OK, this handout sorts out the mess I made in a lecture on allocating economic impact job values into a county’s expected labor force growth. This adjustment is very important. When we do economic impact analysis, our model supposes that all of the jobs and income effects accumulate into the county that we are studying. That, in the real world, however, is baloney. People are mobile, people choose to in-commute, and they choose to out-commute. They choose to be in the labor force and to be out of the labor force. The point is that simply declaring jobs in a model does not, ultimately, properly allocate the location of the impacts. If we don’t adjust the values, we over-estimate and over-localize economic and social outcomes.

So, we need to use some mechanisms for trying to get from Economic Impact analysis, to labor force change, to, perhaps, population change, to fiscal impacts. Here’s a short-hand but highly reliable, according to me, set of steps for doing this. I invented it, I patented it, I tested it, and you can now have it free of charge.

**Step 1. Research your region’s labor force and employment dynamics.**

You can use the Journey to Work data set from the Census to figure out two things:

- The percentage of your regional work force that lives and works in your county (the propensity to work locally), and
- The percentage of jobs in your region that are filled by local residents.

Dallas County has these sets of statistics that are pertinent:

- Workforce\(^*\) = 21,520 (these are the Dallas County residents that had a job somewhere in the universe).
- Employment = 15,601 (these are the number of persons working in Dallas County regardless of their residence).
- Outcommuters = 13,385 (these folks live in but work outside of Dallas County)

The county has a very dynamic employment structure. First, only 37.8% of its residents live and work in Dallas County


Second, of all of the jobs that are in Dallas County, just 52.1% are staffed by Dallas County residents


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\(^*\) Workforce is simply the members of the labor force that have jobs. Workforce plus the unemployed equals the labor force.
So, we have two sets of competing forces (1) the likelihood of living and working locally, and (2) the likelihood of a local job being filled by a local resident. These forces influence the amount of labor force growth that would be expected from a localized job shock (gain or loss) to the regional economy. It supposes that the region is interacting in space with competing supplies and demands for labor. It also assumes that the existing propensities to live and work locally, in general, give us clues as the likelihood that the jobs will result in labor force gains to a region.

**Step 2. Average these two statistics and multiply times the jobs outcome from your impact analysis. Then adjust the findings for average earnings.**

Let’s say that your economic impact scenario for Dallas County produced 200 total new jobs for Dallas County. Those jobs will be filled from 4 sources:

1. Some, but only a few, of existing unemployed (or persons currently not in the labor force) will take them,
2. Some will be filled by new in-migrants,
3. Some will be filled by existing workforce members who forego outcommuting, and
4. Some will be filled by in-commuters.

Of these 4 possibilities, only number 2 results in new labor force members that enhance county population. Three other possibilities do not enhance the county’s population. So to allocate all of the job gains to labor force gains for the county overstates and over-localizes the impact. It just ain’t going to happen. Here’s how I adjust those expectations for a county.

Average the two percentages calculated in step 1: \( \frac{37.8\% + 52.1\%}{2} = 44.95\% \)

Multiply that percent times the job impact: \( 44.95\% \times 200 = 89.9 \text{ jobs} \)

Next adjust the impact jobs by the average job wage value in the impact scenario divided by the average job wage value in your county. You would use the Implan base values for this comparison (the Output, Jobs, Value Added Table).

So let’s pretend that the total labor income for our impact scenario yielded an average labor income per job of $34,000 for all of the jobs (direct, indirect, and induced) and that the average labor income per job in your area was $32,000. You adjust your job value above by the earnings differential:

Earnings differential: \( \frac{34,000}{32,000} = 1.0625 \)

Final labor force estimate: \( 1.065 \times 89.9 \approx 96 \text{ jobs to Dallas County} \)

In this case that’s it. We assume some unemployed persons take some of the jobs, we assume some outcommuters take some jobs, we assume some incommuters from neighboring counties take some jobs, and we assume 96 of those jobs go to new in-migrating workforce members.

So, you might ask: Dave, what’s the theoretical foundation to all of this? To which I answer: not much. Just kidding.
Actually, there is. The existing rates of outcommuting and incommuting are already reflective of the size and proximity of relative work opportunities in the region – hence both the size of the local workforces, neighboring ones, and their respective differences are already part of the incommuting and outcommuting percentages. Our distance-decay assumptions in economic geography are at work here in condensed form. That gravity stuff I talked about.

I tested this handy-dandy short-hand method against a highly rigorous, simultaneously estimated prediction for all of the counties in Iowa using the same 200 job shock in all of them. My method was nearly 100 percent accurate for larger metropolitan counties and those adjacent to them and somewhat less accurate as county size decreased and distance from a metro area increased. My method deviated from the computer simulation by an average of +7.5 percent (over 99 county observations) – that is, my method tends to slightly over-estimate labor force growth. Still, pretty darned close. Especially for made-up numbers.

Also, higher average earnings (both locally and relative to neighboring counties, if you want to get sophisticated) is an additional draw to workers. Lower average earnings are not. That factor alone is an additional incentive to migration (relative wage differentials and all that economic jazz – there’s tons of research on this topic as well).

Step 3. Making the fiscal impact conclusions

My method assumes that all fiscal impacts are driven by the change in income in the area that we are studying. In step 2 we determined that we were adding 96 new workforce members averaging $34,000 in labor incomes to the county of scrutiny. That works out to $3.264 million.

So, what would be the expected changes to local government accounts? We have two sources of data for government accounts. Annually, the Census Bureau produces summary estimates for all local governments in Iowa for revenues and expenditures. Or, quinquennially, the Census Bureau produces highly detailed estimates of government revenues and expenditures for all local governments in the U.S. I’m going to show how we apply simple state averages to our analysis.

Go to the Census and get the state of Iowa state and local government finance summaries for a recent fiscal year. Also go to the BEA web site and get the total personal income for Iowa for the same year. From those data you can make a table similar to the one below.

This table summarizes the relevant factors needed. First it isolates all local government average revenues from major sources and their spending. Next it summarizes these amounts as fractions of total personal income. I have included in this assessment all average receipts from federal sources, state sources, taxes, and all other general receipts. I have also included the factors for local spending. All told, including transfers, it takes about 11 percent of state income to fund local government services.

Note that the state values are roughly 9 times the federal values and that they are very close to the total receipts from taxes. State transfers are important and they are used primarily to fund local education, and to a much lesser extent, local roads. Most of these receipts are allocated on a per-pupil or per capita basis, so if a county is growing or declining due to an impact, we would expect an adjustment in state government receipts to eventually occur.
The new labor income in the county is $3.247 million. We multiply that value times each of the revenue and expenditure factors to arrive at estimated resources and public costs displayed in the last column.

<table>
<thead>
<tr>
<th>Revenues</th>
<th>Amounts in ($000)</th>
<th>Percent of Personal Income</th>
<th>Fiscal Impact: Dallas County ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Federal</td>
<td>431,368</td>
<td>0.5%</td>
<td>15.0</td>
</tr>
<tr>
<td>From State</td>
<td>3,451,522</td>
<td>3.7%</td>
<td>120.0</td>
</tr>
<tr>
<td>Taxes</td>
<td>3,954,232</td>
<td>4.2%</td>
<td>137.4</td>
</tr>
<tr>
<td>Charges, Misc. &amp; Other</td>
<td>2,619,000</td>
<td>2.8%</td>
<td>91.0</td>
</tr>
<tr>
<td>Total</td>
<td>10,456,122</td>
<td></td>
<td>363.4</td>
</tr>
</tbody>
</table>

| Spending                      |                   |                           |                                     |
| Education                    | 4,973,446         | 5.3%                      | 172.8                               |
| Public Safety                | 759,770           | 0.8%                      | 26.4                                |
| Transportation               | 888,130           | 0.9%                      | 30.9                                |
| Health & Welfare             | 1,363,613         | 1.5%                      | 47.4                                |
| All other                    | 3,188,711         | 3.4%                      | 110.8                               |
| Total                        | 11,173,670        |                           | 388.3                               |

| Iowa Personal Income ($000)  | 93,918,906        | 100.0%                    |                                     |

| Economic Impact Income       |                   |                           |                                     |
| ($000)                       | 3,264             |                           |                                     |

Note too that expenditures exceed receipts. We are not producing a fiscal surplus in this estimate. Governments budget by figuring out what they want to do and then levying taxes or charges to pay for it. By their very nature, then, we would expect public accounts from year to year to both balance and change in fixed, relatively predictable amounts. As these governments discovered that their receipts were lagging demands, to the extent that they were, the governments would increase their tax askings.

Note also that these values are sensitive to the total labor incomes that are generated in the original economic impact summary. If the average jobs pay lower, both the number of in-migrating workers and their incomes go down. So too would the estimate of fiscal impacts. If average pay is higher than the area average, we drive up both in-migrants and the ability to pay for public goods.
As mentioned in class there are refinements to this approach that might be desirable.

- Calculate the change in statewide local government revenue and expenditure items over a 3 – 5 year period compared with a change in state personal income over the same time. Here your factors take into account recent income performance and the marginal changes.
- Calculate the changes in revenue and expenditure items for all of the local governments in your study area using the quinquennial census data. This would give you an estimate of change over the past 5 years that is particularized to your study region. Those changes would be compared to changes in local incomes over the same period.
- Calculate, again using the quinquennial census data, average revenue and expenditure values or changes using a credible set of counties that compare well with your county of scrutiny.
- Summarize all local government data for all 99 counties in Iowa and regress each item against personal income and other relevant variables that you might think are indicative of public spending variation across counties. Use those equations to estimate each fiscal item separately.

I am inclined to use the last option, but item two produces results that are usually just as good. Hope this has been helpful. -###-