

# DEPARTMENT OF ECONOMICS

## Working Paper

### **Farmer Suicides in India: Levels and Trends across Major States, 1995-2011**

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# Farmer Suicides in India: Levels and Trends across Major States, 1995-2011<sup>Y</sup>

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[NOTE: THIS IS A NEW VERSION OF A PREVIOUS PAPER CIRCULATED AS UNIVERSITY OF MASSACHUSETTS AMHERST DEPARTMENT OF ECONOMICS WORKING PAPER 2016-01. THE PREVIOUS VERSION OF THE PAPER HAD SOME DATA ERRORS THAT HAVE BEEN CORRECTED IN THIS VERSION. THE NEW VERSION RETAINS THE NUMBER (WORKING PAPER 2016-01) OF THE PREVIOUS VERSION.]

## 1. Introduction

Between 1995 and 2014, more than 300,000 farmers – cultivators and agricultural labourers – have committed suicide in India. That is roughly equivalent to a staggering figure of one farmer suicide every 30 minutes. The phenomenon of suicide by farmers, on such a large scale, is especially worrisome for India because the majority of the workforce is still dependent on agriculture for its livelihood. According to data from the latest census in 2011, about 55% of Indian workers were employed in agriculture, either as cultivators or as agricultural labourers.

One of the important ways in which we can discuss, and potentially address, various dimensions of the problem of farmers suicides is by quantifying its magnitude and studying its patterns across time and space. What would be a good way to quantify the problem of farmer suicides? While an immediate candidate is the total number of farmer suicides, this measure suffers from the problem that it does not control for changes in the population of farmers. Without normalizing by the population of farmers, the total number of farmer suicides is not very informative about the severity of the problem.

The next candidate measure is the suicide mortality rate (SMR) of farmers, i.e., farmer suicides normalized by the population of farmers. While the construction of this measure is a step in the right direction, it is still inadequate because it does not take into account the situation of non-farmers. For instance, in a particular year, both farmer SMR and non-farmer SMR might be high. This might be due to some common causes that affect suicides in the whole population. Thus, in such a year, even a high value of the SMR for farmers would not be informative about problems specific to farmers, e.g., agrarian distress.

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This suggests that one good measure would be the SMR ratio – the ratio of farmer SMR and non-farmer SMR. This measure is a good way to capture the severity of farmer suicides because it controls for the population of farmers and also takes account of the situation of non-farmers. Hence, the SMR ratio can be used to capture the severity of the problem of farmer suicides as much as it is a reflection of possible problems specific to the agrarian economy.

Many recent studies, including Nagraj (2008) and Mishra (2014), have used the SMR ratio to quantify the problem of farmer suicides. In this note we point out that they have made an error in computing estimates of both the farmer SMR and the non-farmer SMR, and therefore, the ratio of the two. We explain the source of the error and present corrected estimates of the SMR ratio – the ratio of farmer and non-farmer SMR – for 19 major Indian states from 1995 to 2011. Our corrected estimates of the SMR ratio alter some of the commonly accepted facts about the level and trend of farmer suicides at the national level and across states.

## 2. Source of Error

The primary source of data for analyzing the phenomenon of farmer suicides in India has been the *Accidental Deaths & Suicides in India* (ADSI), an annual publication of the National Crime Records Bureau (NCRB) of the Ministry of Home Affairs, Government of India. The NCRB has been publishing the ADSI, which contains data on suicides in the country, disaggregated by states and major cities, since 1967. Copies of the ADSI have been digitized and made available on the NCRB's website.<sup>1</sup> Apart from providing data on the number of suicides, the ADSI also gives information on the causes of suicides. From 1995, the ADSI added another dimension of information and started publishing suicide data disaggregated by professions.

Between 1995 and 2013, the ADSI roughly used similar categories of professions. For instance, in 1995, the categories of professions listed in the ADSI were the following: housewife, self-employed, service, student, unemployed, retired persons and others. The category of "self-employed" was further broken down into the following sub-categories: business activity, professional activity, farming/agriculture and others. Similarly, the category of "service" was broken down into the sub-categories of private, and public sector undertaking.

While there are some small changes between 1995 and 2013, what is important for us is that the category of "self-employed (farming/agriculture)" has remained constant throughout this period between 1995 and 2013. Evidently, this category will provide us information on suicides committed by farmers. But before one proceeds further, one needs to ask: who are counted in the category of "self-employed (farming/agriculture)"? Does it refer only to what the Census defines as cultivators? Or, does it refer to cultivators *and* agricultural labourers? The NCRB report does not provide an answer in the ADSI.

Most researchers assumed, and quite reasonably in our opinion, that the ADSI category of "self-employed (farming/agriculture)" referred only to cultivators. This is because in the case of agricultural

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<sup>1</sup> See <http://ncrb.nic.in/accdeaths.htm>

production, it is natural to identify the “self-employed” with the Census category of “cultivators”. These are the people who earn their living from farming, but with the important qualifier that they own the land, or have leased in the land. Thus, agricultural labourers would not fall in the category of the “self-employed” because they hire out their labour power to others (those who own or lease in land). With this assumption, the SMR of farmers would be computed as the ratio of farmer suicides (reported by the ADSI) and the population of cultivators (reported by the decennial Census). Using this methodology, Nagraj (2008) found that the SMR of farmers was higher than the SMR for the general population, and especially so for male farmers (Table 3, Nagraj, 2008). Mishra (2014) reported the same pattern – male farmer SMR higher than male non-farmer SMR – for the country as a whole for most of the period between 1995 and 2012 (Table 3, Mishra, 2014). The publication of the ADSI in 2014 indicated that this assumption was incorrect. It now appears that the ADSI category of “self-employed (farming/agriculture)” referred to cultivators *and* agricultural labourers, and not to cultivators alone. How do we know this?

The categorization of professions in the 2014 ADSI is a little different from the format used in previous years. What is important for us is that, unlike previous years, ADSI 2014 has subdivided the category of “self-employed in agriculture” into agricultural labourers, and farmers. The sub-category of farmers has been further sub-divided into those owning land, and those leasing in land. So, there does exist a category called “self-employed persons (farmers)” in the 2014 ADSI. But if one compares the figures reported under this category in 2014 with the figures reported under the category of “self-employed (farming/agriculture)” in previous years’ reports, one notices a big discrepancy.

For instance, the total number of suicides for the category of “self-employed persons (farmers)” in India in 2014 was 5650. The total number of suicides for the category of “self-employed (farming/agriculture)” in India in 2013 was 11772. This would suggest that farmer suicides more than halved between 2013 and 2014. Since this is clearly implausible, one has to compare data under the category of “self-employed (farming/agriculture)” of 2013 (and earlier years) with the category of “self-employed persons [agriculture (total)]” of 2014. Once that is done, the total number of farmer suicides is found to have risen from 11772 in 2013 to 12360 in 2014, an increase of about 5%.

The important point is that while computing the SMR of farmers for years before 2014, one needs to divide the number of farmer suicides by the population of cultivators *and* agricultural labourers, not the population of cultivators alone, as previous researchers have done (Nagraj, 2008; Mishra, 2014). Normalizing the number of farmer suicides reported by the NCRB in the ADSI by the population of cultivators (from the Census) overestimates the suicide rate of farmers because the reference population in the denominator leaves out agricultural labourers (which is, however, included in the numerator). By an analogous argument, this procedure will underestimate the suicide rate of non-farmers.

In this note, we present estimates of the SMR ratio for the period between 1995 and 2011 that corrects for this error. To arrive at estimates of the SMR ratio we use data from the following sources: (1) data on farmer and non-farmer suicides are taken from the ADSI; (2) data on the population of farmers and non-

farmers have been interpolated from population figures of main *and* marginal workers in the Census of India in 1991, 2001 and 2011. Thus, we compute the SMR of farmer as:

$$\text{SMR of farmers} = \frac{\text{number of farmer suicides}}{\text{population of farmers}}$$

where, *population of farmers is the sum of (1) main & marginal cultivators, and (2) main & marginal agricultural labourers*. In a similar manner, we compute the SMR of non-farmers as

$$\text{SMR of non-farmers} = \frac{\text{total suicides less farmer suicides}}{\text{total population less population of farmers}}$$

Even though suicide data is available till 2014, we stop our analysis in 2011 because that is the last year for which population data is available. To include later years would involve extrapolating population data beyond 2011, a practice that is far less reliable than interpolation.

The correct way of computing farmer suicide rates that we have used in this paper not only provides better quantitative estimates of the severity of the problem of farmer suicides; it also explains the disagreement about the quantitative dimension of the problem of farmer suicides in the extant literature. On the one hand, researchers using time series data from the National Crime Records Bureau (NCRB) and the Census of India have suggested that the suicide mortality rate of farmers is higher than non-farmers (Nagraj, 2008; Mishra, 2014). On the other hand, demographers using cross sectional data from a nationally representative sample survey of suicides in India between 2001 and 2003 have suggested the opposite, viz., suicide rates of farmers is lower than for non-farmers (Patel et al., 2012). As we have argued above, the error in the methodology used by Nagraj (2008) and Mishra (2014) have led them to overestimate (underestimate) the suicide rate of (non-farmers) farmers. Probably this explains why they have arrived at conclusions that are opposite of those arrived at by Patel et al. (2012).

### 3. Main Results

#### 3.1. All-India Picture

In Table 1 and Figure 1, 2 and 3, we present data on farmer suicides at the all-India level from 1995 to 2011.<sup>2</sup> Let us begin with an analysis of the level of the SMR ratio (using the data in Table 1 and Figure 1). The first fact that is noteworthy is that the SMR ratio has been lower than 1 for all years since 1995. This is true not only true for females, but also for males and the whole population. This means that at the all India level, the incidence of suicides has been lower among farmers than among non-farmers for all years since 1995. This finding contrasts with previous studies that have often found the SMR ratio to be higher than 1 for the country (Nagraj, 2008; Mishra, 2014). As we have pointed out above, this difference stems from the incorrect method that has been used by earlier researchers, who have overestimated farmer SMR and underestimated non-farmer SMR. The second noteworthy fact about levels is that the SMR ratio for females is much lower than for males, and this has been true for all years

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<sup>2</sup> Detailed data are available from the authors upon request.

since 1995. In fact for most years in our sample, the male SMR ratio has been more than twice the female SMR ratio at the all-India level. Thus, clearly, the problem of farmer suicides affects male farmers much more severely than female farmers.<sup>3</sup>

[Table 1 about here]

Turning to trends, we see that the mid-2000s is an important break point: the all-India SMR ratio for the whole population displays an increasing trend till 2004, and declines thereafter. While the all-India SMR ratio for males follows the same pattern as the whole population (increasing till 2004, and declining thereafter), the SMR ratio for females shows a declining trend over the whole period from 1995 onwards. This suggests that the incidence of suicides among farmers increased faster than the incidence of suicides among non-farmers between 1995 and 2004, but the trend reversed thereafter.

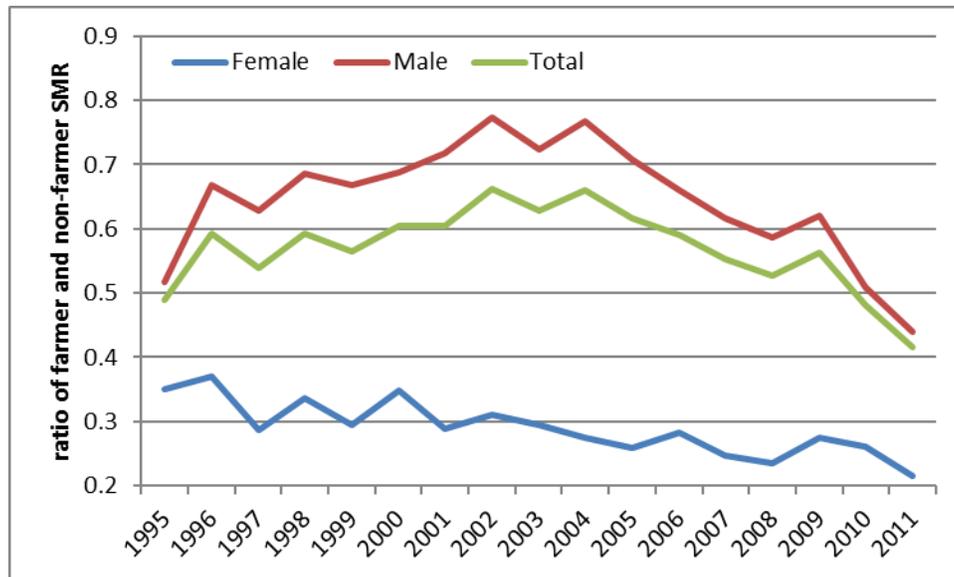


Figure 1: Ratio of Farmer SMR and Non-Farmer SMR 1995 – 2011. Source: Table 1.

To probe deeper into the trend of the SMR ratio, we can turn to the estimates of the SMR ratio for farmers and non-farmers presented in Figure 2 and 3, data for both coming from Table 1). From Figure 1, we see that the SMR for all farmers and for male farmers displays an inverted-U shaped pattern over

<sup>3</sup> It is possible that the NCRB data underestimates the suicides of female farmers far more than the suicides of male farmers. Hence, part of the reason behind the huge difference between the SMR ratio of male and female farmers could be the NCRB data. Studies that have used data collected from fieldwork, including Nagraj (2008), have underlined the underreporting of farmer suicides in NCRB data. The wild fluctuations in the NCRB data raise concerns of reliability. For instance, while Chhattisgarh had very high suicide rates till 2009, it reported zero suicides in 2011! However, at this point, we do not have access to any alternative sources of data to correct for such problems.

the sample period. On the other hand, the SMR for female farmers was stable till the early 2000s, and has been declining since then. The SMR for all non-farmers in Figure 2 shows a different trend: it increased continuously between 1995 and 2011, other than a brief dip in the early 2000s. The SMR for male non-farmers displays an even more pronounced increase over the sample period, and especially so after 2005. On the other hand, the SMR ratio for female non-farmers is composed of two distinct phases: a period of rapid increase till the late 1990s, followed by a period of equally rapid decline and very slow growth.

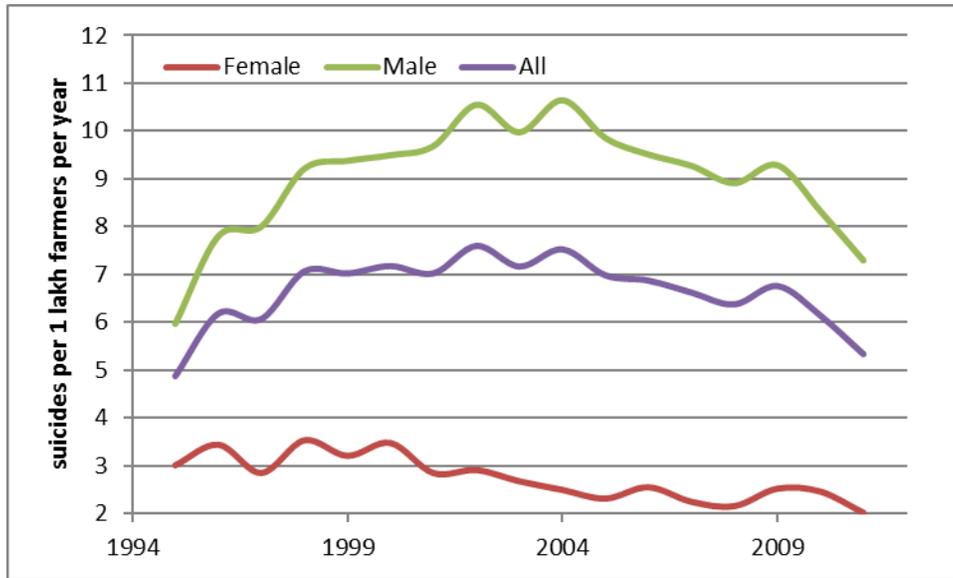


Figure 2: Farmer SMR 1995 – 2011. Source: Table 1.

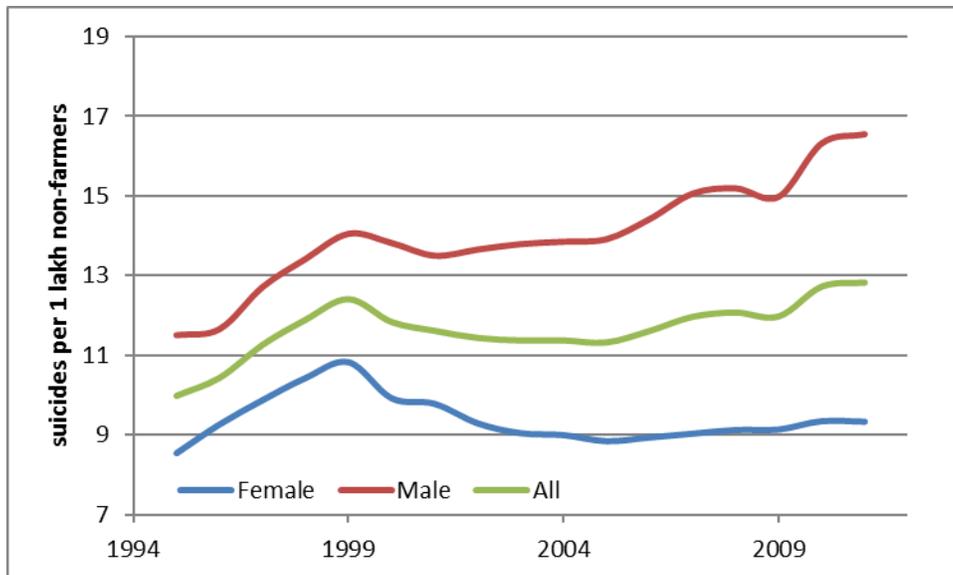


Figure 3: Non-Farmer SMR 1995 – 2011. Source: Table 1.

Reading the evidence in Figure 2 and 3 together, we can conclude that the SMR ratio in Figure 1 (and Table 1) – for males and for the whole population – increased between 1995 and 2004 because the SMR of farmers increased faster than the SMR for non-farmers over this period. Since 2004, the fall in the SMR ratio in Figure 1 (and Table 1) – for males and for the whole population – has been driven by a falling SMR for farmers and a rising SMR for non-farmers. This suggests that, at the all-India level, the severity of the problem of suicides increased among farmers, relative to non-farmers, between 1995 and 2004. Since 2004, we see an opposite pattern: the severity of the problem of suicides has grown rapidly among non-farmers, even as it has declined among farmers.

### 3.2. Pattern across States

The all-India level picture that we have presented in the previous section hides important state-level variations. In this section, we investigate this cross-state variation by analyzing data on 19 major states that have together accounted for more than 97 percent of all farmer suicides in India every year since 1995. Table 2, 3 and 4 presents estimates of the SMR ratio – the ratio of farmer SMR and non-farmer SMR – for these 19 states for the period 1995 to 2011 for all farmers, male farmers and female farmers, respectively. The states in these tables have been arranged in decreasing order of the average (arithmetic mean) SMR ratio over the whole period (1995-2011). There are several interesting facts that emerge from the data presented in Table 2, 3 and 4.

[Table 2 about here]

First, if we analyze the SMR ratio for all farmers, the estimates in Table 2 suggest that the problem of farmer suicides is concentrated in only two states: Kerala and Maharashtra. In fact, if we use a value of the SMR ratio of 1 as a cut-off to identify severe problems of farmer suicides, then only Kerala (for all years) and Maharashtra (from 2001 to 2008) emerge as cases of concern.<sup>4</sup>

Second, if we investigate the SMR ratio for male farmers in Table 3, we see that the problem is more widespread. While Kerala and Maharashtra continue to remain severely affected – with SMR ratios above 1 – many more state-years join the list. For instance, Chhattisgarh has an SMR ratio above 1 for most years; Karnataka, Uttar Pradesh and Madhya Pradesh, each have some years when the SMR ratio was above 1; Uttarakhand had two years of above-1 SMR ratio.

[Table 3 about here]

Third, if we analyze the estimates of the SMR ratio for female farmers, the data in Table 4 suggests that the problem is largely non-existent: only Kerala in 2006 had a SMR ratio above 1. For females, the SMR of non-farmers is far higher than the SMR of farmers. This suggests that the suicide rate among non-farmer women need to be seriously investigated and proper policy responses fashioned.

[Table 4 about here]

Fourth, if we analyze trends in the SMR ratio for all farmers, we can divide the states in three groups. The first group has states where the SMR ratio for all farmers has trended upwards: Maharashtra, Uttar

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<sup>4</sup> There are a few other state-years in this category: Punjab (1996 and 1997), and Chhattisgarh (2001 and 2008).

Pradesh, Punjab (since the mid-2000s), Assam and Haryana. The second group has states where the SMR ratio for all farmers has been flat: Karnataka, Bihar, Himachal Pradesh, Jharkhand and Uttarakhand. The third group of states has a declining SMR ratio for all farmers: Andhra Pradesh, Chhattisgarh, Gujarat, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu and West Bengal.

## 4. Conclusion

In this paper, we have presented estimates of the suicide mortality rate of farmers and non-farmers in India and for 19 major states (which account for more than 97 per cent of farmer suicides) for the period 1995-2011. We have used data from two sources: (1) suicide data on farmers and non-farmers from the ADSI, an annual publication of the NCRB, and (2) population data from the 1991, 2001 and 2011 Census to estimate farmer and non-farmer suicide mortality rates from 1995 to 2011.

The main contribution of this note is to present “correct” estimates of farmer and non-farmer suicide rates for India and its states. Our estimates of farmer suicide rates highlight several important facts. For the country as a whole, the SMR ratio, i.e., the ratio of farmer SMR and non-farmer SMR, has always been lower than 1. This means that the suicide rate of farmers has been lower than the suicide rate of non-farmers for all years since 1995. We also see that the SMR for male farmers has been consistently and significantly higher than for female farmers. While there could be serious data issues that are driving this result, the existing evidence suggests that the problem of farmer suicides has affected male farmers much more severely than female farmers. In addition to this fact about levels, we also see an important fact about trends: the SMR ratio for India has increased between 1995 and 2004, and has declined since then. The main conclusion that emerges from an analysis of the data for the whole country is that the problem of farmer suicides is not an all-India phenomenon.

Hence we turn to an analysis of state-level patterns. Our analysis of state-level data shows that the problem of farmer suicides is much concentrated in a few states. We see this most clearly when we investigate the pattern of the SMR ratio for male farmers. While Kerala and Maharashtra are clearly the worst affected states, the other states that have seen above-1 SMR ratio for male farmers (in some years) are: Chhattisgarh, Karnataka, Uttar Pradesh, and Madhya Pradesh. In terms of trends, besides the usual suspects of Kerala and Maharashtra, states like Uttar Pradesh, Haryana, Assam and Bihar have also been witnessing a rising trend of farmer suicides. Thus, it seems best to analyze the phenomenon of farmer suicides as affecting these states, and not as a countrywide phenomenon. This might also help in designing policies that take account of state-specific factors – like cropping patterns, extent of irrigation, accessibility of rural credit for formal institutions, provisions of crop insurance – that contribute to the troubling phenomenon of farmer suicides.

To pre-empt any misinterpretation of the evidence presented in this note, we would like to conclude with a disclaimer. Although high suicides of farmers, as measured by an above-1 SMR ratio, are found to be concentrated in some states, from this it should not be inferred that the crisis in the agrarian economy is also concentrated in these few states. The general state of low farm income, stagnation of the rate of capital accumulation, declining growth rate of the agricultural sector, etc. suggest that the phenomenon of agrarian crisis is far more widespread. But, it is true that the manifestation of agrarian

crisis in terms of farmer suicides, an extreme step in any situation, seems to be concentrated in some states only.

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**Table 1: Farmer Suicides in India**

	Farmer Suicides	SMR of Farmers			SMR of Non-Farmers			SMR Ratio		
		Female	Male	All	Female	Male	All	Female	Male	Total
<b>1995</b>	10720	3.00	5.96	4.87	8.55	11.51	9.98	0.35	0.52	0.49
<b>1996</b>	13729	3.43	7.80	6.17	9.28	11.67	10.43	0.37	0.67	0.59
<b>1997</b>	13622	2.83	8.00	6.06	9.89	12.72	11.26	0.29	0.63	0.54
<b>1998</b>	16015	3.52	9.22	7.05	10.44	13.43	11.89	0.34	0.69	0.59
<b>1999</b>	16082	3.19	9.38	7.01	10.84	14.06	12.41	0.29	0.67	0.56
<b>2000</b>	16603	3.46	9.50	7.16	9.93	13.83	11.84	0.35	0.69	0.61
<b>2001</b>	16415	2.83	9.69	7.01	9.79	13.51	11.61	0.29	0.72	0.60
<b>2002</b>	17971	2.90	10.56	7.58	9.30	13.66	11.44	0.31	0.77	0.66
<b>2003</b>	17164	2.66	9.98	7.15	9.05	13.80	11.37	0.29	0.72	0.63
<b>2004</b>	18241	2.48	10.65	7.51	9.01	13.86	11.37	0.28	0.77	0.66
<b>2005</b>	17131	2.30	9.86	6.97	8.85	13.92	11.32	0.26	0.71	0.62
<b>2006</b>	17060	2.54	9.51	6.86	8.95	14.43	11.61	0.28	0.66	0.59
<b>2007</b>	16632	2.23	9.28	6.61	9.04	15.07	11.97	0.25	0.62	0.55
<b>2008</b>	16196	2.14	8.91	6.37	9.14	15.20	12.07	0.23	0.59	0.53
<b>2009</b>	17368	2.51	9.29	6.75	9.15	14.99	11.98	0.27	0.62	0.56
<b>2010</b>	15964	2.45	8.33	6.13	9.36	16.33	12.73	0.26	0.51	0.48
<b>2011</b>	14027	2.00	7.29	5.33	9.34	16.56	12.83	0.21	0.44	0.42

Notes. SMR of farmers is the number of farmer suicides per 100,000 farmers; SMR of non-farmers is the number of non-farmer suicides per 100,000 non-farmers. Farmers refer to cultivators and agricultural labourers. Data on farmer and non-farmer suicides is from the National Crime Records Bureau. Data on the population of farmers and non-farmers is interpolated from the population figures of main and marginal workers given in reports of the Census of India, 1991, 2001 and 2011.

**Table 2: Ratio of Farmer SMR and Non-Farmer SMR**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Avg
Kerala	1.67	1.33	1.51	2.01	1.89	1.90	1.52	2.38	2.65	1.49	1.89	2.00	2.29	1.55	1.71	1.79	1.72	1.84
Maharashtra	0.30	0.65	0.55	0.67	0.69	0.89	1.05	1.12	1.15	1.29	1.23	1.33	1.28	1.19	0.83	0.81	0.88	0.93
Punjab	0.99	1.59	1.21	0.85	0.54	0.55	0.44	0.51	0.26	0.80	0.54	0.79	0.75	0.54	0.86	0.64	0.78	0.74
Chhattisgarh							1.02	0.83	0.68	0.81	0.74	0.85	0.89	1.01	0.80	0.38	0.00	0.73
Karnataka	0.79	0.84	0.63	0.61	0.69	0.80	0.81	0.72	0.86	0.62	0.62	0.53	0.69	0.55	0.77	0.87	0.69	0.71
Uttar Pr.	0.36	0.58	0.52	0.61	0.65	0.67	0.89	0.52	0.44	0.60	0.69	0.60	0.56	0.89	0.76	0.73	0.63	0.63
Madhya Pr.	0.47	0.78	1.00	0.70	0.83	0.73	0.57	0.55	0.62	0.72	0.68	0.62	0.57	0.51	0.41	0.37	0.38	0.62
<b>India</b>	<b>0.49</b>	<b>0.59</b>	<b>0.54</b>	<b>0.59</b>	<b>0.56</b>	<b>0.61</b>	<b>0.60</b>	<b>0.66</b>	<b>0.63</b>	<b>0.66</b>	<b>0.62</b>	<b>0.59</b>	<b>0.55</b>	<b>0.53</b>	<b>0.56</b>	<b>0.48</b>	<b>0.42</b>	<b>0.57</b>
Andhra Pr.	0.50	0.69	0.35	0.57	0.57	0.45	0.42	0.48	0.47	0.62	0.58	0.62	0.35	0.44	0.52	0.49	0.45	0.50
Rajasthan	0.00	0.53	0.67	0.70	0.62	0.75	0.49	0.58	0.55	0.66	0.33	0.27	0.43	0.49	0.54	0.23	0.18	0.47
Uttarakhand							0.26	0.38	0.44	0.39	0.37	0.72	0.50	0.68	0.38	0.65	0.35	0.47
West Bengal	0.55	0.70	0.61	0.57	0.50	0.57	0.52	0.68	0.43	0.33	0.35	0.41	0.40	0.27	0.39	0.33	0.26	0.46
Gujarat	0.50	0.50	0.57	0.58	0.39	0.54	0.51	0.51	0.54	0.46	0.55	0.40	0.23	0.36	0.41	0.36	0.39	0.46
Haryana	0.42	0.32	0.12	0.52	0.39	0.47	0.30	0.38	0.43	0.36	0.33	0.41	0.38	0.29	0.51	0.59	0.71	0.41
Assam	0.28	0.12	0.30	0.24	0.14	0.20	0.29	0.52	0.34	0.57	0.51	0.51	0.43	0.30	0.56	0.60	0.55	0.38
Jharkhand							0.36	0.25	0.25	0.16	0.54	0.41	0.29	0.25	0.52	0.49	0.25	0.34
Tamil Nadu		0.30	0.36	0.36	0.25	0.30	0.34	0.53	0.36	0.53	0.44	0.14	0.14	0.15	0.32	0.14	0.17	0.30
Bihar	0.39	0.28	0.21	0.21	0.22	0.20	0.32	0.36	0.24	0.20	0.23	0.24	0.29	0.21	0.36	0.26	0.36	0.27
Himachal Pr.	0.14	0.34	0.16	0.24	0.27	0.22	0.15	0.16	0.19	0.33	0.12	0.10	0.08	0.87	0.09	0.26	0.24	0.23
Orissa	0.37	0.27	0.24	0.39	0.23	0.16	0.20	0.25	0.27	0.29	0.19	0.22	0.17	0.16	0.11	0.11	0.08	0.22

Notes. Farmer SMR is the number of farmer suicides per 100,000 farmers; non-farmer SMR is the number of non-farmer suicides per 100,000 non-farmers. Farmers refer to cultivators and agricultural labourers. Data on farmer and non-farmer suicides is from the NCRB and data on the population of farmers and non-farmers is interpolated from the population of main and marginal workers figures in the reports of the Census of India in 1991, 2001 and 2011. States are arranged in decreasing order of the average SMR ratio over the period 1995-2011.

**Table 3: Ratio of Male Farmer SMR and Male Non-Farmer SMR**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kerala	1.60	1.33	1.45	1.73	1.67	1.71	1.37	2.10	2.41	1.32	1.68	1.70	2.01	1.38	1.48	1.46	1.39
Maharashtra	0.51	1.00	0.89	1.03	1.12	1.32	1.54	1.66	1.72	2.02	1.96	2.04	1.94	1.77	1.18	1.15	1.21
Punjab	0.75	1.28	1.02	0.70	0.43	0.44	0.42	0.40	0.19	0.60	0.40	0.60	0.59	0.43	0.66	0.48	0.55
Chhattisgarh							1.50	1.20	0.88	1.21	1.00	1.14	1.10	1.46	0.95	0.35	0.00
Karnataka	0.71	0.88	0.75	0.66	0.86	0.92	0.98	0.87	1.02	0.72	0.74	0.60	0.74	0.59	0.85	0.96	0.71
Uttar Pr.	0.42	0.57	0.51	0.74	0.80	0.72	1.13	0.61	0.50	0.63	0.77	0.61	0.58	0.99	0.77	0.81	0.66
Madhya Pr.	0.66	1.12	1.24	0.92	1.17	0.99	0.89	0.82	0.91	1.17	1.16	1.00	0.87	0.71	0.54	0.46	0.53
<b>India</b>	<b>0.52</b>	<b>0.67</b>	<b>0.63</b>	<b>0.69</b>	<b>0.67</b>	<b>0.69</b>	<b>0.72</b>	<b>0.77</b>	<b>0.72</b>	<b>0.77</b>	<b>0.71</b>	<b>0.66</b>	<b>0.62</b>	<b>0.59</b>	<b>0.62</b>	<b>0.51</b>	<b>0.44</b>
Andhra Pr.	0.55	0.95	0.52	0.85	0.78	0.56	0.60	0.63	0.55	0.75	0.69	0.68	0.42	0.52	0.61	0.58	0.53
Rajasthan	0.00	0.81	1.10	1.04	0.88	0.95	0.72	0.81	0.81	0.98	0.48	0.37	0.61	0.64	0.76	0.31	0.22
Uttarakhand							0.43	0.70	0.69	0.55	0.36	0.94	0.64	1.01	0.59	1.01	0.52
West Bengal	0.48	0.66	0.62	0.49	0.44	0.51	0.46	0.62	0.45	0.36	0.34	0.36	0.35	0.26	0.37	0.28	0.22
Gujarat	0.63	0.73	0.82	0.86	0.54	0.79	0.75	0.67	0.66	0.58	0.66	0.47	0.28	0.40	0.47	0.41	0.41
Haryana	0.47	0.37	0.14	0.60	0.41	0.53	0.37	0.41	0.47	0.39	0.33	0.41	0.39	0.30	0.52	0.55	0.62
Assam	0.29	0.12	0.30	0.23	0.12	0.18	0.25	0.50	0.30	0.56	0.44	0.46	0.43	0.30	0.57	0.59	0.54
Jharkhand							0.61	0.41	0.41	0.26	0.81	0.64	0.34	0.31	0.72	0.62	0.33
Tamil Nadu		0.34	0.45	0.50	0.32	0.36	0.41	0.71	0.43	0.65	0.52	0.17	0.17	0.17	0.39	0.16	0.19
Bihar	0.39	0.29	0.22	0.21	0.21	0.28	0.40	0.35	0.27	0.23	0.21	0.28	0.33	0.22	0.38	0.29	0.32
Himachal Pr.	0.29	0.67	0.25	0.34	0.58	0.42	0.35	0.32	0.34	0.55	0.25	0.19	0.14	1.38	0.17	0.50	0.45
Orissa	0.45	0.37	0.27	0.49	0.31	0.19	0.23	0.28	0.29	0.28	0.18	0.24	0.15	0.18	0.12	0.13	0.10

Notes. Male farmer SMR is the number of male farmer suicides per 100,000 male farmers; male non-farmer SMR is the number of male non-farmer suicides per 100,000 male non-farmers. Farmers refer to cultivators and agricultural labourers. Data on farmer and non-farmer suicides is from the National Crime Records Bureau, and data on the population of farmers and non-farmers is interpolated from the population of main and marginal workers figures in reports of the Census in 1991, 2001 and 2011. States are arranged in the same order as in Table 2.

**Table 4: Ratio of Female Farmer SMR and Female Non-Farmer SMR**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kerala	0.44	0.29	0.35	1.39	1.03	0.75	0.53	0.95	0.63	0.45	0.48	1.06	0.85	0.59	0.89	1.28	1.32
Maharashtra	0.06	0.28	0.19	0.28	0.22	0.35	0.40	0.39	0.33	0.26	0.21	0.25	0.21	0.19	0.15	0.14	0.18
Punjab	0.42	0.14	0.00	0.00	0.00	0.00	0.19	0.00	0.14	0.14	0.00	0.00	0.19	0.00	0.42	0.00	0.46
Chhattisgarh							0.41	0.30	0.34	0.25	0.29	0.39	0.50	0.38	0.48	0.41	0.00
Karnataka	0.86	0.65	0.32	0.42	0.31	0.48	0.34	0.31	0.36	0.27	0.23	0.27	0.41	0.33	0.42	0.51	0.46
Uttar Pr.	0.06	0.56	0.44	0.36	0.33	0.48	0.48	0.21	0.21	0.45	0.49	0.40	0.44	0.60	0.63	0.58	0.40
Madhya Pr.	0.21	0.41	0.68	0.39	0.42	0.37	0.25	0.26	0.31	0.27	0.22	0.20	0.20	0.19	0.21	0.20	0.14
<b>India</b>	<b>0.35</b>	<b>0.37</b>	<b>0.29</b>	<b>0.34</b>	<b>0.29</b>	<b>0.35</b>	<b>0.29</b>	<b>0.31</b>	<b>0.29</b>	<b>0.28</b>	<b>0.26</b>	<b>0.28</b>	<b>0.25</b>	<b>0.23</b>	<b>0.27</b>	<b>0.26</b>	<b>0.21</b>
Andhra Pr.	0.42	0.33	0.11	0.19	0.26	0.25	0.12	0.19	0.28	0.31	0.32	0.44	0.17	0.24	0.27	0.25	0.24
Rajasthan	0.00	0.13	0.19	0.22	0.28	0.48	0.18	0.23	0.16	0.17	0.05	0.08	0.06	0.18	0.14	0.07	0.09
Uttarakhand							0.08	0.07	0.06	0.17	0.39	0.50	0.35	0.34	0.12	0.22	0.10
West Bengal	0.70	0.71	0.48	0.78	0.60	0.65	0.57	0.75	0.22	0.05	0.20	0.41	0.43	0.18	0.25	0.36	0.26
Gujarat	0.34	0.21	0.29	0.21	0.18	0.15	0.16	0.21	0.28	0.18	0.26	0.20	0.07	0.19	0.20	0.15	0.25
Haryana	0.00	0.00	0.00	0.20	0.24	0.14	0.09	0.19	0.13	0.15	0.13	0.11	0.00	0.00	0.06	0.19	0.41
Assam	0.07	0.00	0.09	0.05	0.12	0.11	0.22	0.22	0.26	0.13	0.39	0.24	0.02	0.04	0.18	0.14	0.11
Jharkhand							0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.08	0.05	0.19	0.04
Tamil Nadu		0.22	0.19	0.12	0.14	0.17	0.16	0.20	0.20	0.28	0.25	0.08	0.08	0.10	0.18	0.08	0.12
Bihar	0.27	0.19	0.11	0.18	0.17	0.02	0.11	0.22	0.02	0.00	0.18	0.14	0.11	0.07	0.31	0.05	0.36
Himachal Pr.	0.00	0.04	0.06	0.16	0.00	0.00	0.00	0.01	0.06	0.12	0.00	0.00	0.01	0.37	0.00	0.02	0.04
Orissa	0.17	0.06	0.09	0.18	0.02	0.05	0.11	0.09	0.11	0.22	0.14	0.11	0.17	0.04	0.03	0.04	0.01

Notes. Female farmer SMR is the number of female farmer suicides per 100,000 female farmers; female non-farmer SMR is the number of female non-farmer suicides per 100,000 female non-farmers. Farmers refer to cultivators and agricultural labourers. Data on farmer and non-farmer suicides is from the National Crime Records Bureau, and data on the population of farmers and non-farmers is interpolated from reports of the Census in 1991, 2001 and 2011. States are arranged in the same order as in Table 2.