Using the Freight Analysis Framework (FAF3) to Understand Aggregate Freight Modeling

ACTIVITY 9b

Purpose

The purpose of this activity is to help you understand the input and output data provided by FAF3 and how this information can be useful in informing planning and engineering decisions regarding freight transportation.

Learning Objectives

- To gain an understanding of the data that can be extracted by FAF3.
- To use information from FAF3 to verify previously discussed concepts regarding freight movements.

Required Resource

- FAF website: http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/

Tasks

In this activity you will work together as a class to use the Freight Analysis Framework (FAF3) and answer the Critical Thinking Questions. You will use the tools provided on the FAF website (namely the Data Tabulation Tool). You will take turns using the computer at the front of the room (connected to the projector) to navigate through the FAF menus, assisted by your fellow students. While you are to answer the Critical Thinking Questions individually, you are encouraged to ask questions of and discuss the activity with other students in the class as you work together with the tool.

If the activity takes longer than the allotted class time, you are expected to complete the activity outside of class.

Like problems you will encounter in research and in industry, this assignment contains uncertainty. There are several different ways to interpret and answer many of the questions within the assignment. There is no one right answer, so it is suggested that you include in your response the parameters you used within the FAF3 model to determine the answers, as well as specifying proper units.

Deliverables

Please answer the Critical Thinking Questions.

Critical Thinking Questions

1. How many zones (when examining imports/exports) does FAF3 divide the US into? Briefly describe how the zones are divided.

2. How much freight (in $-value and in weight) was imported into Seattle in 2010?

3. Is the answer to the previous question based on actual observations, or a forecast? What is the difference between "Total M$ in 2010" and "Total Current M$ in 2010"?

4. How many tons of imported agriculture products ("other ag prods") are transported from Washington to New York State in 2010?

5. How do you expect this to compare to the volume (tonnage) of domestic agriculture products ("other ag prods") transported from Washington to New York State in 2010? Are you right? (Predict and then check your prediction.)

6. Explain why there is a difference between looking at goods moving from Washington to New York under the Import Flows page and under the Domestic Flows page.

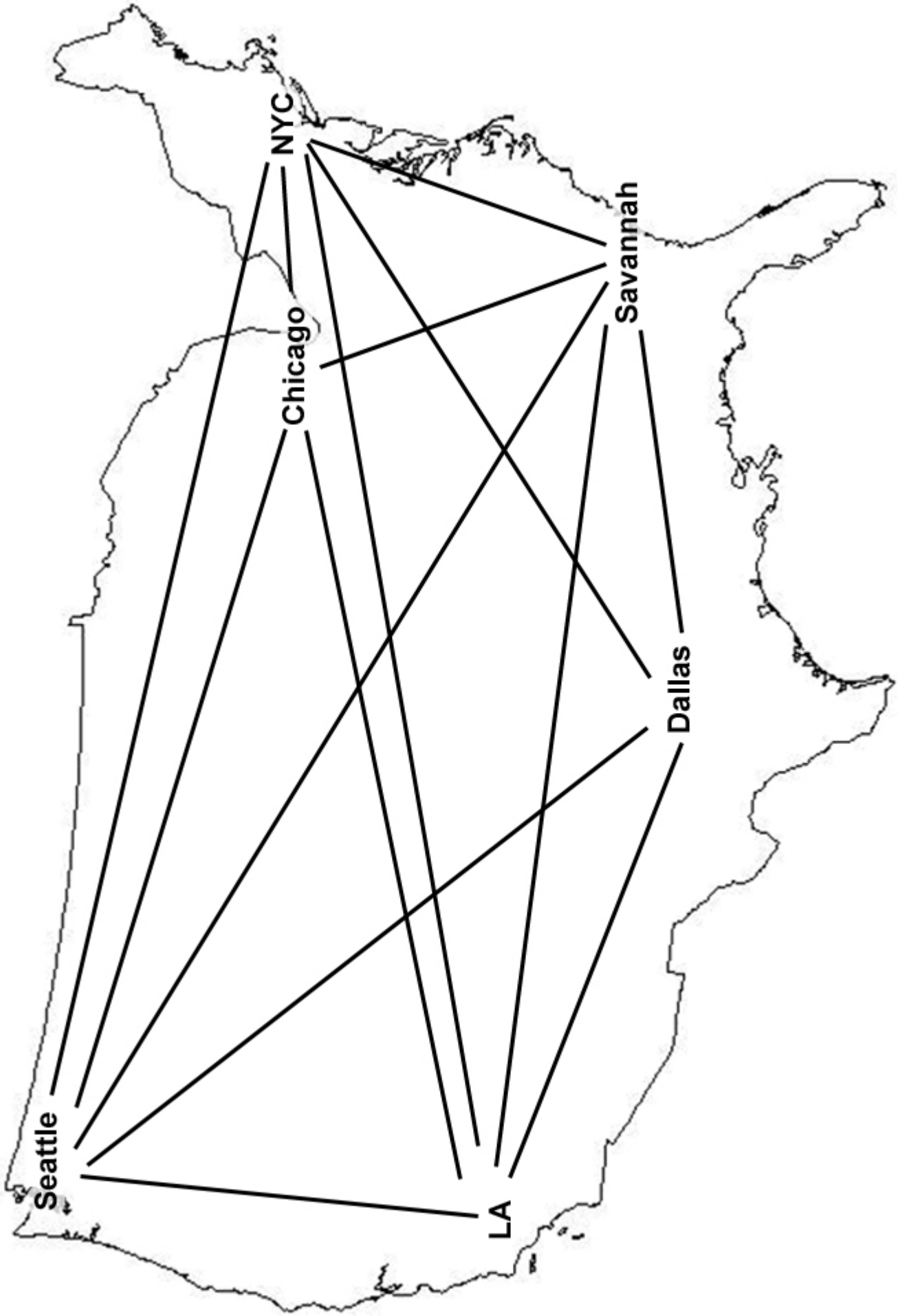
7. Who (given the foreign origin choices in FAF) do you think is the US's largest trading partner? Are you right? Check considering flow of goods (sum of imports and exports) by value in 2007.

8. Considering the domestic flow of electronics, gravel, and meat and seafood. What is the breakdown between modes of transport in 2007? Based on previous lectures and activities, is this what you expected? Explain.

9. What is the breakdown of volume based on foreign origin of goods being imported to final destinations of Chicago and of Phoenix in 2007 (how much does each foreign origin import)? How does this breakdown compare between the two cities? What are some possible reasons for this?

10. Considering (2007) volumes, illustrate how goods travel from East Asia through LA, Seattle, Savannah and New York City (NJ-Part) to LA, Seattle, Savannah, New York City (NY-Part), Dallas and Chicago (IL-Part). You can use the map on the next page to show the goods flows visually. Additionally, answer the following questions:

    a. What is the percentage of total goods (from East Asia) that enter east coast ports versus west coast ports?



b. What percentage of goods imported into each city from East Asia stays in that city (supplies the local demand)?

c. What are the percentages of total goods imported into Chicago from each of the US port cities? Into Dallas?

d. Based on the answers to the previous questions, make two conclusions about goods movement in the US.

11. Let's jump ahead several years and say it is now 2040. How could you use FAF to examine the impact of the Panama Canal widening (completed in 2015) on freight flows in the US? Explain what data you would extract and compare. Assume that data from as far back as 1997 is available on the FAF site.

12. Reflection: How is FAF useful as a tool within research? Within practice? What are the limitations of FAF within both?

