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Dear members of the search committee:

I am writing to apply for the position of **job X in the department of Y at school Z**. I am a PhD candidate in the Department of Criminology at the University of Pennsylvania and will be defending my dissertation by May 2020.

My research interests are broad and, as a result, I have studied a number of topics including domestic violence, public perceptions of forensic evidence, and the effect of law enforcement on incarceration. However, the bulk of my research focuses on the effect of place-based interventions – specifically outdoor lighting – on crime. As policy makers and the general public are increasingly concerned with the collateral consequences of traditional policing, these tools – which can reduce crime while largely avoiding the negative consequences of traditional policing – are increasingly important.

Outdoor lighting presents an interesting paradox in criminology as street lights are a tool that have, for hundreds of years, been used by policy makers for the explicit purpose of improving public safety, yet still have relatively little rigorous analysis of their effectiveness. While a number of studies have been conducted on the effect of street lights on crime, they are primarily pre-post comparisons of a single community or non-random treatments of areas without adequate lighting, and thus have poor comparison groups. The result is that while policy makers continue to use outdoor lighting as a crime control measure, our field cannot be confident in what effect it has on crime. What I find interesting about this topic is that rigorous evaluations of a centuries-old tool have been stymied by data and computational limits – until very recently.

Since experiments on lighting are limited by both cost and the fact that there are few locations without ample outdoor lighting, I use two natural experiments to study the effect of lighting on crime. In the first paper I use the natural variation in outdoor lighting caused by moonlight – after controlling for cloud coverage – to measure the effect of a low dosage, high area of effect light. For this paper I merged data from the FBI's National Incident-Based Reporting System (NIBRS) with weather and moonlight data that I scraped from the website Weather Underground to create data that had both crime and a measure of lighting. Contrary to prior studies on lighting, I find that nights with more moonlight had higher crime, suggesting that dosage is an important factor in the effect of light.

In my second paper on this topic, I use street light outages as a natural experiment to measure the effect of street lights on crime at a very local level – the street that the outage occurred on. To do this, I combined data from Chicago on crime incidents and 311 calls about street light outages with the city's shapefile to find out which street each incident occurred on. I find evidence that when a street experiences multiple light outages, there is no change in crime

on the affected street, but an *increase* in crime on nearby streets – a finding that suggests that people respond to dark streets by moving to nearby streets and that the increase of people on these streets increases the number of crimes. This paper will be the most comprehensive study ever done on street lighting, in large part because the size of the data – this data has approximately 140 million rows – was impossible to use without the computing power made available in the last several years. The results from these studies suggest that the effect of lighting is highly nuanced – responsive to both the dosage of the light and the context in which it is placed.

While I am dedicated to pursuing an active research agenda, I am also passionate about teaching students. During my time at Penn I worked as a TA for five semesters – for both undergraduate and graduate courses – and have experience helping students directly during individual tutoring sessions, primarily for addressing questions the students had about the programming language R. These experiences, and working on topics that have relatively little robust prior research and a large deal of nuance in the results, have shaped my teaching philosophy – to prioritize teaching students how to evaluate the available evidence on a policy rather than simply teach what that evidence is. This method provides students with the tools to evaluate current research and to update their knowledge when new evidence becomes available.

To facilitate this approach, I wrote the freely available online textbook R for Criminology, which introduces the programming language R to students with no prior programming experience. The textbook covers standard programming skills used in research, such as acquiring and cleaning crime data, while using research questions that current criminologists are studying as the background for learning these techniques. In my experience working with undergraduate and graduate students at Penn, allowing students to engage with the evidence themselves – in particular by visualizing the data in question – helps them become more engaged with the topic.

With respect to my service to the broader criminology community, I have dedicated a portion of my time at Penn to making crime data more accessible to researchers and to the general public. Crime data from the FBI, such as Uniform Crime Reporting (UCR) Program Data is difficult to work with as each year is in its own file and the data is in a format that can only be read in using SPSS or SAS software. To make this data easier to use, I wrote the R package asciiSetupReader to allow people to use R when working with this type of data. I then created – and made publicly available on openICPSR – a number of data sets in which I have concatenated every year together into a single file and lightly cleaned the data to exclude obvious outliers. To allow the public to interact with this data, I created the website Crime Data Tool which lets users examine agency-level crime data through easily accessible graphs and tables. It also contains information about the available data such as any caveats it has and links to download the entire data set from openICPSR.

Thank you very much for your consideration. Please contact me if you require any additional materials or information.

Sincerely,
Jacob Kaplan