Appendix 1. Estimated number of persons employed as agricultural workers in the Salinas-Pajaro Valley during 2016.

The present report's method for estimating the number of persons who had been employed in the Salinas-Pajaro Laborshed during 2016 is entirely based on data from official reports published by the U.S. Department of Agriculture and the U.S. Department of Labor. The *2012 Census of Agriculture*, published by USDA, provides the only information available at the county level that includes classification of employees according to the number of days worked.

The quinquennial agriculture census includes several data items pertaining to farm employment, including a count described therein as "hired farm labor - workers." The total number of hired workers reported for each county was determined by simple addition of the reported number of persons on the payroll for each of the county's farm operators who separately fill out census forms.

A worker who is temporarily employed on a farm might, after concluding that job, find a temporary job on another farm. This worker will be enumerated by both farm operators, having appeared on both payrolls. Thus, the census report is an enumeration of the number of *jobs*, not a count of individual workers.

Table A-1-1
Calculated Average Payroll per Worker (job)
Source: 2012 Census of Agriculture, California, County Data, Table 7

Category of worker (job)	*Average payroll per worker (job) Monterey & Santa Cruz Counties*
Workers (jobs), hired labor employed 150 days or more	$29,019
Workers (jobs), hired labor employed less than 150 days	$4,694

Census data will be written as "workers (jobs)" for clarity about this distinction. Table A-I-1 presents the calculated average payroll per worker (job) for the two counties combined for both categories of workers by days employed.[193] In

[193] The computation was based on the number of workers (jobs) and payroll on farms with only hired labor employed for less than 150 days ($4,694). This latter figure was then used to estimate

particular, the 2012 agricultural census reported a combined total 2,640 workers (jobs) in the two counties on farms where only persons were employed for less than 150 days, and the combined payroll was $12,392,000. This yields an average value of payroll per worker (job) equal to $4,694.

A similar computation was carried out for farms with only workers (jobs) hired for 150 days or more, totaling 5,787 such persons. The result was $29,019 per worker (job).

The next step is to compute the sub-totals of payroll for the two-county region, for all workers (jobs) employed for less than 150 days, and, separately for all workers (jobs) employed for 150 days or more. The fraction of total payroll, in each county, that can be attributed to each type of worker (job) will eventually be applied to 2016 records of agricultural worker cash wages in order to apportion current wages accordingly.

The agricultural census also includes summary data for farms with both workers (jobs) employed 150 days or more, as well as with workers (jobs) employed for less than 150 days, and corresponding total payroll. The computation involved multiplying the average payroll per worker (job) for workers (jobs) employed 150 days or less ($4,964) by the total number of workers (jobs) in that category, not only on farms with just those workers (jobs) but also on farms with both categories of workers (total of 21,381). Then subtracting that result from the total reported payroll for all reporting farms to obtain the payroll sub-total for all workers (jobs) employed for 150 days or more. Sub-totals for each category of worker (job) are presented in Table A-I-2.

the total payroll on all farms with labor employed for less than 150 days. The balance of the total reported hired labor expenses in the two counties, less the calculated payroll on all farms with labor employed for less than 150 days was divided by the total number of workers employed 150 days or more ($29,019).

Table A-1-2
Estimated Payroll Sub-totals per Type of Worker (job)

Source: 2012 Census of Agriculture, California, County Data, Table 7
Author's Computation

Category of worker (job)	*Payroll, Monterey County & Santa Cruz County*
Sub-Total, Hired Labor, less than 150 days	**$100,361,118**
Sub-Total, Hired Labor, 150 days or more	**$557,978,882**
Estimated Total, Hired Labor	$658,340,000
Published report, Census of Agriculture	$658, 320,000

From Table A-I-2, an estimated 85% of total payroll for hired labor in the two-county Salinas-Pajaro region during 2012 was for workers (jobs) employed 150 days or more. Similarly, an estimated 15% of total payroll was for workers employed less than 150 days.

At this point, a new hypothesis is suggested: the proportion of total cash wages for all agricultural workers (jobs) in the two-county region during 2016 for each category of workers (jobs) follows the same shares as determined for directly hired workers (jobs) as during 2012. There is no independent measure of whether this hypothesis is correct. However, the figures obtained and used in the determination of this paper's estimate of the number of individuals working in the region's agriculture can be compared with other independent estimates.

As is discussed in this report, there is at least one other estimate in the published literature. Other colleagues have also made estimates using their own preferred methods, and these can be considered in discussing the findings of the present report.

The U.S. Department of Labor's Quarterly Census of Employment and Wages (QCEW) provides a record of cash wages and salaries paid to employees of all agricultural businesses in California for 2016. The summary for agricultural employment is comprised of crop production (NAICS 111), animal and animal product production (NAICS 112), and support services for crop, animal and other types of farm production (NAICS 115).

However, the results derived in Tables A-I-1 and A-I-2 were developed from 2012 Census of Agriculture findings for NAICS 111 and NAICS 112. There is no reason to suggest that changes in employment and compensation between 2012 and 2016 were similar to those in NAICS 115. For that reason, it proved necessary to separately develop two estimates: one for the former two categories, and one for the latter.

During 2016, the total cash wages paid for agricultural worker employment in Monterey County was reported by the QCEW files was $1,908,767,000. For Santa Cruz County, the corresponding total was $298,418,000. For purposes of developing an estimate of the number of individual workers, the QCEW files for each of the three NAICS codes were also downloaded for the computation discussed next.

Table A-I-3
Estimated Cash Wages, Sub-totals per Type of Worker (job)
Monterey & Santa Cruz Counties, 2016
Source: BLS, QCEW Files, 2016, Agricultural Workers

Category of worker (job)	*Payroll Sub-total, NAICS 111 & 112*	*Payroll Sub-total, NAICS 115*
Hired Labor, less than 150 days	**$152,115,984**	**$184,359,932**
Hired Labor, 150 days or more	**$845,721,016**	**$1,024,988,068**

Table A-I-3 presents the sub-totals of 2016 cash wages allocated to both categories of workers (jobs) in the two-county region in which the proportions were determined as previously described: 15% for hired labor, less than 150 days, and 85% for hired labor, 150 days or more. It is important to note that these payroll figures include data for support services for crop and livestock production, such as contact labor and preparation of produce for market which includes salad plants, as well as data for employees directly hired labor by farm operators.

The final steps of estimating the number of individual workers involve dividing the total cash wages paid to all workers in each category by the corresponding average cash earnings per worker (job) to derive the total number of jobs in each job category. Once the total number of jobs is determined, the result is then divided by the average number of employers per worker to obtain the estimated total number of individual workers in the Salinas-Pajaro Laborshed.

Before proceeding, it is necessary to adjust the payroll per worker (job) presented in Table A-I-1 to take two factors into account in making estimates of the average cash earnings per worker (job). First, the payroll figures reported by the agricultural census include employment taxes (social security, Medicare, unemployment insurance), workers compensation premium payments and other cash employment benefits.[194] Second, some employers, faced with periods of labor shortage, offered increased salaries and wages in an effort to attract or retain employees. In addition, increases in the California minimum wage between 2012 and 2016 forced all employers to make adjustments of wages.[195]

The adjusted estimated cash earnings per worker (job) in each job category for Monterey and Santa Cruz counties combined are presented in Table A-I-4. Both adjustments discussed above have been taken into account.

The findings reported in Tables A-I-3 and A-I-4 make it possible to calculate the estimated number of jobs in each NAICS code and for each category of worker (job). The resulting findings are presented in Table A-I-5.

[194] An estimated 85% of payroll was assumed to represent employer costs.
[195] Both factors were taken into account, separately for the two-county region, by computing the ratio of Average Annual Pay (nominal) for the combined NAICS 111 & 112 and, separately for NAICS 115 during 2016 with that for 2012 as reported by BLS QCEW. For NAICS 111 &112, the ratio was $35,033/$30,104 = 1.1637; for NAICS 115, the ratio was $36,999/$28,503 = 1.2981.

Table A-I-4
Estimated Annual Average Earnings per Worker (job), 2016
Source: Author's computations (see text)

Category of worker (job)	*Average earnings per worker (job) NAICS 111 & 112*	*Average earnings per worker (job) NAICS 115*
Workers (jobs), employed less than 150 days	**$4,643**	**$5,179**
Workers (jobs), employed 150 days or more	**$28,705**	**$32,018**

Table A-I-5
Estimated Number of Agricultural Worker Jobs
Sub-totals per Type of Worker (job)
Monterey & Santa Cruz Counties, California, 2016
Source: Author's computations (see text)

Category of worker (job)	*Jobs, Sub-total, NAICS 111 & 112*	*Job, Sub-total, NAICS 115*
Workers (jobs), less than 150 days	**32,762**	**35,597**
Workers (jobs), 150 days or more	**29,463**	**32,013**
Total number of jobs	**62,225**	**67,610**

The final step is the computation of the estimated number of workers in the Salinas-Pajaro Laborshed region. From Table A-I-5, the grand total number of jobs is 129,835. The number of employers per worker among crop workers in California was reported by the U.S. Department of Labor Employment and

Training Administration's National Agricultural Workers Survey (NAWS) to have been 1.42 farm employers per worker during FYs 2013-14.[196]

Therefore, the present report estimates the number of individuals who were employed as agricultural workers for at least some portion of calendar year 2016 was 91,433. As can easily be inferred from Table A-I-5, slightly more than half of all agricultural jobs in the region were estimated to have been fewer than 150 days duration.

[196] Cf. Table 14. Hired Crop Worker Employment Characteristics, California Estimate, Five Time Periods. Row 45 of the Table. Public Data, Fiscal Years 1989-2014.