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Vlad - Idea #1:

Based on the “commodity price volatility” topic of this year’s competition, we can evaluate whether renewable generation has a detrimental effect on electricity price and price volatility. Data for Ontario is available from 2006 to 2016 from the IESO: (<http://www.ieso.ca/en/power-data/data-directory>).

One way to evaluate is to do regression analysis, dependent variable being hourly electricity price, and independent variables can include hourly wind farm output, power demand, nuclear output, hydroelectric output (all this data is available from the IESO). The idea being to determine whether wind output has a negative or positive effect on price and volatility. This would help inform the government on whether additional renewable power should be introduced in Ontario, and what kind of effect this might have on low-income households, which suffer from increases in commodities such as electricity more than high income households.

Similar analysis was done for Texas: (<http://www.sciencedirect.com/science/article/pii/S0301421511002813>)

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Adrian Idea #1:

It can be our hypothesis that the sprawl style development in the southern Ontario region, particularly within 200 km of Toronto, has cause an upward trend in food security issues and a growing percentage of GTA citizens are food insecure as a direct result of this development. The greenbelt area has been protected by Ontario government legislations since 2005 with the introduction of the “Growth Plan for the Greater Golden Horseshoe” and “Greenbelt Act” protecting the 1.8 million acres of greenbelt from development. Nevertheless, development is encroaching on this very valuable land, which includes the notable Oak Ridges Moraine which stretches 160 km West to East from Caledon to the Peterborough area.

We are willing to show with data from the mid 20th century to the present day that the situation is getting worse and more intelligent and effective legislation/protection of the land is needed. A more sensible approach to development of the Greater Golden Horseshoe is needed to prevent catastrophic food insecurity in the future. The predominant data sources are the Toronto open data (<https://www1.toronto.ca/wps/portal/contentonly?vgnextoid=9e56e03bb8d1e310VgnVCM10000071d60f89RCRD> ) and Ontario data catalogue (<https://www.ontario.ca/search/data-catalogue> ) . The present population on the Oak ridges moraine is roughly 200 thousand, but this number is growing at a frantic pace due to subdivision development in: Stouffville, Vaughan, Richmond Hill and Aurora. A key resource for us data scientists will be the federal census data of 2006, 2011 and 2016 (long form census).

For a similar study see:<https://this.org/2011/08/19/greenbelt-farms/>

In August 2009, University of Guelph rural-planning professor Harry Cummings and two grad students released a detailed analysis of agriculture in the region. Using census data, they looked at agricultural change from 2001 to 2006 in the greenbelt, and compared it to the rest of Ontario. What they found was that, in those years, the greenbelt area lost 490 farms and 86,000 acres of farmland, and every livestock operation in the region was either experiencing more rapid decline or slower growth than those in the rest of the province. The number of pigs had decreased by 31 percent in the greenbelt versus 14 percent elsewhere in Ontario, and the number of greenbelt beef cattle dropped by 24 percent versus 13 percent. The number of dairy cattle in the greenbelt fell by 13 percent versus 9 percent. (London, England’s greenbelt, created in 1939, faced a similar problem in the mid-1980s. High land prices forced farmers to rent land rather than own, and according to three University College London researchers, the percentage of family-run farms dropped from 45 percent in 1970 to 29 percent in 1985.)

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