Invited Lecture Series: 5/2024

PUBLIC POLICY AND MEASUREMENT
COUNTING WHAT COUNTS

SRIJIT MISHRA
Professor, Indira Gandhi Institute of Development Research, Mumbai

10 July 2024

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PUBLIC POLICY AND MEASUREMENT: COUNTING WHAT COUNTS[1]

ABSTRACT

Public policy has a love-hate relationship with measurement. As the old adage goes, "What counts, cannot be counted. What is counted, does not count." Given this, public policy has to be careful in using what has been counted and be open-minded to what has not been counted. Having said that, this lecture will draw on two aspects of what has been counted and then bring in some anecdotal accounts of what could not be counted. The first aspect is on the measurement of farmers' suicide death rates and related aspects. The second will draw from the recent pandemic and focus on two things: false positives in the reverse transcription polymerase chain reaction (RT-PCR) tests and efficacy of vaccines and their implications for public policy. Finally, the anecdotal accounts will draw from my real-time engagement with the public policy initiative of Odisha Millets Mission (now known as Shree Anna Abhiyan).

Keywords:

False positive, farmers' suicides, measurement, Odisha Millets Mission, public policy, vaccine efficacy

JEL Codes: D63, D78, E01, H00, I00, Z00

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[1] This is being put up by the Council for Social Development, Southern Regional Centre, Hyderabad under its Invited Lecture Series as a pre-print. I thank Sujit Kumar Mishra, Director, CSD for giving me this opportunity and for the comments received at the public lecture, in particular the comments from R Siva Prasad, Badri Narayan Rath, and R Vijay among others. Some portions of this were presented in the CARDS Endowment Lecture on 25 May 2023 at the Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore. I have also discussed some of the issues and concerns raised here in my teaching at IGIDR and elsewhere and the probing by students have helped improve clarity. I also received some clarification-cum-feedback from Dinesh Balam, particularly on Odisha's millets initiative. Usual disclaimers apply.

1. Introduction

In the context of public policy and measurement it is only appropriate that I begin with two questions. First, what is public policy? Second, how will measurement help public policy? To answer the first question, by taking a cue from Bevir (2024), I suggest that public policy be identified with the actions of the government that have implications on the well-being of people. Further, it is to be noted that the actions of the government can be in the form of the laws made, the execution of the laws and their adjudication but also based on plans and other activities that can go beyond the statutory provisions. For instance, one can include global multilateral entities and their actions to this as they influence governments and thereby impacting the well-being of people. Keeping these in the background, let us move to the second question, which has a greater emphasis for the topic chosen. I limit myself by proposing three broad reasons on how measurement will help public policy, viz., to hold the government accountable for its actions, to enable evidence-based policy-making, and to count what counts.

Before proceeding further, one is reminded of the old adage, "What counts, cannot be counted. What is counted, does not count." Given this, I will be focusing on three things, two of them on what has been counted, and one on what could not be counted. The two things that has been counted are on the measurement of farmers' suicide death rates, and then on two examples from the recent coronavirus disease 2019 (COVID-19) pandemic – false positives in the reverse transcription polymerase chain reaction (RT-PCR) tests, and in the efficacy of vaccines or its extension to the narrative of vaccines being safe and effective. On what could not be counted, I will draw on some anecdotal accounts from my real-time engagement with the Odisha Millets Mission (now known through its recent Avatar of *Shree Anna Aviyan*), particularly when the Mission was in its initial days.[2]

[2] The success of the mission (*abhiyan*) would not have been possible without aspects of monitoring and evaluation that were countable, but I will not be touching upon those aspects here.

2. Farmers' Suicide Death Rates

It was sometime in the autumn of 2004 (almost 20 years ago) that the then Director of IGIDR, Professor R Radhakrisha,[3] had inquired about a possible study to look into the reasons behind the farmers' suicides in Maharashtra. I was not sure of taking this up as my daughter was not even six months old and the study would require substantive involvement – both in terms of demanding fieldwork and the rigour of scholarship. It was my spouse who came forward to suggest that she will take care of the home front (which, she continues to do in addition to her freelancing) and then I consented to take up the study.[4]

One of the challenges was to address two opposing views on farmers' suicide deaths. One is based on the reportage in the media on farmers' suicide deaths and of their increasing incidence (Deshpande 2006, Mishra 2006e). The other is those representing the government that bemoaned the sensationalizing of farmers' suicide deaths and were of the view that these cases, while unfortunate, were not different from that of the general population. It is observed that during 2001-04 from the total suicide deaths in Maharashtra, profession-wise distribution indicated that 35 per cent among males and 10 per cent among females were farmers (Mishra 2006a, 2006c), but this was not normalized with the population share of farmers. A task for me was to examine these two claims. Or, in other words, the objectives were to estimate the suicide death rates of farmers and non-farmers in Maharashtra, and to examine whether there are any variations in these estimates across regions within Maharashtra.

Now, if we have the number of suicide deaths by farmers and non-farmers and also their respective population over the years then one could arrive at some comparative estimates of suicide death rates over the years. Incidentally, National Crime Records Bureau (NCRB) has since 1967 come out with an annual publication on *Accidental Deaths and Suicides in India*. Further, since 1995, this annual publication started providing a classification of the reported sex-wise suicide deaths by their profession, which among

[3] Professor Radhakrishna left us all on 28 January 2022. My prayers for his departed soul.
[4] In fact, at a crucial stage of the farmers' suicides study when I was in a writer's block, it was her contribution that brought out the effectiveness required in the summary report.

others included a category of self-employed in farming or agriculture activity. A comparable population from the census classification of workers is cultivators. Further, suicide is not medically defined for 0-4 population. Hence, after excluding the 0-4 age cohort, one can use the decennial census population to interpolate or extrapolate for non-census years and compute sub-group consistent population estimates by sex for cultivators and non-cultivators.

Even though there was no one-to-one match between the classification of professions in reporting suicide deaths and the classification of workers and non-workers in the 5+ age group, by converting each of them into two categories and by matching self-employed in farming or agriculture activity in the former classification with that of cultivators in the latter classification we obtained a matching of two broad categories from each, viz., farmers and non-farmers.[5]

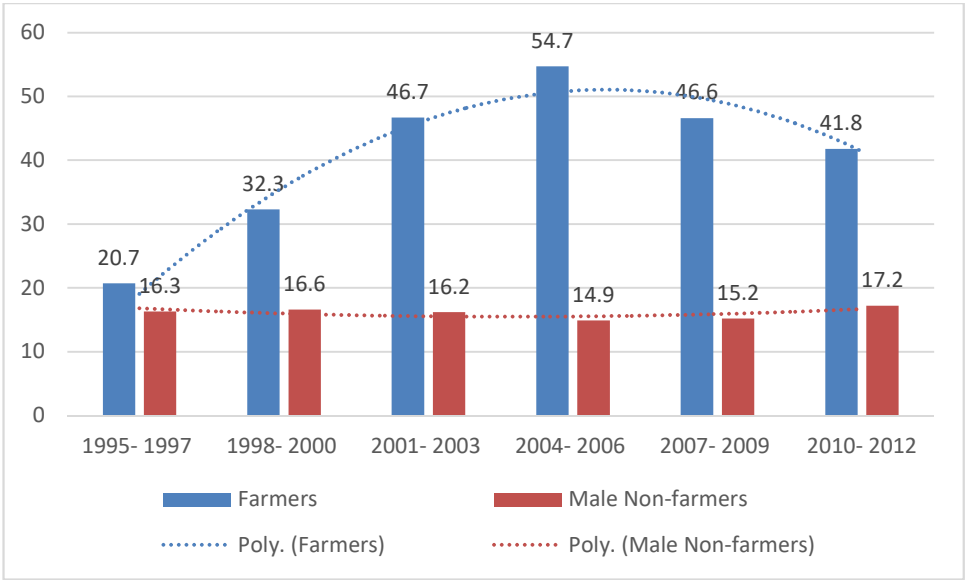
For any sub-group of population, i, that is in our case farmers and nom-farmers by sex, in a particular geographical region, j, that is in our case the State of Maharashtra or the administrative divisions or districts within Maharashtra, for a particular year, k, let the number of suicides be, N_{ijk}^{s}, and the population in the 5+ age group be, N_{ijk}, then the region-specific, year-specific suicide death rate per lakh population for that sub-group will be,

$$(1) \qquad S_{ijk} = (N_{ijk}^{s}/N_{ijk}) * 100000.$$

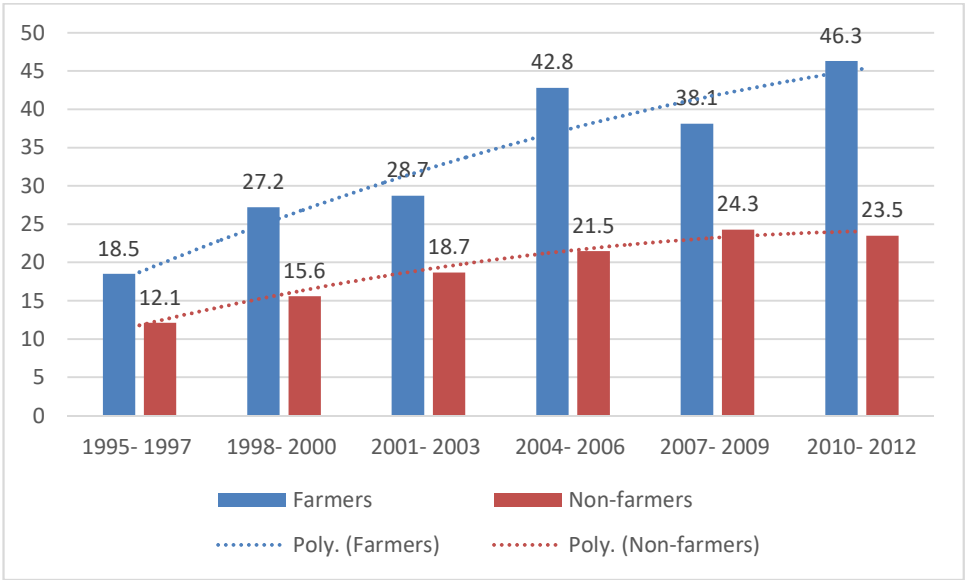
Using equation (1) on profession-wise suicide death data by sex from NCRB (Various Years) and interpolated/extrapolated population one could compute the suicide death rates for States or Union Territories (UTs) and India, including that for Maharashtra, as in Mishra (2006b, 2006c, 2014). Suicide death rate for farmers and non-farmers of Maharashtra is given in Figure 1a and that for erstwhile Andhra Pradesh (includes Telangana) in Figure 1b.

[5] The matching of the two classifications will still be a problem for females because profession wise classification of suicide deaths has a category called housewives, which may not be mutually exclusive with farmers.

Figure 1: Suicide Death Rate of Male Farmers and Male Non-farmers in Maharashtra and Erstwhile Andhra Pradesh (includes Telangana)



1a: Maharashtra



1b: Erstwhile Andhra Pradesh (includes Telangana)

Source: Computed from estimates in Mishra (2014)

However, the information provided in NCRB (Various Years) would not be of help in computing suicide death rates for the districts or administrative divisions of Maharashtra. Fortunately, I could get access to district wise data for a few years, 2001-04 and the administrative division-wise suicide death rate for farmers and the ratio of suicide death rate for farmers to suicide death rate for population are given in Table 1.

Table 1: Suicide Death Rate for Farmers and Ratio of Suicide Death Rate for Farmers to Suicide Death Rate for Population, 2001-04

Division/State	Suicide Death Rate for Farmers		Ratio of Suicide Death Rate for Farmers to Suicide Death Rate for Population	
	Males	Females	Males	Females
Amravati	115.6	24.3	2.8	1.1
Aurangabad	47.6	9.2	2.5	0.8
Konkan	25.1	7.7	2.0	0.8
Nagpur	55.5	8.5	2.0	0.6
Nashik	36.6	12.0	2.2	1.4
Pune	34.7	3.6	1.6	0.4
Maharashtra	48.1	9.1	2.4	0.8

Source: Mishra (2006a, 2006c)

Table 1 indicates the following. In 2001-04, suicide death rate for farmers is greater than that for the population in all divisions of Maharashtra for males, while this may not be the case for females. For females, the profession-wise distribution in 2001-04 has 65 per cent of the total suicides from housewives. This should be an independent matter of concern,[6] but some among them can also be from farmer households who may also be working as farmers, as per census classification. In other words, the NCRB classification of housewives as a profession may not strictly match with worker and non-worker classification of census.

Now, I bring in some other concerns on the NCRB data on suicide deaths, drawing from Mishra (2006d, 2014). NCRB's profession wise classification included a category called self-employed in farming. This was not in sync with the farm suicide death rates used in the Western world, including in Australia and New Zealand.[7] In those countries, population engaged in

[6] In fact, suicide death rate for females in India is greater than the global average by more than two times (India State-Level Disease Burden Initiative Suicide Collaborators, 2018).

[7] Borrowing from the Western context, this approach has been followed for India by Mayer (2010).

farming (farm owners and farm workers) are much lower and to estimate suicide death rates, to address a statistical requirement, the two categories were clubbed. In India, cultivators and agricultural labourers are two distinct social and economic categories and each with substantial population. Hence, clubbing them need not be a statistical requirement and would not be appropriate. Besides, the agricultural labourer category works for a wage and cannot be considered as self-employed in farming. The confusion has increased in recent times since 2014 with changes in classification when a category of agriculture labourers was included under self-employed. This was subsequently changed and being reported independently, but after creating the confusion.[8]

NCRB has been collecting data on suicides, particularly suicide deaths, because as per the then prevalent Indian Penal Code 309, suicide was a criminal act. In addition to the legal complications, it also was identified with stigma. Hence, suicides could be underreported, particularly if it did not lead to death by suicide. NCRB provided the aggregate data collected from police stations and profession-wise recording could differ from police station to police station and within a police station based on the person in charge of recording. In other words, at the recording stage, the person-in-charge at the police station may have a notion or definition of a farmer that is social, which could be different from that in the Census. In fact, on account of marginalization, people from a cultivating caste can consider themselves as farmers in a social sense, but they may no more fit into the census classification of a cultivator, which is based on the number of days of work as a cultivator in own or leased in land.

[8] In Basu et al. (2016) cultivators and agricultural labourers taken together are equated with self-employed in farming. My field observation of interacting among police personnel suggest that that is not a correct position, but the increasing marginalization do add to the confusion from a social perspective of who is a farmer. But then this social confusion will also persist while categorizing who is cultivator and who is an agricultural labourer. At the same time, because of absence of landholding records, many farmers may also not get reported under self-employed in farming. In fact, their reporting as 'Others' or in some other profession could also not be ruled out. Keeping the changes in NCRB classification aside, given that errors can be on either side, it is reasonable to equate self-employed in farming with cultivators in an analysis of data till 2012 by Mishra (2014) that has been used in the current exercise.

When I started working with the district-level data for Maharashtra in 2005, even the concerned department of the Government of Maharashtra was not aware that such data exists. Once this was identified then reporting of who is a farmer may have had more to do with norms of the revenue departments criteria, which may include ownership of land because this became a criterion for providing compensation to the deceased person's household in case of death by suicide for a farmer. It is also possible that there could be under reporting of farmer suicides. In fact, there are States that started reporting less number or zero suicide deaths since 2011.

Further, since 2011, in the absence of a subsequent Census and independent of that, there are arguments to use number of operational holdings from *Agricultural Censuses*, as a reference for number of farmers. This however may not be apt as a denominator because operational holdings is about plots and not individuals, an individual farmer can have more than one operational holding, the reference to operational holdings may be biased against females. Further, over the years, the number of operational holdings has been increasing while in recent years (till 2011) the number of cultivators has been indicating a decreasing trend.

In short, while there are challenges in matching the numerator and denominator in equation (1). Nevertheless, the suicide death rates for male farmers from 1995 to 2012, as computed in Mishra (2014), are reasonable in providing trends. Now, let me go to some pandemic tales.

3. Pandemic Tales

In December 2019, the emergence of a respiratory illness with unknown origin had implications on global public health leading to the COVID-19 pandemic that had substantive social and economic implications. The response to this pandemic had two broad views, the Global Barrington Declaration that articulated in favour of relaxing restrictions on low-risk individuals to be involved in the functioning of the economy and for evidence-based medical interventions, vaccines or otherwise, with appropriate analysis of benefits over risks (Kulldorff, Gupta and

Bhattacharya, 2020).[9] As against this, the John Snow Memorandum argued against easing of lockdowns till a therapeutic intervention, particularly in the form of a vaccine deemed to be "safe and effective" is made available (Alwan et al., 2020). The global public health response, without much of any reasoned debate, favoured the latter, and went ahead with vaccine roll-out under emergency use authorization (WHO, 2021), which also aligned with the opening-up of the economies. Concerns have been raised about the public policy response to address the pandemic (Mishra, 2023). Given this, we elaborate on two aspects relevant to our discussion on public policy and measurement.

3.1 False Positive of RT-PCR

A measure of the spread of COVID-19 was through diagnostic testing of RT-PCR. Before, one gets into the relevance of RT-PCR, I would like to bring to note that before its use, any diagnostics should satisfy sensitivity of 95% (the proportion of true positive test results) and specificity of 98% (the proportion of true negative). Conventionally, diagnostic testing is identified with clinical setting where people who consider themselves to be unwell seek care and then based on their symptoms the care provider suggests some diagnostic tests. As against this, the pandemic saw a policy of population screening through "track, trace and test" or "test, test and test." Now, I will bring in some comparison of what would happen with false positive under both these scenarios, viz., clinical setting and population screening.

As we move from a clinical setting to population screening where individuals tested do not have any symptoms then the prevalence is likely to be lower. This means that the more aggressive the population screening becomes the prevalence will be lower. Given this, borrowing from Barunstein et al. (2021), I will compare a scenario of clinical setting that has prevalence of 10% with two scenarios of population screening that has prevalence of 1% and 0.1%, respectively. In all the three scenarios we assume that the number being tested is 100,000, sensitivity is 95% and specificity is 98% and

[9] Imposing the restrictions and isolating the older population because of greater risk has also been questioned from a blind epidemiological perspective (Hickey and Rancourt 2023). This position, while opposing the Great Barington Declaration does not support the John Snow Memorandum.

indicate their comparison in Table 2. The comparison shows that the positive predictive value is 84% in the diagnostic setting and that it reduces to 32.4% and 4.5%, respectively, in the two population screening scenarios. Besides, Barunstein et al. (2021) also point out number of factors that could cause false positives in RT-PCR suggesting that the sensitivity could be lower than 95%.

Table 2: Comparing Positive Predictive Value in One Scenario of Clinical Setting with Two Scenarios of Population Screening for 100,000 Tests

Indicators	Clinical Setting	Population screening	
	prevalence 10%	prevalence 1%	prevalence 0.1%
Tested	100,000.0	100,000.0	100,000.0
Infected	10,000.0	1,000.0	100.0
Uninfected	90,000.0	99,000.0	99,900.0
Detected, true positive	9,500.0	950.0	95.0
False negative	500.0	50.0	5.0
True negative	88,200.0	97,020.0	97,902.0
False positive	1,800.0	1,980.0	1,998.0
Positive predictive value, %	84.1	32.4	4.5

Note and Source: Modified from Barunstein et al. (2021) with the assumption that sensitivity is 95% and specificity is 98%.

The use of real-time RT-PCR test got wider acceptance because of Corman et al. (2020) paper that has 24 authors including Christian Drosten as the Senior Author. This paper was uploaded online on 23 January 2020. However, if one looks carefully at the timeline it was submitted on 21 January and was accepted on 22 January. It is even said that the paper was accepted within few hours of submission. What is more, the first version of the article refers to data from January 2019 (later changed to 2020) and excludes information on potential conflict of interest. In fact, the PubMed Central link of the paper suggests that the paper has three corrections and an addendum along with a response by the authors that agrees with or is silent on some of the substantive questions raised in a letter. In fact, some professional bodies have done away with RT-PCR test to identify Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), and hence, doing away with the relevance of this test to aid in the diagnosis of COVID-19. Even if the RT-PCR testing would still hold, one should still take note of the reduced positive predictive value when used in population screening as shown in Table 2. Now, I take up a discussion on the safety and efficacy of vaccines against COVID-19.

3.2 Safe and Effective Vaccines

Let me first point out that if a drug fails to pass the efficacy test, then it is not safe for the disease for which it is being tested; but if the drug passes the efficacy test, then it may still be unsafe because of adverse effects from the drug for other conditions. The identification of the latter risks requires long term studies. Having said that, the gold standard for the efficacy test is the randomized control trial and from this the efficacy should ideally be based on both absolute risk reduction (ARR) and relative risk reduction (RRR), but in practice as discussion is relegated to percent terms it is RRR that becomes prominent.

So, what are ARR and RRR. In a drug randomized control trial with two arms: treatment and control, having equal number of participants in each arm (say, $N_t = N_c = 100$). Now, during the trial period if the numbers infected in the two arms are $n_t = 1$ and n_c =20, respectively. Further, incidence of infection in treatment and control arms will be $I_t = n_t/N_t$ and $I_c = n_c/N_c$, respectively.

ARR is,

(2) $A = (I_c - I_t) \times 100 = 19\%.$

And RRR is,

(3) $R = [1 - (I_t/I_c)] \times 100 = 95\%.$

Note that if the number of infections in the two arms, $n_t = 1$ and n_t =20, remain the same but the number of the trial participants are greater such that $N_t = N_c$ is 1,000 or 10,000 then ARR will change to 1.9% and 0.19%, respectively, but there will be no change in RRR; it will remain at 95%.

Table 3: Efficacy of Six Emergency Use Authorization Vaccines against COVID-19

Vaccines	Infection Proportion in Treatment %	Infection Proportion in Control %	Absolute Risk Reduction %	Relative Risk Reduction %
Pfizer-mRNA	0.04	0.88	0.84	95.03
Moderna-mRNA	0.08	1.31	1.24	94.08
Sputnik V	0.09	1.02	0.93	90.97
J&J Ad26.COV2.S	0.59	1.78	1.19	66.62
AZ–Oxford Covishield	0.64	1.92	1.28	66.84
Bharat Biotech Covaxin	0.28	1.25	0.96	77.28

Note: Infection proportions in treatment and control arms are $I_t \times 100$ and $I_c \times 100$, respectively.
Source: Compiled and computed from Ella et al. (2021) and Olliaro, Torreele and Vaillant (2021).

Further, given $n_t = 1$ and n_t =20, the scenario where ARR is the same as RRR at 95% is when $N_t = N_c = 20$. In other words, 95% efficacy in terms of both ARR and RRR is possible when five percent of the treatment arm and all the people in the control are infected. Having discussed ARR and RRR, let me now provide the ARR and RRR from six COVID-19 vaccines that received emergency use authorization in Table 3.

Table 4: Categorization of Vaccinated as Unvaccinated during Lead-in Period and Implications on Measurement of Vaccine Efficacy

Reference	Treatment Arm	Control Arm
Original Design		
Number of participants, N	100	100
Number infected in first fortnight, n_1	10	10
Number infected in the second fortnight, n_2	9	9
Number infected after two fortnights, n	19	19
Absolute risk reduction after two fortnights, A	0%	
Relative risk reduction after two fortnights, R	$limit \rightarrow 0\%$	
Post-facto Revision Due to Lead-in Period		
Number of participants, N_u	90	110
Number infected in the first fortnight, n_{u1}		20
Number infected in the second fortnight, n_{u2}	9	9
Number infected after two fortnights, n_u	9	29
Absolute risk reduction after second fortnight, A_u	16.4%	
Relative risk reduction after second fortnight, R_u	62.1%	
Post-facto Revision Due to Lead-in Period (Original had 500 participants in Treatment Arm)		
Number of participants, N_v	450	150
Number infected in the first fortnight, n_{v1}		60
Number infected in the second fortnight, n_{v2}	45	9
Number infected after two fortnights, n_v	45	69
Absolute risk reduction after second fortnight, A_v	36.0%	
Relative risk reduction after second fortnight, R_v	78.3%	

Note and Source: Author's calculation based on directions of research fraud indicated in A Midwestern Doctor (2022).

Now, I use A Midwestern Doctor (2022) to highlight some fraudulent practices, which were used to show efficacy for anti-depressants in the past and have similarities for vaccines against COVID-19. These are as follows.

- Relabelling harmful effects in treatment arm with benign and innocuous terms. In the past, anti-depressant drug's association with suicide ideation and suicide death was referred to as depression, miscellaneous effect, or overdose. Similarly, a Pfizer COVID-19 vaccine trial participant's permanent neurological disability was labelled as functional abdominal pain. This excludes adverse events from the treatment arm or makes them look milder.

- Use of lead-in period to either exclude positive outcome from control arm or exclude adverse event from treatment arm. For anti-depressant drug trials, it was standard to exclude people in control arm who recover during the lead-in period and thereby excluding other mitigating factors like conducive family environment, For COVID-19 vaccine, the lead-in period of a two-to-three-week window was considered as unvaccinated. This can not only exclude adverse events from treatment arm, but it can also shift them to be included in the control arm.

- Include adverse event to control arm from outside trial protocol. In trial of some anti-depressant drugs, suicide ideation and suicide death from outside the protocol, that is from the run-in period before randomization, were used in the control arm. For COVID-19 vaccine trials, there are instances of participants being unblinded and those in the control arm were subjected to an increased frequency of RT-PCR tests. This increases the possibility of adverse event from the control arm.

- Exclude adverse event from treatment arm. In the case of depression, recovery being a mental state is subjective. However, in this the opinion of the patient could be disregarded in favour of the opinion by the care provider. For COVID-19 vaccine trials, the unblinding indicated earlier was also associated with not

subjecting treatment arm to RT-PCR tests even when they had symptoms. This decreases the possibility of adverse event from the treatment arm.

- Reduce the trial to shorter period. In case of anti-depressants, adverse events are linked to withdrawal and documenting such events for a shorter period may pre-empt knowledge on such eventualities. For COVID-19 vaccines, long term trials were suspended after obtaining emergency use authorization. This pre-empted any possible information from the trials on long-term adverse events.

- Include mitigating drug in treatment arm for known adverse effects or include adverse effect inducing drug in control arm. In case of anti-depressant drugs, for some known adverse events a mitigating drug was part of the treatment arm. A Midwestern Doctor (2022) does not provide any COVID-19 equivalence. However, as an aside, Chatterjee (2023) refers to WHO (2013) recommendation indicating that "(i)n place of a placebo, a vaccine against a disease that is not the focus of the trial is given to participants who do not receive the trial vaccine," or, allowing use of an "add-on" vaccine even though these could provide less perfect control. Independent studies need to examine their relevance in the context of COVID-19 vaccine trials.

- Claim that the treatment does not lead to adverse effect, but that it unmasks underlying conditions (some earlier sickness). In case of suicide ideation or suicide death the underlying condition became pre-existing depression. For COVID-19 vaccines, any infection after vaccination was not attributed to the vaccine but to pre-existing COVID-19 infection. Recall that during lead-in period (the two-to-three-week window after a dose) an individual was considered unvaccinated, and any adverse event was attributed to the unvaccinated status.

The basis of research fraud is to either exclude adverse event from treatment arm or include adverse event in control arm. I show in Table 4 how the categorization of vaccinated as unvaccinated during lead-in period has implications on measurement of vaccine efficacy.

I have shown how relative measure of efficacy, RRR, needs to be complemented with an absolute measure, ARR, and that for both one should be cautious of research frauds. This completes my two paise on what has been counted. Now, I turn to what could not be counted based on my association with the Odisha Millets Mission during its initial days.

4. Anecdotes from Odisha's Millets Saga

In bringing to light some aspects of Odisha's millets saga, now a global success, I will be drawing on three anecdotes. These are how the programme came into being, how the policy to involve facilitating agencies at the block level became functional, and how to convey to other stakeholders the role of research.

4.1 Odisha's Millets Programme Comes into Being

In the winter of 2015, a few months after I had taken over the Directorship of the Nabakrushna Choudhury Centre for Development Studies (NCDS), I got a call from my colleagues in the Revitalizing Rainfed Agriculture Network (RRAN) and the Alliance for Sustainable and Holistic Agriculture (ASHA) that they would like to join hands with NCDS in organizing a one-day consultation on millets wherein the Government of Odisha should be an integral part. This was easier said than done, but with their help we came up with a note and I met the then Development Commissioner (who also happened to be the then Chairperson of NCDS) who eagerly agreed to the proposal and a letter notifying that the consultation will be held at NCDS was issued (Government of Odisha, 2016a).

At the consultation meeting on 27 January 2016, members of civil society from across the country, academicians and bureaucrats involved in related policy in other states (in particular, the then Chairperson of Karnataka Agricultural Price Commission), and officials from different line departments of the state were present. More importantly, the Development

Commissioner and Chairperson NCDS who was supposed to be present for the inaugural session stayed back till half-a-day and before leaving suggested that I put up a proposal.

A proposal to the Government is not like an academic research proposal. Hence, like for the concept note, I had to fall back on RRAN and their experience in the millets initiative of Andhra Pradesh and submitted on 20 February 2016 the proposal to the Agriculture Department of Odisha (NCDS, 2016). Lo and behold, on 18 Mar 2016, the then Finance Minister of Odisha announced in the budget speech a "Special Programme for Millet in Tribal Areas" (Government of Odisha, 2016b). The guidelines were prepared and released on 28 November 2016 (Government of Odisha, 2016c).

However, in the interim from the budget speech of 2016 with the help of a young professional from RRAN who was stationed in Bhubaneswar, umpteen rounds of proposals went through different stages of evaluation by officials from the Government of Odisha.[10] It was after all these revisions that in the budget speech of 27 February 2017 it was further announced that the special programme for millets announced the previous year would be grounded in seven districts (Government of Odisha, 2017a) and for that in 2017-18 an amount of ₹12.41 crore was budgeted (Government of Odisha, 2017b).

To take things forward, a tripartite argument that would be operational for the next five years was also signed on 27 February 2017 between Government of Odisha in Department of Agriculture and Farmers' Empowerment through the Directorate of Agriculture and Food Production, NCDS as the State Secretariat and Research Secretariat, and Watershed Support Services and Activities Network (WASSAN) as Programme Secretariat. This was just the beginning.

[10] This was examined by at least 21 different officials, with each one of them suggesting at least one round of revision, and with one or two officials the revisions went through 10 rounds. This was due diligence being done at different levels because it was a programme with a different design structure that the department was not used to.

4.2 Selection of Facilitating Agency for Each Block

On 5 March 2017, to formally start the beginning of the new programme, a meeting was held in Koraput that not only had officials from the Department and Directorate but also the officials from the Agriculture Department of the seven districts where the programme was to be first grounded. Like the tripartite agreement at the state-level between the Directorate (direction and implementing authority), NCDS (research and policy support) and WASSAN (programme), at the district-level tripartite agreements were to be signed by the District Agriculture Department, the Programme Secretariat that also had District Coordinator for the Programme, and the Facilitating Agency (FA) – one for each block.

The selection of Facilitating Agencies was to follow an open call for civil societies working in the district in agriculture and related aspects, including experience in millet-based agriculture. The selection process had an evaluation of the application on some pre-determined criteria, followed by an interaction with those shortlisted, and then a visit to the field area to cross-check their claims put forward in the application and interaction stage. The Selection Committee was chaired by the District Magistrate and had representatives from the Research Secretariat and the Programme Secretariat. The final selection, in the initial guidelines, was to be approved by the district-level Governing Board of Agricultural Technology Management Agency (ATMA). So far, so good.

At the end of the meeting, one Deputy Director Agriculture (or, Chief District Agriculture Officer), the head of the Agriculture Department of one of the seven districts comes to have a word with me personally. He praises the programme design, its out-of-the-box thinking, and agrees to its suitability in the areas where the programme was being envisaged. However, having said that, he pointed out that the programme would not get started because the approval of the Facilitating Agencies selection by the district Governing Board of ATMA (which is supposed to meet every quarter and in practice may be less than that in some cases) may not happen.[11] This is so

[11] On the importance of Facilitating Agencies in helping build trust and ownership at the local level and being an important stakeholder in the bottom-up feedback loop for policy making see Raina et al. (2022).

because the Governing Board of ATMA will have number of things in its agenda, this new scheme may raise eyebrows and likely to get deferred. The official further added that you will be lucky if it would get approved in one or two cases at the most, but less likely in the first time that it is put up.

When probed further, the suggestion the officer provided is that that the formal approval be given by the District Magistrate who is the Chairperson of the ATMA Governing Board based on the recommendation of the ATMA Committee under the Chairpersonship of Project Director, ATMA, who happens to be the head of the District's Agriculture Department and then the approval can be ratified later by the Governing Board of ATMA. When the official was asked to why this suggestion was not given during the meeting, the officer pointed out that all the senior officials have worked at the district-level and are aware of its functioning and it would not be proper that the official spoke there. In other words, the official conveyed about an unwritten protocol wherein they have been trained to take orders and not to speak their mind. However, the official was fine in conveying this point to me.

On return to Bhubaneswar, I conveyed this matter to senior officials at the Agriculture Department (in particular, the then Principal Secretary) and the Development Commissioner and they both immediately realized the problem and steps were initiated to make necessary changes. In fact, one official pointed out the relevance of regular feedback and that is possible only when a programme or scheme is rolled out. A case in point being the umpteen revisions in Goods and Services Tax (GST) guidelines after its roll out.

With necessary changes, the selection of Facilitating Agencies started, and tripartite agreements were signed between Department of Agriculture at the District level, the Programme Secretariat, and the Facilitating Agency. However, the first-year funds were released much later, sometime after mid of June 2017 and by that time the planning for that year's kharif season was completed. It was because many functionaries at the Programme Secretariat and the Facilitating Agencies at the block level started working without the funds being first released that the programme could get started in the kharif of 2017-18. Looking back, it has been a long journey. Today, Odisha's millet initiative has gone to all its 30 districts and lessons from its success has gone Global, including some research initiatives.

4.3 The Role of Research

In the first year, one well-meaning official who was empathetic for the cause, pointed out difficulties faced in earlier efforts and cited an anecdote where when a tribal person was posed with the possibility of consuming more millets retorted back [ତୋର ଛୁଆ ଖାଇବ ଭାତ ରୁଟି। ମୋର ଛୁଆ ପାଇଁ ମାଣ୍ଡିଆ ବୁଟି।], which when translated to English implies "If your child is to be provided with rice and bread, then why should my child be provided with millet and weed (herb)."[12] In contrast to this, by the end of the first year of Odisha's millets initiative, demands for its extension to new villages, blocks and districts started coming. I point out a message that I received, [ଆମର ଗାଁ କୁ କାହିଁକି ଆସିନି ମାଣ୍ଡିଆ ନୀତି। ଆମେ କଣ ସରକାରଙ୍କର ଛେଉଣ୍ଡ ପିଲାକି।], which when translated to English indicates "Why has the millets initiative not come to our village? Are we orphaned children of the State?" This change in narrative conveys an aspect that is not easy to count.

The demand-from-below indicated above and its associated success is also reflected in the spread of Odisha's millets initiative from 30 blocks across seven districts in 2017-18 to 177 blocks across all its 30 districts in 2023-24 (Mishra, 2022; Padhee, 2024). In fact, in the first year, compared to a baseline the yield more than doubled and the value of produce more than trebled (Mishra, 2020). Some of the gains also persisted in the second and third years of its intervention (Jena, 2022).

In the initial days of Odisha's millets journey, the role of NCDS and through my personal efforts was to facilitate the coming together of Government officials with civil society entities. However, as the programme expanded the civil society functionaries (staff of the Programme Secretariat and the Facilitating Agencies) became the face of the programme in the field as they interacted with the Government officials on a regular basis. The civil society functionaries working with the farming households addressing real-time problems daily felt that documentation insistence for research is a hindrance to the programme. At the same time, Government officials who were

[12] Following green revolution, millet crops were identified as inferior or Giffen goods and, in a similar vein, figurative speaking, herbs were identified with weeds that needed to be removed from agricultural land to increase productivity. Ironically, the nutritional relevance of both these food items were not considered.

involved at the implementing stage could not visualize the relevance of a research partner. This got accentuated with new people manning positions, as they do not have any knowledge on how the programme started and the role of the three entities for a pro-people initiative. To address this, NCDS started preparing policy briefs, that is, documenting at least some of its real-time policy advise. This is important because research publications have a lag and may not serve the immediate purpose of providing with policy advise.

Odisha's millets initiative has come a long way and in this what could not be counted had an important role. Of course, as indicated earlier, the success of Odisha's millets initiative had many countable aspects as part of its regular monitoring and evaluation that is not discussed here. This is so because the point being made here is that public policy should also take the non-countable aspects into consideration.

5. Concluding Remarks

I set out to speak on the relationship between public policy and measurement. It is true that the cornerstone of public policy should be evidence-based. In this, one must be cautious and careful on what can be counted and at the same time one cannot leave out what cannot be counted. On counting, I first took up the issue of computing suicide death rate for farmers and non-farmers. For this, besides matching the numerator (number of farmer suicide deaths) to the denominator (number of farmers) one cannot ignore the social context of India and take to counting and measurement based on aspects relevant for the Western context.

The second issue of counting was based on two pandemic-based tales. The notion of false positive is real for any diagnostic testing and can get compounded in the case of population-based screening. Missing this out in a public policy response not only misses the basics, but also has implications on the public exchequer. This is further compounded by the fact that the basis for testing through RT-PCR was based on speed of science, which itself has no measure.

The second pandemic tale was about vaccine efficacy. This is so because the discourse was silent on absolute risk reduction. This gets further compounded with research fraud, which has similarities with the articulation brought in favour of speed of science.

Coming to what could not be counted, I dwelt on three anecdotes related to my association with the millets policy initiative of Odisha. Here I touched upon some backend work leading to the beginning of the initiative, on taking feedback from stakeholders in streamlining the selection of facilitating agencies that is an important keg in the bottom-up initiative, and on how undocumented bottom-up feedback- based policy suggestions need to be documented to get recognized.

Overall, I conclude by getting back to the two questions that I started with. The question of what public policy is being associated with or the action of the Government in all possible manners open-up to us a multi-headed hydra. One must be cautious in approaching that or else one would get devoured without one's knowledge. On the question of the role of measurement in aiding public policy, its advantages cannot be cast aside. However, to address that I need to repeat that adage "What counts, cannot be counted. What is counted, does not count."

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