President Elect's Greeting

As incoming CAES president and Chief Data Officer at AAFC, I have been contemplating the rising role of data and the new opportunities it will pose for our profession. As Chief Data Officer, I am expected to look beyond the traditional boundaries we've placed on data and seek new and innovative ways to take advantage of the vast range of data AAFC currently holds. This requires an interdisciplinary approach and to work more collaboratively with key partners and stakeholders to enable a more open and transparent data sharing environment. One of my goals will be to focus on building knowledge around what data is available, enable easier access and promote creative uses to answer relevant questions.

Kara Beckles,
CAES President Elect

The credit for this special edition newsletter really goes to our current President, Brady Deaton for coming up with the idea! I will be running with this and plan to publish a series over the next year to highlight a different data set in each edition with write-ups from various users on different perspectives around it.

This first edition focuses on the Linkable File Environment (LFE) at Statistics Canada that has a ton of potential for program design and evaluation. We will be using LFE a data set at the annual meeting's post conference workshop on July 12, 2019 to showcase its potential for research. I can't wait to see what new ideas come out of that event.

I hope you enjoy and would love to hear feedback on what you think of the series or what data sets you'd like to hear about next.

Kara Beckles,
CAES President Elect

IN THIS ISSUE

2019 Annual Meeting

July 9-12, Lord Elgin Hotel, Ottawa

- ✓ plenary, organized, and selected papers sessions
- ✓ networking, professional development, and knowledge exchange
- ✓ student job fair, awards banquet, and post-conference learning workshop

https://caes-scae.ca/caes-annual-meeting/

Why is AAFC excited about the LFE?

What types of gaps can the LFE potentially fill in terms of policy analysis?

The LFE can help determine if government support is being targeted appropriately and whether programs are achieving their intended results. This is done by comparing the success of businesses that receive support to those that were unsuccessful or non-applicants. These businesses can be compared across financial variables, employment, export revenues, and R&D spending, enabling the Department to analyze the real impact of its programs and services.

Contributors to this article from AAFC, from L. to R.: Heather Earle, Duane Hayes and Alison Kinsman.
Not Pictured: Preethi Ledchumykanthan

Can you provide one or two examples of LFE-based research that demonstrates the value of the LFE to AAFC?

Last year, AAFC undertook a pilot project in partnership with StatCan whereby a list of recipients of funding under the Agri-Marketing SME program was linked to the LFE. This project allowed AAFC to better understand who this program targeted. Applicants to this program had higher average revenues and employment levels and were much more likely to already be exporters than non-applicants, across all sectors. Businesses in the food and beverage processing and wholesaling sectors were much more likely to apply than those in the farming sector.

What is the Linkable File Environment?

The Linkable File Environment (LFE) uses business numbers to link Statistics Canada's (StatCan) business surveys and administrative data from the Canada Revenue Agency and other agencies. These data include income tax records, payroll deduction accounts, exporter's registry, ownership structure, R&D spending and numerous other sources. The LFE is maintained by StatCan and can be matched and linked with datasets compiled by policy departments (such as AAFC). Once the datasets have been matched, policy departments can access the administrative data linked with their departmental data for a group of businesses.

AAFC is currently working with StatCan to assess the effectiveness of the program by comparing the growth in revenues, employment and exports of program recipients relative to non-recipients. This will give AAFC a clear indication of whether the program is achieving its main objectives, such as boosting and diversifying exports of SMEs.

What might the LFE mean for how AAFC interacts with researchers and stakeholders in the future?

The LFE gives AAFC a more fulsome picture of the businesses it deals with, allowing the Department to deliver targeted programs that will help it better serve its stakeholders and achieve more focussed results for the Canadian agriculture and agri-food sector. By using the LFE, programs can be compared in a consistent way, enabling the Department to better communicate the impact of its programs, such as through visual dashboards. AAFC can also work with provincial program administrators to help them assess the effectiveness of provincial support programs. Researchers could use the LFE to study the impacts of different program interventions across variables, over time, and potentially identify new patterns and relationships that have not yet been discovered.

Discover the LFE at Statistics Canada and its potential for agricultural and agri-food research!

Statistics Canada has recently embarked on a wide-ranging modernization process. One of the undertakings is more effective use of administrative and survey data through micro data linkage. In this context, the **Linkable File Environment** (LFE) has emerged as one of the key corporate tools for business micro data linkage and, from there, to the promise of richer and more exciting and analytical work. Here is a short note on the LFE and its potentials for agriculture and agri-food research.

Firstly, the LFE is an environment, it is not a single database. At the core of the LFE there is the Business Register, the most comprehensive listing of businesses in Canada. Around this core, the LFE environment encompasses a constellation of administrative data (e.g., tax records, exporter registers, etc.) and survey data that have been pre-approved for linkage. All LFE records are at the **enterprise level**. While most businesses in Canada are simple enterprises having one location, a small percentage

Alessandro Alasia,
Chief, Data Exploration and Integration Lab (DEIL), Centre for Special Business Projects (CSBP)

are complex enterprises that have two or more location. Hence, certain analyses based on business locations data might not be feasible using the LFE. Moreover, although not yet fully longitudinal, the LFE provides a time dimension, and the possibility to track businesses over time, in some cases over more than a ten-year span.

The **agriculture and agri-food sectors** are fully in scope, which makes the LFE a relevant resource for agriculture economists and agri-business analysts. Most importantly, the Census of Agriculture has recently been brought into the LFE environment, adding considerable depth to the business information already available in the Census micro records. To that, add the entire agri-business value chain, as identifiable by industry classification system codes (NAICS) that are also present within the LFE, and one could get a unique analytical perspective on entire agri-food value chains, such as for instance the meat, dairy, or vegetables value chains, from farm to processing to distribution, exporters and retailers.

And there is more! Following a process for record linkage approval, the LFE provides the opportunity to link enterprise-level records provided by external stakeholders (e.g., program administration data). That is the typical situation for the use of **economic impact studies** modelling that is carried out by CSBP, in which analysts, for example, want to track business performance indicators before and after beneficiaries received financial or services support from a given program.

Besides economic impact studies, what other type of analysis could be undertaken? **Much more!** The LFE is a remarkable tool to develop and track business performance indicators (such as, total revenue, employment, exports, R&D expenditures and more). The micro data nature of the environment provides considerable flexibility in the specification of groupings and measures. The analysis can be extended to different segments of the agri-food supply chain, from primary to secondary processing, to traders, exporters, retailers and input providers. The coverage and time span of the LFE opens opportunities that are not provided by single-source databases.

The CSBP now has a section dedicated to the maintenance and expansion of the LFE, led by **Julio Rosa**. Many of the analytical projects with the LFE are led by **Mahamat Hamit-Haggar**, at DEIL. Data extracted from the LFE are also accessible through other microdata access processes of Statistics Canada and by deemed employees.

What is the link between the Post-Conference Workshop and the LFE?

Dr. Getu Hailu,
University of Guelph

Dr. Hailu, you're organizing the post-conference workshop on observational microdata and public policy and program evaluation at the 2019 Annual Meeting of the CAES. Can you tell us about the link between the post-conference workshop and the Linkable File Environment?

The role of observational microdata and public policy and program evaluation has become more important over time for government departments and academics alike. Meanwhile, there is an increasing recognition that the complexity of twenty-first-century society requires statistical analysis and government departments to work together in partnership with the research community in developing common knowledge of approaches for the effective evaluation of public policies and programs. Statistics Canada's LFE represents a potentially rich source of microdata that could be of great value for this type of collaborative research.

What are the objectives of the various parts of the post-conference workshop?

This workshop is designed to provide hands-on experience for government policy analysts and academic researchers to conduct policy/program impact assessment to answer real questions related to agri-food public policies and programs using advances in microeconometrics. The hands-on lab will include the use of simulated LFE data that mimic both those that would be used in potential AAFC programs and data from Statistics Canada. The hands-on lab will use STATA codes. The course will address the following questions:

- What approaches can be used to analyse and track policy or program impacts?
- What are the issues and challenges?
- How do we address attribution?
- How do we address data challenges in analyzing policy and program impacts?

What do you think participants will walk away with at the end of the workshop?

At this workshop, participants will learn about theories of program evaluation, including econometric techniques for identifying the counterfactual and assessment of causal validity in research. This will then be followed by hands-on practical application of the theory to program evaluation using synthetic microdata from the LFE on a real Agriculture and Agri-food Canada's (AAFC) program. Working with AAFC, Statistics Canada will identify and provide the microdata for the program evaluation exercise using R or STATA. AAFC will identify a number of research questions that are of interest to provincial and federal government organizations for the exercise.

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