Latex Tikz Examples, Node-based Diagrams

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1 Connecting Nodes with Arrows

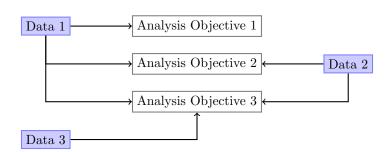
In the following example, there are three sets of data, relevant for three research objectives:

```
\begin{tikzpicture}[thick]
    \node(1) at (-1,-1) [rectangle,draw=blue!50,fill=blue!20] {Data 1};
    \node(2) at (7 ,-2) [rectangle,draw=blue!50,fill=blue!20] {Data 2};
    \node(3) at (-1,-4) [rectangle,draw=blue!50,fill=blue!20] {Data 2};
    \node(3) at (3,-1) [rectangle,draw=black!50] {Analysis Objective 1};
    \node(4) at (3,-1) [rectangle,draw=black!50] {Analysis Objective 1};
    \node(5) at (3,-2) [rectangle,draw=black!50] {Analysis Objective 2};
    \node(6) at (3,-3) [rectangle,draw=black!50] {Analysis Objective 3};

    \draw [->] (1) edge (4);
    \draw [->] (1) |- (5);
    \draw [->] (1) |- (6);

    \draw [->] (2) edge (5);
    \draw [->] (2) |- (6);

    \draw [->] (3) -| (6);
    \draw [->] (3) -| (6);
    \end{tikzpicture}
```



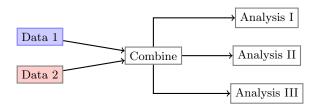
^{*}https://fanwangecon.github.io, repository: Tex4Econ_1

2 Connecting Blocks of Nodes and with Blocks of Nodes

To present the relationship between data and research analysis, show visually how several research aim will be achieved with different data structures and analysis.

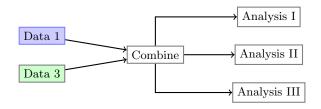
```
\begin{tikzpicture}[thick, font=\small]
    \node(100) at (2.5,10) [rectangle] {Research Aim I};
    \node(101) at (-3,8.5) [rectangle, draw=blue!50, fill=blue!20] {Data 1};
    \node(102) at (-3,7.5) [rectangle, draw=black!50, fill=red!20] {Data 2};
    \node(111) at (0,8) [rectangle, draw=black!50] {Combine};
    \draw [->] (101) edge (111);
    \draw [->] (102) edge (111);
    \node(121) at (3,9) [rectangle, draw=black!50] {Analysis I};
    \node(122) at (3,8) [rectangle, draw=black!50] {Analysis II};
    \node(123) at (3,7) [rectangle, draw=black!50] {Analysis III};
    \draw [->] (111) |- (121);
    \draw [->] (111) |- (122);
    \draw [->] (111) |- (123);
    \node(131) at (8,8) [rectangle, draw=black!50, text width=5cm] {Some Text.};
\end{tikzpicture}
```

Research Aim I



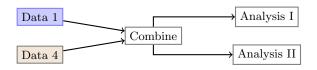
specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged.

Research Aim II



specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged.

Research Aim III



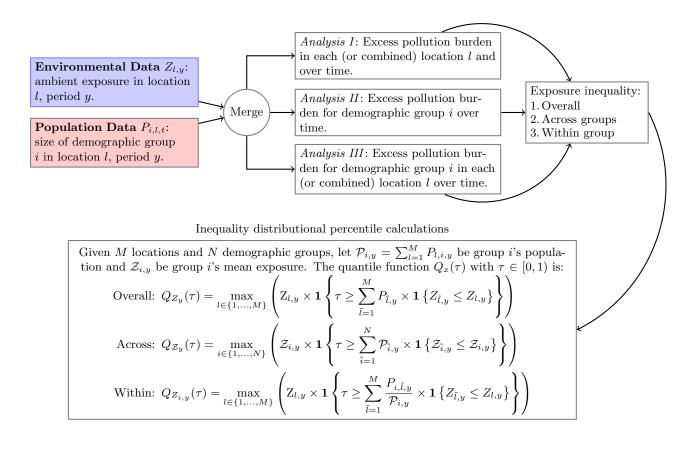
specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged.

3 Rows of Data and Analysis Connected Nodes

3.1 Research Plan Diagram Example One

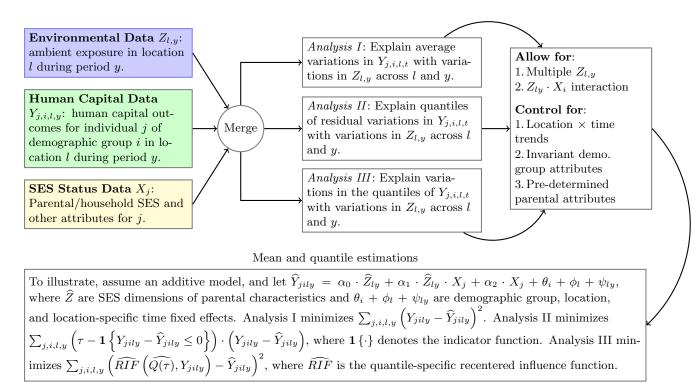
To present the relationship between data and research analysis, show visually how several research aim will be achieved with different data structures and analysis.

Figure 1: Research Aim I—Inequality in Ambient Environmental Exposures



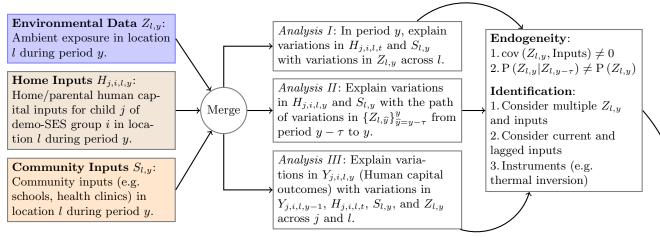
3.2 Research Plan Diagram Example Two

Figure 2: Research Aim II—Inequality in Ambient Environmental Exposures



3.3 Research Plan Diagram Example Three

Figure 3: Research Aim III—Inequality in Ambient Environmental Exposures



Production function estimations

To illustrate, suppose that $Y_{j,i,l,y} = f\left(Y_{j,i,l,y-1}, H_{j,i,l,y}\left(\left\{Z_{l,\widehat{y}}\right\}_{\widehat{y}=y-\tau}^{y}\right), S_{l,y}\left(\left\{Z_{l,\widehat{y}}\right\}_{\widehat{y}=y-\tau}^{y}\right), \left\{Z_{l,\widehat{y}}\right\}_{\widehat{y}=y-\tau}^{y}, \epsilon_{j,i,l,y}\right)$, where $f(\cdot)$ is the human capital production function and $\epsilon_{j,i,l,y}$ is unobserved shock. Analysis I and II focus on understanding the relationship between environmental shocks and home and community input choices $H_{j,i,l,y}\left(\left\{Z_{l,\widehat{y}}\right\}_{\widehat{y}=y-\tau}^{y}\right)$ and $S_{l,y}\left(\left\{Z_{l,\widehat{y}}\right\}_{\widehat{y}=y-\tau}^{y}\right)$. Analysis I assumes $\tau=0$. Analysis II considers $\tau>0$, accounting for the persistent effects of past shocks. Analysis III estimates function $f(\cdot)$; potential endogeneity of inputs and unobserved shocks $\epsilon_{j,i,l,y}$ is considered, and the inclusion of $\left\{Z_{l,\widehat{y}}\right\}_{\widehat{y}=y-\tau}^{y}$ accounts for key inputs that are normally unobserved.

4 Multi-stage Choice Diagram

Three nodes, two in a row.

