health, support cleaner environments, and create stronger communities. The SEIGMA study could enable MassDOT to track the outcomes of these initiatives while simultaneously painting a clear picture for stakeholders of how projected transportation-related health impacts materialize over time.

Table 20: Possible Transportation Impact Measures

Possible Transportation Impact Data Measures
Operating Under the Influence (OUI)
Reported Crashes (traffic accidents)
Traffic Volume - Average Annual Daily Traffic (AADT)
Vehicles Per Hour
Peak Hour Level of Service (A, B, C, etc) - this correlates with average delay per vehicle
Traffic Speed (Average Speed mph)
Volume to Capacity (V/C) Ratio
Projected Traffic/Actual Traffic
Other measures of safety
Mode Split of Casino Visitors (% auto, bus, transit, bike, ped)
Number of non-auto trips by mode to casino
Highway maintenance/repair costs
Other measures of transit, bike, pedestrian activity
Service Upgrades (esp. for public transit)
Infrastructure investment –investments made for connecting roadways
Generation of trips
Length of stay
Maintenance costs
Traffic Citations Issued
Health Impacts—emissions, smog, pollution, etc.
Parking Shortages

Based on our meetings and shared goals, the SEIGMA team drafted a more comprehensive working list of possible data measures (above) and research questions.

Next Steps
Currently, representatives from MassDOT are in the process of extracting a set of priority measures from the list above. This list will facilitate planning the next stage of this effort with MGC. Plans are presently underway for a meeting between SEIGMA, MassDOT, and MGC to continue scoping out this new aspect of the research agenda.

Assessing the Crime Impacts of Expanded Gambling

Progress to Date
Since January 2014, the SEIGMA team has had four meetings with representatives of the Massachusetts State Police and MGC to discuss measuring the crime impacts of expanded gambling in the Commonwealth. Early meetings helped to start the dialogue with key stakeholders and establish a list of possible measures to track over time. At the first meeting in mid-January, we discussed existing crime data collection systems in the state, identified key stakeholders, and made plans to collect more information. Following this meeting, representatives from the State Police collected information about the four data collection vendors that police departments use across the state (Tritech, Microsystems, Pamet, and QED). The SEIGMA team conducted a top line literature review of 24 articles and reports that examine crime impacts of expanded gambling in other jurisdictions. After reviewing the abstracts and executive summaries of these documents, SEIGMA drafted a list of possible measures to assess at baseline and routinely once new gambling venues open across the state.

We used this initial list of variables to facilitate discussion about: 1) the most important and relevant crime measures to include; 2) the most appropriate organizations and mechanisms through which this data would be collected; and 3) related topics such as defining the geographies to include in the study, the issue of linking crimes to casinos, and other measures that relate to crime. In addition to discussing the list with representatives from the State Police and MGC, we consulted Mark Nichols, one of SEIGMA's Expert Advisors who has done substantial scholarly work in this area. In addition, the SEIGMA team created a memo explaining this list and requested feedback from the MGC's Gambling Research Advisory Committee (GRAC) at their March meeting. The SEIGMA team then incorporated feedback collected from each of these sources to create a comprehensive list of possible measures (below).

In discussing appropriate geographic units of analysis for potential crime measures, the group agreed to focus their initial efforts on the municipalities that host and surround the proposed new gambling venues. Concurrent with our discussions about measuring crime impacts, MGC awarded Penn National the sole slot parlor license and approved its plan to open a slot parlor at Plainridge Racecourse, located in Plainville, MA. The following communities have secured Surrounding Community Agreements with the new venue: Attleborough, Foxborough, Mansfield, North Attleborough, and Wrentham.

The selection of Plainville for the slot parlor license narrowed SEIGMA's focus and in agreement with our partners at the State Police and MGC, we decided to use these host and surrounding communities as a pilot for other regions of the state in which licenses have not yet been awarded. In moving forward with data collection in the communities listed above, SEIGMA will refine its methods for defining geography, building relationships, collecting preliminary data, refining measures, refining analyses, estimating costs, etc. Also in agreement with our partners, SEIGMA has decided to use existing crime data to establish a baseline for relevant crime measures. Similar to the Social and Economic Impacts Teams, the Crime Impacts Team will likely assess crime measures over the past ten years to establish key trends.

Table 21: Possible Crime Impact Measures

Possible Crime Impact Data Measures
DUI/OUI
Alcohol-related car accidents—both fatal and non-fatal
Automobile accidents
Public Intoxication
Drug Offenses
Assault
Property Crimes—theft, larceny, fraud, embezzlement, forgery
Burglary
Robbery
Murder
Simple Assault
Sexual Assault
Domestic Violence
Family Offenses—endangering a child, child abuse, contributing to the delinquency of a minor
Prostitution
Suicide/ Attempted Suicide
Illegal Gambling
Race Fixing
Cheating at Play
Loan Sharking
Money Laundering
Passing Counterfeit Money
Gang Activity or Organized Crime
Citations issued
General calls for service near casinos
Enforcement Efforts—size of police force, changes in police practices such as DUI checks, other changes in resources, etc.

Next Steps

In the coming months, the SEIGMA Research Team will conduct a thorough review of the literature to determine how crime impact data has been collected and monitored in other jurisdictions. Commissioner Cameron and representatives from the State Police will work to engage police departments in Plainville and surrounding communities in this effort, both to seek guidance and gain buy-in about how best to plan and coordinate this portion of the research agenda.

Themes and Emerging Issues from Transportation & Crime Meetings

Although there are distinct differences between the transportation and crime impacts of casinos, many of the same research questions and issues have emerged from recent meetings. These include:

- How are casino-related transportation impacts and casino-related crimes defined?
- What is the best way to link possible transportation and crime measures to the new gambling venues, in order to discern which changes in these measures over time are *attributable* to the venues?
- Which measures are most critical to understanding the impact of expanded gambling?

- Are there other measures that should be considered?
- What is the best way to handle overlapping measures? For example, violations for Operating Under the Influence (OUI) have been identified as potential impact measures for both transportation and crime. Another example is health impacts, which have been identified as potential social *and* transportation impact measures.

The SEIGMA team will work with our partners to answer these questions and resolve them in our final plan for measuring transportation and crime impacts. It is likely that a number of factors will play a part in resolving these issues. SEIGMA's review of crime literature, for example, will help clarify definitions, successful methods for determining attribution, and the most critical measures to track over time. Engagement with police departments will help clarify the types of data already collected, the ways in which these data are reported, and strategies for collecting additional data that might answer some of the questions posed above. Additional meetings with MassDOT will aid in prioritizing and refining many potential measures.

Conclusion

This bi-annual report demonstrates the substantial progress that the SEIGMA Research Team has made in 2014 toward achieving the goals and objectives outlined in our research plan. The team is already at work creating analytic syntax and preparing for delivery of General Population Survey data. As the General Population Survey leaves the field in mid-May, we can begin analyzing data, drafting reports, and sharing topline results. As such, we anticipate that the months between now and our next report in September 2014 will be our most productive yet. Indeed, the next few months mark a major transition in the SEIGMA study, from a focus on organizing the team and data collection to data analysis and reporting.

This shift will also occur across the different components of the SEIGMA study. While the Social and Health Impacts team will continue charting baseline trends in secondary data measures, they will also begin the work of triangulating these secondary data with findings from the General Population Survey to ensure the accuracy of reported results. As MGC continues awarding licenses to new gambling venues, both the Social and Economic Teams will collect data for smaller geographies, such as the host and surrounding communities for each new gambling venue. For the Economic and Fiscal Impacts team, effort will also include selecting comparison communities, performing analyses, and beginning to model the economic impacts of licensed gambling venues.

As our work progresses, we will continue our efforts to evaluate problem gambling services across the state. This includes disseminating a stand-alone report that details the results of our analysis of MCCG Helpline data, finalizing and implementing our Problem Gambling Services Evaluation Plan, and reporting our findings to stakeholders. We will also continue scoping out the transportation and crime additions to SEIGMA's scope of work and begin collecting data for use in assessing these impacts. We are currently in the process of finalizing a budget for Fiscal Year 2015 (FY15) that includes these additional components. Once the final budget has been approved by both MGC and UMass Amherst, we will continue to provide monthly activity and budget summary reports to MGC's Director of Research and Problem Gambling.

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