

This document reviews the major blocks of the TLUMIP PI module PECAS diagram, shown in abbreviated form in Figure 1. The discussion includes existing data sources and input processing procedures to process input data, as well as plans for future data or assumption improvements and expected role in calibration.

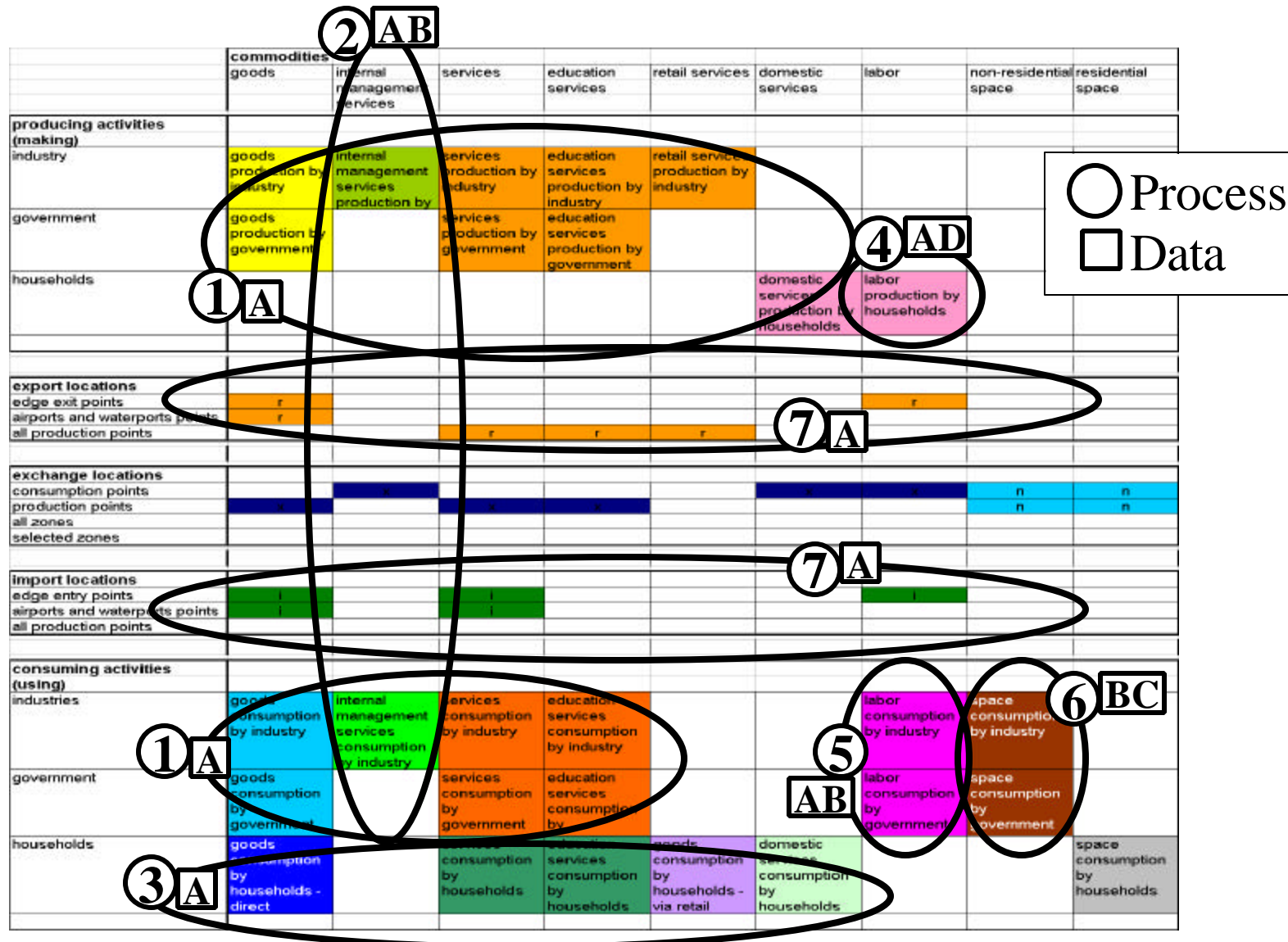
The definition of the major activities follows:

- **Industries** – Private activities that use labor and floor space in the production and consumption of goods and services.
- **Government** – Government activities that consume labor and floorspace.
- **Other Institutions** – Activities that do not consume floorspace or labor were combined into “Other Institutions”. These aspatial activities include federal and state government, state/local education, accounting/financial transactions (capital, change in inventories), and other unspecified categories. The component of this activity that produces services could be split out and folded into associated private or government industries.
- **Households** – Households of the following income groups that produce labor and consume various goods (primarily through retail) and services: \$0-5K, \$5-10K, \$10-15K, \$15-20K, \$20-30K, \$30-40K, \$40-50K, \$50-70K, and \$70+K.

The definition of major commodities follows:

- **Goods** – Forty-one types of goods, based on standard commodity (SCTG) classifications are modeled, including waste (SCTG41).
- **Services** – Services produced and consumed by various activities, including education, home-based services and retail/wholesale. Home-based services are self-employed workers who sell their services to households (e.g., housekeepers, nannies, handymen)
- **Internal Management Services** - To spatially tie the two parts of an industry together "value added office labor" commodity was created. This commodity is the service provided by management and other office support workers to the shop floor of the same industry. In many cases, this flow represents a relationship between two establishments of the same firm.
- **Labor** – Labor is produced by households in the following occupations and used by various industries (attribution of “other” code?):
 - Managerial & professional labor
 - Health occupations labor
 - Post secondary teaching labor
 - Other teaching labor
 - Other professional & technical labor
 - Retail sales labor
 - Clerical labor
 - Non-office skilled & semi labor
- **Floorspace** – Floorspace is a non-transferable commodity, consumed by industries at the point of consumption.

Figure 1. Simplified TLUMIP PI Module PECAS Matrix



The major data sources used to develop PI inputs follow:

- A. 1999 IMPLAN – Make and Use tables from IMPLAN Social Accounting Matrix (SAM) were obtained for the study region.
- B. 2000 ES202 data – Employment data for the State of Oregon
- C. PNERC Coverage Data – Land acreage data from Pacific Northwest Ecosystem Research Consortium (PNWRC)
- D. 1990 US Census – Population data from the general census, population marginals from census STP3 file, and occupation by household from the Public Use Micro Sample (PUMS)

Key processing of PI inputs are covered in the remaining sections and referenced in Figure 1:

Goods & Services Production/Consumption

1. **Make and Use** - Industry goods and services production and consumption, in input \$ per 1\$ of output, is derived from IMPLAN Make and Use table data. The values represent the proportion of each activity's total Make/Use (for region and export/import). The values sum to 1.0 for a particular industry activity, when combined with internal management. Office activities are separate from production, linked by internal management services. Households are the only consumer of home-based services. The services produced by "other institutions" (e.g. education) could be split out and folded into the government and education industry categories in order to tie these services to a labor force.
2. **Internal Management Services** - Most industries were split into production and management services to properly utilize and locate production space separate from office space. Internal management activities only produce management services consumed by their corresponding industries. Management services were derived by segregating the IMPLAN data for each industry based on the number of employees in different occupation categories from ES202 data. Excluded were industries without separate management and production sites (FIRE, hotel, personal services, real estate construction, and home-based services). The non-durables internal management service is not currently included because of an apparent inconsistency between the number of office workers (from the employment breakdown) and the amount of services provided by the non-durables industry (from IMPLAN).
3. **Demargin Retail** - Retail services have been demargined to allow the money flows to mimic trip activity. The process for final demand assumes a limited percentage (5-10%) for direct delivery of goods, with most goods consumption done through retail. Intermediate demand (producer-producer) was also demargined, limiting retail involvement. Most producer goods consumption was assumed through wholesale with selected commodities (e.g., SCTG10 stone, 15 coal, 29 paper) occurring directly from producer to producer, and others involving both wholesale and retail (e.g. SCTG17 petroleum, 39-40 furniture).

Labor

4. **Household Labor production** – IMPLAN employee compensation was divided into household income-occupation groups based on a synthetic population. Census PUMS households were sampled to generate the synthetic population of households that respected the area marginals. Household income values and occupational wage rates could be used to refine these money flows. This would assist in economic analysis of outputs and enable employers to locate near their higher-paid employees.
5. **Household Labor consumption** - Industries use labor of the various occupations. IMPLAN total compensation is divided by the distribution of occupations by industry.

Floorspace

6. **Estimate Floorspace** – Floorspace was estimated based on assumed space consumption rates per employee (sqft/employee) combined with ES202-based employment estimates, by industry. This floorspace was validated using PNERC coverage data. Floor area ratios (FARs) were generated from the estimated floorspace and PNERC developed acreage, with adjustments made to zone employment where necessary. (check with Pat)

Import/Exports

7. **Import/Export Geographic Allocation** – Total imports and exports were obtained from IMPLAN. These flows are currently divided equally among the 10 import/export exchange zones. Oregon commodity flow survey and other data could be used to better allocate demand among the appropriate import/export zones.