APPENDIX F

Regional Economic Benefits
of the Herger-Feinstein Quincy Library Group
Forest Recovery Act

for Fiscal Year 2002

JANUARY 2003

Regional Economic Benefits of the Herger-Feinstein Quincy Library Group Forest Recovery Act

Fiscal Year 2002 (October 2001 through September 2002)

U. S. Department of Agriculture
Forest Service
Herger-Feinstein Quincy Library Group Forest Recovery Act
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Background

President Bill Clinton signed the Herger-Feinstein Quincy Library Group Forest Recovery Act (HFQLG Act) on October 21, 1998. The act was a mandate to the U. S. Forest Service to set up a pilot project in the Lassen and Plumas National Forests and the Sierraville Ranger District of the Tahoe National Forest. The intent of the pilot project was to implement resource management activities described in the act, including construction of up to 300,000 acres of Defensible Fuel Profile Zones (DFPZs) over a five-year period, which would require increased removal of timber and biomass.

The Forest Service is required under the HFQLG Act to provide annual status reports to Congress. Section (j) (1) (D) of the HFQLG Act states that "status reports shall include at least the following."

> *§(j) (1) (D) A description of the economic benefits to local communities achieved by implementation of the pilot project.*

The Center for Economic Development (CED) was contracted to analyze the economic benefit for fiscal year 2002 (FY 2002) of the HFQLG Act on the local economy. The analysis and conclusions contained in this report cover expenditures directly related to planning and implementation of the HFQLG Act by the Forest Service during FY 2002.

Implementation of the HFQLG Act has been altered by direction from the Sierra Nevada Forest Plan Amendment (SNFPA). As a result of this alteration, some of the projects that could have produced revenue for the Forest Service have become service contracts that the Forest Service must now pay a contractor to implement. The full extent of these alterations' impacts to implementation of the HFQLG Act remains to be seen; however, comparison of the economic effects of the HFQLG Act with or without the SNFPA will be the subject of further research by CED in the next two years. This report is intended to measure the economic impact of what was actually implemented.

An analysis of FY 2002 revenue from timber sales awarded as a result of implementation of the HFQLG Act is included in the HFQLG Pilot Project Revenue and Cost Analysis 2002. During FY 2002, aggregate revenues generated from timber sales by the implementation of the HFQLG Act rose to approximately $1.1 million. Revenues were generated from fifteen timber sales, and nine service contracts with nested timber sales awarded and under contract between fiscal years 1999 through 2002.

Areas of Study

There are several geographic regions mentioned in this report. The **Project Area** is the area subject to the HFQLG Act, namely the Lassen and Plumas National Forests and the Sierraville Ranger District of the Tahoe National Forest. The **Core Area** comprises Lassen, Plumas, and Sierra counties, the counties in which a majority of the land is within the HFQLG Project Area. The **Peripheral Area** for this report now comprises Butte, Nevada, Shasta, Tehama, and Yuba counties in California and Washoe County in

Nevada. This is the area from which many of the contractors working on HFQLG projects were assumed to have been located at the beginning of the project as well as the area that would capture the majority of household spending from the Core Area. These two areas combined are referred to as the **Extended Area** of analysis.

In previous reports and in the original QLG Peripheral Area, Washoe County was not included in the Peripheral Area. This county was added in order to comply with the intent of analyzing where HFQLG benefits primarily go. The intent of the peripheral area was to include a larger area from which many of the contractors working on HFQLG projects are located and that would capture household spending from the Core Area. As with many other counties that are contiguous with the Extended Area, Washoe County houses an HFQLG contractor. However, it is the only county outside of the previously-defined Extended Area that contains a market center for the Core Area. Reno, located in Washoe County, is a market center for Lassen County, as well as eastern Plumas and Sierra counties. Therefore, CED determined that it would be appropriate to include Washoe County in the Peripheral Area.

Methodology and Direct Economic Benefits

The HFQLG implementation team allowed CED to view its expenditures by account (Table 1). Accounts included personnel, travel, contracts, materials, equipment, and obligations. HFQLG further informed CED that a 12 percent indirect is taken from the HFQLG allocation that goes toward support personnel (financial, contracting, human resources, etc.) salary and benefits, office and facility space, and utilities. Expenditures directly resulting from the HFQLG's funding allocation were included for FY 2002.

Table 1 - Budget for and Direct and Indirect Expenditures Related to Planning and Implementation of the HFQLG Act, FY 2002

Personnel	$7,795,303
Travel	$143,472
Contracts	$4,106,953
Materials	$363,129
Equipment	$127,027
Direct allocated expenditures	**$12,535,884**
Contractual obligations	$3,996,601
Unallocated obligations[1]	$1,880,432
Total obligations	**$5,877,033**
Total direct expenditures	**$18,412,917**
Indirect	$3,144,000
Total Expenditures	**$21,556,917**
Unobligated balance (which includes $1.3mm contribution to FY02 fire suppression)	$4,643,083
Total Allocation	**$26,200,000**

Source: U.S. Department of Agriculture, Forest Service, HFQLG

[1]*Obligations in need of classification by CED*

A total of $26.2 million was allocated, of which $21.6 million was spent toward the planning and implementation of the HFQLG Act in FY 2002. The remaining $4.6 million included an end-of-year balance and a contribution toward national fire suppression efforts. $3.1 million of this total was the 12 percent indirect for support personnel, facility space, and utilities, leaving $18.4 million spent directly toward the planning and implementation of the HFQLG Act. Of the direct expenditures, $7.8 million was spent of personnel, $4.1 to contractors, and $0.6 million spent between travel reimbursements, materials, and equipment.

An additional $5.9 million was obligated to be paid out to personnel, vendors, and contractors. Based on a contractor list provided by HFQLG staff, CED calculated that $4.0 million of this amount was obligated to contractors, based on a total of $8.1 million in contracts in FY 2002 with only $4.1 million actually spent to date. The remaining $1.9 million was identified as unallocated obligations in need of classification by CED. Actual obligations according to the Forest Service totaled $5.9 million with contractual expenses at $4.1 million. The Forest Service made its HFQLG contractors list, which included value of contracts by year awarded, and this indicated that the value of contracts awarded was $8.1 million. This meant that $4.0 million worth of obligations were to contractors, leaving $1.9 million of unallocated obligations.

The remaining unallocated obligations were distributed among the remaining four accounts (Table 2) using the same distribution as payments in these categories. Total payments in these four categories: personnel, travel, materials, and equipment totaled $8.4 million. Personnel accounted for 92.5 percent, travel 1.7 percent, materials 4.3 percent, and equipment 1.5 percent of this total. Total unallocated obligations was multiplied by the percentage for each account, resulting in assumed obligations for each of the four accounts.

Table 2 - Assumed Distribution of Unallocated Obligations

	Total payments	*Percent of total*	*Distribution of unallocated obligations*
Personnel	$7,795,303	92.5 %	$ 1,739,074
Travel	$143,472	1.7 %	$ 32,008
Materials	$363,129	4.3 %	$ 81,011
Equipment	$127,027	1.5 %	$ 28,339
Total of These Accounts	$8,428,931	100.0 %	$ 1,880,432

Source: U.S. Department of Agriculture, Forest Service, HFQLG and California State University, Chico, Center for Economic Development

Indirect contributions (Table 3) from the HFQLG funding allocation also contributed to the local economy. According to HFQLG staff, 77 percent of indirect expenses go toward personnel and 23 percent to communications, rent, and utilities. Therefore, of the $3.1 million in indirect charges, $2.4 was for payroll and $0.7 went to communications, rent, and utilities.

Table 3 - Distribution of Indirect Expenses

	Percent of total	*Distribution of indirect expenses*
Personnel	77 %	$ 2,420,880
Communications, rent, and utilities	23 %	$ 723,120
Total Indirect Expenses	100 %	$ 3,144,000

Source: U.S. Department of Agriculture, Forest Service, HFQLG and California State University, Chico, Center for Economic Development

The assumed distribution of obligations and indirect expenses were added to funds already and directly paid in each account. Communication, rent, and utilities was added as a separate account because of its unique distribution of funds, which will be described below. These are the expenditure values used to determine the economic impact of planning and implementation of the HFQLG Act in FY 2002.

Some of these assumed expenditures (Table 4) were to local businesses and contractors. In this report, the term "local" refers to the nine counties in California and Nevada within the Extended Area. In order to determine how much of these funds were spent locally, CED analyzed each expenditure account separately.

Table 4 - Total Assumed Expenditures by Account Related to Planning and Implementation of the HFQLG Act

Account	*Direct Allocated Expenditures and Obligations*	*Assumed Distribution of Unallocated Obligations*	*Distribution of Indirect Expenses*	*Total Assumed Expenditures*
Personnel	$ 7,795,303	$ 1,739,074	$ 2,420,880	$ 11,955,257
Travel	$ 143,472	$ 32,008	$ 0	$ 175,480
Contracts	$ 8,103,554	$ 0	$ 0	$ 8,103,554
Materials	$ 363,129	$ 81,011	$ 0	$ 444,140
Equipment	$ 127,027	$ 28,339	$ 0	$ 155,366
Comm., Rent, & Utilities	$ 0	$ 0	$ 723,120	$ 723,120
Total Expenditures	$ 16,532,485	$ 1,880,432	$ 3,144,000	$ 21,556,917

For personnel (Table 5a), CED assumed that 96.1 percent of payroll went to persons living in the Core Area and that 1.5 percent went to persons in the Peripheral Area with the remaining 2.4 percent spent outside of the Extended Area. These percentages are the average percent of persons working in the Core Area who live in the Core and Peripheral areas, respectively, according to the 1990 Census. These expenditures were treated as income to households earning $40,000 to $50,000 per year, which is the average salary of forest service workers on the HFQLG project according to the Fiscal Year 2000 report.

An estimated $11.5 million was earned by personnel living in the Core Area with an additional $0.2 million by personnel living in the Peripheral Area. An estimated $0.3 million was earned by persons living outside of the Extended Area.

Table 5a - Allocation of Payroll in the Economic Model

Industry	*Core Area*	*Peripheral Area*	*Extended Area*	*Outside of Extended Area*	*Total Expenditures*
Distribution of personnel spending	96.1 %	1.5 %	97.6 %	2.4 %	100.0 %
Total assumed expenditures	$ 11,489,002	$ 179,329	$ 11,668,331	$ 286,926	$ 11,955,257
Households 40-50K (100%)	$ 11,489,002	$ 179,329	$ 11,668,331	$ 286,926	$ 11,955,257

Travel expenditures (Table 5b) are paid out to HFQLG personnel for travel outside the region or to other forest service personnel traveling to the Core Area on HFQLG business. At the time of this report, travel expenses could not readily be broken down by industry. Therefore, CED assumed that the distribution of travel expenditures was equal to tax-deductible travel reimbursements for a person on a 24-hour trip where the traveler drove 500 miles. Assumed reimbursement rates were 36.5 cents per mile driven and $46 per day for food and incidentals, $80 for lodging was included, which is estimated by CED to be the average lodging rate per day for HFQLG travel. With these spending assumptions, 15 percent of travel expenditures would go to restaurants (in the eating and drinking places industry), 26 percent to hotels, and 59 percent to auto dealers, repair, and service stations.

CED further assumed that 40 percent of travel expenditures went to the Core Area and an additional 10 percent went to the Peripheral Area with the remaining 50 percent spent outside of the Extended Area.

Table 5b - Allocation of Travel Expenditures in the Economic Model

Industry	*Core Area*	*Peripheral Area*	*Extended Area*	*Outside of Extended Area*	*Total Expenditures*
Distribution of travel spending	40.0 %	10.0 %	50.0 %	50.0 %	100.0 %
Total assumed expenditures	$ 70,192	$ 17,548	$ 87,740	$ 87,740	$ 175,480
Eating and drinking places (15%)	$ 10,529	$ 2,632	$ 13,161	$ 13,161	$ 26,322
Hotels and lodging places (26%)	$ 18,250	$ 4,562	$ 22,812	$ 22,812	$ 45,625
Automotive dealers and service stations (59%)	$ 41,413	$ 10,353	$ 51,766	$ 51,766	$ 103,533

Contractual expenditures (Table 5c) were analyzed using a contractor list that included dollar amounts and name, location, and phone number of the contractor for each contract. CED determined the industry in which the contractor should be classified by looking up company names in the Dun & Bradstreet business database and, for contractors not included in Dun & Bradstreet, by phone call to the contractor. HFQLG contractors in the Core and Peripheral areas could be classified under 10 IMPLAN sectors shown in

Table 5c. CED then sorted the contractors by location (Core, Peripheral, and other), and calculated total contract dollars by industry by location of contractor.

Table 5c - Allocation of Contractual Expenditures in the Economic Model

Industry	*Core Area*	*Peripheral Area*	*Extended Area*	*Outside of Extended Area*	*Total Expenditures*
Total assumed expenditures	$ 1,656,980	$ 4,018,162	$ 5,675,142	$ 2,428,412	$ 8,103,554
Miscellaneous Livestock	$ 25,000	$ 50,000	$ 75,000	$ 0	$ 75,000
Agricultural, forestry, and fishing services	$ 25,000	$ 2,358,496	$ 2,383,496	$ 310,062	$ 2,693,558
Landscape and horticultural services	$ 0	$ 15,260	$ 15,260	$ 0	$ 15,260
New highways and streets	$ 495,995	$ 23,723	$ 519,718	$ 0	$ 519,718
Logging camps and logging contractors	$ 404,820	$ 394,395	$ 799,215	$ 0	$ 799,215
General sawmills and planing mills	$ 553,068	$ 0	$ 553,068	$ 0	$ 553,068
Other business services	$ 8,160	$ 64,855	$ 73,015	$ 143,072	$ 216,087
Engineering and architectual services	$ 0	$ 229,406	$ 229,406	$ 0	$ 229,406
Management and consulting services	$ 101,174	$ 719,510	$ 820,684	$ 1,578,917	$ 2,399,601
Research, development, and testing services	$ 43,763	$ 162,517	$ 206,280	$ 208,946	$ 415,226
Other or undetermined	$ 0	$ 0	$ 0	$ 187,415	$ 187,415

Material expenses (Table 5d) usually include office supplies and other items in stationary stores. Office supplies and stationary are both included in the "miscellaneous retail" IMPLAN sector. CED assumed that all materials were supplied locally.

Table 5d - Allocation of Materials Expenditures in the Economic Model

Industry	*Core Area*	*Peripheral Area*	*Extended Area*	*Outside of Extended Area*	*Total Expenditures*
Distribution of materials spending	100.0 %	0.0 %	100.0 %	0.0 %	100.0 %
Total assumed expenditures	$ 444,140	$ 0	$ 444,140	$ 0	$ 444,140
Miscellaneous retail (100%)	$ 444,140	$ 0	$ 444,140	$ 0	$ 444,140

Equipment expenses (Table 5e) usually include computers and motor vehicles. CED assumed that 50 percent of these expenditures went to computer dealers and 50 percent to automobile dealers. Computer stores are included in the furniture and home furnishings sector and automobile dealers are included with service stations in IMPLAN. CED used the detail analysis from the Fiscal Year 2000 report to assume that 25 percent of equipment was purchased in the Core Area and that an additional 25 percent was purchased in the Peripheral Area with the remaining 50 percent spent outside of the Extended Area.

Table 5e - Allocation of Equipment Expenditures in the Economic Model

Industry	*Core Area*	*Peripheral Area*	*Extended Area*	*Outside of Extended Area*	*Total Expenditures*
Distribution of equipment spending	25.0 %	25.0 %	50.0 %	50.0 %	100.0 %
Total assumed expenditures	$ 38,841	$ 38,841	$ 77,683	$ 77,683	$ 155,366
Furniture and home furnishings (50%)	$ 19,421	$ 19,421	$ 38,841	$ 38,841	$ 77,683
Automotive dealers and service stations (50%)	$ 19,421	$ 19,421	$ 38,841	$ 38,841	$ 77,683

According to Forest Service personnel associated with HFQLG, 5 percent of indirect was spent on communication, rent, and utilities locally and 18 percent was spent on these items outside of the local area (the sum of which is 23 percent of indirect in Table 3). These spending distributions (Table 5f) calculate to 22 percent of communications, rent, and utilities spent in the local area and 78 percent spent outside of the local area. CED assumed that local area expenditures were in the Core Area and that non-local expenditures were outside of the Extended Area.

CED assumed that the distribution of spending between communication, rent, and utilities were equal (33 percent, each). In IMPLAN, there are three industries that utilities could be broken down into and, therefore, CED assumed that utility expenditures were distributed evenly among these three sectors (electric services, gas production and distribution, and water supply and sewerage systems) resulting in 11 percent of total communications, rent, and utilities expenditures going to each of these utility sectors.

Table 5f - Allocation of Communication, Rent, and Utilities Expenditures in the Economic Model

Industry	*Core Area*	*Peripheral Area*	*Extended Area*	*Outside of Extended Area*	*Total Expenditures*
Distribution of communication, rent and utilities spending	21.7 %	0.0 %	21.7 %	78.3 %	100.0 %
Total assumed expenditures	$ 156,917	$ 0	$ 156,917	$ 566,203	$ 723,120
Communications, except radio and TV (33%)	$ 52,306	$ 0	$ 52,306	$ 188,734	$ 241,040
Real estate (33%)	$ 52,306	$ 0	$ 52,306	$ 188,734	$ 241,040
Electric services (11%)	$ 17,435	$ 0	$ 17,435	$ 62,911	$ 80,347
Gas production and distribution (11%)	$ 17,435	$ 0	$ 17,435	$ 62,911	$ 80,347
Water supply and sewerage systems (11%)	$ 17,435	$ 0	$ 17,435	$ 62,911	$ 80,347

Table 6, which is the compilation of tables 5a through 5f, shows all HFQLG expenditures by location by industry. This information was used as the direct impact upon which CED performed economic impact analysis. Economic impact analysis determines the secondary impacts caused by direct impacts as these dollars are respent within the local economy.

Table 6 - Assumed Direct HFQLG Expenditures in Core and Peripheral Areas by Industry, Fiscal Year 2002

Industry	*IMPLAN Sector*	*Exp. to Core Area*	*Exp. to Peripheral Area*	*Exp. to Extended Area*	*Exp. Outside of Extended Area*	*Total Expenditures*
Miscellaneous Livestock	9	$ 25,000	$ 50,000	$ 75,000	$ 0	$ 75,000
Agricultural, forestry, and fishing services	26	$ 25,000	$ 2,358,496	$ 2,383,496	$ 310,062	$ 2,693,558
Landscape and horticultural services	27	$ 0	$ 15,260	$ 15,260	$ 0	$ 15,260
New highways and streets	51	$ 495,995	$ 23,723	$ 519,718	$ 0	$ 519,718
Logging camps and logging contractors	133	$ 404,820	$ 394,395	$ 799,215	$ 0	$ 799,215
General sawmills and planing mills	134	$ 553,068	$ 0	$ 553,068	$ 0	$ 553,068
Communications, except radio and TV	441	$ 52,306	$ 0	$ 52,306	$ 188,734	$ 241,040
Electric services	443	$ 17,435	$ 0	$ 17,435	$ 62,911	$ 80,347
Gas production and distribution	444	$ 17,435	$ 0	$ 17,435	$ 62,911	$ 80,347
Water supply and sewerage systems	445	$ 17,435	$ 0	$ 17,435	$ 62,911	$ 80,347
Automotive dealers and service stations	451	$ 60,834	$ 29,774	$ 90,608	$ 90,608	$ 181,216
Furniture and home furnishings	453	$ 19,421	$ 19,421	$ 38,841	$ 38,841	$ 77,683
Eating and drinking places	454	$ 10,529	$ 2,632	$ 13,161	$ 13,161	$ 26,322
Miscellaneous retail	455	$ 444,140	$ 0	$ 444,140	$ 0	$ 444,140
Real estate	462	$ 52,306	$ 0	$ 52,306	$ 188,734	$ 241,040
Hotels and lodging places	463	$ 18,250	$ 4,562	$ 22,812	$ 22,812	$ 45,625
Other business services	470	$ 8,160	$ 64,855	$ 73,015	$ 143,072	$ 216,087
Engineering and architectural services	506	$ 0	$ 229,406	$ 229,406	$ 0	$ 229,406
Management and consulting services	508	$ 101,174	$ 719,510	$ 820,684	$ 1,578,917	$ 2,399,601
Research, development, and testing services	509	$ 43,763	$ 162,517	$ 206,280	$ 208,946	$ 415,226
Households 40-50K	10007	$ 11,489,002	$ 179,329	$ 11,668,331	$ 286,926	$ 11,955,257
Other or undetermined	n/a	$ 0	$ 0	$ 0	$ 187,415	$ 187,415
Total Expenditures		**$ 13,856,073**	**$ 4,253,880**	**$ 18,109,953**	**$ 3,446,964**	**$ 21,556,917**

Source: California State University, Chico, Center for Economic Development

Indirect and Total Economic Benefits

IMPLAN, a model-based economic impact software program, was used to estimate secondary or indirect benefits of the planning and implementation of the HFQLG Act in

FY 2002. Two economic models were created within IMPLAN: one comprising the Core Area counties and another comprising the Extended Area counties.

Direct impacts shown in Table 6 were entered into the economic models. Expenditures to the Core Area were entered into the core area model and Expenditures to the Peripheral Area plus the Core Area were entered into the Extended Area model.
In the Core Area, planning and implementation of the HFQLG Act resulted in $8.1 million in business and organization revenue that would not have been earned without HFQLG payroll and spending.

Local expenditures include spending at local businesses and payroll to local employees. Spending at local businesses translates directly to direct economic benefits. However, not all payroll spent by employees is local. The amount of money estimated to be spent locally is included in direct benefit, while that spent outside of the local area is not included in this analysis.

Table 7 shows how direct economic benefit is derived. According to results from IMPLAN, about half of all payroll in the Core Area is spent outside of the Core Area. The $5.3 million estimated to have been spent within the Core Area is added to estimated HFQLG payments to businesses to come up with the actual direct benefit of $8.1 million in the Core Area. About 36 percent of payroll in the Extended Area is spent outside of the Extended Area, and the $7.5 million spent within the Extended Area is added to estimated HFQLG payments to businesses in the same area for $13.9 million in direct economic benefit.

Table 7 - Direct Payroll Spent Locally

	Core Area	*Extended Area*
Direct payroll impact	$11,489,002	$11,668,331
Payroll not spent locally	$5,775,060	$4,181,812
Payroll spent locally	**$5,713,942**	**$7,486,519**
Direct non-payroll impact	$2,367,071	$6,441,622
Direct economic benefit	**$8,081,013**	**$13,928,141**

Source: California State University, Chico, Center for Economic Development and IMPLAN

In the following tables (Tables 8-10), **business and organization revenue** is all earnings for businesses, nonprofits, and local government. **Labor income** is all wage, salary, and proprietary income; any health, life, retirement, and other benefits; and non-cash compensation. **Property income** consists largely of payments for land and other commodities for rent and also includes royalties, dividends, and corporate profits. **Business taxes** includes excise and property taxes, fees, licenses, and sales taxes paid by businesses but does not include capital gains or other taxes on business profits or income. **Other business expenses** are payments to other organizations and businesses and other operating expenses. Business and organization revenue is the sum of labor income, property income, business taxes, and other business expenses.

Indirect benefit includes dollars collected by businesses and organizations (and the amount of those collections going to labor, property, taxes, and other expenses) due to direct revenue being respent in the region. The **total benefit** is the sum of local direct and indirect benefit.

In the Core Area (Table 8), the indirect benefit was $5.5 million in business and revenue and $2.5 million in labor income. The total economic benefit of planning and implementation of the HFQLG Act in FY 2002 was $13.6 million in business and organization revenue, $5.0 million in labor income, $2.5 million in property income, $0.8 million in business taxes, and $5.4 million in other business spending.

Table 8 - Economic Benefit of Planning and Implementation of the HFQLG Act in FY 2002, Core Area

	Local Direct Benefit	*Indirect Benefit*	*Total Benefit*
Business & organization revenue	$ 8,081,013	$ 5,517,532	$ 13,598,545
Labor income	$ 2,498,853	$ 2,493,914	$ 4,992,767
Property income	$ 1,551,372	$ 934,433	$ 2,485,805
Business taxes	$ 524,711	$ 232,513	$ 757,224
Other business expenses	$ 3,506,077	$ 1,856,672	$ 5,362,749
Jobs (full- and part-time)	109	84	194

Source: California State University, Chico, Center for Economic Development

One hundred and nine full- and part-time jobs in the Core Area are supported by spending related to the planning and implementation of the HFQLG Act. These jobs range from local contract workers to local retail clerks. An additional 84 jobs are supported indirectly by respending of local dollars for a grand total of 194 jobs in the Core Area supported by HFQLG spending.

Much more of the economic benefit of planning and implementation of the HFQLG Act is captured in the Peripheral Area (Table 9). Businesses and organizations in the Peripheral Area enjoyed an additional $5.8 million in direct spending by planning and implementation of the HFQLG Act to businesses and through its employees. Containing several retail market centers such as Chico, Redding, and Reno, dollars in this area are respent more often than in the Core Area; the indirect benefit to businesses and organizations totaled $11.5 million in the Peripheral Area. The total business and organization benefit in the Peripheral Area was $17.3 million in 2002, which breaks out to $7.6 million in labor income, $2.6 million in property income, $0.8 million in business taxes, and $6.3 million in other business spending.

Table 9 - Economic Benefit of Planning and Implementation of the HFQLG Act in FY 2002, Peripheral Area

	Local Direct Benefit	*Indirect Benefit*	*Total Benefit*
Business & organization revenue	$5,847,128	$11,486,799	$17,333,927
Labor income	$2,851,364	$4,769,074	$7,620,438
Property income	$754,694	$1,832,565	$2,587,259
Business taxes	$234,866	$582,030	$816,896
Other business expenses	$2,006,204	$4,303,130	$6,309,334
Jobs (full- and part-time)	130	134	264

Source: California State University, Chico, Center for Economic Development

One hundred thirty full- and part-time jobs in the Peripheral Area were supported in 2002 due to Forest Service spending related to the HFQLG Act. One hundred thirty-four jobs were also supported indirectly due to local respending of direct revenue, leading to a total full- and part-time job benefit of 264 jobs in the Peripheral Area.

In the Extended Area (Table 10), which is the sum of the Core and Peripheral areas, planning and implementation of the HFQLG Act supported at total of $30.9 million in business and organization revenue, $12.6 million of which went to payroll, $5.1 million to property income, and $1.6 million to business taxes. Overall, income in the Extended Area increased by over $19.3 million. Planning and implementation of the HFQLG Act is also responsible for supporting 458 full- and part-time jobs in the Extended Area.

Table 10 - Economic Benefit of Planning and Implementation of the HFQLG Act in FY 2002, Extended Area

	Local Direct Benefit	*Indirect Benefit*	*Total Benefit*
Business & organization revenue	$ 13,928,141	$ 17,004,331	$ 30,932,472
Labor income	$ 5,350,217	$ 7,262,988	$ 12,613,205
Property income	$ 2,306,066	$ 2,766,998	$ 5,073,064
Business taxes	$ 759,577	$ 814,543	$ 1,574,120
Other business expenses	$ 5,512,281	$ 6,159,802	$ 11,672,083
Jobs (full- and part-time)	239	219	458

Source: California State University, Chico, Center for Economic Development

A multiplier may also be used to analyze indirect and total economic benefits due to direct spending. A multiplier is used to calculate the total benefit using the direct benefit. Every industry or combination thereof has its own IMPLAN multiplier. Likewise, each industry in each county or combination thereof will also have its own multiplier. The direct benefit of planning and implementation of HFQLG is complex (Table 6) and its multiplier should be calculated independently.

The direct revenue from which the multiplier must be calculated is not the local direct benefit in Tables 8 through 10. Direct expenditures must be used because the multiplier shows the total economic impact due to all direct expenditures. Therefore, all payroll must be included, not just payroll that has been respent locally. This figure for the Core and Extended areas is shown in Table 7.

Table 11 shows the multiplier calculation for the Core and Extended Areas. Calculation for the Peripheral Area would be inappropriate because total revenue benefit in the Peripheral Area in Table 8 includes indirect benefits of Core Area expenditures, not just Peripheral Area expenditures, and so the multiplier would be artificially inflated.

Table 11 - Business Revenue Multipliers

	Direct Expenditures /1	*Total Revenue Benefit /2*	*Multiplier*
Core Area	$ 13,856,073	$ 19,373,605	1.40
Extended Area	$ 18,109,953	$ 35,114,284	1.94

Source: California State University, Chico, Center for Economic Development

/1 - Total direct expenditures of HFQLG, including payroll not spent locally from Table 7.

/2 - Total revenue impact from Tables 8 and 10 plus payroll not spent locally from Table 7.

Multipliers for FY 2002 are lower than those in Fiscal Year 2001, which were 1.67 in the Core Area and 2.24 in the Peripheral Area. One reason for this is that more money as a percentage of total expenditures went to payroll in FY 2002, and when factoring in taxes, less money per dollar is spent locally than with expenditures to business.

About IMPLAN: Advantages and Limitations

IMPLAN uses data from the U.S. Department of Commerce (DOC) to estimate revenue, business spending, and employment by industry. Data on household income, imports and exports, and taxes are included. Data on national monetary transfers by industry are also included estimated by county. The result is a database that estimates monetary transfers by industry by county for the entire nation. Transfers to and from households and government are also included. Groups of counties can be combined into a larger study region, as was done in this analysis.

IMPLAN models transactions among and between industries and institutions using a matrix. The matrix allows for easy recalculation of the revenue, employment, and other data. The result is the ability to estimate how one dollar of revenue in one industry would affect revenue in all other industries and institutions. This is what was done with revenue due to planning and implementation of the HFQLG Act.

One of the advantages of IMPLAN is the number of industries that are included. The DOC analyzes monetary flows between 526 industries and institutions and IMPLAN provides the same level of detail in its county estimates. While one limitation is the reliability of some of the estimates, especially in small counties, one of the advantages is the ability to change the data using better information without affecting the validity of the results. No changes to industry estimates were necessary for this analysis.

Another limitation of the IMPLAN model is the possibility of expenditures resulting from HFQLG occurring outside of the study region, then respent back *within* the region. The model can only assume that dollars spent outside the region never return. IMPLAN is working to correct this limitation, but a solution is not yet available.

A second limitation is that IMPLAN must use national average industry/institution spending patterns to estimate local area spending patterns. Local deviations from national spending pattern averages cannot be determined. Local industries may use local substitutes not common nationally. For example, members of a community without a clothing store may purchase more than the average amount of clothing at a local general merchandise store, keeping the money local, while IMPLAN would assume that these community members would travel to another nearby community where clothing stores are present.

Overall, the advantage of being able to estimate impacts by specific industry and institution and estimate domestic exports, IMPLAN provides the best estimate of economic impact available for the cost involved.

Conclusions

The estimated economic benefit of planning and implementation of the HFQLG Act was significant. Beyond the personal benefit to individual employees and businesses in the area, the overall benefit can be seen in and compared to growth in the local economy. Some of the components in this section may not exactly add up to totals due to independent rounding.

During FY 2002 the Forest Service spent $18.4 million directly during the planning and implementation of the HFQLG Act. Total spending, including indirect, was $21.6 million. An estimated $12.0 million of this amount was paid or estimated to have been obligated toward payroll and an additional $8.1 million was paid or obligated toward service contracts for planning and implementation. The remaining $1.5 million was spent on travel, office supplies, and equipment.

CED estimates that $13.9 million of HFQLG expenditures went to businesses and employees located in the Core Area of Lassen, Plumas, and Sierra counties. An additional $4.3 million went to businesses and employees in the Peripheral Area of Butte, Nevada, Shasta, Tehama, Trinity, and Yuba counties in California and Washoe County in Nevada. The remaining $3.5 million was estimated to have been spent outside of these areas.

Some of the expenditures going to the Core and Peripheral areas is respent in these areas several times over the period of a year. This respending, or secondary benefit, was $5.5 million in business and organization revenue, $2.5 million in labor income, and 84 jobs in the Core Area. The Peripheral Area enjoyed a secondary impact of $11.5 million in business and organization revenue, $4.8 million in labor income, and 134 jobs.

The total benefit to business and organization revenue, including dollars spent directly by the Forest Service, its employees, and secondary benefits totaled $13.6 million in the Core Area and $17.3 million in the Peripheral Area. Total benefit to labor income was $5.0 million in the Core Area and $7.6 million in the Peripheral Area, while the total jobs benefit was 194 in the Core Area and 264 in the Peripheral Area.

The total economic benefit of planning and implementation of the HFQLG Act in the Extended Area, the sum of the Core and Peripheral areas, was $30.9 million in business and organization revenue, $12.6 million in labor income, and 458 jobs.

The estimated economic benefit of planning and implementation of the HFQLG Act was significant. Using the latest available data from the U.S. Department of Commerce, personal income in the Core Area grew $69.9 million between 1999 and 2000. The total impact to personal income in FY 2002 (sum of labor income, property income, and business taxes) was $8.2 million. Comparing regional growth to the economic benefit of HFQLG, HFQLG's benefit is equal to 11.7 percent of the latest measure of economic growth in the Core Area.