PAI 705

Lecture 15

Reading and writing social research.

The production of social research is tied to the process of communication, but research and communication are not always aligned.

Reading social research. Literature review. Library database, read the bibliographies, spread out to cover what is known in the literature.

Journal articles. About 20 pages, 10,000 words.

Also, once you find a certain journal publishes the kind of thing you are looking at, see what you can find in that journal with a broader search.

Google search and wikipedia are not bad places to look, but should not be the end of the process.

Actually read the articles.

Start with the abstract. A short summary of what is the main message of the research work. Often written last, and is a condensation of the main points. There is a word limit to an abstract, in the 100 to 250 word range.

As a producer, take some time on this. It is often written in haste at the end, which undersells the product you have produced. Also, writing or grammar errors here are a critical flaw.

Read the figures, tables,…. Again, on the production side, note that figures and tables should be self-explanatory. Everything you need to interpret them should be in the figure or table.

As you read, focus on sections that you want to summarize in your output or might want to quote directly. Highlight.

Books. This is a different kind of discourse than a journal article. More detailed and elaborate. Getting into the 100,000 word or more territory.

Edited volume, single authored monograph, coauthored monograph.

- Prospectus.
- Identifying Publishers. Pecking order in academics.
- Contract.
- Submitting.
- Review.
- Revision.
- Page proofs.
- Publication.

In between are things like the research reports we have looked at in this course. There are longer than a journal article but not long enough to be a book.

Evaluating a piece of research:

Theoretical orientation

- What is the theoretical orientation if you can identify it? Is there a theory or hypothesis being tested?
- What is the purpose of the study?
- Who funded it? Why did they fund it? Put that in context.

Research Design

- What is the unit of observation and what is the unit of analysis?
- Is the data cross section or longitudinal? Pay attention to the use of cross section data to tell a longitudinal story.
- What was the non response rate? What was the attrition rate?

Measurement.

- What are the key concepts and how are the operationally being measured?
- How do the measures chosen line up with different dimensions of the concepts that are central to the analysis?
- What is the nature of the variables: nominal, ordinal, interval, ratio and are they treated as such in the analysis?
- What composites such as index or scale measures have been constructed?

Sampling.

- What was the population? How was the sample drawn from this population?
- What population are we trying to draw conclusions about?
- If it was a probabilistic sample, how did they go about drawing it?
- Was there clustering? Why; by what logic was this structured?
- How large was the sample, and what does that allow us to infer about the larger population? Was any kind of weighting scheme introduced? Are there patterns in response or attrition that we might want to consider?
- Is there any external information about the population that we can use to compare the characteristics of our sample to other measures to verify it is representative? Like a census or other studies from the area?
- If not probabilistic, how were respondents selected?

Experiments

- If there was an experiment, what is the outcome of interest and what are the independent variables that operate on that dependent variable?
- Among the independent variables, what is the 'treatment'?
- How are each of these variables operationalized and measured?
- What is the nature of the control group, and how well does it match up against the treatment group?

- What is the before and after strategy? What is the with and without strategy?
- What consideration has been given to the Hawthorne effect?
- What threats to internal validity have been identified?
- What threats to external validity have been identified? That is, does the constructed experimental setting contain lessons that can apply to the real world as experienced by people?

Survey Research

- What questions were actually asked of respondents? How good was the wording and how understandable were the questions?
- What was open ended and what was closed ended?
- Was the closed ended question spectrum exhaustive?
- Was the open ended question post response sorting into categories credible?
- Was the open ended question phrasing in any way leading the respondents to particular kinds of responses?
- Were people in a position to really answer the questions posed to them?
- Any double barreled or worse questions?
- Did the survey question not include any negative statements so the people are not sure what they are not responding to negatively? Y or N.

- Is there a chance responses were strategic, or socially conditioned?
- Was the wording more or less neutral?
- Was the data gathered expressly for this study or is it used from a study that was done for another purpose? How well does it fit this new research setting? Pastoral Risk Management to World Bank Resilience.

Field Research.

- Are the variables chosen logically related to the concepts under investigation? Are the indicators valid? Are they reliable?
- Are the classifications of categories of responses to these variables plausible and defensible?
- Are the findings generalizable, and if so to what population?
- How were people selected?
- Did the producer of the research participate in the data collection? If so to what extent? If not, who did the original research and why?
- What is the background of the researcher and how might that have shaped interactions?

Content analysis.

- What are the variables and what is the data set from which they are being drawn?
- What is the time frame of the data?

- What is the unit of analysis?
- Are we using qualitative or quantitative analysis? In either case, is it done well?

Using existing statistics.

- Is the original source credible and reasonably well done?
- Why was it originally gathered, by whom, for what reason?
- When was it gathered and in what way?
- What definitions were used?

Comparative and Historical Research.

- What is the logic of the comparison?
- What do we get from looking at the historical record?
- What is the unit of analysis?
- Who produced the information we are using and what possible bias might that introduce?

Evaluation research.

- What is the intervention?
- Who has been impacted by the intervention, and in what way? Who has not been impacted, and why not?
- What was the intervention trying to do so we can define 'success' and 'failure'?
- Is the evaluation independent of the people with an interest in the interventions success or failure?

Data analysis.

- How were variables coded and categorized?

- Is the analysis thorough?
- Is the researcher in interpretation going beyond what the evidence supports?
- Is the logical flow supported or are there gaps in the logic?

- Are the conclusions and interpretations of the empirical results plausible and supported by the evidence?
- Are the statistical tools used correctly?
- Are the tests of significance interpreted correctly?

Reporting.

- Is the literature review and policy context done adequately?
- Are all relevant details reported in the document?
- Are flaws and shortcomings dealt with in a satisfactory manner? Are there suggestions for improvement going forward?

Writing social research.

What am I trying to communicate with my findings?

How does it fit into what is already known and advance knowledge?

What topics for further inquiry have I uncovered in my research effort?

Who is my likely audience? Policy makers? Other academics? Other economists? Agricultural economists? Third graders?

What kinds of reports do I want to produce? Often a brief and a larger report. Sometimes a variety of formats for a given research effort:

[Resilience and Pastoralism in Africa South of the Sahara, with a Particular Focus on the Horn of Africa and the Sahel, West Africa.](#)

(chapter) [IFPRI 2020 Resilience Conference Paper 9](#). (full paper)

[IFPRI 2020 Resilience Conference Brief.](#) (brief) with Peter Little. (2014)

Research briefs are designed to convey key messages.

Reporting on research to a sponsor is also pretty important. From the final report of the Mali project I have discussed before:

Activity 3. Develop methods and extension activities for nutritional analyses of supplemental feed in northern Mali

NIRS Student Training and Equation Development

A new Near Infrared Reflectance Spectrometer (NIRS) was installed at the ruminant nutrition teaching laboratory at IPR-Katibougou during 2011. The NIRS instrument provides capabilities to rapidly scan feeds and fodders to determine a variety of chemical constituents including those important for assessing forage quality. This instrument was placed at the university to allow students at IPR to gain knowledge and hands-on experience using equipment (Figure 10).

In early 2011, new laboratory equipment was installed to facilitate *in vitro* and *in vivo* digestibility work to be done at both the IER Sotuba National Ruminant Nutrition Laboratory and the livestock nutrition laboratory at IPR Katibougou. This equipment will provide the laboratories with capabilities to provide pastoralists and other livestock producers with information on the quality (digestibility and energy) values for feeds and fodders which has previously been lacking in Mali. Establishment of high quality equipment in these laboratories has the potential to further the capacity of both laboratories to disseminate valuable information on forage quality to producers that will, in turn, improve risk management decision making and enhance economic opportunities for livestock fattening and herd management.

Training courses were given to participants from IER and IPR laboratories during early and mid-2011. Topics included a refresher session on NIRS theory and instrumentation, NIRS data collection procedures, and NIRS calibration equation development. In addition, laboratory quality control procedures were outlined and discussed. Participants were provided with lectures as well as hands-on training involving analysis of the data and the use of chemometrics software. This software provides the ability to design, implement and create NIRS calibrations specific to Malian conditions.
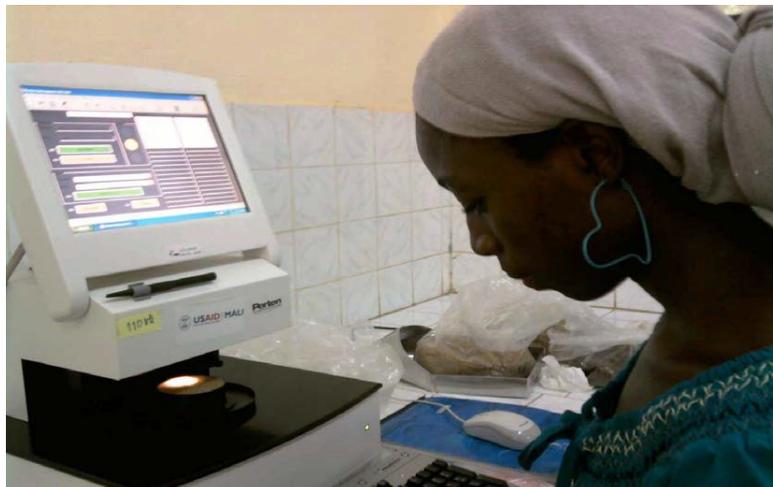

Figure 10. IPR student scanning samples with bench top Perten NIRS instrument at the IPR laboratory in Katibougou.

Two IER personnel were provided with detailed training in the different steps for developing equations (collecting

referential data, exporting data) using the specialized software. Samples from cultivated forages and cottonseed cakes that had been processed by the laboratory for chemical analyses were scanned using the Perten DA-7200 NIRS bench top instrument. The training covered equation development for two constituents, dry matter and crude protein, in both forages and cottonseed cakes. The cottonseed cake was first evaluated using existing North American derived cottonseed cake calibrations that came with the Perten NIRS instruments. It was determined that the cotton seed cake produced in Mali was somewhat different both chemically and spectrally than that of the US cottonseed used to develop the calibration set. The Malian cottonseed cake samples were then used to create a small calibration set with the data. Due to the high degree of fiber variability in the cottonseed cake, a larger number of cottonseed cake samples would need to be collected and analyzed via wet chemistry so that these could be added to the calibration to improve its performance.

Analysis of Feeds, Forages, and Cottonseed Supplements

The IER animal nutrition lab collaborated with the work being done by other IER scientists studying cultivated forages at the IER-Sotuba station. Forage samples had been collected 3 times during each year to represent different plant growth stages. Samples were collected from 26 species (16 legumes and 10 grasses) during the first stage, from 38 species (26 legumes and 12 grasses) during the second stage and from 35 species (25 legumes and 10 grasses) during the third stage. All the samples were analyzed with wet chemistry analyses to determine dry matter (DM), organic matter (OM), crude proteins, fat, cellulose, energy, and minerals (Ca, Na, P, K). The NIRS spectra was scanned on the samples using the Perten DA7200 NIRS machine. At the time of the political instability in March 2012, work with IER and IPR was cancelled and the analysis on all the samples had not been completed for development of the NIRS equations. Texas A&M was able to develop a preliminary equation using the data on hand prior to March 2012 and this will be turned over to USAID-Mali as part of the project close-out.

Feed samples (21) were collected from Mopti, Douentza, Gossi, Hombori and Gao by IPR personnel for laboratory analysis (wet chemistry analysis and NIRS analysis) to assess quality. In-vivo digestibility trials were initiated at the IPR laboratory with six goats for the feed quality assessment and for feed intake determination. Twelve sheep were fed in order to determine the fattening time for sheep fed with bourgou (ad libitum), cotton seed meal (120g) and cereal bran (480g). Two students (male and female) worked on these aspects for their final examination. Ten of the sheep developed good body condition scores in the two month (61 days) period of fattening. Students were also trained in collection of data from the feeding trials and on how to use the NIRS system for scanning forage/feed samples (Figure 11) and in spectral database development.

Figure 11. Sheep being fed supplemental forages during a feeding trial at IPR in Katibougou.

At IER-Sotuba, chemical analyses (dry matter, organic matter, crude protein, crude fiber, crude fat, calcium, phosphorus, and sodium) and energy determination of forage samples and feed supplement samples collected from Gao were completed. IER-Sotuba personnel also collected samples from 21 different livestock feed companies in Koutiala, Sikasso, and Bougouni that are producing cottonseed products for livestock feeding. Cottonseed cake was obtained and samples were collected from all the processing plants for lab analyses. The 21 samples were analyzed for dry matter, organic matter, crude protein, crude fiber, crude fat, calcium, phosphorus and energy. All samples were scanned to obtain their spectra using the Perten DA7200 NIRS machine and prepared for equation development. Initial results indicated a high degree of variability in the quality of the cottonseed cake samples even though the feeds were label as being of similar quality.   The ability to rapidly scan these feeds for quality information would be extremely useful in Mali for verifying and certifying feed constituent labels. Due to the cessation of work with IER in April 2012, the equations for these feeds have not been completed.

Working papers are useful for getting ideas out there. They are also helpful to get feedback.

https://ideas.repec.org/s/max/cprwps.html

Present posters or presentations at professional meetings.

Leads to journal articles in my profession. Other disciplines more oriented towards books.

Reports have a descriptive part generally. How you did what you did to make this research product happen.

Often also have an explanatory part; how the outcome in question came to be.

Usually end with implications; how this matters for policy and what kinds of policies are implied by my findings?

Report organization.

- Purpose and overview.
- Literature review.
  - How to avoid plagiarism. See examples on page 504.
- Study design and implementation
- Analysis
- Interpretation
  - Discussion
- Conclusions

Tables should be self-explanatory. Variable names should be meaningful; avoid the temptation to cut and paste stata code!

Avoid this:

```
4 . regress Total_Act hhsize zeroherd rette champs River Lat Niger agfract popdens  marchekm cerclek
> m

      Source |       SS           df       MS            Number of obs   =       990
-------------+------------------------------             F(11, 978)      =     39.97
       Model |  327.85962         11   29.80542          Prob > F        =    0.0000
    Residual |  729.231289       978  .745635265          R-squared       =    0.3102
-------------+------------------------------             Adj R-squared   =    0.3024
       Total |  1057.09091       989  1.06884824          Root MSE        =    .8635


   Total_Act |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      hhsize |   .0170537   .0032981     5.17   0.000     .0105814    .0235259
    zeroherd |  -.5363321   .0700723    -7.65   0.000    -.6738414   -.3988227
       rette |   .1409561   .0672579     2.10   0.036     .0089698    .2729425
      champs |   .0636799      .0116     5.49   0.000     .0409161    .0864437
       River |   .4882612   .0680713     7.17   0.000     .3546786    .6218438
         Lat |  -.2468056    .043267    -5.70   0.000    -.3317124   -.1618987
       Niger |   1.107921   .1516262     7.31   0.000     .8103712    1.405471
     agfract |   .3791456    .130895     2.90   0.004     .1222782     .636013
     popdens |  -.0072577   .0019055    -3.81   0.000    -.0109972   -.0035183
     marchekm |   .0020121   .0009013     2.23   0.026     .0002434    .0037808
     cerclekm |   -.011515   .0024055    -4.79   0.000    -.0162355   -.0067945
       _cons |   5.816548   .6799182     8.55   0.000     4.482281    7.150814
```

Use something like this:

Table 7: Poisson regression results for the number of different livelihood strategies followed by 993 household heads in 32 communities in Niger and Mali. Key household variables include demographic variables such as number of members (HH size) and an indicator for the absence of livestock wealth (No animals).   Community variable include dummies for whether the community borders the Niger river or is in the country of Niger (Niger River, Niger Country), latitude, distance in kilometers to the administrate seat from the community, the % of the community that reported being primarily cultivators (cultivation %) and the administrative district's population density (Pop. Density).

Household Size	0.0088 **
No Animals	-0.2227 **
% of community cultivating	0.2034 *
Population Density	-0.0015
Niger River	0.1910 **
Distance to Admin. Center	-0.0038 *
Latitude	-0.0855**
Niger Country Dummy	0.3442 **
Constant	2.0498 **

** is significant at 1%, * is significant at 5%

Submitting an article for peer review.

Increasingly being asked:

- to state potential conflict of interest.
- to state financial support for a piece of research.
- to state who did what part of the research