Social and Economic Aspects of Planning
Effects of Alternatives
Regional Impact Analysis

PRESENTER: We're going to be talking about regional economic modeling or input-output analysis. It's been mentioned over and over again, and the purpose of this section is not to train you to be a regional economist and go out and do a primary model, primary input-output model, but just to give you the basics of what it means.

Typically what you'll hear is three different -- when you're talking about input-output models, typically what you'll hear folks talk about is IMPLAN. That's a model that's -- actually was -- I think the original work was done at the Forest Service, and they currently use IMPLAN, and that's a model that's -- actually was -- I think the original work was done at the Forest Service, and they currently use IMPLAN. BLM is using it as well and there are a lot of other agencies that use it. It's based on secondary data, and so what you do with IMPLAN is you actually buy data sets, and they're around $1500 or thereabouts per county.

But keep in mind that IMPLAN is a model that's based on secondary data at the national level and you can disaggregate down to counties or groups of counties

using IMPLAN.

REMI is another model that you often hear about, and it's also a model that's based on secondary data. It's a model that you lease. In the case of IMPLAN,

you actually buy the county data for the areas of your interest, and once you have the data you can use it for as long as you want. Typically IMPLAN is updated on an annual basis. REMI, on the other hand, is fairly expensive to use. You usually lease it for a period of -- I can't remember -- I think three months or something is a term for a REMI lease -- and the difference between IMPLAN and REMI is that IMPLAN doesn't have a portion of the model that allows you to allocate the impact -- or distribute the impacts. For example, in REMI, it has -- it's like a gravity model, and so it will actually -- if you're looking at a multiple county area, it will actually allocate the impacts to the communities based on the gravity model, and gravity model meaning you look at the size of the community and the larger the community size, that particular community will get more of the impacts.

One other difference -- I know these terms are going to be unfamiliar to some of you, but IMPLAN is not a dynamic model. REMI is more of a dynamic model. IMPLAN is a static model. The coefficients are static. When you're running it over time you just rerun it for the new situation for each year, and REMI is more dynamic in nature.

You can also put together an input-output model using primary data, and that's a very expensive way to build an input-output model and I don't think there are very many people that are doing that now.

When you run IMPLAN, or when you run REMI, for that matter, your contractor should be able to calibrate the model for the area that you're working in. So if you just take an IMPLAN run uncalibrated, especially in an area that's in a rural area setting in the West, I'm not sure how reliable your results will be. So I would encourage, if you're going to be using IMPLAN and you're hiring a contractor to run IMPLAN, I would encourage you to make sure that they have the expertise to calibrate that model for the area that you're

working in.

What I do is we use the University of Wyoming, and they calibrate our model and make our runs, and the good thing about that is that the University of Wyoming has more credibility than the Bureau of Land Management for running regional input-output models. And so it just makes it easier for us to provide the data required to run the model, and by that I mean the specifics of the alternatives, and let them run the model.

I've got a few slides here that will just give you a general background on input-output models, and we've talked about this before. When you're running an input-output model, it quantifies the sales and purchases of all the sectors producing goods and services. It quantifies all the payments and final [inaudible] study area, quantifies total gross output and total gross outlay, it generates

multipliers and ultimately it creates employment and income multipliers. So that's basically all you're doing, is you look at an alternative and you input the changes that are anticipated or the specifics of the

alternative, and that from you generate, what? The amount of earnings anticipated from that particular alternative and the employment that would be generated that from alternative.

What I did is I put together just a little example -- looks like it's not all printing out. Hopefully it shows in your book. This is generally the way a transactions table, a very simple one, looks, so you get a feel for what a transactions table looks like. And what you have here is actually the transactions matrix, and this is -- this just shows the sales and the purchases within the economy. In other words, you've got sector A, B, C, D, E purchasing from these sectors here, and that from you can actually generate the multiplier effect.

Then I gave you this slide that describes the various components within that transactions matrix that we just looked at earlier. So you can go back to that transactions matrix and actually get a definition for each of those sectors in your processing sector or your processing segment of the table, the payments segment

of the table and also the transactions matrix.

And then what I thought I would do is just take a real simple example, and we could analyze the impacts of an increase, let's say, in $1 million in -- and I just happened to pick Routt and Moffat Counties for this example. and we'll run a couple scenarios, both of them being a $1 million change. And in terms of the recreational activity, I distributed as you see there in those sectors 150K in sporting and athletic goods, 375K in eating and drinking, 375,000 in hotels/lodging, and 75K in automobile leasing, and 25K in hospitals. In other words, that's the -- that's the pattern of expenditures that we're going to use for making this change for recreational activity.

Now, on oil and gas, what I did is just simply increase the production from oil and gas delivered to final demand to see what the impact would be.

So this would be an example -- for example, for oil and gas, this would be an existing field and we would just increase the output by $1 million and see what the

impact would be.

This is an unadjusted model, and I just ran it -- it's just a -- it comes straight out of IMPLAN and just ran the model so we could -- for the purposes of an example to show you what kind of output you would get from the model.

This gives you a little bit more detail, but -- let me back up here. These two tables, the first one is a natural gas production table, and the next -- whoop -- the first one is a natural gas and crude production table and the next one is the recreation table, and then this summarizes them. This is the table that I really wanted to focus on. So let's take a look at this table and see if we can make any sense out of it.

Let's first take a look at recreation. We've had a $1 million increase in final demand in both cases. Let's take a look at recreation. In terms of direct employment, which produces more employment? Recreation. What about income per job, which one produces a higher income per job?

CLASS PARTICIPANT: Recreation.

PRESENTER: Help me out.

CLASS PARTICIPANT: Recreation.

PRESENTER: Oil and gas, right? On a per-job basis, oil and gas -- less direct employment, lower total employment, but in terms of the -- do you see where we're getting that? We've got $411,000 in total labor income, right, for the oil and gas? We've got 518, but it's distributed over 20.4 direct workers versus 6.3. So

on average which one gives you a higher income per job? The oil and gas, right?

CLASS PARTICIPANT: [inaudible]

PRESENTER: I don't know if it's a social problem.