

The Case for Writing Papers in Economics Using FaKe LaTeX

Scott H. Irwin*

February 8, 2018

Abstract: *LaTeX is a very popular platform for writing papers in economics, mainly due to its superior aesthetics in print. The downside is that it is a very time intensive and complicated method of writing papers. For many economists, the aesthetic benefits do not justify the opportunity costs. FaKe LaTeX using Microsoft Word is a low cost alternative that should appeal to many economists.*

Key words: aesthetics, economics, LaTeX, productivity, writing

JEL categories: A10, A11, A13, A19

1. Introduction

LaTeX is a very popular method of writing papers in many economics-related fields. Papers written in LaTeX have a distinctive and attractive look. However, the opportunity costs of learning and using LaTeX can be high even for experienced users (Knauff and Nejasmic 2014). In addition, it is difficult to collaborate with other researchers who do not write papers using this method. As a non-LaTeX user, I can personally attest to the frustration of trying to write a paper jointly with students and colleagues who use LaTeX. At times, I have had to resort to the old-fashioned method of scotch-taping handwritten edits on a printed copy of the paper! Conversations with numerous colleagues suggest my frustration is hardly an isolated event. Fortunately, an alternative method for writing papers is available that generates a remarkably similar appearance to those written in native LaTeX and

* Laurence J. Norton Chair of Agricultural Marketing, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign. Email: sirwin@illinois.edu. The author greatly appreciates the helpful conversations and comments of Wade Brorsen, Jeff Dorfman, Sean Fox, Phil Garcia, Todd Kuethe, Mindy Mallory, Nick Paulson, Michel Robe, Pedro Rossi, Teresa Serra, Scott Swinton and Lei Yan.

this method takes a fraction of the time to learn and use. I call this alternative “FaKe LaTeX” in Microsoft Word. The purpose of this note is to develop the case for using FaKe LaTeX to write papers in economics and explain how to do it.

2. The Argument

Before making the case for FaKe LaTeX it is important to understand why LaTeX (pronounced “laytek”) became so popular in economics-related fields, such as my own, agricultural economics. The computer scientist Donald Knuth invented TeX, the precursor to LaTeX, because he was disappointed by the poor quality of published academic books in the 1970s. Knuth started the project to develop TeX in 1977 and took a decade to complete the project. The history of this endeavour is interesting in and of itself, and much has been written about it.¹ Suffice it to say that Knuth cares deeply about the visual aesthetics of published work and he wants his books and papers to look beautiful in an artistic sense. He made the point this way in an interview: “We didn’t want our papers just to be there, we wanted them to be beautiful,” he protests. “I wouldn’t have wanted to write *The Art of Computer Programming* if it was going to look ugly.” (Platoni, 2006)

Some version of LaTeX is now basically a *de facto* standard in most STEM fields, with its ability to produce gorgeous looking mathematics in print one of the main reasons. Other significant advantages of LaTeX cited by proponents include handling of references, flexibility in changing formats for journals, and signalling advanced computer programming skills. LaTeX users also extol its advantages in the composition of math within a paper. I see no reason to doubt this is true. However, I do not believe it is the primary reason for widespread adoption of LaTeX. Consider the counterfactual where LaTeX maintains its advantage in the composition of math but the output in print is ugly. Very few would use LaTeX if this were the case. Therefore, I conclude that appearance/aesthetics is the dominant reason for widespread adoption of LaTeX. This, after all, was the motivation for Knuth to create the TeX system in the first place.

Economics has largely followed the lead of the STEM fields in adopting LaTeX. While there is certainly room for debate on this point, I believe it is reasonable to argue that the visual aesthetics of a paper written in LaTeX are indeed superior to, say, a paper written in Microsoft Word using a standard font such as Calibri or Times Roman. From an artistic

¹For example, see Ganguli (2013) and the article “Just what is TeX?” found at this link: <https://www.tug.org/whatis.html>.

standpoint it is not really a mystery why papers written in LaTeX have become so popular in economics.

My views on the “LaTeX question” have changed over time. I used to think that LaTeX was just another example of a “cool kids club” that could be used to exclude “non-cool kids.”² There may well be an element of that in economics, but reading about Knuth and his motivation for inventing TeX has given me a newfound appreciation for the importance of aesthetics in academic papers.³ Academics are real people with real emotions and they react to the “artistic” appearance of a paper, whether we want to admit it or not. At the margin, I think this can affect evaluation of one’s work.

While there is likely widespread agreement that LaTeX papers have a superior aesthetic appeal, I could not initially find much discussion about the costs of adopting this production method. There is a thriving LaTeX eco-system online, with a heavy representation of people from computer science and related fields. I tried my hand at learning LaTeX and was astonished by how much time it would take to become minimally proficient. I readily admit that I am not the most technically adept person, but I do not think that I should have to become a computer programmer just to write a paper.⁴ I also considered several LaTeX editing programs or “shells” in order to hopefully improve the benefit cost-ratio. I did not find these programs to be all that helpful and concluded that they would only marginally reduce the time investment required to write LaTeX documents.

I then discovered hard evidence to back up my personal observations.⁵ Knauff and Nejasmic (2014) conducted a study of the efficiency of using Word and LaTeX in the production of academic papers. Their findings are striking to say the least:

The choice of an efficient document preparation system is an important decision for any academic researcher. To assist the research community, we

² A less charitable interpretation is that LaTeX is used as a barrier-to-entry by the “cool kids” in the economics profession.

³ I highly recommend the article by Platoni (2006) in this regard. It contains an extended interview with Knuth that is fascinating on several levels.

⁴ My initial experimentation with writing in LaTeX left me with a strong feeling of *déjà vu*. I was struck by the similarity to my early experiences writing papers on a DOS-based PC in the mid-1980s before the introduction of WYSIWIG word processing packages. For those who have been around that long, who can ever forget the soft-yellow glow of plain text on the screen?

⁵ I thank my colleague Todd Kuethe for pointing out the Knauff and Nejasmic study to me.

report a software usability study in which 40 researchers across different disciplines prepared scholarly texts with either Microsoft Word or LaTeX. The probe texts included simple continuous text, text with tables and subheadings, and complex text with several mathematical equations. We show that LaTeX users were slower than Word users, wrote less text in the same amount of time, and produced more typesetting, orthographical, grammatical, and formatting errors. On most measures, expert LaTeX users performed even worse than novice Word users. LaTeX users, however, more often report enjoying using their respective software. We conclude that even experienced LaTeX users may suffer a loss in productivity when LaTeX is used, relative to other document preparation systems. (p. 1)

While the sample for the study is admittedly small, it is still stunning to consider that **expert** LaTeX users were outperformed by **novice** Word users on most productivity measures. Knauff and Nejasmic go on to make the following recommendations:

However, our study suggests that LaTeX should be used as a document preparation system only in cases in which a document is heavily loaded with mathematical equations. For all other types of documents, our results suggest that LaTeX reduces the user's productivity and results in more orthographical, grammatical, and formatting errors, more typos, and less written text than Microsoft Word over the same duration of time. (p. 12)

The Knauff and Nejasmic study suggests two important conclusions.⁶ First, productivity losses associated with the use of LaTeX in at least some circumstances are real not imaginary. Second, there are good reasons why LaTeX should not be considered the universal standard for writing papers in economics, as it clearly is in some quarters.

Allington (2016) provides a further critique of writing in LaTeX. He notes that LaTeX is actually a markup language for typesetting publications, not what one would normally think of as a platform for writing academic papers. So, it should not be surprising that LaTeX has a high opportunity cost of the time to initially learn, a continued high opportunity cost of producing papers even after one becomes proficient, and it is difficult to collaborate with other researchers who do not write papers using this method. I especially liked this quote

⁶ Not surprisingly, the Knauff and Nejasmic (2014) study is highly controversial among dedicated LaTeX users. See the blog posts by JCS (2014), Wilke (2014), and Lemire (2015) for a sampling of responses to the study.

from Allington’s article: “...Ricardo’s theory of comparative advantage still says you’re wasting your time.” In other words, the aesthetics of an academic paper are indeed important (and more important than I previously had thought), but perhaps not important enough to justify the investment of time required to learn LaTeX and continue using it.

3. FaKe LaTeX

I believe that many economists face the same dilemma as I did when considering LaTeX. We love the look of papers written in LaTeX but do not believe the time investment required to learn and use LaTeX on a regular basis is a reasonable trade-off. What is a rational economist to do? I thought there simply had to be a better way. After all, this is an era where there is an app for everything. Someone else out there had to be thinking the same thing. It turns out there is an alternative that satisfies my economist mindset—FaKe LaTeX documents created in Microsoft Word. That is exactly how I produced this note. Surprised? Most people are. One can achieve something like 95% of the visual appearance of native LaTeX documents with a one-time investment of an hour or less work. That is a benefit-cost ratio much more to my liking.

The idea of “faking” LaTeX in Word actually has been around for a while, something of an underground phenomena discussed online in a few blog posts (e.g., Simon, 2010; Huang, undated). Combining these online sources with my own trial-and-error experimentation, I developed the following “how to manual” for producing FaKe LaTeX documents in Microsoft Word:⁷

- a) Download the Open Source Latin Modern Roman 12 fonts. You need the regular, italic, and bold version. This is the trickiest part of the process. Some of the sites work and some don’t. You can search and find the fonts yourself or use the files I found on the web and posted on the research page of my personal website.⁸ Scroll to the font links under “Miscellaneous.” There are of course risks to downloading anything like this to your computer. You have been duly warned. Download the zip file “Latin Modern Roman fonts,” open up the zip file and find the regular, italic, and bold versions of the font (lmroman12-regular, lmroman12-italic, and lmroman12-bold). Right click and hit the install menu item for each font file. When you are finished these fonts will be available in any and all Windows applications. These are EXACTLY the same text fonts used in many LaTeX-generated papers. There are lots of other fonts out there for LaTeX and I’m sure there are other font options that

⁷ While I have not worked out the steps required on a Mac they should be similar.

⁸ <http://www.farmdoc.illinois.edu/irwin/research.html>.

may better optimize appearance, but I have concluded it is not worth the time needed to figure it out.

- a) Download the Open Source Latin Modern Math font. Again, you can search for yourself and download the file or use the file I found on the web and posted on the research page of my personal website. Scroll to the font links under “Miscellaneous.” Then, open up the zip file “Latin Modern Math font” and find the latinmodern-math font file. Right click it and hit the install menu item. This is EXACTLY the same math font used in most LaTeX papers. If you doubt the ability of the FaKe LaTeX method to generate nice looking math, consider this example produced with the Equation Editor in Word:

$$\Delta P_t = \mu + \sum_{j=1}^J \lambda^j S_t^j + \sum_{p=1}^P \delta_p \Delta P_{t-p} + \varepsilon_t.$$

The default font for equations will need to be set to Latin Modern Math. Create an equation or click on an existing one in a Word document. This will reveal the “Equation Tools: Design” part of the Word ribbon. Next, click on the lower right arrow of “Tools,” which will bring up a dialog box for “Equation Options.” A dropdown box should be visible for “Default Font for Math Regions.” Click the dropdown box and select “Latin Modern Math.” If for some reason this does not work you can also click the “Normal Text” button under “Tools” in the “Equation Tools: Design” part of the Word ribbon to allow the font to be used in equations.

- b) Just to be clear, I use the Latin Modern Roman 12 fonts for all text in Word as well as tables and figures I produce in Excel. I use the Latin Modern Math font for equations. The ability to use Excel to make tables and figures is a major advantage of the FaKe LaTeX method. Just ask anyone who has pulled their hair out trying to produce tables in native LaTeX. In addition, while I have not tried it, I do not see any reason why the Latin Modern Math font will not work in MathType, the popular add-in equation editor for Word.
- c) Under the Font>Advanced settings:
- i. Check the box for Kerning
 - ii. Set the Points and Above to “1”
 - iii. Set Ligatures to “Standard Only”
- d) Under the Layout>Hyphenation settings check “Automatic”

- e) Under Layout>Paragraph settings use “Justified” and set margins to 1” all the way around.
- f) Use a big font, like 24 or 28 point, for the title and 14 or 16 point font for headings.
- g) Alternatively, one can start with the FaKe LaTeX template found under #3 in the blog post by Simon (2010). Make sure to check out his pdf of the template just for fun.
- h) Convert the Word file to pdf format to complete the process. I noticed that hard copy printed versions from Word look slightly worse than pdf versions. I am not sure why this is the case or if it’s just me. I leave it to others to determine if the differences really are significant, but just to be safe I convert everything to pdf format before printing hard copies or posting online.
- i) More than likely, there are other inventive ways to tweak Word to make a LaTeX “forgery” even harder to detect by the untrained eye. I hope other converts to FaKe LaTeX will be willing to share these tweaks.

As discussed earlier, it is difficult for a non-LaTeX user to collobarate with a LaTeX user in writing a paper. Collaboration, of course, is seamless for FaKe LaTeX users, since they are using the same fonts and formatting in Word. What about the case where one person uses FaKe LaTeX in Word but another Word user does not? I tested this out on a couple different computers and found the same result—each time Word substituted a reasonable font for the missing Latin Modern Roman font and there were only minor differences in formatting. This makes sense because in each instance the same word processing package is being used with relatively minor differences in formatting. I believe it is safe to conclude that collaboration is largely seamless between FaKe LaTeX and non-FaKe LaTeX users in Word.

Lastly, it is important to emphasize that FaKe LaTeX will, by definition, always be an imperfect replication of true LaTeX. A good discussion in this regard can be found at the *TeX-LaTeX Stack Exchange* thread entitled, “Make MS Word document look like it has been typeset in LaTeX.”⁹ One commenter in the thread, Yiannis Lazarides, put it this way: “You can call a mule a horse, but will never make it a horse. No amount of fiddling can make a Word document look like one typeset with TeX, especially one that contains a serious amount of math. Major difference will remain in letter spacing, interword space,

⁹ <https://tex.stackexchange.com/questions/8308/make-ms-word-document-look-like-it-has-been-typeset-in-latex>

paragraph justification, hyphenation, page breaking and adjustment of floats.” I obviously do not place as much weight on these differences but others might, particularly if your papers are very math heavy.

Let me now summarize what I see as the pros and cons of the FaKe LaTeX method:

Pros

- Looks great
- Simplicity of Word
- Ease of sharing documents
- Tracking changes for shared editing
- Tables and charts may be produced in Excel
- Quick and easy to learn and implement

Cons

- Math formatting may not be optimal
- Lack of journal templates
- Reference management not built-in

I should also emphasize that FaKe LaTeX is not the only alternative to true LaTeX. Allington (2016) and the comments to his article contain a nice discussion of other possible production methods.

4. FaKe Beamer

Economists who write papers in LaTeX often use a package called Beamer to generate presentation slides. In practice, Beamer can be thought of as a twin to LaTeX. It is a highly structured programming environment that has much more flexibility than its main competitor, Microsoft Powerpoint. However, all of the criticisms of LaTeX outlined earlier basically apply in equal measure to Beamer. It turns out that one can also generate FaKe Beamer presentations in Powerpoint. Two steps are required:

- a) Download the Open Source Latin Modern Roman Sans 12 font. Again, you can search for yourself and download the file or use the files I found on the web and posted on the research page of my personal website. Scroll to the font links under

“Miscellaneous.” Then, open up the zip file “Latin Modern Roman fonts” and find the lmsans12-regular font. Right click the font file and hit the install menu item. This is EXACTLY the same font used in most Beamer presentations.

- b) You can develop your own FaKe Beamer Powerpoint template or download one that I modified and made available on the research page of my personal website.¹⁰ Scroll to the “Miscellaneous” section and download the file “FaKe Beamer Powerpoint template.”

5. Conclusions

For many economists, the aesthetic appeal of papers written in LaTeX is strong. However, one can easily be put off by the high opportunity costs of learning and using LaTeX. Fortunately, there is an alternative method for writing papers—FaKe LaTeX in Microsoft Word—that has a remarkably similar visual appearance to papers produced in native LaTeX and this method takes a fraction of the time. Economists interested in improving the aesthetic appeal of their papers without sacrificing productivity may want to consider this method.

6. References

- Allington, D. 2016. “The LaTeX Fetish (Or: Don’t Write in LaTeX! It’s Just for Typesetting).” *Daniel Allington Blog*. September 13. <http://www.danielallington.net/2016/09/the-latex-fetish/>
- Ganguli, S. 2013. “A Short History of TeX and LaTeX.” *Swetava’s Blog*. October 31. <https://swetava.wordpress.com/2013/10/31/a-short-history-of-tex-and-latex/>
- Huang, J. “Improving the Look of Papers Written in Microsoft Word.” Undated. http://jeffhuang.com/better_word_papers.html
- JCS. (2014). “LaTeX vs. Word.” *Irreal: A New Emacs Blog*. December 29. <http://irreal.org/blog/?p=3552>

¹⁰ The original source for the FaKe Beamer Powerpoint template is Damodar Rajbhandari of St. Xavier’s College in Nepal. I modified his template to use the Latin Modern Sans font. The original template can be found here: https://figshare.com/articles/Beamer-like_Power-point_template/5286040.

Knauff, M., and J. Nejasmic. 2014. “An Efficiency Comparison of Document Preparations Systems Used in Academic Research and Development.” *PLoS ONE* 9(12): e115069. doi:10.1371/journal.pone.0115069

Lemire, D. (2015). “Knauff and Nejasmic Recommend Banning LaTeX.” *Daniel Lemire’s Blog*. January 14. <https://lemire.me/blog/2015/01/14/knauff-and-nejasmic-recommend-banning-latex/>.

Plantoni, K. 2006. “Love at First Byte.” *Stanford Magazine*, May/June. https://alumni.stanford.edu/get/page/magazine/article/?article_id=33888

Simon. 2010. “How to Fake LaTeX in Microsoft Word 2007.” *A Blog of Assorted Geek Ramblings, Observations, Reviews, Rants and Opinions*. March 1. <http://blog.lnk.si/posts/fake-latex.html>

Wilke, C. (2014). “Post-Publication Review of the PLOS ONE Paper Comparing MS Word and LaTeX: How Not to Compare Document Preparation.” *The Serial Mentor*. December 27. <http://serialmentor.com/blog/2014/12/27/post-publication-review-of-the-plos-one-paper-comparing-ms-word-and-latex-how-not-to-compare-document-preparation>