Introduction to LaTeX via *Overleaf*

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Outline

Introduction

- Unlike Word, LaTeXis not WYSIWYG (what you see is what you get)
  - It uses codes and text as input to compile an output text (usually in PDF).
- Publication quality output and especially amazing for maths-related objects (symbols, equations, formulas, etc.)
- In old times, you needed a TeX distribution (such as MiKTeX) and an editor (such as TeXstudio) and install external packages when needed
  - Now thankfully we have overleaf (all integrated in one platform)
- Does everyone have an Overleaf account?

I. LaTeX Basics

- Three main sections: (1) Project folder, (2) Text editor, (3) PDF output
- Every document starts with a document type (`\documentclass{}`)
- All the output text should go in between `\begin{document}` and `\end{document}`
- All the necessary packages should be called in the preamble before you can compile the output
- **Golden rule:** Do not question unless it stops working!

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Environments

- Environments are border codes within which the features of the text differs from outside
  - For instance: `\begin{center}` and `\end{center}`
  - Or for bullet points: `\begin{itemize}` and `\end{itemize}`
  - Or for numbered lists: `\begin{enumerate}` and `\end{enumerate}`

- Environments could be embedded within each other

Sample Text

We use data on the universe of credit extended over a **14-year period** in Turkey to document a strong political lending cycle. State-owned banks systematically adjust their provincial lending around local elections compared with private banks in the same province. *There is considerable tactical redistribution:* state-owned banks[1] increase loans in politically competitive provinces with a current mayor aligned with the ruling party but reduce it in similar provinces with a current mayor from opposition. This effect only exists in corporate lending as opposed to consumer loans, suggesting that tactical redistribution targets job creation to increase electoral success. Such political lending seems to influence real outcomes as the credit-constrained opposition areas suffer a drop in economic output as measured by local construction activity.

[1] Banks that are majority-owned ($>\%$ 50) by the State.

Some Commands for Text Manipulation

- Bold (`\textbf{}`), italic (`\textit{}`) and underline (`\underline{}`)
- `\footnote{}`
- Double backslash (`\\`)
- Double line break: new paragraph
- `\section{}` and `\subsection{}`
- `\pagebreak`
- `\vspace{1cm}` and `\hspace{1cm}`
- % for self-notes, comments and explanations..

Maths I

- In line: `$y = mx^2 +c$` or `\(y = mx^2 +c \)`

$$y = mx^2 + c$$

- Separate:
  `$$t = \frac{t_o}{\sqrt{1-\frac{v^2}{c^2}}}$$` or
  `\[t = \frac{t_o}{\sqrt{1-\frac{v^2}{c^2}}}\]`

$$t = \frac{t_o}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Maths II

- Numbered:

```
\begin{multline}
Log Credit_{b,p,t} =  \beta_{\tau} StateBank_{b}
\times Election_{t+\tau}+\delta X_{b,p,t-1}
+\theta_{b}+\gamma_{p}+\lambda_{t}+\varepsilon_{b,p,t}
\end{multline}
```

$$LogCredit_{b,p,t} = \beta_{\tau} StateBank_{b} \times Election_{t+\tau} + \delta X_{b,p,t-1} + \theta_{b} + \gamma_{p} + \lambda_{t} + \varepsilon_{b,p,t} \quad (1)$$

- These packages might be needed for advanced math features:

```
\usepackage{amsmath,amsfonts,amssymb,amsthm}
```

Labels

```
$$\label{eq:10} t = \frac{t_o}{\sqrt{1-\frac{v^2}{c^2}}}$$
```

$$t = \frac{t_o}{\sqrt{1-\frac{v^2}{c^2}}}$$

```
Equation~\ref{eq:10} shows that ...
```

Equation 10 shows that ...

- You need the `\usepackage{hyperref}` in the preamble to make the reference clickable

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II. Journal Templates

- LaTeX has templates for virtually any journal format
- Either search online if you have a PC-based system or directly use from Overleaf
- A sample journal template: APA6
- Feel free to play with title, author name, institution, etc.
- Check out the `\todo` command with different options

Tables/Figures

- Figures should be uploaded to the project folder before you call them in .tex file
  - Use `\includegraphics` in figure environment
- Tables could be either uploaded or created in .tex
  - use `\includegraphics` in table environment
  - or manually create via `\begin{tabular}{}`
- For landscape tables/figures use "sidewaysfigure" or "sidewaystable" environment with "rotating" package
- You can use labels within captions of tables/figures to be able to call them (`~\ref{}`) earlier within text

Bibliography

- LaTeX has an integral system to manage bibliography automatically
- You need to pile all your references in a separate .bib file
- Then use `\cite` and `\citep` in .tex file with the appropriate keyword
- Use `\bibliography{NameOfYourBibFile}` at the end of the document to call your references section

III. Presentations (Beamer)

- LaTeX has lots of templates for presentation
  - `\documentclass{beamer}`
- Beamer class mainly uses "frame" environment to separate each slide
- Section names and titles are usually in the bottom and upper parts of each slide depending on the template
- Frames can be named for slide titles
  - `\scshape` could be used to give a better look for slide titles

The End

Thanks for your attention!