Economic Effects of Forest Restoration in NE Washington: Contributions of the Colville National Forest CFLRP[1]

Four Reports Prepared for:
Colville National Forest Collaborative Working Group

May 12, 2016

By Forest Econ Inc., Moscow, Idaho

Charles McKetta PhD, Natural Resources Economist
Dan Green PhD, Regional Economist
MaryAnn Green MS, Resource Sociologist

Funded By

NE Washington Forestry Coalition
Washington Department of Natural Resources
Colville National Forest

[1] Collaborative Forest Landscape Restoration Project

Economic Effects of Forest Restoration in NE Washington: Contributions of the Colville National Forest CFLRP

Forest Econ Inc was contracted to define an economic reference base for future socio-economic monitoring of the Colville National Forest CFLRP. In the process of achieving that goal we had to look more broadly into the published economic data, county economic profiles, the status and strength of the regional forest and wood products sectors, and the existing economic contribution of the CFLRP to the NE Washington regional economy (Ferry, Pend Oreille and Stevens Counties).

Our interim analytical products have proven useful to a wider range of interests than just the collaborative working group. In this document we aggregate all four of our restoration economic effects reports so that potential users can see all of our regional studies in one place. This context would enable them to better understand the portions that they might consider relevant.

This compilation is prefaced by a brief synthesis of the entire project in the form of the executive summaries of each of the four reports. The four reports include:

Report #1: 9/25/2015

Northeastern Washington Economic Data Sets
Corrected, Calibrated and Augmented

Report #2: 1/20/2016

Economic Profiles of Northeast Washington Counties

Report #3: 5/4/2016

The Colville National Forest CFLRP
In NE Washington's Forests & Wood Products Economy

Report #4: 5/6/2016

Economic Effects of Forest Restoration Activities
on Colville National Forest Vision 2020 Projects

Northeastern Washington Economic Data Sets
Corrected, Calibrated and Augmented

Published (secondary) data is typically aggregated, estimated, and only approximate. There are often errors of estimate, omission, and attribution. This project involves relatively high spatial resolution to the extent that carrying forward any errors into modeling would generate spurious results. As a result our data requirements are higher than for normal regional modeling.

This initial phase starts with collecting relevant published data on the three county economies. We then conduct a field survey of actual establishments in critical sectors and survey key informants to cross-check available data, and adjust or replace it. This report identifies our finding from an initial field calibration survey conducted between 8/13 and 8/18 of 2015. During this visit we were able to survey most of the critical local economic sectors.

Each county is economically unique even though their transactions are intertwined. This report format addresses each county individually and shows the initial job distribution profiles as generated from three different sources of secondary data: (1) EMSI is Economic Modeling Specialists Inc; (2) BLS is US Bureau of Labor Statistics; and (3) CBP is US Census county business patterns.

There are few field calibrations made by any of these source agencies. The closest is EMSI. They have an algorithmic adjustment process that mechanically incorporates additional secondary sources. BLS is often subject to omission errors as it contains primarily covered employment and has little information on proprietors. CBP numbers are a formal submission survey of businesses with little field checking. FEI data is the only field checked source.

In Ferry County FEI found 1,452 total jobs. Published data ranged from 571 (BLS) to 1,830 (EMSI). Pend Oreille County had 2,304 jobs within a range of 957 (BLS) to 2,784 (EMSI). Stevens County has the largest county economy. We found 9,232 jobs within a range of 6,552 (CBP) and 14,783 (EMSI). We also found that the distributions of jobs by sector were punctuated by errors of estimation and miss-categorization.

Economic Profiles of
Northeast Washington Counties

FEI's original purpose was to provide a basis for economic monitoring of the Colville National Forest's Collaborative Forest Landscape Restoration Program (CFLRP) activities. A perceived mutual benefit from detailed economic studies encouraged two other agencies to contribute to our efforts in return for a broader set of more detailed products that described the structure and function of the intertwined economies of northeastern Washington.

For phase 1, an FEI field calibration team augmented and corrected the published economic data that had been available on the regional and county economies. They found significant errors of estimation, mis-categorization and omission. That phase 1 report has already been distributed. Phase 2 of the project is to

take the corrected data and build the most current and accurate economic profiles of these economies possible. This report describes that set of findings.

This revised[2] phase 2 report has been written as a standalone reference. It should serve as a useful instrument for economic policy-making for many of the project sponsors. However, it is actually an interim step leading to a final goal. In phase 3, we will be converting these corrected profiles into data matrices for Input-Output models. The ultimate purpose of phase 3 is to estimate how CFLRP activities transact through the local economies as job and income effects. Those models will allow CFLRP decision makers to predict how forestry activities link to the direct jobs and income of the local wood products sector. From there the models will be able to estimate how CFLRP activities also indirectly transact through other economic sectors. The phase 3 activity will generate total jobs and incomes effects.

The northeastern regional economy is clearly natural resources driven. The land base is primarily agrarian or forests, with pockets of valuable minerals. The 3.1 million acres of forests are managed for variable degrees of timber production that supports a strong wood products manufacturing sector. Many forest acres also have non-timber objectives, particularly non-industrial private forests, federal forests and to an extent, the three tribal forests. This land base also supports mostly summer outdoor recreation, other tourism and an extremely high proportion of summer RV and second home occupancy. This causes the service sectors to be seasonally skewed without sufficient winter business to allow for further year-round development.

Employment is 74% in the private sector and 26% in the public sector. An unusually high proportion of employment is commuter oriented. There is in addition a large proportion of unemployment and underemployment. This explains relatively high levels of poverty requiring a proportionally larger public social services sector, which also serves demographically graying populations.

Economic activity is extremely spatially unbalanced. What little economic activity that Ferry County has left is dominated by the Colville-Kettle Falls trade center in Stevens County. The same can be said for northern Pend Oreille County. Manufacturing is concentrated in that core area with some in southern Pend Oreille County. The entire region is trade dominated by Spokane to the southeast and Omak-Okanogan to the west to the extent that commuter income constitutes a major revenue inflow, but external retail purchases limit that sector's development within the region.

The Colville National Forest CFLRP
In NE Washington's Forests & Wood Products Economy

NE Washington is covered with a typical Rocky Mountain coniferous forest managed by a diversity of forest owners. These owners have a wide variety of management objectives so there are both wood commodity and significant non-commodity usages. Most of the ecological forest types generate significant annual volume growth. From a timber sustainability perspective, harvest rates are lower than

[2] Revisions are limited to grammatical improvements and errors found in Stevens Co. "other manufacturing" sector table entries.

expected on most ownerships. Private forests appear to be well-stocked while some public forests are over-stocked.

The Colville National Forest CFLRP project area (Vision 2020 lands) is sited mostly in Ferry County. It is serviced by both the Republic and Three Rivers Ranger Districts. Historically, all of its stewardship timber sales have been to Vaagen Brothers Lumber in Colville. Vaagen harvests timber and simultaneously engages in non-harvest restoration objectives. As the Vaagen mill technology has narrow log specifications, they resell some CFLRP logs and biomass to other entities.

From a wood resources standpoint, these forests supply logs to a variety of solid wood processing facilities. CFLRP average harvests account for slightly less than 5% of the regional harvest with most of the cutting occurring in the Ferry County portions.

Primary wood mills are concentrated in Stevens County. Ferry County does have a cedar specialty mill located on its border with Stevens County. Pend Oreille County has a sawmill and a pulp and paper mill, but their log supplies are linked more to local and Idaho forests. Their dependence on the CFLRP timber resource is secondary and distance limited.

The three counties are unique in their economic structures and trade flows. Even so, they all have proportionally strong wood products sectors. The wood sector contribution to the economic base ranges from Pend Oreille County's 22% to Ferry County's 35%. However, Stevens County's wood products sector contributes 26% to an economy 3.6 times larger. A surprise finding is that none of these counties appears to have a secondary wood products sector that would use solid wood and fiber produced within the region.

The wood sector concentration in Stevens County mirrors the concentration of other regional economic sectors within the Kettle Falls--Colville regional trade center (discussed in FEI report #2). This suggests that both log flows and trade hierarchies are spatially relocating the potential economic effects of CFLRP activities and direct expenditures into the Stevens County economy. Tests of this hypothesis will be reported in FEI report #4.

Economic Effects of Forest Restoration Activities on Colville National Forest Vision 2020 Projects

FEI refined its three county level I/O models to respond to direct spending on CFLRP projects and activities. The average base period spending of $ 5.4 million/year was separated between public (56%) and private (46%) sources. These patterns were spatially prorated to counties where they occurred. Within this pattern, expense detail was also sensitive to CFLRP practice types. McIver[3] had found that most direct public contracting expenses (18% of total spending) leaked to out-of-region contractors (86%). Most of the balance (11%) accrued to Stevens County.

[3] McIver, Chelsea. 2015. Measuring the Benefits of CFLRP for Local Communities in NE Washington 2012-2015. University of Montana. Bureau of Business and Economic Development

We presumed that most of the other direct expenditures categories occurred and accrued within the region. We further disaggregated this remaining CFLRP direct spending by categories of activities that funds were spent on. This helped us spatially disaggregate the rest of spending to counties. The CFLRP is in Ferry County and much of the total spending (~40%) does occur there. However, Stevens County gets the most direct spending (~60%) because the bulk of the operational resources are based there. Pend Oreille County gets almost no direct CRLRP spending.

Base period CFRLP spending generated 211 regional jobs and $8.8 million of local income. In both indicators this is about 1% of the total regional economy. The spatial distribution of total effects is skewed away from the CFLRP's physical location because primary processing and trade sectors are concentrated further east. Ferry County only accrues 18% of jobs and 19% of income, most of this from direct effects. Total economic effects shift slightly to Pend Oreille County (9% of jobs, 15% of income) which had almost no CFLRP direct spending, and mostly to Stevens County (73% of jobs, 66% of income).

The dominant sector gain from a natural resource project is not surprising. Total CFLRP-linked jobs lodge in forestry services and primary wood processing sectors (60%) with an income pattern mirroring that (62%). There is almost no secondary processing sector to capture other potential wood gains. Other job gains from indirect and induced effects are felt mostly in other sectors (trade, entertainment and consumer services 13%, and government 19%).

FEI estimates of current economic reality generally agree with projections made in the original 20-20 Vision Project proposals. They are far short (29% of estimated jobs) of economic effects estimates found in 20-20 annual reports.

We used the models to estimate marginal effects of different spending types as a rough measure of investment social efficiency. Expenses on forest products produced by mechanical restoration generated the most total jobs (75%). The fact that most of these were in Stevens County shows that downstream processing of timber compensates for the lower labor/capital ratio of harvesting. In the Stevens County case, the cost per job created was only $5.2 thousand while each dollar spent generated $7.10 in local income. Both labor intensive expenditures and National Forest own administrative and project expenditures generated 11% of jobs, split evenly between Ferry and Stevens Counties.

Economic effects include fiscal effects. An experimental FEI tax estimation model identified a local annual tax revenue gain of $193 thousand from the only three tax types that we calculated (sales, B&O, and timber harvest). Of these harvest taxes dominate, so a significant portion of the total accrues to Ferry County (56%) were the CFLRP is located.

Input-Output modeling has technological and representational limits. Assumptions of data certainty and mathematical linearity create spurious precision. Our numerical results should be considered indicative rather than absolute. Economic effects also include non-commodity and qualitative effects, but I/O models are limited to pecuniary and quantitative ones. There are many types of CFLRP effects that cannot be quantified using this technology.