NORTHERN ARIZONA UNIVERSITY

The W. A. Franke College of Business

Economic Contributions of the Craft Brewing Industry to the State of Arizona

Prepared for the
Arizona Craft Brewer's Guild

By the

Arizona Hospitality Research & Resource Center
& the Arizona Rural Policy Institute

Center for Business Outreach
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Executive Summary

This study was commissioned by the Arizona Craft Brewer's Guild to estimate the size and economic impact of locally-owned in-state breweries on Arizona's economy in terms of their production output, gross sales, employment, and tax revenues. To this end, the Arizona Hospitality Research and Resource Center (AHRRC) in The W. A. Franke College of Business at Northern Arizona University surveyed craft brewers throughout the state. The following is a summary of the report's major findings:

The total Economic Impact of Arizona Craft Brewing on Arizona in 2011 was $278 million.

- The Total Economic Impact of Arizona Craft Brewing on Arizona in 2011 was $278 million.
- Overall, in 2011, Arizona craft brewers had economic impacts of:
  - Direct economic contribution of $152 million;
  - Indirect economic contribution of $59.1 million; and
  - Induced economic contribution of $66.9 million.
- This economic activity produced a total of 3,486 jobs (direct, indirect and induced).
- In 2011 Arizona had a total of 33 active craft breweries, 79% of which were members of the Arizona Craft Brewer's Guild.
- Nationally, the volume and gross sales of craft-brewed beers have grown by double digits in the past three years while overall beer sales have declined.
- Most of Arizona's craft breweries operate under microbrewery licenses (31%) that distribute nearly all of their own product; 12% operate as brewery-themed restaurants; beer and wine bars constitute 8% of operators; another third (31%) operate as a combination of microbrewery/restaurants; and, the remaining 19.2% operate under a variety of license types.

- Half of these operations are located in Maricopa County (49%), followed by Coconino County (18%), Pima County (12%), Yavapai and Mohave (9% each), and Cochise County (3%).
- The oldest continuously operating craft brewery in Arizona was started in 1991; the average age of craft breweries in the state is 7.6 years (median is 4.5 years).
- These craft brewers produced over 119,000 barrels of beer in 2011, an increase of 22% over 2010; production has increased more than 20% per year over each of the past three years.
- Most craft beer production in Arizona is distributed through kegs to bars and restaurants (about 60%); next is on-site consumption in brewpubs and restaurants (about 20% of production); followed by distribution in bottles (about 20%); distribution in cans is minimal but is growing at a rapid pace.
- The Arizona craft brewing industry had estimated total direct sales of $77.2 million in 2011.
    - Beer sales accounted for the largest portion at $37.7 million.
    - Restaurant/food sales accounted for $32.4 million.
    - Other alcohol sales on-site accounted for $6.3 million.
    - Miscellaneous retail accounted for $856,000.
- By license type, these sales were distributed as follows:
    - Combined microbrewery/restaurant licenses had sales of $53.7 million.
    - Breweries with multiple licenses had sales of $12.5 million.
    - Brewery-themed restaurants alone accounted for $12.4 million.
    - Pure microbreweries had sales of $2.7 million.
    - Beer and wine bars had sales of $773,300.
- Craft brew enterprises that offer both beer *and* food sales tend to have much larger annual revenues than those that sell beer only.
- In 2011, Arizona craft brewers paid almost $10 million in state sales taxes ($9.69 million), and an additional $1.4 million in federal ($833,749) and state ($590,771) excise or luxury taxes.
- Arizona's craft brewers invested more than $10 million in new plant and equipment from 2009-2011; the peak year was 2010 with $6.0 million.

- The industry employs more full-time (58%) than part-time (42%) workers.
- The majority of the workforce (57%) is employed in the front-of-the-house, with 26% in back-of-the-house positions; the remainder are in mixed roles.
- The total annual payroll in 2011 by Arizona craft brewers was an estimated $23 million.
- Most Arizona craft brewers do not currently offer employee benefits, although one-third (30%) offer health benefits, and about 15% offer dental, vision and 401(k) benefits; the vast majority offer free product to employees.
- Arizona craft brewers are extremely positive about their growth potential; fully 70% said they plan to increase hiring in 2012.
- Arizona craft brewers are optimistic about their future: two-thirds (66%) expect either somewhat more or very strong growth in 2012; another fourth (24%) think growth will be static; while only 9.6% expect little or no growth.
- Finally, Arizona's craft brewers were asked to rate (on a scale from 1 to 5, where 5 is extremely positive) how positively they feel their industry will perform in 2012 – the response was a resounding 4.5 – or extremely positive!

The beer consumed in America can be divided roughly into two categories. The largest producers – multinational corporations with distribution channels touching every market in the country and beyond – have experienced declining sales and an ever-shrinking share in the alcoholic beverage market. Craft brewers, in contrast, continuously see their minority share of the market grow. Each year the number of businesses grows, production capacity grows, and income grows for this relatively young, locally-focused industry.

National sales figures reported by the Brewer's Association[1] illustrate these trends. From 2008 to 2009 overall beer sales in the United States dropped by 2.2%; in 2010 sales dropped by 1%. In contrast, the craft brew industry grew between 2008 and

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[1] The Brewer's Association is the largest organization of brewers in the United States, with a membership of more than 1,300 breweries, 27,000 home brewers, and various other representatives of the industry.

2009 (7.2% in volume, 10.3% in gross sales), and again between 2009 and 2010 (11% in volume, 12% in gross sales). In the first half of 2011 gross sales of craft beer were 15% higher than the same time in 2010. Table 1 lists the number of breweries operating in the United States between 2008 and 2010, contrasting the growth among craft breweries with the stagnation of their larger counterparts.

Definitions of breweries vary. Terms used in Table 1 are defined by the Brewer's Association. Brewpubs are restaurant-breweries that produce mainly for on-premises consumption. Microbreweries produce primarily for off-site sales. Regional Craft Breweries serve a larger regional area, but operate independently and produce fewer than 6,000,000 barrels. For the purposes of this study, craft brewers will be defined as locally-owned, in-state breweries, all of which produce fewer than 40,000 barrels (1,240,000 gallons) of beer per year.

Table 1: Number of U.S. Breweries, by Type 2008–2010

Number of Breweries	2008	2009	2010
Brewpubs	995	998	1,033
Microbreweries	447	486	603
Regional Craft Breweries	62	68	80
Total U.S. Craft Breweries	1,504	1,552	1,716
Large, Non-Craft Breweries	20	20	20
Other Breweries	23	23	23
Total U.S. Breweries	**1,547**	**1,595**	**1,759**

This trend in locally-produced beer is as apparent in Arizona as anywhere else. Each year, despite the occasional closure of a brewery, the total number increases. This study estimates the presence of craft brewers in Arizona and quantifies the effects the industry produces. The Arizona Brewer's Guild (the Guild), commissioned the study from Northern Arizona University's Arizona Hospitality Research and Resource Center (the AHRRC). The AHRRC surveyed breweries throughout the state to determine what impacts the industry has on Arizona's economy in terms of economic activity, jobs, and taxes.

This study also estimates the volume of craft beer produced conveys the general feeling of optimism held by the brewing community for the future of craft brewing in Arizona.

Economic Contributions of the Craft Brewing Industry to the State of Arizona

Arizona's Craft Beer Industry

The number of breweries operating in Arizona may vary from one month to the next. This study considers the effects of 33 brewers that operated during all or part of 2011. Most are members of the Guild and all produced some beer during the year. Holders of a domestic microbrewery liquor license may produce up to 1.24 million gallons of beer annually. The law allows brewers to sell and deliver beer to retail outlets, bypassing the three-tier system that governs most alcohol distribution in the state.

The State Department of Liquor License and Control allows micro-breweries to operate under four license types. These are: license Type 03 Microbrewery; license Type 06 Bar; license Type 07 Beer and Wine bar; and license Type 12 Restaurant. In order to enhance various descriptive elements of the industry, this analysis categorizes breweries based on license combinations.

Thirteen of the respondents had only one license type:

Microbreweries account for almost one-third (31%) of the breweries. These are businesses that hold only a Type 03 license and therefore distribute nearly all of their beer.

Restaurants account for 12%. These businesses, owned and operated by members of the guild, are beer-themed, contract with an actual brewer for unique beers, and are often referred to as breweries. They are included in this analysis because they are considered part of the industry.

Beer and Wine Bars account for 8% of respondents. As it is with restaurants, the pure beer and wine bars included in this survey are operated by guild members, have a strong brewery theme, and contract with breweries to produce signature beers.

The remainder of the sample comprised operations under a variety of license types, with license types 03 and 12, Microbrewery & Restaurant accounting for one-third (31%). The remaining 19.2% of microbreweries operated under a variety license combinations. Table 2 lists the various license combinations of 26 representative businesses.

Table 2: License Combinations of 26 Guild Members

Combinations of License Types AZ Craft Breweries	Frequency	Percent
03 Microbrewery only	8	31%
07 Beer & Wine Bar alone	2	8%
12 Restaurant alone	3	12%
03 & 12 Microbrewery and Restaurant	8	31%
06 & 12 Bar and Restaurant	1	4%
03 & 06 Microbrewery and Bar	1	4%
03 & 07 & 12 Microbrewery and Beer & Wine Bar and Restaurant	1	4%
03 & 06 & 12 Microbrewery and Bar and Restaurant	2	8%
Total	**26**	**100%**

Nineteen percent of microbreweries operated under a variety of license combinations. These have been aggregated into a Multiple License Combinations category for all further analysis.

Figure 1 lists these categories and their proportions of the total industry.

Figure 1: Recombined License Types and Combinations

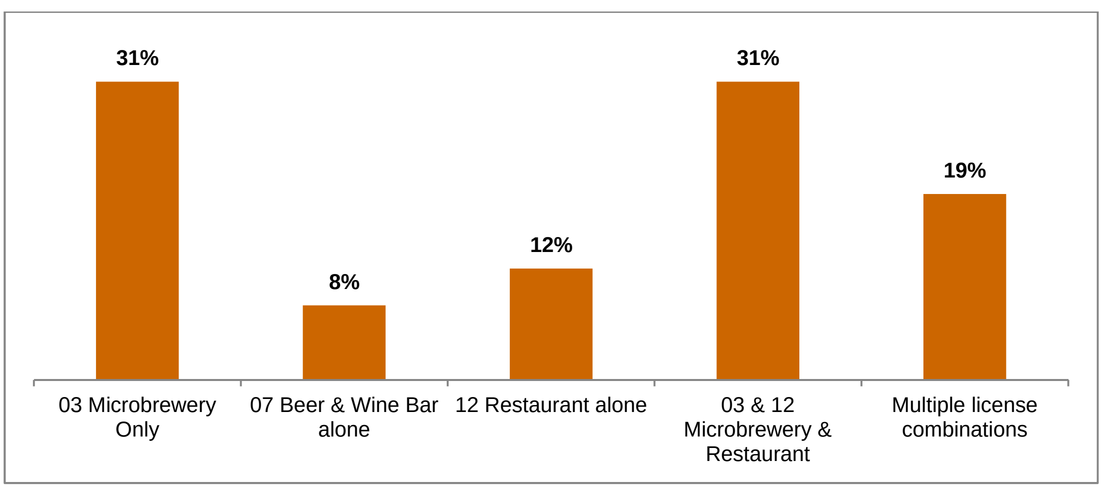
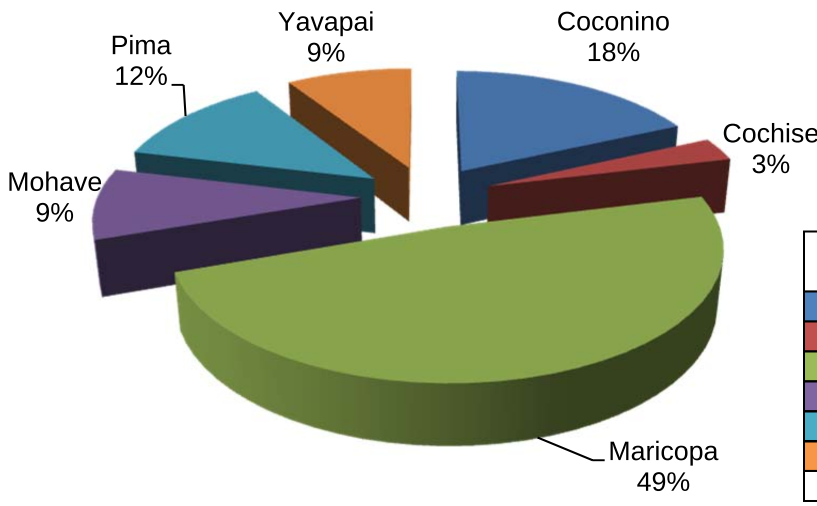


Figure 2 shows which counties contain the breweries covered by this study. Maricopa County has the most with 16. Coconino County contains six while Pima contains four. Other breweries not yet fully operational in 2011 may exist in certain counties.

Figure 2: Distribution of Arizona Breweries by County, 2011



County	Number of Breweries
Coconino	6
Cochise	1
Maricopa	16
Mohave	3
Pima	4
Yavapai	3
Total	33

Table 3: Start Years of 22 Breweries

Start Year	Frequency
1991	1
1994	2
1995	1
1996	1
1997	2
2001	3
2006	1
2007	3
2009	2
2010	3
2011	3
Total	22

According to the survey, the oldest continuously operating brewery in Arizona was established in 1991. Start years were provided for a total of 22 breweries, the average being 7.6 years old. The micro-brewing industry was characterized by slow but steady annual growth during the late 90s. More recently, breweries have been established with more frequency.

As noted, the average age of a micro-brewery enterprise in Arizona is 7.6 years, while the median age is 4.5 years. The industry is therefore relatively young and positioned for potential continued growth as more combinations of microbreweries enter the market place.

The Survey

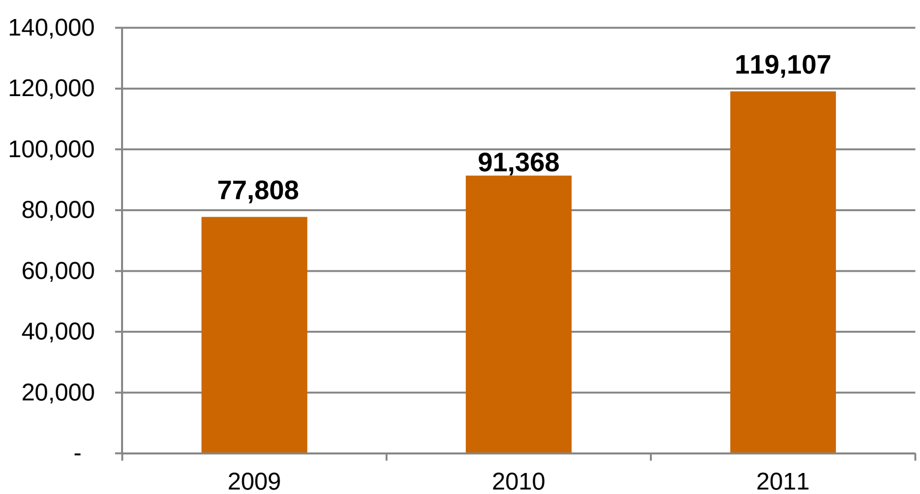
In order to gage the impact of the craft brew industry on the state of Arizona, the AHRRC distributed a survey to members of the Brewers' Guild as well as select non-guild members.

Twenty-two businesses representing twenty-five breweries responded to the survey. A subsequent analysis of business size, model, and location, as well as a survey of news coverage and online presence contributed to estimates of characteristics of an additional 9 breweries. The data received through surveys was used to create a picture of the average craft brewery which was applied those non-respondents. The addition of the estimates enabled the AHRRC to develop an estimate of the overall impacts the industry has on the state of Arizona.

Production

Beer production estimates, in barrels, for the years 2009-2011 is shown in Figure 3. These numbers indicated significant increases. Between 2009 and 2010 the increase is 25%; the following year it was 22%. This growth follows the national trends indicated earlier, but at an even greater rate.

Figure 3: Production, 2009–2011, in Barrels



The survey results also showed where the beer produced is consumed. As shown in Table 4, much of it is sold direct to the public at the brewing facility. Many businesses – primarily brewery/restaurant combinations – sold all of their beer this way. Others – most pure microbreweries – sold none on site. Most facilities sold their products through multiple channels.

Figure 4: Consumption of Beer On-Site, 2009–2011, in Barrels

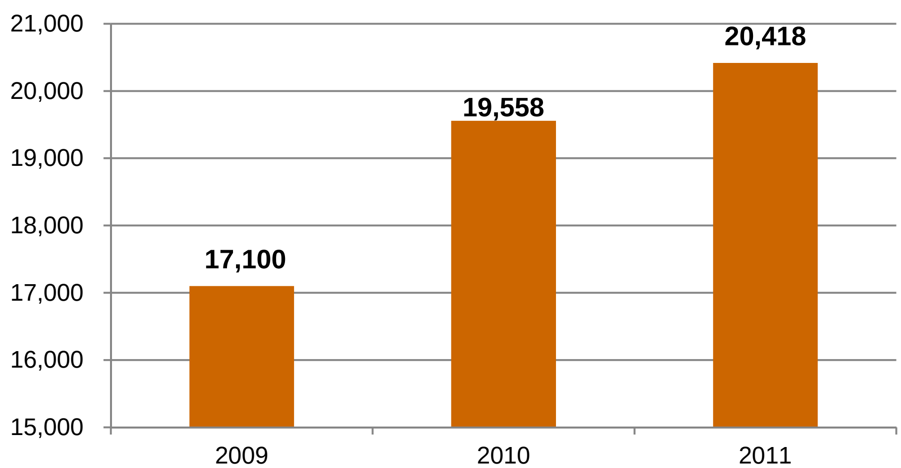


Table 4: Portion of Beer Consumed On-Site, 2009–2011

Consumed On-Site	2009	2010	2011
Beer Produced (Bbl)*	77,808	97,368	119,107
Beer Consumed On-Site (Bbl)	17,100	19,558	20,418
Percent Consumed On-Site	22%	20%	17%

* Bbl stands for beer barrels

Figure 4 also suggests a trend in the consumption pattern. The 2009 on-site consumption figure is 22% of production. For 2010 and 2011, that portion is 20% and 17%, respectively. This trend suggests that distribution of beer, off premises, is becoming more common. These ratios are calculated in Table 4.

Figure 5 shows the amount of craft brew distributed in bottles. Again, the volume increased during each represented year. This portion of production is transferred either directly to retail outlets or to a distributor.

Figure 5: Off-Site Distribution, Bottles, 2009–2011, Measured in Barrels

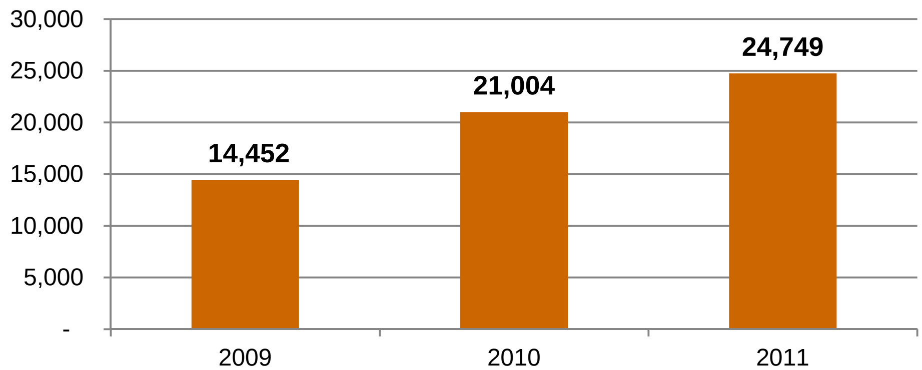


Table 5 calculates the portion of beer distributed in bottles. As shown, this number remains somewhat steady during the three years considered.

Table 5: Portion of Beer Distributed in Bottles, 2009–2011

Distributed in Bottles	2009	2010	2011
Beer Produced (Bbl)	77,808	97,368	119,107
Beer Consumed On-Site (Bbl)	14,452	21,004	24,749
Percent Distributed in Bottles	19%	22%	21%

As shown in Figure 6, craft beer distributed in cans is a small but growing segment. In 2009 the practice was hardly noticeable, but between 2010 and 2011 volume sold in this way had increased nearly 500%.

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Figure 6: Off-Site Distribution, Cans, 2009–2011, Measured in Barrels

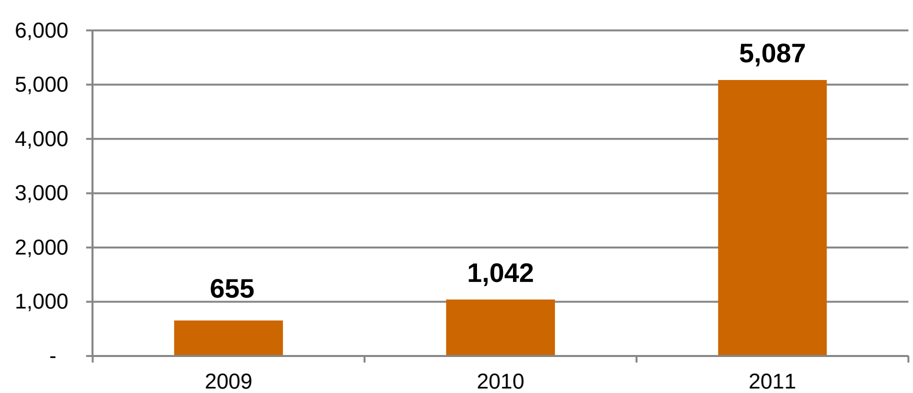


Table 6 calculates the overall percentage of production sold in cans. These numbers clearly show that as a proportion of the overall industry, cans are quickly taking a significant role in distribution. In 2009 less than 1% of the beer made in Arizona was canned; two years later the number is nearing 5% of the total.

Table 6: Portion of Beer Distributed in Cans, 2009–2011

Distributed in Cans	2009	2010	2011
Beer Produced (Bbl)	77,808	97,368	119,107
Beer Consumed On-Site (Bbl)	655	1,042	5,087
Percent Distributed in Cans	**1%**	**1%**	**4%**

Clearly, the overall most common way to sell Arizona craft beers is through the distribution of kegged beer. This is the most common way of serving these beers at bars and restaurants throughout the state.

Figure 7: Off-Site Distribution, Kegs, 2009–2011, Measured in Barrels

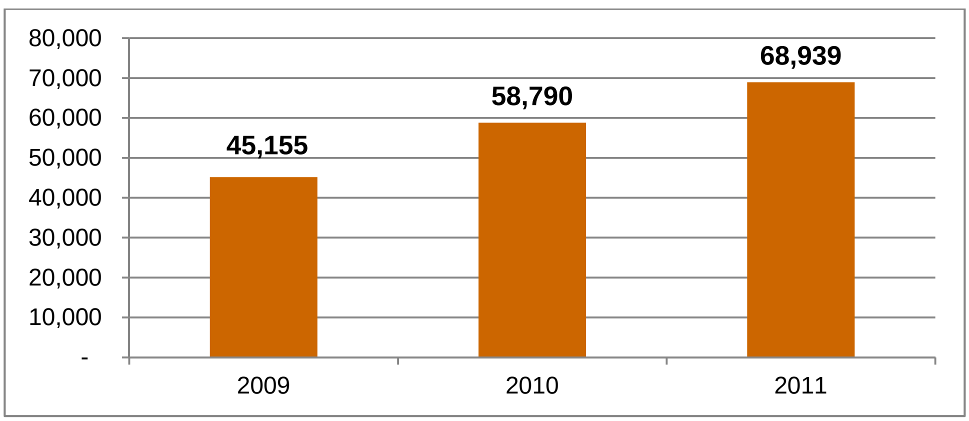


Table 7: Portion of Beer Distributed in Kegs, 2009–2011

Distributed in Kegs	2009	2010	2011
Beer Produced (Bbl)	77,808	97,368	119,107
Beer Consumed On-Site (Bbl)	45,155	58,790	68,939
Percent Distributed in Kegs	58%	60%	58%

As a portion of overall distribution, kegs seem to be steady despite a reported jump in 2010. Table 7 indicates that just around 60% of all craft beer brewed in Arizona is sold from distributed kegs.

Total Sales Revenue, 2011

Arizona craft brewers had estimated direct sales revenues of $77.2 million dollars in 2011. As with production estimates, revenues were self-reported by members of the Craft Brewers Guild and estimated for missing respondents. This revenue was broken down into four categories:

- Beer (brewed on premises or contract brewed by an Arizona craft brewer)
- Other Alcohol
- Restaurant-Food
- Miscellaneous (brewery-related retail items)

Revenue from beer sales was the largest source of income for the brewers, bringing in a total of $37.6 million, accounting for nearly half of the total. This was followed closely by food sales at restaurants, which reached $32.4 million or 42% of total revenue. The combined revenues of beer sales and restaurant/food account for over 90% of sales revenue. Other alcohol sales accounted for 8%, or $6.3 million, while the remainder – just over 1% of total revenue – resulted from miscellaneous retail sales. These numbers are broken down in Table 8.

Table 8: Total Revenue, Arizona Craft Brewers, 2011

Revenue Source	Total Revenue	Proportion
Beer	$37,663,341	49%
Other Alcohol	$6,315,643	8%
Restaurant - Food	$32,394,368	42%
Miscellaneous retail	$856,240	1%
Total	**$77,229,592**	**100%**

Table 9 divides these sales revenues by license holder categories. The combination of license type 03 and 12 - Microbrewery and Restaurant - generated revenues of $53.7 million. Breweries with multiple license combinations generated $12.5 million in total revenue. Restaurants alone account for 9.6% of all revenues ($12.4 million). Pure Microbreweries represented 3.6% ($2.7 million), and Beer & Wine Bars alone had represented 1% ($773,298) of total industry revenue.

Table 9: Revenues by License Holder Type, 2011

Total Revenue	Total sales revenue: your beer 2011	Total sales revenue: other alcohol 2011	Total sales revenue: Restaurant-Food	Total sales revenue: miscellaneous 2011	Total Sales Revenue
03 Microbrewery only	$2,375,881	$230,000	$146,400	$43,550	**$2,795,831**
07 Beer & Wine Bar alone	$330,600	$267,308	$158,590	$16,800	**$773,298**
12 Restaurant alone	$1,699,998	$900,000	$4,699,980	$150,000	**$7,449,978**
03 & 12 Microbrewery and Restaurant	$30,066,056	$3,429,899	$19,798,299	$498,001	**$53,792,255**
Multiple license combinations	$3,190,806	$1,488,436	$7,591,094	$147,889	**$12,418,225**
	$37,663,341	**$6,315,643**	**$32,394,363**	**$856,240**	**$77,229,587**

In terms of revenue mix, beer sales account for 85% of revenue for license type 03, Microbrewery Only. Beer (43%) and Other Alcohol Sales (35%) together account for only 78% of revenue for license type 07, Beer and Wine Bar Alone. Food sales account for almost two thirds of revenue for license type 12, Restaurants Alone, and the Multiple License Combination category. Finally, beer sales (49%) slightly exceed food sales (43%) for the license type 03 and 12 Microbrewery & Restaurant category. See Table 10.

Table 10: Revenue Mix by License Holder Type, 2011

Total Revenue Mix	Total sales revenue: your beer 2011	Total sales revenue: other alcohol 2011	Total sales revenue: Restaurant-Food	Total sales revenue: miscellaneous 2011	Total
03 Microbrewery only	85%	8%	5%	1.6%	**100%**
07 Beer & Wine Bar alone	43%	35%	21%	2.2%	**100%**
12 Restaurant alone	23%	12%	63%	2.0%	**100%**
03 & 12 Microbrewery and Restaurant	49%	7%	43%	1.0%	**100%**
Multiple license combinations	26%	12%	61%	1.2%	**100%**

Table 11 calculates average revenues by license type. The category with the highest average revenues, by a significant margin, is the Microbrewery/Restaurant combination. Average sales revenue for these businesses was over $6 million in 2011. The lowest average revenues are found for license type 03, Microbrewery only, with $493,895. The data indicates that enterprises offering both beer and food have much larger annual revenues than those who sell only beer.

Table 11: Average Revenues by License Type

Combinations of License Types AZ Craft Breweries	Total Sales Revenue: Your Beer 2011	Total Sales Revenue: other Alcohol 2011	Total Sales Revenue: Restaurant-Food	Total Sales Revenue: Miscellaneous 2011	Total
03 Microbrewery only	$296,985	$115,000	$73,200	$8,710	$493,895
07 Beer & Wine Bar alone	$165,300	$267,308	$79,295	$8,400	$520,303
12 Restaurant alone	$566,666	$300,000	$1,566,660	$50,000	$2,483,326
03 & 12 Microbrewery and Restaurant	$2,978,674	$434,869	$2,608,098	$63,084	$6,084,725
Multiple combinations	$638,161	$307,497	$1,518,219	$38,639	$2,502,516
	$4,645,786	$1,424,674	$5,845,472	$168,833	$12,084,765

Table 12: Estimated State Luxury and Federal Excise Taxes, 2011

State Luxury and Federal Excise Taxes, Based on Production Volume			
Year	**2009**	**2010**	**2011**
Barrels Produced	77,808	91,368	119,107
Gallons Produced	2,412,048	2,832,408	3,692,317
Federal Excise Tax	$544,700	$639,600	$833,800
State Luxury Tax	**$385,900**	**$453,200**	**$590,800**

Taxes

Craft breweries pay a number of industry-specific taxes, in addition to those levied on all businesses and purchases. Based on production volume, these taxes are collected by both state and federal governments.

The Arizona State Luxury Tax is currently $.16 per gallon produced while the Federal Excise tax is $7 for every barrel produced. In Table 12 these tax rates are applied to the production numbers from 2011. The result is $834,000 in federal taxes and $591,000 in state taxes.

Table 13: Calculation of 2011 Sales Tax Payments

Sales Tax Calculations	
Beer, On-Premises	$18,848,000
Other Alcohol, On-Premises	$6,315,600
Food, On-Premises	$32,394,400
Miscellaneous Retail, On-Premises	$856,200
Beer Distributed	$88,350,000
Total	**$146,764,200**
State Sales Tax (6.6%)	**$9,686,400**

Craft brewery sales are also subject to the same sales (transaction privilege) taxes as many retail goods in Arizona. The variance in sales tax rates between counties, cities, and towns is beyond the scope of this paper, but the 6.6% state sales tax for 2011 is calculated in Table 13.[2] Considering all sales at the breweries as well as beer distributed across the state, the sales tax collected from the craft brew industry approaches $10 million.

Business Reinvestment

Respondents to the survey also reported major reinvestments they made over the past three years. Breweries continuously expand and upgrade facilities, improve techniques, and invest in new equipment such as bottling or canning lines. All such expenditures contribute to the total economic impact of the industry. In 2011, Craft Brewers reported total reinvestment of $3.2 million. Table 14 shows the average amount of reinvestment reported by 15 respondents, as well as the total amount reported by year between 2009 and 2011.

Table 14: Business Reinvestment, 2009–2011

Business Reinvestment	Average Reinvestment	Total Reinvestment
2009	$69,621	$1,044,317
2010	$378,702	$6,059,227
2011	$189,625	$3,223,633

[2] This includes the voter-approved temporary 1% sales tax enacted in 2010.

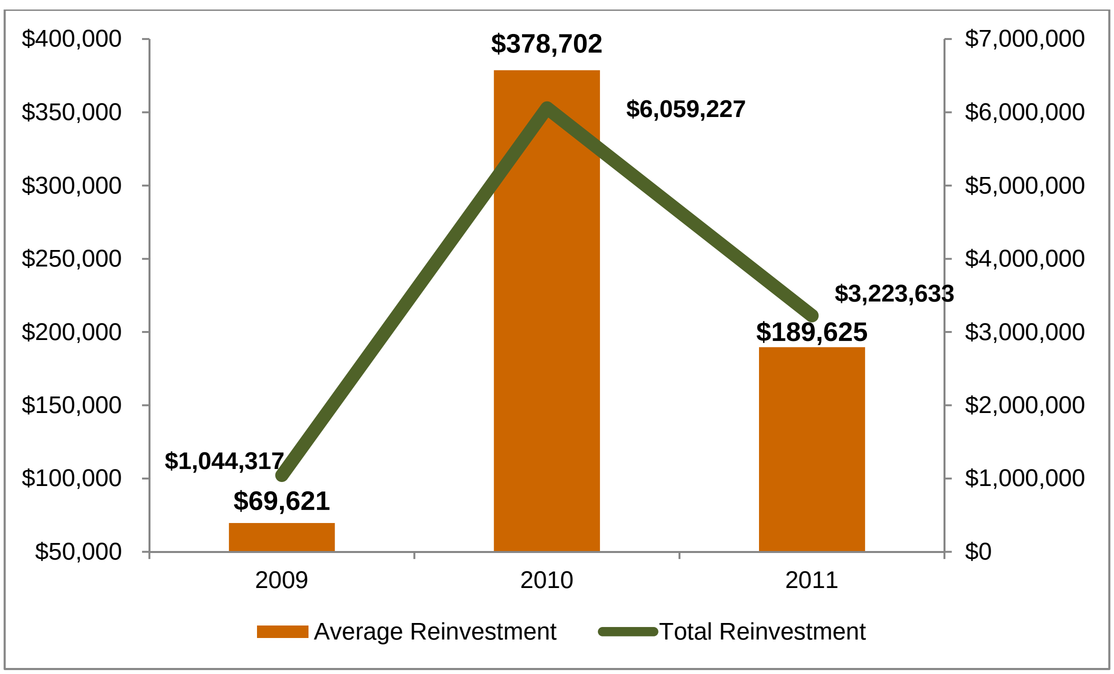
Over a three year period, license type 03 & 12, Microbrewery and Restaurant had the largest average reinvestment ($466,127), while license type 03 Microbrewery alone had the lowest ($55,192). Restaurants alone are not included in this table as the responses did not provide reinvestment information.

Table 15: Annual Average Reinvestment by License Holder Type, 2009–2011

	03 Microbrewery only	07 Beer & Wine Bar alone	03 & 12 Microbrewery and Restaurant	Multiple license combinations
Plant and Equipment 2009	$60,359	$2,500	$149,500	$10,300
Plant and Equipment 2010	$34,867	$496,500	$979,880	$13,181
Plant and Equipment 2011	$70,351	$56,606	$269,000	$607,009
Average	**$55,192**	**$185,202**	**$466,127**	**$210,163**

Figure 8 illustrate the annual reinvestment trends. This chart shows that spending in reinvestments was highest in 2010.

Figure 8: Total Reinvestment (line) by Average Reinvestment (bar chart) 2009–2011



The 2011 Economic Impact of the Arizona Craft Brewing Industry

Arizona craft brewers have a pronounced economic impact on the state. Together, their gross revenues are estimated to be over $77 million in 2011.

These direct revenues are sales of product and food to patrons and represent the first line of expenditures in the economic impact of the industry. These expenditures are then disbursed as payments including labor, purchases of raw materials for beer manufacturing, purchases of plant and equipment, and food purchases for restaurants. The direct revenues of $77 million dollars have an impact as they percolate through the state economy. This is often referred to as direct spending–the first round of economic impact.

The second round of economic impact is the indirect economic impact and calibrates the additional spending and jobs created by direct spending. This includes purchases from local supplier firms and subsequent spending interactions between those firms. For example, a firm that supplies carbon dioxide to breweries may in turn spend additional funds to purchase storage containers. Subsequently, local firms supplying such containers realize an increase in revenue and may add jobs as a result.

The third round of economic impact is the induced economic impact, or induced spending. This impact accounts for spending and job creation resulting from consumer retail spending associated with both the direct and indirect effects. For example, employees of microbreweries will spend a significant part of their salaries and wages in the local economy on various consumer products and services. Likewise, the employees of firms affected by the indirect impact will do the same. This induced local spending becomes revenue to local firms, serving as the basis for further job creation.

"Multipliers" are used to estimate indirect and induced economic impacts from the direct effects. The multipliers give the additional, or multiple, effects of the indirect and induced impacts over and above the direct effect. Multipliers are based on the economic structure of the local economy, in this case the state of Arizona. In this study multipliers for the state of Arizona were taken from IMPLAN, a software developed for local economic impact analysis unique to the state.

Revenues of $77.2 million were entered in IMPLAN sectors 413 "Food Services and Drinking Places", and sector 330 "Retail Stores Miscellaneous." A further $3.3 million was added to direct expenditures to account for reinvestment in 2011. This reinvestment expenditure was split 60% to Sector 39 "Maintenance and repair construction of nonresidential structures," and 40% to Sector 71 "Breweries."

Additional Margins

Craft beer has economic impacts beyond those seen at the brewery level. A significant amount of money is spent for the product at retail outlets beyond the brewery. As shown above, only around 20% of locally-produced beer is sold to the public at the brewery. The remainder is distributed to bars, restaurants, grocery stores, and gas stations at significantly marked-up prices. The gross margin of these sales, as well as the wholesaler margin, has been added to the direct economic impact. Table 16 shows these additional impacts.[3]

Table 16: Direct Impacts of Distributed Retail, 2011

Direct Impact	Source
$5,000,000	Wholesale Margin
$64,538,000	Retail Gross Margin
$10,326,080	Bottled & Canned Beer
$54,211,920	Keg Beer - Drafts

[3] The estimated wholesale margin of $50 per barrel was applied to distribution volume rounded to 100,000 barrels. Bottled and canned beer gross margins were calculated using an estimated retail cost of $9.00 per six-pack. Keg beer gross margin was calculated using and estimated retail cost of $4.50 per pint. Retail volume was reduced by 5% to adjust for loss, promotions, and other non-saleable volume.

Table 17: Total Industry Direct Impacts, 2011

Direct Economic Inputs	Dollars
In Store	
Reinvestment Funds	$3,223,633
Sales of Beer, Alcohol, and Food	$77,229,587
Miscellaneous Retail	$856,240
Sub Total	**$81,309,460**
Distribution	
Wholesale Distribution	$5,000,000
Distribution Retail Stores	$10,326,080
Distribution Restaurants	$54,211,920
Distributed Sub Total	**$69,538,000**
Total Direct Input	**$150,847,460**

Input

The inputs for the IMPLAN model can be found in Table 17. Brewery revenues, reinvestments, wholesaler margins, and retail margins were input into appropriate IMPLAN sectors. These direct impacts act as the starting point for the model.

Output

The total economic effects of the craft brewing industry are shown in Table 18.[4]

A comparison between Tables 17 and 18 and shows that direct revenue of $150.8 million generated total effects of $278 million. This means that every operating dollar spent at Arizona craft breweries or on Arizona craft beers results in total regional spending of $1.82.

Table 18: Total Impacts: Jobs, Wages and Output, 2011

Impacts of Arizona Craft Brew Industry			
Brewing	**Jobs**	**Wages**	**Output**
Revenue	2,030	$47,326,000	$145,629,000
Reinvestment	35	$1,905,000	$5,935,000
Total Brewing	**2,066**	**$49,231,000**	**$151,564,000**
Wholesale Distributing	59	$3,429,000	$9,324,000
Retail	1,362	$39,261,000	$117,948,000
Total	**3,486**	**$91,920,200**	**$278,836,000**

The employment impacts shown in Table 18 are also substantial. Arizona craft brewers self-reported 1,280 jobs, a number which grew to 1,573 when estimates were applied to the entire industry. Combined with jobs from construction and distribution as well as retail jobs associated with beer sales, the total employment effect is 2,669 jobs. The addition of 342 indirect effect jobs and 475 induced effect jobs raises the statewide employment figures to 3,486 jobs.

[4] See Appendix for Total Output broken down into Direct, Indirect, and Induced.

Employment

The brewers who responded to the survey gave specific details of their employee profile. To create a reliable estimate of the industry's full employment, the average employee numbers representing the 24 breweries captured in the survey were applied to the non-responding breweries. Table 19 lists the results. They are employed both full-time (58%) and part-time (42%). This ratio of full-time to part-time workers is at odds with the popular perception of the hospitality industry. The resulting estimated average brewery employed 28 full-time and 20 part-time workers. The entire estimated craft brewery workforce in Arizona is 1,573.

Table 19: Craft Brewery Workforce, 2011

Employment Area	Brewery		Management		Front of House		Back of House		Total	
Full/ Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Total	**74**	**33**	**156**	**5**	**381**	**509**	**308**	**106**	**919**	**654**
Average (33 Breweries)	**2**	**1**	**5**	**0**	**12**	**15**	**9**	**3**	**28**	**20**

Payroll

Payroll was calculated in the same fashion as employee numbers, with responses used to create estimates for non-respondents. The result was total estimated payroll in 2011 of $23 million. Between 33 breweries, this is an average of $697,000 in payroll per facility.

Benefits

Microbreweries were asked to indicate the number and type of benefits that they offered their employees. Almost one third (30%) offered health benefits to their employees while 26% gave their employees free product. Less than one-fifth of microbreweries provide their employees with dental insurance (14%), vision insurance (14%), or 401(k)s (16%). Most Microbreweries alone (80%), and Beer & Wine Bars (100%) give their employees free product as a benefit.

Table 20: Benefits Reported

Benefits offered	03 Micro-brewery only	07 Beer & Wine Bar alone	12 Restaurant alone	03 & 12 Micro-brewery and Restaurant	Multiple Combinations	Total Benefits Offered
Health	20%	0%	25%	36%	36%	30%
Dental	0%	0%	25%	14%	9%	14%
Vision	0%	0%	25%	14%	9%	14%
401(k)	0%	0%	25%	14%	18%	16%
Free product	80%	100%	0%	21%	27%	26%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Outlook

Craft brewers are quite positive about growth in 2012. The survey asked a series of questions regarding perceptions of both personal and industry growth. More than two-thirds (70%) of all craft breweries indicated that they would be hiring more workers in 2012. Seventeen percent were unsure if they would hire in 2012, and a modest 13% indicated that they would not. Four-fifths of the Microbrewery & Restaurant group (which employs more than half of all employees in the industry) indicated that they would be adding workers in 2012. Pure microbreweries were the least upbeat about future hiring, with half of the establishments either not sure (38%), or not hiring more workers in 2012 (13%).

Table 21: 2012 Hiring Outlook

Do you think you will be hiring more workers in 2012?	03 Micro-brewery only	07 Beer & Wine Bar alone	12 Restaurant alone	03 & 12 Micro-brewery and Restaurant	Multiple license combinations	Total
Yes	50%	100%	100%	80%	60%	70%
Not Sure	38%	0%	0%	0%	20%	17%
No	13%	0%	0%	20%	20%	13%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 22: 2012 Industry Growth Outlook

	No Growth (1)	Somewhat Less Growth (2)	Static Growth (3)	Somewhat More Growth (4)	Very Strong Growth (5)	Mean
Do you anticipate growth in 2012?	4.8%	4.8%	23.8%	33.3%	33.3%	3.9

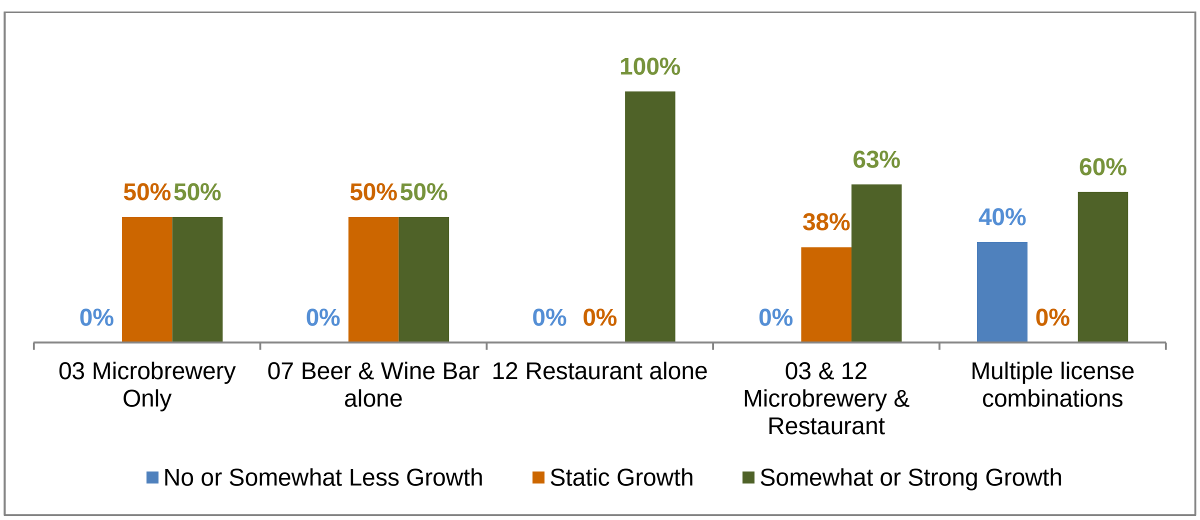
1 = No Growth

5 = Very Strong Growth

Respondents were also asked whether they anticipated growth in the industry in 2012. A relatively small number of the respondents (9.6%) felt that there would be no or less growth in the industry, while one fifth (24%) felt that growth would be static. Two thirds indicated that they felt that there would be somewhat more (33%) or very strong growth (33%) in 2012.

As Figure 9 shows, most respondents are optimistic about the craft brewing industry's immediate future. In all but one category, every respondent predicted growth of some sort for the coming year.

Figure 9: Growth Anticipation by License Type



Finally, microbreweries were asked to rate how positively they felt that the Arizona Craft Brewing industry would perform in 2012. On a scale from 1 to 5, where 1 is "not at all positive" and 5 is "extremely positive," microbrewers rated the industry with a mean score of 4.5, between somewhat positive and very positive. This result provides backing for a generally positive growth outlook for 2102 and increased hiring.

Table 23: Industry Performance Prediction

	Not at all positive (1)	Some-what less positive (2)	Neither positive nor negative (3)	Some-what positive (4)	Extremely positive (5)	Mean
How do you feel the Arizona Craft Brewing Industry will perform in 2012?	0%	0%	13%	21%	67%	4.5

1 = Not at all positive
5 = Extremely positive

Generally, microbreweries rated their individual growth (measure by ratings of somewhat more or very strong individual growth) lower than Industry performance (measured by ratings of somewhat or extremely positive) performance.

Appendix

Direct, Indirect, and Induced Effects of the Arizona Craft Brew Industry

Table A1. Economic Impacts including Indirect and Induced Effects for Craft Brew Industry

	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Brewing				
Revenue	$78,085,827	$31,163,038	$36,380,021	$145,628,886
Reinvestment	$3,223,633	$1,322,668	$1,388,737	$5,935,038
Total Brewing	$81,309,460	$32,485,706	$37,768,758	$151,563,924
Distribution & Retail				
Wholesale Distributing	$5,000,000	$1,824,972	$2,499,260	$9,324,232
Retail	$64,538,000	$24,793,652	$28,616,646	$117,948,299
Total Wholesale & Retail	$69,538,000	$26,618,624	$31,115,906	$127,272,531
Total	$150,847,460	$59,104,330	$68,884,664	$278,836,455

Table A2. Labor Impacts (Jobs) including Indirect and Induced Effects for Craft Brew Industry

	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Brewing				
Revenue	1,573	191	266	2,030
Reinvestment	17	7	11	35
Total Brewing	1,590	199	277	2,066
Distribution & Retail				
Wholesale Distributing	26	13	19	59
Retail	986	156	221	1,362
Total Wholesale & Retail	1,012	169	240	1,420
Total	2,602	367	517	3,486

SURVEY INSTRUMENT

ARIZONA CRAFT BREWERS

Be assured that your responses will be anonymous, reported only in aggregate, and will not identify any individual or business. For more information about the study please contact Thomas Combrink (928-523-7313)or Thomas.Combrink@nau.edu, or Jeff Peterson (928-523-7373) Jeffrey.Peterson@nau.edu. Please complete the survey and return it in the attached business return envelope.

Name of Brewery:

Type of license you operate under:(check all that apply) ○ Type 3 ○ Type 7 ○ Type 6 ○ Type 12

Year the brewery started selling:

Amount of beer produced: (in barrels)

2009

2010

2011 est

Quantity of beer sold in 2009 -2011:

	2009	2010	2011 estimated
On premise: Barrels:			

Distributed:	2009	2010	2011 estimated
Cases bottles:			
Cases cans:			
Kegs:			
Keg size: gallons:	.	.	.

Total sales revenue 2011 (estimated):

Your Beer: $

Other alcohol: $

Restaurant/Food: $

Miscellaneous Retail: $

1474005023

Arizona Luxury Beer Tax: $

Federal ATF Tax: $

Total sales tax paid: $

Total sales tax as a % of revenue: %

Total Property taxes: $

Business reinvestment dollars spent on plant and equipment in the last three years:

2009 **2010** **2011 estimated**

Employment currently:	**Full Time**	**Part Time**
Brewery staff:		
Management/Sales:		
Front of the house:		
Back of the house:		

Total 2011 Payroll (estimated):

What benefits do you offer? (check all that apply) O Health O Vision O Free product O Dental O 401K

Do you think you will be hiring more workers in 2012? O Yes O Not Sure O No

On a scale of 1 to 5 where 1 is "No Growth," and 5 is "Very Strong Growth," do you anticipate growth in 2012?

No Growth **Very Strong Growth**

O O O O O

What types of beer do you brew on a regular basis? (check all that apply)

O Pale O IPA O Brown
O Stout O Hefeweizen O Porter
O Blonde O Red O High-Gravity
O Amber O Fruit O Lager-Pilsner

O Other

"On a scale from 1 to 5 where 1 is Not at all positive and 5 is Extremely positive, please rate how positively you feel the Arizona Craft Brewing industry will perform in 2012."

_ Extremely positive
_ Somewhat positive
_ Neither positive nor negative
_ Somewhat less positive
_ Not at all positive

Thank You For Taking The Time To Complete This Important Survey

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METHODS

This economic impact study was developed with the input of brewers from across the state, estimates made by AHRRC staff, and analysis using IMPLAN software.

Data Gathered:

In consultation with board members of the Arizona Craft Brewers Guild, a survey instrument was created to gather the information necessary to calculate the economic impact of this industry on the state of Arizona (see survey which follows). A total of 33 breweries were actively operated in Arizona during 2011 and each was sent a survey to complete. Of these, 22 completed and returned surveys to the AHRRC for analysis, representing a total of 24 brewery locations; nine breweries did not respond and estimates were created for these. Among the non-respondent breweries, one was among the largest in the state. Production, brewing income, and distribution estimates for this large brewery were created using the only operation of similar size as a proxy. On-premises sales, restaurant operations, and employment numbers used a smaller brewery as a proxy – one with a similar restaurant profile and location. The remaining eight unaccounted breweries were described using the average characteristics of the responding sample. Capital expenditures for the non-respondent breweries were not estimated.

Analysis:

IMPLAN, an input-output software model that uses county- and state- specific purchasing data provided the economic impact in terms of economic contribution and jobs. This software estimated the impact of three sources of economic activity: brewery operations, capital expenditures, and distributed retail sales.

Sales Margin Estimates:

Retail sales estimates were created based on the distribution patterns of craft beer sold off-premises. Retail sales in dollars were estimated by first adjusting product volume downward by 5% to account for loss, breakage, promotion, and other conditions rendering product unsalable. The remaining volume sold in cans and bottles was recalculated in terms of six, 12 ounce containers. An average retail price of $9.00

was applied to this volume. The retail sales estimate of the remaining volume, sold in kegs, was created using an average retail price of $4.50 per pint.[5]

Distributor margins were calculated at a flat $50 per barrel. This figure was taken from a similar study from the state of Texas.[6] The sales margin was calculated by subtracting the wholesale margin and estimated cost to the distributor at the brewery from the aggregate retail sales numbers.

[5] The authors acknowledge that some brewers use 22 ounce bottles, some distributed kegs are sold direct to the consumer, and some bottled craft beer is sold in restaurants and bars. These variations have been disregarded for this study as they represent an insignificant portion of overall sales volume.

[6] Metzger, Scott. "Economic Impact and Potential of the Texas Craft Brewing Industry." March 17, 2011.

Guild Members

2011 Arizona Craft Brewers Guild Members

From www.azbrewguild.com/members.php on 2/12/12.

Barley Brothers Brewery & Grill
1425 McCulloch Blvd. N.
Lake Havasu City, AZ 86403
928-505-7837

Barrio Brewing Co.
800 E. 16th St.
Tucson, AZ 85719
520-791-BREW

Beaver Street Brewery & Whistle Stop Café
11 S. Beaver St.
Flagstaff, AZ 86001
928-779-0079

BJ's Restaurant Brewhouse
3155 W. Chandler Blvd.
Chandler, AZ 85226
480-917-0631

Dave's Electric Brewpub
502 S. College Ave., Suite 103
Tempe, AZ 85281
480-967-5353

Four Peaks Brewing Co.
1340 E. 8th St., Suite 104
Tempe, AZ 85281
480-303-9967

Gentle Ben's Brewing Co.
865 E. University Blvd.
Tucson, AZ 85719
520-624-4177

Gordon Biersch Restaurant Brewery
6915 N. 95th Ave.
Glendale, AZ 85305
623-877-4300

Grand Canyon Brewery
23 W. Route 66
Williams, AZ 86046
928-635-2168

Lumberyard Brewing Company
5 S. San Francisco St.
Flagstaff, AZ 86001
928-779-2739

North Moutain Brewing Company
522 E. Dunlap Avenue
Phoenix, AZ 85020
(602) 861-5999

Mother Road Brewing Company
7 South Mikes Pike
Flagstaff, AZ 86001
(928) 774-9139

Mudshark Brewing Company
210 Swanson Ave.
Lake Havasu City, AZ 86403
928-453-2981

Oak Creek Brewery & Grill
450 Jordan Rd. #A-6
Sedona, AZ 86336
928-282-3300

Oak Creek Brewing Co.
2050 Yavapai Dr.
Sedona, AZ 86336
928-203-9441

Old Bisbee Brewing Co.
200 Review Alley
Bisbee, AZ 85603
520-432-273

Old World Brewery
334 N. 25th Avenue
Phoenix, AZ 85009
623-581-3359

Papago Brewing Co.
7107 E. McDowell Rd.
Scottsdale, AZ 85257
480-425-7439

The Phoenix Ale Brewery
3002 E. Washington St.
Phoenix, AZ 85034

Prescott Brewing Co.
130 W. Gurley St., Suite A
Prescott, AZ 86301
928-771-2795

Rock Bottom Restaurant & Brewery
7640 W. Bell Road
Glendale, AZ 85308
623-878-8822

San Tan Brewing Co.
8 S. San Marcos Plaza
Chandler, AZ 85225
480-917-8700

Sleepy Dog Brewing
1920 E. University Dr., #104
Tempe, AZ 85281
480-967-5476

Sonoran Brewing Co.
127 W. Hunter St.
Mesa, AZ 85201
602-489-7775

SunUp Brewing
322 E. Camelback Rd.
Phoenix, AZ 85012
602-279-8909

Thunder Canyon Brewery
7401 N. La Cholla Blvd., Ste. 178
Tucson, AZ 85741
520-797-2652