The Paper

The basic structure should usually – since there are always exceptions for cause – look like this:

Introduction

Review of the Issue: What is the substance of the issue as you see it?

> Is it a debate in the literature?

> Is there a gap in the literature?

> Is your approach to provide an explanation of some particular aspect of the literature?

The Approach:

> What is the theory relevant to your approach?

> To *illustrate*:

>> (1) Is it supply and demand?

>> If so, write out the relevant model:

>> Note that this does *not necessarily* mean that you will be able to find or identify or use data in the analysis, but it does mean that you could if you had the right data. For most of you, of course, you will be expected to work with data.

>> (2) Does it build on a theory of economic growth?

>> Which one is appropriate for your problem? How does the model help explain the approach that you have taken - which parameters are important?

The Data

> Explain the data that you use and where they fit in the model – so that you can answer the questions that you have posed. Always report the means and standard deviations of all variables before launching into the analysis.

Analysis: Here's how I see the data answering my question.

Conclusion: How was I able to answer (or not answer) the question? When all is said and done, I am less interested in the conclusion than in the path you took to get there.

References: Be sure to footnote and quote appropriately. I will not penalize too many footnote references, however, I will penalize too few. Use your own words to summarize an issue, but give the reference if you have not invented the argument yourself.

Let us look at an example of a professional paper to see how this might work. We might as well learn from the best. Robert Fogel won the Nobel Prize in economics and Stanley Engerman is among the most distinguished of American economic historians. In their article on the iron and steel industry in the US[1] Fogel and Engerman lead off:

> If any single objective may be called the desideratum of economic historians, it is the explanation of industrial expansion. From the very beginning of the discipline its scholars have enshrined this aspect of their subject matter. They have given the eulogistic name of *industrial revolution* to the surges in the growth of manufacturing industries which began in the late eighteenth century in England and in the nineteenth century in the United States and elsewhere.

So what this paragraph does is set the stage by embedding the story they are going to tell in a broader literature on the industrial revolution. The industrial revolution is one of the "great" issues in economic history since it admits to many, many interpretations and an almost endless number of important questions. In their first sentence, they establish the importance of their issue and consequently are implicitly telling the reader to wake-up and pay attention!

Next, they begin to set up *their* issue:

> Over the years it has been easier to describe the phenomenon for which an explanation was sought than to provide the desired explanation. Until recently the thrust of research was toward the description of the main categories of factors on which an explanation would turn. Chief among these categories was the introduction of new machines and equipment.

So, they assert, it is hard to "explain" the industrial revolution although as a matter of description, it is always based on a discussion of new machinery and equipment: what we think of as a technological explanation.

Next they begin to establish their question more precisely:

> Compared with the emphasis placed on new machinery and equipment, all other factors in the growth of industry have been slighted. Some

They are establishing a gap (two gaps) in the literature and they even have a suggestion for why that gap exists.

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[1] R. W. Fogel and S. L. Engerman, "A Model for the Explanation of Industrial Expansion in the Nineteenth Century with an Application to the American Iron Industry" The Journal of Political Economy, Vol 77, No. 3 (May-Jun., 1969), pp. 306-328.

Two factors have made such research fall short of an explanation of the growth of either particular enterprises or whole industrial sectors. The first has been the absence of a theory regarding the way in which the various explanatory factors are related to each other. Such a theory is a necessary condition for measuring the relative importance of these factors. The second has been the paucity of the data needed to estimate the parameters of an explanatory model. As it turns out, the theory required for the desired measurements follows rather directly from the economists' traditional analytic tools of supply and demand. This discovery has led to a number of recent studies which have for the first time attempted to assess the relative effect of increases in population, rises in income, the introduction of new machinery, and the reduction in the cost of inputs on the expansion of American industries during the nineteenth century.[1]

Happily, however, they have a solution to both problems: a theory linking the relevant variables (supply and demand) and a new data set relevant to the exercise.

In the next section of this paper we set forth a model that attempts to meet these twin requirements. The model is applicable to competitive industries characterized by constant returns to scale. In its simplest form

I don't want to have you look at this model just yet, but it is important to see how the layout of your paper may ultimately proceed.

Representing and Presenting Data

To understand why most studies in the social sciences use data, we have needed to understand the role of theory. Data are used to see whether a theory is useful. That means that the theory predicts some aspects of behaviour. But how we use data to assess our theory is an art in itself. Sometime the evidence is statistical, sometimes it is simply observational. It depends on what your theory needs. Regardless of the details of your theory, you will need to organize and characterize your data. It is to this we now turn.

Organizing Data

There are many ways to organize information. Not every way will be appropriate for your problem, but if you have data, you need to know how to present it. There are an infinite number of ways to organize information and since your task is to help the audience to understand your information in the context of your problem, you will have to select the displays that help understand best.

Let us look at some of the basic ways in which information can be organized.

It is sometime said that a picture is worth a thousand words. Sometime that is surely true. Napoleon's march on Russia is a classic case.[2]
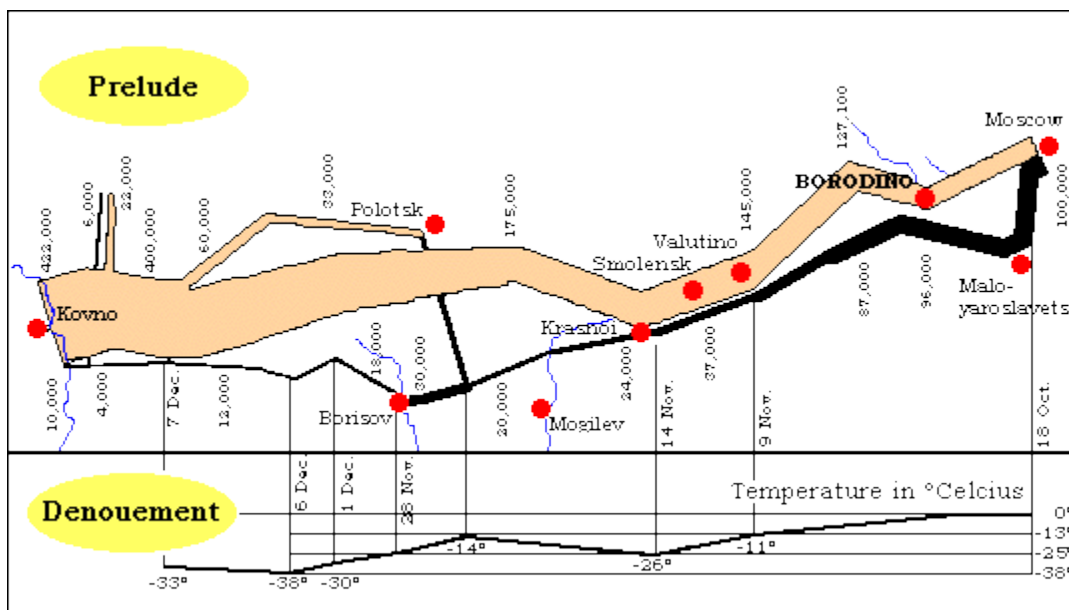
"The map, based on the 1869 chart by Minard, graphically illustrates (both literally and figuratively) how the size of the French army dwindled during the march into Russia and was reduced to almost nothing on the wretched rout back into Poland. The map can be read in several ways. The size of the peach colored bar indicates the relative strength of the French army during the march on Moscow. The black bar shows the dwindling French army during the retreat. In the lower portion of the map, the temperature in degrees Celcius is shown, along with dates during the retreat."

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[2] http://uts.cc.utexas.edu/~jrubarth/gslis/lis385t.16/Napoleon/index.html May 8, 2006

The picture in this case gives a highly informative characterization of the way in which Napoleon's army was devastated from its beginning as a massive body of men in xxxx to its final return a year later as a devastated trickle.