IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

MARILYN KEEPSEAGLE, et al., Plaintiffs, v. TOM VILSACK, Secretary, United States Department of Agriculture, Defendant.	Civil Action No. 1:99CV03119 (EGS) Judge: Emmet G. Sullivan Magistrate Judge: Alan Kay

Final Expert Rebuttal Report of Patrick M. O'Brien

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I.
INTRODUCTION AND SUMMARY

A. Report Structure

This third report on differences in the treatment afforded Native Americans in USDA's delivery of the farm loan program and their economic consequences has three purposes, namely:

1. To provide the Court with a final statement of my findings keyed to the relevant sections of my February and July Reports and the Defendant's April and October Expert Reports;
2. To correct erroneous statements and conclusions reported in Dr. Rausser's October, 2009 Report, November 2009 Addendum, and April, 2009 Report. These concerns center on Dr. Rausser's conclusions that Native Americans experienced no significant difference in the treatment they received from USDA and incurred no economic losses for any less-than-significant differences in the treatment that they may have experienced; and
3. To extend my analysis to take into account added information included in and to address concerns raised in Dr. Rausser's final October 2009 Report, where modifying my analysis can narrow disagreements without disregarding the basic facts in the case or compromising established standards for economic analysis.

This report is made up of four parts. This first part, Section I, explains how the report is organized and summarizes my final conclusions including the modifications made to reflect Dr. Rausser's latest comments. The second part, Section II, reports in greater detail on my conclusions and their foundation regarding the question of whether USDA treated Native Americans differently in the Department's delivery of the farm loan program. The third part, Section III, reports in greater detail on my conclusions and their foundation regarding the economic impact of any difference in treatment experienced by Native Americans. The fourth part, encompassing Sections IV-XII, addresses the major areas of disagreement, with one section for each of the nine major disputes, including:

- disputes over the usability of the Revised PLAS Mainframe database, as compared to PLAS STAT and FOCUS files;

- disputes over the usability of BIA data to supplement the Ag Census;
- Farm Typology issues related to the classification of farms and the focus of the USDA loan program;
- disputes over setting benchmarks for Ownership and Operating Loans, that is, estimating the lending that Native Americans could reasonably have expected from USDA in these two programs;
- disputes over setting the benchmark for Emergency Loans, that is, estimating the lending that Native Americans could reasonably have expected from USDA in this program;
- disputes over the reasonable expectations for problem loan servicing for Native Americans;
- Issues central to our conflicting Economic Analyses;
- Issues associated with Indian Land Tenure Patterns;
- Issues associated with Dr. Ruasser's Alternative Explanations for Shortfalls in Lending and Servicing Provided Native Americans; and

B. Report Summary

The major conclusions of my *Keepseagle* analysis described in my February and July Reports and finalized here in this November Report are as follows:

1. ***Native Americans were treated differently—less favorably—over 1981-2007 by USDA in its delivery of the farm loan program***.

The difference in treatment of Native Americans is reflected in the shortfalls between the loans and servicing that Native Americans could reasonably have *expected* based on their share of the farm operator pool and their meeting of the program's well-defined borrower qualifications and the loans and servicing that they *actually received.* At the summary national level, Native Americans received somewhat more than half of their expected loans and problem loan servicing. The gap in both loans and problem loan servicing was statistically significant at the 99% level. Looking in greater detail across individual states, Native Americans also faced large, consistent, statistically significant shortfalls in loans and servicing in the overwhelming majority of the states.

2. ***Differences in treatment were most pronounced over the 1981-1999 period before the filing of the Keepseagle case***.

Native Americans were exposed to the greatest disparities in treatment during the 1981-1999 time period. Following filing of the *Keepseagle* litigation in late 1999, differences in treatment narrowed in 2000-07 nationally and for a number of states, but differences were not eliminated. In many states, Native Americans continued to receive significantly less in loans and an even smaller share of loan servicing than they could reasonably have expected. When considering the entire time period for which we have data, from 1981-2007, the overall differences in treatment were statistically significant.

3. ***Statistically significant differences in treatment extended across all elements of the loan program and across all of the service options with reliable data.***

I studied each of the three types of loans separately: ownership, operating, and emergency loans. Among the loan types, shortfalls were greatest for emergency and operating loans, which account for 90% of lending, and shortfalls were less pronounced in the ownership loan category where Native Americans began receiving their expected share shortly after the filing of the *Keepseagle* case. Regarding loan servicing, it is noteworthy that even Native Americans who did succeed in getting USDA loans did not get the same level of problem loan servicing (excluding deferrals) afforded other borrowers. While Native American loan deferrals increased sharply with the filing of the underlying case, the provision of other more substantive forms of problem loan servicing fell off sharply.

4. ***Shortfalls were significant across the United States, and are even greater in magnitude when data from the BIA is considered***

Shortfalls are not confined to one geographic area, though they are most pronounced in states with a substantial Native American population. Shortfalls were consistently significant at the 99% level across 25-28 the 35 states with sizeable Native American

populations; at the national level; and for the other 15 states as a group, based on the 2007 Census of Agriculture operator data. Using more complete farm operator data based on combining the Census and Bureau of Indian Affairs' count of operators, 30 of the 35 states showed statistically significant shortfalls. Given the limited statistical basis for doing analysis for the 15 states with small Native American counts individually, I will treat them as a single geographic unit in the body of my report.

5. ***The difference between these conclusions and Dr. Rausser's conclusions are primarily due to differences in our measures of "reasonable expectations."***

The difference between my findings that Native Americans did not get the number of loans they could reasonably have expected, and Dr. Rausser's conclusion that they did is largely due to differences in our measure of reasonable expectations. In the simplest terms, I concluded that Native American farm operators "fit" the profile for USDA borrowers defined in both the program guidelines and USDA's treatment of other clients over time better than non-Native American farm operators did. Consequently, the reasonable expectation of the Native American share of program benefits (3.1% without the BIA additional and 3.4% with the added BIA count) is higher than the Native American share of the farm operator pool (2.75%). Dr. Rausser concludes the reverse and puts Native Americans' expected share at 1.9% nationally. To put this into context, over 1981-2007 Native Americans received 1.6% of the USDA loans made and 1.4% of the money loaned They also received 1.4% of the service agreements made and 1.2% of the dollar value of loans involved in servicing.

6. ***Logit Regression Analysis of Individual State Results Demonstrates National Pattern***

Using a simple logit regression model to analyze my findings across states and years, I find that non-Native Americans were three times more likely than Native Americans to

receive loans in the 1980's, almost two times more likely to receive loans than Native Americans in the 1990's and about as likely to receive loans as Native Americans from 2000 forward.

The odds against Native Americans were most skewed for emergency loans (2.77 to 1) and operating loans (2.73 to 1) over the 1981-1990 period. These two loan options accounted for 90% of USDA lending. For ownership loans, USDA delivery patterns changed in the late 1990's and boosted Native Americans' chances of getting an ownership from 1 in 2.47 in the 1980's to better than 1:1 odds after 2000 (See Figure I-1 Logit Analysis Summary).[1]

7. ***Loan Servicing Shortfalls Were Also Significant***

I measured differences in loan servicing using two different approaches. First, I tested to see if Native Americans were treated differently with respect to loan servicing by considering only Native Americans who succeeded in getting USDA credit. I found shortfalls in loan servicing compared to the level of service received by non-Native Americans were large. Only half to two-thirds of Native Americans with USDA loans received the same level of servicing as non-Native American borrowers. Of course, Native Americans who were wrongly denied USDA loans received no servicing, but the economic value of the loans they were denied should incorporate the potential for receiving loan servicing. Thus, I did a second analysis to capture the amount of loan servicing that should have been received had Native Americans received their expected level of lending. This allowed me to calculate the full economic losses associated with denial of loans as well as the denial of loan servicing.

[1] Unless they appear inset in the text, Figures are collected in Appendix 1 to this Report.

8. ***These shortfalls in loans and servicing were large enough to result into sizeable Native American economic losses.***

The shortfalls in loans and loan servicing resulted in sizable Native American economic losses. This is to be expected given the substantial borrower benefits involved in USDA loan assistance. After considering the average term of the original and restructured loans in question, loan shortfalls translated into Native American farm operators farming with $2.25-billion less in credit over the 27 years in question. Using USDA's historical farm financial performance measures for farms of their size as a reference allows me to calculate the economic losses involved in these loan and servicing shortfalls and resulting credit shortfalls, an amount totaling $585-744 million over 1981-1000 and $608-776 million over 1981-2007.

This is the sum of losses in farm income ($148-189 million), interest rate subsidies ($24-30 million), and foregone capital gains ($77-102 million) incurred by Native Americans over 1981-1999 due to direct loan shortfalls. It also includes losses ($390-422 million), related to other loan servicing options they were denied.

It is important to note that this is a *net* loss. Since USDA' s loans were tied directly to investing in agriculture, credit shortfalls translate into economic losses only in those years when USDA reported that farmers made money and farm asset values appreciated. The sector experienced farm income losses and asset depreciation in over two-fifths of the years in question. Hence, even if Native Americans experienced loan and credit shortfalls in these years, my analysis shows no economic losses. This accounting insured that my calculations provided an accurate answer to the question of how much better or worse off Native Americans would be in 2009 if USDA had provided expected levels of loans and loan servicing—no more but no less—from 1981 through 2007, given the sector's mixed

performance record for the years in question.

9. ***The estimated loss described here is a minimalist statement of Native American economic losses for the reasons laid out in Section III of this report.***

The estimate of $608-776 million in economic losses over 1981-2007 is quite conservative. I did not make adjustments to my calculations to reflect several additional concerns identified in Section III that would have raised income losses in particular, because issues of methodology or data availability prevented me from incorporating these concerns while maintaining the same standard of reliability as for the measures reported on here. As section III of this report notes, these factors indicate that Native Americans faced additional economic losses totaling approximately $300 million, although the basis for these estimates is less definitive that used elsewhere in this report.

Making Native Americans whole after two and a half decades of differences in treatment has to take these concerns into account as well as those that lend themselves to more precise quantification.

II.
EVALUATING USDA DELIVERY OF THE FARM LOAN PROGRAM

A. Background

This is my third report in this case; Dr. Rausser has filed two. While all of these reports marshal considerable detailed information, the essential question is simple: "Were Native Americans treated differently in USDA's delivery of farm program loan and servicing benefits?" My analysis indicates that the answer is yes, while Dr. Rausser insists that the answer is no.

Answering this question requires careful examination of USDA's delivery record across program options and racial groups. Given the state of USDA record keeping, this limits the analysis for most of the relevant period to evaluating the PLAS database (also referred to in this report as the Revised PLAS Mainframe database and the PLAS STAT database) described in detail in my July Report and here in Section IV.

The methodology that Rausser and I both used to evaluate the PLAS record is well established in discrimination cases. The analysis centers on:

1. Establishing what Native Americans as a group could reasonably have expected from USDA in its routine delivery of the program absent any difference in treatment;
2. Comparing expected benefits with the benefits that Native Americans actually received; and
3. Analyzing the resulting pattern of windfalls (actual benefits exceeding expected benefits) or shortfalls (expected benefits exceed actual benefits) to establish any systemic difference in treatment. Differences in treatment should reveal themselves either in a pattern of windfalls (if the different treatment was more favorable than afforded other program participants or potential participants) or shortfalls (if the different treatment was less favorable).

Absent differences in treatment, the pattern of windfalls and shortfalls should be random, with windfalls and shortfalls cancelling each other out over time. Given the claims raised in this litigation, both the loan and problem loan servicing components of the USDA

program must be analyzed to establish whether or not there is any pattern indicating that Native Americans were treated more favorably or less favorably.

B. Establishing Expected Native American Shares for USDA Loans and Servicing

Both Rausser and I agree that any measure of reasonable expectations has to start by establishing Native American's share of the farm operator population served by the USDA program and using that share to arrive at a measure of the number of loans and loan servicing agreements that Native Americans could reasonably have expected. This starting point recognizes that the USDA's program is first and foremost a farm lending program. Both Rausser and I agree that the most reliable data for establishing Native Americans' share of the farm operator pool is the 2007 Census of Agriculture. I find that the 2007 share has to be applied over the entire period studied, because of well-established errors recognized by Rausser as well as me, in counting Native American operators in previous Censuses.

We also agree, however, that this is a "first cut" and that the Census share has to be modified to reflect the specifics of the USDA loan program. Given the importance of these modifications in arriving at very different Plaintiff and Defendant results, I will discuss how Rausser and I address them in detail.

1. *Determining Native Americans' "Fit": Correct Estimation of Benchmarks for Loans*

The challenge of adjusting the 2007 Census operator count to serve as the basis for establishing reasonable Native American expectations is essentially a question of determining "fit." That is, do Native American farm operators "fit" the profile for USDA borrowers laid out in the program's guideline ***as well as***, ***better than***, or ***worse than*** farm operators generally.

There is no debate among the parties that the USDA loan program is a highly

specialized loan program with very specific operational guidelines, lending and servicing criteria, and borrower qualifications that have to be taken into account in setting reasonable Native American expectations. As Rausser notes on pages 14-15 of his April Report, the program's two overarching goals set it apart from other commercial farm lending vehicles. He admits regarding the USDA Farm Loan Program:

> Throughout its history, there have been two primary purposes of the program: (1) to correct market failures due to information asymmetry, externalities, economic disequilibrium, lack of competition, insufficient lending resources, and incomplete markets: and (2) to redistribute resources to disadvantaged regions or populations.

These goals add a distinctly concessional flavor to USDA's commercial lending.

My February and July Reports reinforce this sense of the special nature of the program. The USDA program was not just another place for farmers generally to get credit in a "business as usual" context. Both experts agree that the program is limited to operators who cannot obtain sufficient credit at reasonable rates elsewhere but who would be able to operate viable farm businesses if USDA made the loan(s) in question at the program's more favorable terms and if they could implement their farm business plans with USDA technical support. I have also made the case that Native American expectations have to be separately evaluated for each loan type (ownership, operating, and emergency loans) and for loan servicing (restructured loans, write-downs, write-offs and deferrals), given the different provisions governing each option.

I conclude that Native Americans "fit" the profile better than the general farm operator population; hence, Native Americans could reasonably have expected more loans and servicing from USDA than their unadjusted Census share of the farm operator pool implies. Rausser concludes the reverse--that the general farm operator population fit the USDA borrower profile better than Native Americans and that Native Americans should

reasonably have expected less than their 2007 Census share of the farm operator pool in loans and servicing from USDA.

My adjustments to the 2007 Census to arrive at Native American benchmarks are treated here at length in Sections V (BIA Alternative Operator Count); VII (Ownership and Operating Loan Benchmarks) and VIII (Emergency Loan Benchmarks). As I note there, I followed a simple process to arrive at ownership and operating loan shares that involved:

1. Establishing a beginning operator count for the general population and for a Native American subgroup. This involved selecting which of the 2007 Census' multiple farm operator counts was the most appropriate for this analysis;

2. Adjusting the count established in #1 to reflect the three sets of unique characteristics of the farm ownership and operating loan programs, the emergency loan program, and the problem loan servicing program;

    - For farm ownership and operating loans, this involved incorporating measures of family farm size and organization into the operator count to reflect their explicit link to this subset of the operator population. This also involves adjusting the measures from #1 to reflect emphasis on helping beginning farmers and limited resource farmers;

    - For emergency loans, this involves adjusting the initial operator count from #1 to reflect the limitation of emergency loans to existing farm operators faced with a substantial loss linked to a natural disaster as reflected in a county disaster declaration. Since emergency loans are not focused on family farms, the other adjustments made for these loans are not called for;

    - For servicing, this involves using USDA's ***actual*** loan records on the one hand and the ***expected*** ownership, operating, and emergency loan shares on the other to establish two benchmarks for problem loan servicing, one directed at liability issues and the second to calculate economic losses. The first of these benchmarks postulates that Native Americans could reasonable have expected the same share of loan servicing as they ***actually*** received for loans. That is, if they received 2% of loans, they could have expected 2% of problem loan servicing. This reflects the guideline that problem loan servicing is limited to pre-existing USDA borrowers with a repayment problem, and assumes that Native Americans and non-Native Americans were equally likely to be in financial distress.

The second benchmark examines the total amount of loan servicing that Native Americans could have expected to receive if they had received their ***expected*** share of loans. This builds in any shortfall in servicing on both loans actually made and loan shortfalls, and permits calculation of economic losses that includes the value of loan servicing that could have been obtained on loans that should have been made.

3. Adjusting the final benchmark counts in #1 and 2 for any residual undercounting of Native Americans farming on-reservation and not accounted for in the 2007 Census. Given the sensitivity of this issue, the modified benchmarks developed using this expanded count are treated separately (as Alternative II) from the analysis using just the Census counts (Alternative I).

My resulting adjustments for "fit" raises the Census' 2.75% share to 3.1% (3.4% with the BIA count included), while Rausser's adjustments for "fit" lowers this 2.75% to 1.9%.These adjustments for "fit" are at the core of the different views we have as to whether there was any difference in treatment of Native Americans. USDA's records indicate that Native Americans over the 1981-2007 period received 1.4% to 1.6% (loan number vs. loan dollars) of USDA loans through the program. USDA's records also indicate that Native Americans received 1.4% of servicing counted by the number of agreements, but only 1.2% looking at the value of the loans included in servicing. These 1.4-1.6% and 1.2-1.4% measures are well below my 3.1% (or 3.4%) share and the 2007 Census's 2.75% share but closer to Dr. Rausser's 1.9% share. If Native Americans "fit" the USDA borrower profile better than or at least as well as the general farm operator population, they did not receive their expected 2.75-3.1% share of USDA benefits. In other words, Native Americans received what they could reasonably have expected from USDA only if Native Americans "fit" the borrower profile substantially less well than the general farm operator population. (See Figure II-2).

2. *Determining Native Americans' "Fit": Rausser's Estimation of Benchmarks for Loans*

Dr. Rausser focuses on the same adjustment issues but reaches very different

conclusions. First, Rausser rejects any adjustment for undercounting of Native Americans, including by use of the BIA data. This is based on his sense that the 2002 Census and the 2007 Census's 200% increase in the Native American operator count have completely resolved the undercounting problem. As noted in Section V addressing the ***undercount issue***, this ignores convincing information to the contrary including USDA/NASS's own reporting that their existing Native American sample is not as reliable as their sample for other operators.

Regarding adjusting Native American's expected share of ***ownership and operating loans*** to reflect the targeting of these loans, Rausser eliminates farms on the lower end of the annual sales range, and includes farms in the high sales end of the range, in a reversal of my adjustments for program focus on small/medium-sized family farms. As noted in Figure II-1, Rausser's end result is to lower Native Americans expected share of ownership and operating loans from the 2007 Census's share of 2.75% and my expected share of 3.1% (3.4% with BIA data included).

Why so large a drop? Dr. Rausser concludes that a large share (roughly a third) of Native American farmers counted in the 2007 Census do not qualify for consideration for loans because he considers them to be "non-viable" farms. While USDA does require that successful borrowers run "viable" farm operations, the question is whether a farm operation will be viable with the infusion of capital from a USDA loan. Moreover, Dr. Rausser includes large and very large farms in his eligibility pool despite the provisions for targeting small/medium-sized farm operations. This includes farms with annual sales between $250-500,000 (large farms) and farms with sales over $500,000. The 2007 Census shows that Native Americans are heavily represented in the categories that Dr. Rausser excludes and

represent a disproportionately small part of the large and very large farms that he adds.

Rausser's adjustments do not stand the test of closer scrutiny. They ignore that a) the Ag Census counts these small/medium-sized operations as farms and USDA routinely includes them in the population targeted for service through the program; b) the ownership and operating guidelines provide that an operation must be viable (i.e. be able to cash flow or cover all operating expenses, debt payments and family living expenses from projected income) ***after*** the loan is made and the farm business plan is implemented with added USDA technical assistance in addition to the new capital; and c) special provision is made for lending to the more marginal small/medium-sized farms under the beginning farmer program and the special limited resource program for applicants with inadequate financial and managerial resources—virtually all of whom are eliminated using the Rausser cutoff.

In dealing with ***emergency loans***, Rausser emphasizes the importance of the county disaster declaration in triggering eligibility for emergency loans. He claims in contradiction to my conclusions stated here in Section VIII and in my July report that, on balance, this lowers Native Americans' expected share of emergency loans to less than 2% compared with the unadjusted operator share of 2.8% and my disaster-adjusted share of 3.1%As Figure II-1 indicates, combining all of these Rausser considerations across ownership, operating, and emergency loans puts Native Americans' expected share of USDA loans at 1.9% (weighted across the ownership, operating, and emergency pools) Hence, the two potential borrower pools described in my analysis and Dr. Rausser's analysis are dramatically different. The pool that I have focused on reports average farm sales in 2007 of $60-65,000 per year. Dr. Rausser's pool reported average sales of over $360,000 in 2007. This difference reflects a very fundamental disagreement on what the USDA loan program was established to do, and

who its clientele is. See Figure II-2 for summary benchmarks.

3. ***Benchmarks for Problem Loan Servicing***

Our disagreements on setting benchmarks for servicing are even more pronounced that disagreements on lending. Both Rausser and I agree that the appropriate benchmark for measuring the servicing provided Native Americans is the comparison with servicing provided other borrowers. I set the benchmark so that all borrower groups received the same proportion of problem loans servicing as they received of the original ownership, operating, and emergency loans. That is, if Native Americans received 2% of USDA's original lending, they could reasonably have expected to receive 2% of USDA's problem loan servicing. Rausser uses the level of servicing provided to white male borrowers to establish the benchmark concerning the level of service Native Americans in this pool could have expected. Beyond this point, Rausser and I disagree.

As noted above and in Section IX, I did two analyses of expected shares for problem loan servicing, one to determine if Native Americans were treated differently with respect to loan servicing, and a second to ensure that all economic losses due to denial of loans were captured. The first is based on actual lending shares while the second ties Native American's expected share of servicing directly to their expected share of loans. While the first measure addresses the narrower question of difference in treatment with respect to lending, the second measure addresses the broader question of economic damages. Figure II-3 provides the two measures of expected share for the national level for 1981-2007.

Dr. Rausser and I also disagree on how to refine benchmarks for servicing further to include the second major provision—that the individual had to demonstrate that they were in financial distress not of their making. I argued initially that Native Americans were no more or less likely to need servicing than Non-Native Americans based on the data published by

USDA. Rausser argues the opposite and ultimately produced a partial data set from the Focus R540 database with his October Report that indicated that there were differences in servicing needs across racial groups.

Figure II-4 uses a decade of delinquency data to establish the probability that Native Americans needed servicing more or less often than non-Native Americans. The data shows that whether or not Native Americans needed more or less servicing varied from state to state, but the preponderance of data demonstrates that Native Americans need *more* servicing than non-Native Americans in the states with large Native American populations. I recognize the validity of this delinquency analysis and weight Native Americans' expected shares of servicing to reflect Dr. Rausser's results shown below in Figure II-4. Particularly noteworthy is Native American farmers in Arizona, Montana, Nevada, New Mexico, North Carolina, North Dakota, and South Dakota needed servicing historically at 1.49, 1.70, 2.14, 1.61, 1.38, 1.51, and 1.09 times the rates for non-Native Americans in these states. It is also important to note that the pattern is not without exception, with Native Americans in Oklahoma needing servicing at .97 the rate for non-Native Americans in the state. Thus, I did not simply act to raise the benchmark, but adjusted it on a state-by-state basis to reflect data regarding different levels of financial need, to more closely tailor the analysis to the program requirements. At the national level, Native Americans needed servicing 1.17 times the rate for non-Native Americans.

C. Measuring Loan Windfalls and Shortfalls

1. *Resolving Differences in databases*

With our respective benchmarks in hand, both my analysis and Dr. Rausser's analysis focus on applying them to USDA's actual program delivery record. The relatively simple task of determining if Native Americans faced windfalls (actual exceeding expected) or

shortfalls (expected exceeding actual) in USDA lending was complicated, however, by the fact that our analyses used different USDA databases. After considering Dr. Rausser's concerns raised in his April and October reports, I use the Revised PLAS Mainframe Data for 1981-2007 provided by USDA while Dr. Rausser uses USDA's alternative PLAS STAT Data for 1991-2007. The issue of which data set to use was treated at length in my July report and addressed here again in summary form in Section IV. The important conclusions detailed there are that:

1. The differences between the two data bases for their overlapping 1991-2007 years are limited enough to rule out Dr. Rausser's draconian claim that only the PLAS STAT data can be used and that any analysis of windfalls and shortfalls for the 1981-1990 period without PLAS STAT data is impossible;
2. The setting of the expected shares used in analyzing the PLAS Mainframe and PLAS STAT data bases far overshadow any differences in the databases in measuring Native American loan and service windfalls and shortfalls. Dr. Rausser's claims that his analysis of the allegedly superior PLAS STAT data shows no significant pattern of shortfalls in Native American lending is a result not of the database used but the substantially lower expected shares used in his analysis; and
3. Native Americans faced large, on-going shortfalls in loans and servicing over 1981-2007, but with the shortfalls largest for the 1981-1990 period, for which there is no PLAS STAT data.

2. *Summarizing Windfall/Shortfalls Findings for Loans*

Comparing the loans that Native Americans could reasonably have expected with the loans that they actually received from USDA reveals a pattern of large, statistically significant shortfalls over time, across states, and across ownership, operating and emergency loan options. In reporting these results, I focus first on Alternative I (the loan benchmarks developed without including the BIA undercount discussed at length in Section V) and then on Alternative II (the benchmarks developed including the added BIA count). In addition, I analyzed loan numbers and the dollars lent separately in order to establish if any underlying

pattern of windfalls and/or shortfalls related to too few/too many loans or too small/too large loan amounts.

Figures II-5 to II-8 provides a broad perspective on loan shortfalls based on looking at Alternative I's analysis of the number of total and individual ownership, operating and emergency loans made, based solely on the Ag Census data. I have focused reporting here on the 1981-1999 period preceding the filing of the *Keepseagle* case. While I did my analysis at the state level, I focus initially on the national results indicating that Native Americans' overall shortfalls in total lending amounted to 57% to 63% of their expected loans. That is, Native Americans only received 37-43% of the loans they could reasonably have expected from USDA looking first at the benchmarks calculated without the BIA additions and alternatively with the BIA adjustments.

This amounts to shortfalls of $163-211 million in loans compared to actual loans of only $125 million. Given the average term for these loans, this shortfall of $163-211 million in original direct ownership, operating, and emergency loans converts into $1.5-2 billion in credit, for these direct loans only, over the 1981-1999 years in question. Looking at specific loan types, the shortfalls for ownership loan were 32-43%, while the shortfalls for operating loans were 59-65% and 74-77% for emergency loans. All of these measures of shortfall are statistically significant at the 95% or higher level, with the majority statistically significant at the 99% level.

It is important to note that these shortfalls in lending to Native Americans were due to the fact that Naive Americans received fewer as well as smaller loans than the general borrower population. Loans were fewer and smaller than expected across all three ownership, operating, and emergency loan categories.

In addition to these loan shortfalls being large and spread across program options, they were spread across states. Figure II-9 lists the states according to their reporting windfalls or shortfalls and whether the windfalls or shortfalls reported were statistically significant. Using Figures III-5 to III-8 as a reference, the results for the analysis excluding the BIA additions showed 32 out of the 38 geographic units looked at (US total, 35-state total, 15-state total, and 35 individual states) showed statistically significant shortfalls while 5 showed windfalls. Making provisions for the BIA's additions, 34 of the 38 geographic units report statistically significant shortfalls using the 95%+ level as a reference. Four states report windfalls, with only two statistically significant.

3. ***Loan Shortfalls in the Pre- and Post-Litigation Time Periods***

The analysis for 1981-1999 and 2000-2007 show a difference in Native American treatment following the filing of the *Keepseagle* case. Prior to filing the case, loan shortfalls were larger and statistically more significant across the board, with the national shortfall measured in loan numbers for 1981-1999 at 51%. After 2000, however, Native Americans' loan shortfalls dropped to 9%, with the BIA count included. Hence, while the severity of the problem diminishes after 1999, some Native Americans still faced differences in treatment For example, while Native Americans got more ownership and eventually more operating loans, they continued to face difficulties getting emergency loans, even after the resolution of the *Pigford* case and the filing of the *Keespeagle* case.

D. Measuring Servicing Windfalls and Shortfalls

1. ***Initial Concerns***

It is important in reporting shortfalls and windfalls in loan servicing to differentiate between the benchmark I use to analyze whether there was differential treatment in providing loan servicing, and the benchmark I use to capture both lost loan servicing on existing loans

and lost loan servicing on loans which should have been received, solely for the purpose of calculating economic losses. It is also important to note that the four types of servicing analyzed here provided very different types of assistance. While deferrals could be important in addressing a short term cash flow problem, they offered little help with more fundamental financial problems. Deferrals only postponed payments temporarily and generally come with continued interest accumulation over the deferred payment period. Resolving more fundamental financial problems generally required the very different services provided with a loan restructuring, a write-down, or write-off. Part of the dramatically different conclusions that Rausser and I reach relate to his confusion on these two important sets of issues.

2. ***Did Successful Native American Borrowers Receive Expected Servicing?***

Figures II-10 to II-13 indicate that the subset of Native Americans who did get USDA loans did not get servicing on a par with non-Native Americans. This is particularly true if provision is made for the Focus R540 data showing that generally, Native Americans in states with large Native American populations needed servicing more often than non-Native American borrowers.

Figure II-10 provides a picture of the servicing this subset of Native Americans received. Looking at the number of servicing agreements reached over the 1981-1999 period, successful Native American borrowers faced a 6% shortfall in loan restructuring before their added need for servicing is taken into account. Taking their added need for servicing into account based on delinquency rates, they faced a 34% shortfall in loan restructuring. Figure II-11 indicates that these same Native American borrowers faced a 39 to 47% shortfall in loan write-downs and shared appreciation agreements, with the range based on whether or not their added need for servicing is taken into account. Figure II-12 indicates that this same subset of Native Americans faced a 30-32% shortfall in problem loan

write-offs, once again with the margin based on whether their special need for servicing is taken into account.

Figure II-13 shows Native Americans received sizeable windfalls in deferrals from the late 1990's on. This is likely related to USDA policy to suspend action on problem loans while a case is pending in court. This means that Native Americans with problem loans were automatically put in the deferral category until this litigation is resolved. As the figure indicates, Native Americans are consequently shown with 10-11 times the number of deferrals that they could reasonably have expected. In effect, Native Americans were "put on hold," with the system showing the "hold" as a deferral. To the extent that deferrals generally involve minimal longer term economic benefits, Native Americans have gained little from this action. These deferrals postpone more concrete action and leave recipients faced with continued accumulation of interest and fees.

3. ***How Large was the Servicing Shortfall When Including Native Americans Who Did Not Get USDA Loans, But Should Have, For Purposes of Calculating Economic Losses?***

Shortfalls in service are invariable higher when the Native Americans who should have gotten, but did not get, USDA loans are taken into account. As Figure II-10 indicates, shortfalls in loan structuring rise to 71% based on expected loan shares and increase further to 97% if provision is made for Native Americans added need for servicing identified in Raussers' Focus R450 data are considered. For loan write-downs, the shortfalls under this alternative benchmark are 80-97% while the shortfalls for loan write-downs are 75-79%.

The same pattern emerges in the deferral data. Native Americans receive 137-184% of the deferrals that they could reasonably have expected over 1981-1999, but with the provision of deferrals compromised by the factors already noted above.

Figure II-14 reports statistical significance across states for each type of loan

servicing, excluding the deferral category for the reasons already noted. Figure II-14 reports the state results for the primary servicing benchmark, and indicates that 20 of the 38 geographic units showed statistically significant shortfalls at the 99% level in restructuring, write-offs, and write-downs before taking into account Native Americans greater need for servicing. With this added need for servicing taken into account, 35 of the 38 geographic units show statistically significant shortfalls, while only 2 show windfalls, 1 of which is statistically significant.

E. Loan and Servicing Conclusions: Evidence of Systemic Differences in Treatment of Native Americans

While the pattern of results reported above appears to me to demonstrate a clear pattern, when considering different states, loan types, and time periods, the question arises whether there is a more specific measure of whether a particular pattern of results is consistent or not.

1. *Logit Analysis*

One approach to this challenge is to apply a standard logit analysis to the loan data to determine if Native Americans' chances of getting a loan based on the analysis reported above were significantly better than or worse than the chances of non-Native Americans.

Dr. Rausser attempts to show that there is no systematic pattern of discrimination by conducting separate statistical tests for each combination of state-time period-loan type. This leads to what one statistical text refers to as "the fragmentation problem" or the problem that arises:

> when a large sample of data is broken down into smaller subsamples and statistical tests are conducted on the subsamples rather than on the total dataset.[2]

[2] Gastwirth, Joseph L. (1988). *Statistical Reasoning in Law and Public Policy*,

When the data are fragmented, the probability of detecting a difference when in fact one actually exists, i.e., the *power* of the statistical test, is diminished.

Dr. Rausser further compounds the problems caused by fragmenting the data by interpreting a result of "no statistical significance" as equivalent to a finding that there is, in fact, no discrimination. As he notes on page 37 in footnote 32:

> Standard tests identify with a specified level of confidence results which are "no different than" the expectation represented by the benchmark. There may be some nominal difference between the two values (either higher or lower) but if it is sufficiently small then it is properly attributed to random chance. As a result, throughout this report I refer to statistical results which are "no different than" expectation as being "equivalent" to the benchmark.

This interpretation is equivalent to accepting the null hypothesis of no discrimination if the data fails to provide statistical significance, which risks a Type II Error, which in this case is the failure to find discrimination when in fact it exists. This also ignores that a single, not statistically significant shortfall may not evidence any difference in treatment, a pattern of such shortfalls may do so. The probability of a Type II Error is greater when the data are fragmented. Indeed, all of Dr. Rausser's decisions in establishing statistical significance, including particularly his use of only two-tailed tests and his fragmentation of the data, result in weakening the tests and increasing the probability of a Type II Error, that is, finding no discrimination when in fact discrimination exists.

Although Dr. Rausser uses logit regression models in his analysis of the application rate data, he does not apply them to the loan data. Application of the logistic regression models to the loan data enables a statistical comparison of the loan rates for Native Americans and non-Native Americans that utilizes all the data. The result is an estimate of the overall odds ratio, after adjusting for state differences. I have applied the logistic

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Volume 1, "Statistical Concepts and Issues of Fairness," Academic Press. (p. 185)

regression model to three separate time periods, and interacted loan type with the Native American, non-Native American designation. The resulting odds ratios, along with their 95% confidence intervals, are reported in the table below.

Figure II-16
Non-Native American vs Native American Odds

		No BIA Adjustment			With BIA Adjustment		
			95% CI			95% CI	
Period	Loan Type	Odds Ratio	Low	High	Odds Ratio	Low	High
81-90	Emergency	2.774	2.458	3.129	3.232	2.864	3.646
81-90	Farm Ownership	2.477	2.059	2.98	2.886	2.399	3.472
81-90	Operating	2.727	2.57	2.894	3.178	2.995	3.372
91-99	Emergency	2.504	2.189	2.863	2.867	2.507	3.278
91-99	Farm Ownership	0.766	0.678	0.866	0.877	0.776	0.991
91-99	Operating	1.395	1.333	1.459	1.597	1.527	1.671
00-07	Emergency	2.123	1.751	2.574	2.444	2.016	2.963
00-07	Farm Ownership	0.511	0.469	0.558	0.589	0.54	0.642
00-07	Operating	0.809	0.78	0.839	0.932	0.899	0.967

The odds ratios greater than 1.0 indicate that the probability of a non-Native American receiving a loan exceeds that of a Native American, and if the lower bound is greater than 1.0, the difference in probabilities is statistically significant. Values less than 1.0 indicate higher probabilities for Native Americans receiving loans. The confidence ranges shown next to the odds values show a 95% confidence interval and indicate that the estimates are quite reliable. During the 1981-1990 period, the odds ratios provide strong statistical support for the Plaintiffs' allegations of discrimination against Native Americans across all loan types. The data indicate that non-Native Americans were at least twice as likely, and perhaps as much as three times as likely, to receive all types of loans during that period.

During the 1991-1999 period, the data indicate support for discrimination in the

Emergency and Operating loans, but not Farm Ownership loans. Given the relative weights of the different loans types, however, Native Americans' odds for 1991-1999 were still substantially less than even. During the 2000-2007 period, only Emergency loans continue to show a difference in treatment, with non-Native Americans about twice as likely to receive those loans.

In summary, the logistic regression model provides an estimate of the overall pattern of discrimination without fragmenting the data and conducting numerous, low power tests. Had Dr. Rausser used this procedure for more than just the application data, he would have found that the data strongly support the allegations of discrimination, especially prior to 2000. I note too that for those periods and loan types that do not indicate discrimination, my damages calculations result in a "windfall offset" to the total damage estimate.

2. ***Ordinal Analysis of the Shortfall Data***

As I indicated in both my February and July Reports, the detailed program delivery data can be looked at more broadly to assess whether the visibility of Native Americans and the role that the judgment of the local USDA loan officer played to determining who got and did not get USDA benefits played a role in determining outcomes. If indeed Native Americans were subject to systemic differences in treatment, their shortfalls in benefits may have been most pronounced in:

a. States where Native Americans are most "visible"---where they are most readily identifiable as Native Americans.

The point has been raised that at least some Native Americans are fully integrated into their local communities and cannot be readily identified as to their race. If such is the case, one would expect to find less difference in treatment in states with the least visibility even if the Native American population was relatively large. Conversely, the states where

Native Americans were most readily identifiable—such as states with large reservations or states where the Native American population is heavily concentrated in a few counties—USDA difference in their treatment may be more pronounced.

b. Loan and servicing options where the USDA guidelines provide for the greatest role for staff judgment in deciding whose applications are accepted or rejected.

As I reported earlier, analysis of USDA loan program delivery data support both of these behavioral hypothesis. This evidence supports that conclusion that systemic differences identified above are due to exercise of loan officer discretion in a manner that is generally adverse to visible populations of Native Americans.

c. Visibility of Native Americans

The visibility of Native Americans as Native Americans varies widely by state. In general, Native Americans were often not readily identifiable as such based on their physical characteristics due to extensive intermarrying with other racial groups. Keeping this in mind, Native Americans in Arizona and New Mexico are highly visible because of their large share of the farm operator pool, their concentration in a few counties, and their location on large reservations. On the other hand, Native Americans in Oklahoma are much less visible despite their large numbers because of their wide distribution across counties and their integration into local "mixed" communities rather than more homogeneous reservations.

If Native Americans did indeed face systemic differences in treatment based on their race, this treatment should link closely to their visibility as Native Americans. Differences in treatment would be less pronounced in states where Native Americans are not as readily identifiable and essentially "blend-in" more with the general borrower population. Conversely, differences in treatment would be more pronounced in states where Native Americans are readily identifiable. Absent differences in treatment related to race, there

should be no significant differences across the states linked to Native American visibility. If, however, USDA loan officers did treat Native Americans differently, this difference would logically be most pronounced where Native Americans are most readily identifiable as Native Americans.

Ranking the states ordinally to reflect the visibility of Native Americans does indeed show that shortfalls in lending and servicing were most pronounced in the high visibility states—typically the reservation states. Based on comparing ordinal rankings of the states by the size of shortfalls and their visibility tends to confirm the hypothesis. Nine of the 10 states with the largest shortfalls are states with the most visible Native American populations. Stated conversely, 9 of the 10 states with the most visible Native American populations based on a weighting of their number, their geographic concentration, and their location on reservations fall in the 10 states with the largest shortfalls. Looking at the opposite end of the spectrum, 7 of the 10 states with the smallest shortfalls or with windfalls are states with the least visible Native American population. Stated conversely, 7 of the 10 states with the least visible Native American population are among the 10 states with the lowest Native American shorfalls, or with windfalls.

This ordinal analysis would normally be done using regression techniques. However, the wide dispersion of values across states and problems with multi-colinearity point to the need to use ordinal ranking rather than conventional regression analysis.

d. Judgment of USDA Loan Officers

The hypothesis that Native Americans were treated differently–less favorably—can also be tested by looking at the relationship between shortfalls and the role that the USDA loan officer played in the decision to provide or withhold benefits. Absent differences in treatment, there should be no significant difference in shortfalls across USDA's different

lending and servicing program options despite the widely varying role the USDA loan officer played in determining who got and did not get USDA assistance under each of these alternatives. If, however, USDA loan officers did treat Native Americans differently, this difference measured in terms of the size of loan and service shortfalls would logically be most pronounced for the program options where the input of the loan officer had the most impact.

Looking more closely at USDA's lending history suggests that there was considerably less room for the judgment of the loan officer in the making of loans as compared with the decision to provide problem loan servicing. And within loan categories, there was less room for the judgment of the loan officer in making an ownership loan than in making an operating loan or in making an emergency loan. The severity of Native American shortfalls follows this same pattern. Native American shortfalls were least pronounced in ownership loans, greater in operating loans and greatest in emergency loans across the loan categories. Moreover, Native American shortfalls were most pronounced in the three servicing shortfalls with the greatest dollar value—loan restructuring, loan write-downs, and loan write-offs.

F. Delivery Conclusions

The materials described above lead me to conclude that Native Americans did indeed face differences in the treatment that they received from USDA in the Department's delivery of loan program benefits, particularly over the 1981-1990 period but certainly over the 1991-1999 period as well. Many continued to experience differences in treatment from 2000-2007 in USDA making of emergency loans and provision of problem loan servicing even after the *Pigford* and *Keepseagle* cases were filed and USDA might be expected to change its behavior. This conclusion can be reached by doing a detailed evaluation of USDA program

delivery across years, across states, and across program options or by looking more broadly at the Department's patterns and practice of loan program delivery.

III.
ECONOMIC IMPACT

A. Background

Native Americans' economic losses were calculated for this third report using the same methodologies described in my February and July Reports. Shortfalls in loans were converted into their credit equivalent using USDA's information on the individual ownership, operating, and emergency loan interest rates and negotiated as well as actual loan terms. Similarly, shortfalls in loan restructuring were converted into their credit equivalent using USDA's information on the same variables from the Revised PLAS Mainframe data base. This put the credit shortfall associated with both denied loans and servicing at over $2.5-3 billion that Native Americans would otherwise have had use of to generate farm income and garner capital gains.

Rausser is consistent in his April and October reports in criticizing both my methodology and conclusions. I have addressed his concerns in Section X of this report.

B. Loss Summary

My findings indicate, as noted in my February and July Reports, that Native Americans experienced significant economic losses as a result of USDA loan and servicing shortfalls. In the simplest of terms, this conclusion depends on two factors--the magnitude of the shortfalls and the nature and extent of the support that USDA supplied successful borrowers. As indicated in the February Report's Appendix 3, the USDA program provided borrowers with credit not available elsewhere, at significantly discounted interest rates, for unusually long terms, with unusually flexible collateral requirements, and provided problem borrowers with exceptionally borrower-friendly loan servicing.

The summary of loss findings presented here is grounded in Figures III-1 to 15. The

figures draw on the Lost Earnings Tables in Appendix 2. Given the added information provided in Rausser's last report, I was able to refine my loss calculations. The two critical items in question relate to the Ag Credit, Focus R540, and FBP data and their analysis indicating that:

1. USDA's Farm Business Accounts (FBP data) show that FSA borrowers reported earning a *higher*, rather than a *lower*, rate of return on their farming activities than farmers with similar annual sales operating without FSA assistance. This higher return was over and above the interest rate subsidy involved in the FSA loans. This tends to verify that USDA did indeed "pick the winners" among the small/medium-sized family farms applying for credit—that is, those applicants who were actually viable but for their inability to get adequate credit at reasonable rates;

2. While results differed from state to state, Native American borrowers did qualify at least preliminarily for servicing at a *greater*, rather than *lesser*, rate than non-Native Americans. This is consistent with proportionally more Native Americans qualifying for the USDA limited resource program and beginning farmer programs.

These considerations lead me to revise my damage estimates by raising the income ratios that I used to convert loan and credit shortfalls into farm income losses using the Ag Credit and FOCUS data to refine my estimates of servicing shortfalls. Both of these issues are treated at length in this section of my report are well as in Sections IX and X.

1. ***Loss Tabulations***

I have attempted in Figure III-1 to provide the Court with the flexibility to include or exclude two key variables in measuring losses—that is, to include or exclude the BIA adjustment to the Native American count (treated at length in Section V) and to include or exclude the Ag Credit/FOCUS servicing adjustment (treated at length in Section IX). I have also included two measures of capital gains to reflect Rausser's concerns. As Figure III-1 indicates, this puts Native American economic losses over the 1981-1999 period in the range of $585 to $744 million measured in current 2009 dollars. Looking more broadly at the

losses for 1981-2007, the range is $608 to $775 million. This relatively small increment for the last 8 years of the period reflects the fact that the most pronounced differences in the treatment of Native Americans took place in the 1980's and to a lesser extent in the 1990's. However, Native Americans experienced losses through the last year (2007) included in USDA's record of loan program delivery.

It is important to note that this $585-744 range for 1981-1999 losses is a measure of *net* loss. As noted elsewhere in my report, the income damages associated with credit shortfalls of the magnitude experienced here are limited by the nature of USDA lending. This reflects the fact that the credit in question had to be invested in farming and income loss had to be tied to the return on farming—even if the return on simply banking the credit in question would have generated a higher return over 40% of the time when farm incomes were low or negative. As noted in Section X, I "credited" Native Americans with a loss when a shortfall in USDA credit corresponded with a positive return on farming and assets increased in value for the specific state and in the year in question. I reduced Native Americans' losses to the extent that USDA lent Native Americans more than their expected share of loans *or* provided more than their expected share of servicing in a particular year when farm returns were positive and assets appreciated. This was done to insure that the final calculation provided a measure of how much better or worse off Native Americans would have been had USDA provided the loans and servicing—no more but no less—that Native Americans could reasonable have expected.

C. Individual Loss Components: Loan Related Income Losses

The most immediate economic losses incurred by Native Americans as a result of USDA's shortfalls in providing loans and lending services were in farm income. USDA's original ownership, operating, and emergency loans, as well as their restructured loans were

designed to support on-going farm operations that, depending on the year, generated a positive return. The lost income in question depended not only on the amounts of the ownership, operating, emergency, and restructured loans but on their terms as well. Given that many of the loans in question were multi-year loans, they amounted to several times their face values in credit available for use over the putative period. The appropriate conversion of loans shortfalls into credit shortfalls is treated in Section X of this report. I rely here on the explanation provided there to resolve the question Rausser raises about the issue of amortization.

The absence of this $2 billion in credit constrained or ruled out entirely the day-to-day farm business activities that Native Americans could have supported with the capital in question. The income lost is calculated as the credit shortfall times the USDA farm financial performance ratio reported by year by state for the putative period. USDA farm financial performance ratios measure the dollars in current income generated per dollar invested in agriculture by state by year. This ratio essentially translates a credit shortfall into an income shortfall. For example, an income ratio for Montana for 1999 of 5% means that state producers generated an average 5-cent return on every dollar invested in agriculture.

Rausser questions both my methodology and the data that I used for these income ratios. These concerns are addressed at length in Section X's response to Rausser's economic critique of my reports.

While the method described there was not changed from my previous reports, the specific income ratios that I used changed in July and change again in this report. The income ratios that I used in my first February Report were based on sector-wide averages—that is, they were based on comparing sector-wide earnings from agriculture divided by

sector- wide investment of capital in agriculture by state by year. I based this on the assumption that, regardless of the source of capital, FSA borrowers could generate the same rate of return on capital as farmers generally within the same state. This assumption has been used repeated in internal USDA calculations of losses for other discrimination cases and in the *Pigford* cases. This set the average income ratio for Native Americans at the 4-6% average for the sector, with the year-to-year variations in income identical to those reported by USDA in its annual farm finance surveys. This assumption includes the implicit corollary that in selecting borrowers, USDA "cherry-picks" those applicants who demonstrate that they are viable enterprises but for the availability of credit as stipulated in the loan program guidelines.

Dr. Rausser attacked this assumption in his April Report and claimed that the concentration of USDA lending in small/medium-sized farms with lower rates of return than for the sector as a whole meant that my income ratios were biased upward. He argued that they should be calculated using data for lower-earning farmers with sales of less than $250,000 per year. I redid my analysis using USDA's data on farmers in the $0-250,000 sales class and established that these farms did indeed report roughly 35% lower income ratios. Figure III-2 shows the discounts that I calculated using USDA's regional data for farms with annual sales in the $0-250,000 range. I incorporated these lower income ratios into my July report. This put my income ratios in the 3-4% range instead of 5-6% range.

Figure III-2. Income Ratio Discounts Made to Reflect Concentration of FSA Borrowers In $0-250,000 Sales Class

Atlantic States	.745 (Farmers with sales of $0-250,000 report earning 74.5% of the sector average rate of return)
Southern States	.503
Midwestern States	.796
Plains States	.736
Western Sates	.476

Source: ERS/USDA Farm Financial Data Base (ARMS)

Rausser attacked even these reduced ratios in his October Report, noting that the typical FSA borrower with annual sales below $250,000 generally lost money and that even my lower rates overestimated the returns that the hypothetical Native American borrower could have generated. He reported analyzing data from a unique, confidential USDA source (FBP) that showed that USDA borrowers were generally not able to cover their operating costs, let alone generate a return over costs. Rausser October Report at 89, 165-70. If true, this would have undermined the entire rationale for the loan program—that is temporarily helping otherwise viable farmers who cannot get the credit necessary to get their operations up and moving.

1. ***Adjusting Income Ratios to Reflect Added USDA Data***

Since the data that Rausser analyzed to reach this conclusion was produced with his October report, I was able to replicate his analysis. I looked specifically at the detailed farm records included in the data base for over 210,000 FSA borrowers over the 2003-2007 period. It is important to note that these were not the projected farm accounts done at the time of loan application in an effort to demonstrated repayment ability. They are the "actual" version of the farm plan completed by the borrower and his or her loan officer at the end of the season in an effort to evaluate past performance and develop borrowing plans for the next

year.

However, I could replicate Rausser's analysis and verify his conclusion only if I included the 15,842 FSA borrowers included in the FSA data base for operators with annual sales of less than $250,000 who reported annual sales of $0. Normally, reporting $0 in annual sales at the end of the year after taking out a USDA farm loan would spark an FSA investigation. Loan proceeds must be used in a farm business and a qualifying borrower had to demonstrate via his or her Farm and Home Plan that their farm business could generate enough income in conjunction with other sources of income to cover operating costs, capital costs, and family living expenses. The after-the-fact review at the end of the year was done at least in part to confirm that the loan proceeds were indeed used for the farm purposes specified at the time the loan was made. USDA loan proceeds cannot be used for purposes other than those specified in the Farm and Home Plan. As Rausser has pointed out, many farmers would have earned more on a USDA loan if they had simply deposited the proceeds in a bank in years when farming returns were negative.

It is important to note that a few borrowers in any one year might report sales of $0 if, for example, they were hit with a natural disaster that prevent the sale of ***any*** agricultural product. This would be unusual since, even in disaster years, farmers are generally able to sell some product. As Figures III-3 & 4 show, these farms with their large negative farm income values have to be included in calculating the average return for operators with sales below $250,000 in order for the average of the rates of return to fall below 0—to the -1.29% shown in Figure III-3 and relied upon by Rausser in making his statement that small farmers with FSA loans seldom made money.

Figure III-4 recalculates Figure III-3's income ratios excluding the 15,842 FSA

borrowers in the sample who reported $0 in annual sales. With this adjustment, Rausser's claim no longer holds. As the data in the figure shows, all of the other sales classes showed positive returns over 2002-2007. Some of the smallest farms posted the highest rates of return, linked to their specialization in labor intensive production of specialty products based largely, if not entirely, on operator-supplied labor. This is distinctly contrary to the extensive reporting on small and very small farm returns in Rausser's April and October Reports.

Figure III-4 moves one step further to compare the rates of return for the 176,245remaining FSA borrowers with sales over $1 but less than $250,000 with rates of return for operators with the same sales levels but without USDA loans. As the comparison shows, FSA borrower reported substantially ***higher rates of return***—rates 2 to 2.5 percentage points above those for farmers of comparable size and above the sector average for operators dependent on commercial credit. After adjusting for the interest rate differential on USDA loans, borrowers enjoyed 1-percentage point higher rates of return than the sector average.

This analysis suggests that my lowering of income ratios in response to Rausser's April criticism was uncalled for. With the data now available for FSA borrowers, it is clear that the basic premise of the loan program – that when capital is made available at reasonable rates, family farms can be successful -- is borne out. Consequently, I readjusted my income ratios back to the February level consistent with overall sector performance.

I have consistently argued in my *Keepseagle* analysis that the USDA loan program is designed to "pick the winners" from among small and medium sized farmers—that is identify the otherwise viable operations who temporarily cannot get the commercial credit needed to operate. Were Rausser's perspective that farmers with USDA loans and less than

$250,000 in sales seldom cover costs true, the USDA loan program would in effect be a failure.

What does this imply for the *Keepseagle* income analysis? As Shown in Figure III-5, I continue to use the framework described in my earlier reports for income analysis and generate income estimates using the discounted income ratios developed for my July report. However, in recognition of the findings from the FBP data, I also show income losses based on setting income ratios back at the sector average. Using state sector-average income ratios raises Native Americans' income losses from $33 million to $57 million over the 1981-1999 period, without accounting for the BIA additions, and from $40 million to $68 million including the BIA count.

D. Individual Loss Components: Restructured Loan Related Income Losses

Native Americans' income losses extend to restructured loans as well as original ownership, operating, and emergency loans. As noted in Section II's treatment of restructured loan shortfalls, I looked at restructured loan shortfalls there in terms of the narrow subset of Native Americans who were successful in getting USDA loans and more broadly in terms of Native American who did and did not get USDA loans despite their reasonable expectations. While the distinction is critical in evaluating loan program delivery, the question of economic loss is simpler in the sense that whether the loss flowed from the denial of servicing to a Native American lucky enough to get a USDA loan or from the denial of a loan to start with is inconsequential. Consequently, Figure III-6 looks only at the alternative analysis of servicing based on Native Americans' reasonably expected share of loans.

However, Figure III-6 does provide for the inclusion or exclusion of the FOCUS database's indication that Native Americans meet the "financial distress" test for servicing

more frequently than non-Native Americans. As the figure indicates, Native Americans lost more income--$92-121 million--from restructured loan shortfalls than from original ownership, operating, and emergency loan shortfalls, once their added need for servicing is considered. This relates to the volume of restructured loan shortfalls being larger and the fact that restructured loans typically had longer terms than the average for original loans. Hence, Native Americans would have had more restructured loan dollars to work with longer than original loan dollars.

E. Individual Loss Components: Lost Interest Rate Subsidies on Original Loans

USDA shortfalls denied Native Americans the credit in question at heavily subsidized interest rates that effectively amounted to a substantial added subsidy. This interest subsidy loss was over and above the income loss estimated using the farm accounts for the sector as a whole that included average interest rates in the calculation of income return. I calculated this subsidy simply as the average interest rate paid by farmers as reported by USDA minus the subsidized interest rate recorded in the PLAS data base times the credit shortfall by year by state. The interest rate subsidies in question averaged 2-4 percentage points. As Figure III-7 indicates, this loss amounted to $9-12 million.

Rausser's concern about my calculating an interest subsidy loss are unchanged from his April report. As I note in Section X of this report, his concerns are unfounded. The examples of USDA farm income calculations provided there clear up Rausser's concern that interest payments were not included in the farm accounts used to calculate income ratios. This means that the Defense's contention that the interest calculation consequently involved double counting is unfounded.

F. Individual Loss Components: Lost Interest Rate Subsidies on Restructured Loans

Figure III-7 also shows the lost interest subsidy for restructured loans. Once again, the subsidy lost here is larger than on original loans given that fact that restructured loans generally come with a larger subsidy that provided on the original loans included in the restructured packagers.

G. Individual Loss Components: Lost Capital Gains

USDA shortfalls denied Native Americans any capital gains that they might have garnered on their farm assets while their farm business operated with USDA credit support. Two alternative measures of these capital gain losses are shown in Figure III-8. The first alternative follows the same methodology used to estimate income losses. USDA's capital gains ratio linking the dollars invested in agriculture to the dollars garnered in capital gains by year by state were used to convert credit shortfalls into a loss in asset appreciation. Once again the ratios were generally in the 3-5% range, indicating that farmers made roughly as much money through capital gains as current income for the case period as a whole.

Rausser's ongoing concerns about the capital gains calculations are addressed in Section X of this report. Several of his concerns--such as his objection to inclusion of inflation in the calculation of capital gains--simply have to be dismissed. Dr. Rausser's argument that calculating income losses and capital gains losses is double counting losses is also wrong, as explained in Section X. However, in an effort to address Rausser's concerns about the transparency of the capital gain calculation and the link to land assets, my July report added an alternative calculation of capital gains that linked shortfalls in loans for land purchases or payments on land mortgages to changes in real estate values as reported in the *Census of Agriculture*. Figure III-8 puts the loss associated with these foregone capital gains

at $18-22 million nationally for the 1981-1999 period.

Why provide an alternative estimate of capital gains? First, my first estimate of capital gain losses assumes that the impact of Native American loan and credit shortfalls stops with the end of the repayment period for the loans in question. That is, a shortfall in Native American farm ownership lending in 1981, when the average farm ownership loan was made with a negotiated term of 20 years but an actual term of 10 years, ends with what would have been the loan payoff in 1990, after 10 years. Moreover, the capital gains impact over 1981-1990 was based on applying the USDA capital gains ratios to the declining balance of the loan. While this may be appropriate for the income analysis, it tends to seriously understate losses under the capital gain category.

Why? Assume that the 1981 loan in question was invested in farmland as was generally the case with proceeds from farm ownership loans. The loss in capital gains starts at the end of 1981 when the land purchased with the loan proceeds may have changed in value. Clearly, if no loan had been made, this change in asset values---assuming an increase for simplicity sake—is lost to the Native American operator. His loss in Year 2 can be measured as any added increase or decrease in the value of the asset bought in 1981 with loan proceeds. This process continues on not for just the life of the 1981 loan but through to when the Native American is compensated for his loss. Making himor her whole then requires looking at changes in the value of the asset purchase in 1981 through at least 2008 (the most recent year for which data is available).

At issue is whether USDA in failing to make appropriate loans to Native Americans is responsible for part or all of the damages incurred as a direct result of the loan shortfall. The second measure used here assumes that Native Americans' losses did not end with the

hypothetical pay back of the loan in 1990 but extended through the resolution of the case and compensation of Native Americans for their losses.

Figure III-8 puts the loss associated with this second measure of foregone capital gains at $25-33 million nationally for the 1981-199 period.

H. Losses Associated with Shared Appreciation/Write-Down Agreements and Write-Off Agreements

The losses associated with these types of servicing agreements are limited to the amount of the reduction in principal, interest and any associated fees provided for in the agreements. This is consistent with the IRS's treatment of any lender reduction in debt. Rausser's concerns with this calculation are also addressed in Section X. These losses are large but are consistent with the long term record of loan failures and losses sustained by the USDA Loan Program over time.

I. Alleged Exaggerations

Dr. Rausser contends in his April and October Reports that my estimates of Native American economic losses are exaggerated. A closer look at his critique indicates that the reverse is true—that my analysis provides a "conservative" estimate that understates Native American economic losses in a number of instances in the interest of adhering as closely as possible to the actual data in the case and using well-established methodologies for estimating losses. This means that Native American economic losses were quite likely considerably higher than shown here. But, however convincing the case for these added losses may be, they lack the level of specific evidence that professional standards would ordinarily require. I have included several examples of these ancillary losses to provide a broader sense of the economic losses Native Americans faced as a result of USDA's failure to deliver the farm loan program in an even-handed manner.

1. *Assuming that the 2007 Native American Operator Share Applied Back to 1981 Underestimates Disparities*

Both Dr. Rausser and I agree that agricultural censuses conducted before 2007 were unreliable and grossly underestimated the count of Native American farm operators. Hence, there is no reliable time series to establish Native Americans' share for earlier years. As a result, I assumed that Native Americans' proportion of the general farm operator count was constant over the 1981-2007 period. Rausser assumes to the contrary that Native Americans' share was actually lower in the 1980's and 1990's and reduces both his shortfall and economic losses estimates as a result. Since both parties recognize that there were unique problems with counting Native American farm operators back to 1981, there is no data to definitively confirm or contradict either view.

However, Native Americans report anecdotally that they moved out of agriculture at a faster pace than white operators, a claim made by the wider minority community as a whole. There are two ways to evaluate this claim. The first is to look to the Native American counts from the pre-1997 Ag Censuses when the Bureau of the Census made its first efforts to improve the minority count. The data in Figure III-10 shows that the Native American operator count did decline faster over time than the count for operators generally or for white operators. While the pre-2007 Ag Censuses are not reliable for their total numbers, they used a consistent method of counting prior to 1997, and that consistent method showed decreases in Native American numbers. Using the proven 2007 Census count as a starting point and working backward to take into account the pace of Native American exits prior to 1997 would put Native Americans' share of the farm operator pool in 1981 at over 3.25%.

An alternative look at minorities more generally reinforces this perspective that Native American operator shares were greater earlier in the putative period. While the farm

operator data for non-Native American minorities is also subject to question, the data is generally recognized as being more reliable than the Native American count in that the undercount was smaller. For example, the non-Native American minority operator count did not suffer from the practice of counting Native American reservations as a single operation no matter how large. To the extent that groups within the minority community generally followed the same demographic pattern, the somewhat better non-Native American minority data can be used as a proxy to test the contention that Native Americans left agriculture faster than white operators and that consequently their share of the farm operator pool in 1981 was larger than in 2007. The earlier Census data show that non-Native American minority operators declined more sharply than the white operator share of the general operator pool.

This conclusion that the Native American operator pool and the minority operator population more generally declined faster than the white operator population was also reached in research done by USDA researchers at the Economic Research Service and reported in the *Characteristics* report cited by both Dr. Rausser and me.

This suggests—though it does not definitively prove--those Native American operators facing the same pressures as other minority operators left agriculture faster than white operators. If this was indeed the case, then Native Americans' 1981 share of the pool and in turn their reasonable expectations of USDA loans and servicing were higher than in 2007, and my use of the 2007 share undercounted their shortfalls.

How would a higher earlier share have affected Native Americans' economic losses? First, the loan and servicing shortfalls identified in my report would increase proportionally more than the difference in operator share. This is easiest understood if considered in highly aggregate national terms. Over the 1981-2007 period, Native Americans actually received

1.4-1.6% of USDA's loans (1.6% of loans made but 1.4% of loan dollars lent) and 1.2-1.4% of USDA servicing. Using the 2.75% constant share based on the unadjusted 2007 Census count puts their loan shortfall at 1.15-1.35% (2.75% -1.6% and 2.75% - 1.4%) of the loans USDA delivered through the program. The shortfall in servicing, following the same approach, would be 1.3-1.65 percentage points compared to the servicing USDA provided all borrowers.

Assuming that Native Americans' share of the operator pool was as high as 3.25% in 1981, the average over the 1981-2007 period would have been 3.0% rather than the 2.75% used in my analysis. This would have increased their loan shortfalls to 1.4-1.6% (3.0%-1.6% and 2.7%-1.4%) and their servicing shortfall to 1.6-1.8 percentage points. This amounts to a 25-30% increase in shortfalls and economic losses.

2. ***Ignoring The Technical Assistance Elements of USDA's Loan Program Understates Value of Losses***

While often overlooked, the USDA loan program provided valuable technical assistance to borrowers that are described in detail in my February Report. Hence, a full accounting of the economic losses involved in loan and servicing shortfalls has to include some provision for these items as well as the credit at the heart of the transaction.

It is difficult to put a value on this kind of technical assistance, not least of all because of USDA and the states' historical provision of free extension services to most farmers. However, the technical assistance that USDA borrowers received was far more intensive and involved a broader range of issues. Moreover, the borrower assistance in question continued over the entire 1981-2007 study period while extension services eroded sharply from the 1990's on.

USDA's Agricultural Resource Management Study (ARMS) done to support the

Department's farm financial reporting provided one insight into the value of this technical assistance by asking farmers how much they paid for technical farm management advice. The survey results have to be interpreted carefully since they were reported largely by big commercial farms. However, they do provide some sense of the value of the assistance in terms of what farmers were willing to pay. The farmers who responded to the questionnaire indicated that they were willing to invest 3-4% of their net farm incomes in technical assistance. This suggests that the value of the technical assistance shortfalls that Native Americans experienced when USDA failed to met their reasonable loan expectations over 1981-2007 was significant.

3. ***Truncating Economic Losses at 2007 Artificially Decreases Economic Losses***

The limitation of the loan program data provided Plaintiffs to 1981-2007 introduces two biases into the analysis that understate Naive American losses.

First, without the 2008 USDA loan program data, there can be no calculation of losses for 2008. While inclusion of 2009 in the loss estimates is debatable since the year is not complete, the 2008 year is history, with all the necessary USDA data available to extend the calculations done for 1981-2007 through an added year.

What difference would adding 2008 make? First, given that 2008 was the highest farm income year on record and that asset appreciation rates were near-record high, adding 2008 increases economic losses substantially simply by adding one more particularly good year to the 27 already included in the analysis. Hence, it also boosts economic losses by adding a particularly good year to the cumulative damages from 1981 forward.

Secondly, over and above the issue of whether or not to include 2008 in the loss analysis, truncating economic losses at even 2008 fails to take into account the fact that

USDA loans typically went well beyond a single year's term. For the 1981-2007 period analyzed here, the average actual term was 7 years. That is, a loan made in Year 1 was available for the borrower's use through Year 7. This 7 year average means that the losses associated with loan shortfalls extending back as far as 2001 (2008 – 7 years = 2001) are understated in that my economic damage calculation did not take into account the full term of these loans. For example, the last 6 years of the term for a 7-year loan made in 2008 are essentially ignored because of the ending of damage analysis in 2007 or possibly 2008.

The losses associated with loan shortfalls extending beyond 2007 can be termed "prospective" rather than actual losses in the sense that they have not occurred yet. [actually we do include them in litigation, just often reduced due to speculation inherent] Moreover, depending upon how the Court resolves the case, some actions could be taken to prevent future damages from occurring. However, the rationale that these "prospective" losses are too uncertain is lacking in this case. The 2001-2007 loan shortfalls that cause the losses are not uncertain in that they are a matter of record. Given USDA's pattern of lending, the extension of the term of these loans out 7 years is also relatively certain, with the 7 year average term having a narrow standard error of the estimate of roughly 5-10%. The only loss element that is prospective in the classic sense is the income rate of return and the asset appreciation rates used to translate credit shortfalls into economic losses. This issue can be addressed by simply using the 1981-2007 historical USDA averages for these two financial performance measures. Looking at the 1981-2007 period as a whole with its many ups and downs puts the average income rate of return on investment at 4-6% and the average asset appreciation rate in a similar range. Hence, this truncating of losses involves a significant understatement of Native American losses.

It is important to make it clear how the calculation of the extended losses in question would be done. This would involve:

1. Extending loan shortfalls for loans made from 2001 to 2007 out for the average USDA repayment term of 7 years. For example, a loan shortfall for 2003 would be extended out beyond the 2004-2007 years already included in this analysis to include 2008-2010;

2. These new 2008-2015 loan shortfalls would then be translated into credit shortfalls using the same methodology explained in Section X; and

3. The 1981-2007 average income rate of return on capital and the average asset appreciation rate can then be used to convert the extended credit shortfall into income and capital gain losses.

In effect, USDA's failure to meet Native Americans' reasonable loan expectations over the 2001-2007 period has implications extending out for the full terms of the loans in question from 2008 through 2015.

4. ***Assuming that On-Reservation Native Americans Only Operated on Leased Land***

While substantially smaller in dimension that the concerns raised in paragraphs 1-3 above, a closer look at the use of the BIA leaseholder data to estimate the number of Native Americans farming on reservation indicates that the approach, while it corrects for some of the remaining undercount, does not capture all Native American operators, and thus continues to understate their reasonable expectations of USDA benefits, and finally to underestimate economic losses. The use of the BIA data was based on the assumption that BIA only maintained records of leased land, and thus was unable to provide any additional information about Native Americans farming on reservations who owned all of the land that they farmed or ranched. To the extent that any Native Americans farm on reservation on land they own rather than lease, they could have been missed in both the Ag Census and the BIA leasing records, and thus there would be a remaining under count.

Looking at the U.S. farm sector more broadly as described in the 2007 Agricultural Census, roughly half of all farm operators farmed own-land only. If even a quarter of Native Americans farming on-reservation farmed owned land, even the addition of the BIA count would still undercount Native American operators and their reasonable expectations of loans and servicing from USDA.

J. Conclusions

USDA's practice of treating Native Americans differently—overwhelmingly less favorably—than other loan program participants lead to significant economic losses. A conservative measure of this loss puts the total at as much as $744 million for the 1981-1999 period and $775 million over the 1981-2007 period. To put this in perspective, this loss is the result of what ultimately translates into a credit shortfall of more than $2.5 billion after original ownership, operating, and emergency loans as well as restructured loans are considered. While more difficult to establish with the data in this case, Native Americans lost an added $300 million in ancillary losses. The loss also reflects the fact that Native Americans wealth positions have also been damaged through USDA's denial of the capital gains that area hallmark of farm operations.

IV.
DATA ISSUES

Dr. Rausser raises several data issues in his report in an attempt to impeach the reliability of my analysis. Chief among these is his question about my using the PLAS Mainframe database (referred here after October-November improvements as the Revised PLAS Mainframe database) rather than the PLAS STAT database he used to track USDA delivery of loans and FOCUS data he used for problem loan servicing. He also questions my decision not to use the Decennial Census' EEO supplement and my use of Bureau of Indian Affairs Leaseholder Data. The first two issues are addressed here, with the BIA issue treated in a separate section to incorporate both the issue of data reliability and the governments's failure to comply discovery obligations.

A. PLAS STAT versus PLAS Mainframe

1. *Background*

The issues regarding the use of the PLAS databases are described at length in my July report. In summary, I used the 1981-2007 PLAS Mainframe Database for the *Keepseagle* analysis based on approximately four years of USDA reassurance that it was the most reliable and complete database available, and was used by USDA itself in tracking program delivery. Now, Dr. Rausser contends that this is not the case—that PLAS Mainframe is not reliable, complete, or used by USDA. He substituted in its place in his April, 2009 Report the PLAS STAT database with coverage limited to 1991-2007. The existence of the PLAS STAT database was disclosed in USDA's July 20, 2007 Supplemental Response to Plaintiffs' First Request for Production of Documents. However, at that time USDA reported that "the data in this file also overlaps with the data in PLAS." Since USDA did not indicate that there was any difference between PLAS and PLAS STAT, other than the shorter time period for

which PLAS STAT was available, there was no reason for me to switch databases based on this disclosure. Over a year later, in an October 3, 2008 Status Report, USDA stated that there was "no indication that significant amounts of data have been lost" from the data sources provided to Plaintiffs. Status Report at 24-25. Though USDA did disclose at that time that a repack had been done, so that PLAS likely suffered some data loss, Status Repot at 26-27, there was no indication that there was any significant data loss. This did not put me on notice of the sorts of problems Dr. Rausser alleges exists.

Indeed, even in USDA's December 17, 2008 letter to Plaintiffs, USDA did not reference any loss of data from PLAS, but only indicated that PLAS STAT might permit more accurate identification of new loans (as compared to restructured loans) than PLAS did. The letter went on to note that PLAS STAT included guaranteed loans that were not part of this litigation, and that PLAS STAT also did not include serviced loans, that were being studied as part of this litigation. I evaluated these comments and determined that they were not serious enough to warrant redoing the expert analysis scheduled for delivery six weeks later.

Dr. Rausser's April 2009 Report disclosed that he had been provided quite different information concerning the two databases. His recent deposition revealed that he had been provided information from FSA officials questioning the reliability of PLAS "shortly after" late 2007. Rausser Dep. (Nov. 17, 2009) at 190-91. This revelation took place after Dr. Rausser's staff had conducted preliminary analyses on PLAS Mainframe data. *Id.* at 188-89. In my July report, I analyzed the degree to which PLAS Mainframe differed from PLAS STAT during the 1991-2007 time period when data exists in both databases. Having found that differences were not substantial for the 1991-2007 period, I concluded that the PLAS

Mainframe database could be used to analyze the entire 1981-2007 period.

Two things have happened since I submitted my July report, namely:

1. Rausser submitted an October report that included more information on PLAS STAT and the FOCUS databases and the codes used in their operation--particularly expanded information of codes used to identify loans by type and servicing transactions by type. He also presented alternative data sources such as the FSA 205A Report in an effort to demonstrate how unreliable PLAS Mainframe data was in describing USDA loan activity during the 1981-1990 period. He seeks to reinforce this point by comparing PLAS STAT output with PLAS Mainframe output for the 1992-2004 period; and

2. The added information from the Rausser October Report allowed me to improve my processing of the PLAS Mainframe data to address many of his concerns and establish its suitability for analysis here. I arrived at this decision based on comparing Revised PLAS Mainframe data on new loans made in total and by ownership, operating, and emergency types and by comparing loan servicing for the four categories treated in my report (restructuring, write downs, write-offs, and deferrals) with the reference data Dr. Rausser and USDA provided---namely the FSA 205A Reports, the National Finance Center Reports submitted to OMB and Congressional Oversight Committees, PLAS STAT as reported by Dr. Rausser, PLAS STAT as run using Dr. Rausser's codes, the FOCUS databases, and the loan activity reported first by FmHA and later FSA in the USDA annual statistical handbook (*Agricultural Statistics*).

The materials that follow are organized into two sections. The first section lays out Rausser's renewed criticism of my use of the PLAS Mainframe data in my reports and establishes that his conclusions are unfounded—particularly after I was able to use added USDA information to create the Revised PLAS Mainframe database. The second section compares the Revised PLAS Mainframe data and the other USDA sources, in particular the PLAS STAT database that Dr. Rausser uses.

2. *Basis for Rausser's Rejection of PLAS Mainframe*

Dr. Rausser's rejection of my use of the PLAS Mainframe database dates to his April Report and is expanded in his October Report in the section labeled "Mr. O'Brien Uses Unreliable Data and Misinterprets the Data He Uses." He notes in summary on page 45-46

that:

> The PLAS Mainframe database is an accounting Platform and is therefore overwritten in the process of daily updating…FSA has removed all records of inactive loans, including loans that had been fully paid off, consolidated, reamortized, or which met certain other conditions, at various points during the putative class period….loan records were repacked from the PLAS Mainframe (and moved to fiche) throughout 1983-1993, and the final repack affected loans that were inactive, or had been last updated as of October 1990. As a result, there are large numbers of loans missing from the PLAS Mainframe data base prior to 1991. The older the loan, the less likely it would still have been active in 1990 and thus have remained in the data following the repack. In addition, because Operating loans have much shorter repayment periods than Ownership loans (one to sever years, as opposed to up to 40 years), they are much less likely to have survived the repack. This is essentially important because Operating loans are reported to have made up 55% of the new direct ownership, operating, and emergency loans made between FY 1981 and FY 1988. In other words, the most frequent loan type is also the one least likely to have survived the repack….Because of the failure to account for these data omissions and distortions, all of Mr. O'Brien's statistical results prior to 1991 are unreliable.

Dr Rausser adds on page 47 that:

> For the earlier years, PLAS Mainframe produces a massive under-count (as few as 5.1% of the actual number of loans appears)…For the later years, PLAS mainframe produces a massive over-count (as much as 546% of the number of loans actually made)…For none of these years does PLAS Mainframe accurately represent the actual FSA lending activity occurring in that years.

Rausser notes further on page 1-2 of his Appendix that:

> From the PLAS Mainframe, I have extracted only the data file recording the year in which the loan must be repaid
> Mr. O'Brien's reliance on this data has introduced significant errors into his analysis that invalidate his conclusions

Rausser remarks on page 47 that

> Instead of abandoning PLAS Mainframe data in favor of the accurate and easily interpreted PLAS STAT data, Mr. O'Brien has simply attempted another inaccurate way of interpreting this incomplete collection of data. FSA confirms that Mr. O'Brien's new method continues to be inaccurate.

Finally, Rausser remarks on page 1-1 of his Appendix that

> The PLAS STAT file represents the most complete and accurate record of loans approved by FSA during the class period previously certified for injunctive

> relief…The PLAS Stat file on which I rely was created in FY 1991 to store each loan obligation transaction recorded for a particular borrower on the PLAS Mainframe and continues to be maintained to this day. As a result, it provides a comprehensive and accurate record of loans made in 1991 and later.

I have belabored Rausser's criticism to emphasize one point—his rejection of PLAS Mainframe is based on the extent to which the database covers actual loan activity---not on the basis of the data in the database being unreliable or the variables in the data bases somehow being different. If this is the case, I should be able to establish just how acceptable or unacceptable use of the Revised PLAS Mainframe database is by testing the extent to which it reports the same level of USDA loan activity as published, reliable sources. This is critical as the Revised PLAS Mainframe database developed since Rausser's October Report uses the same data as the original PLAS Mainframe but draws on the codes and programming used by Rausser to extract loan data for analysis here.

The central issue is whether the PLAS Mainframe data provides a representative enough picture of loan program activity to support reliable analysis. I arrived at the conclusion that it does after considerable comparison of databases that indicate that much of the criticism of PLAS Mainframe to date is due to Rausser himself being unable to provide a reliable history of USDA activity for much of the putative period that can be used to establish its suitability or lack thereof. As the comparisons of loan activity indicate, the Revised PLAS Mainframe data base actually matches "definitive" USDA records for loan making in several years and for several options better than the PLAS STAT data base. This inability on Rausser's part to identify a definitive source of data on USDA loan activity underlies much of the flamboyant criticism of the PLAS Mainframe included in his July report, especially on pages 45-58 of his October Report, and distracted attention from testing the PLAS Mainframe database for suitability.

3. ***Establishing a Reliable History of USDA Activity: 1981-1990***

Figure IV-1 provides a comparison of alternative USDA information on loan activity for 1981-1990 and includes comparable data from the Revised PLAS Mainframe Database. The loan numbers included in Column A are taken from the USDA *Agricultural Statistics*—its annual report on farm sector and USDA farm related program activity. I consider these to be the most reliable measure of new loan activity for several reasons. The data set reports the same information over the entire period dating back before 1981. As the footnotes indicate, the data is for fiscal years and has been provided by the agency administering the loan program (first FmHA and subsequently FSA) each year for publication in the same table format. A sample copy of the relevant page of *Agricultural Statistics* is attached as Figure IV-2. However, the "new loan" entries for each year are for ***both*** direct loans and guaranteed loans. This means that the data provide an "upper bound" measure of the number of new direct loans USDA made each year. This is less of a concern in the first half of the damage period when most loans were direct loans. However, it becomes a large concern late in the period when most new loans were guaranteed loans. However, even for these later years, the *Agricultural Statistics* data provided a documented "upper bound" measure of USDA's new loan activity.

Column B includes the data Rausser cites from the FSA Report 205A, which he presents as the definitive measure of new USDA direct loan activity and the basis on which he claims that the PLAS Mainframe database grossly undercounts loans in the 1980's.[3] Column C shows the Revised PLAS Mainframe data. Rausser's rejection of the Revised PLAS Mainframe data is based upon comparing Column B (Report 205A) with Column C

[3] In his April Report he touted the *Agricultural Statistics* data as the most reliable, until he recognized that those reports include guaranteed as well as direct loans.

(PLAS MF, or at least with the version of PLAS MF used in my July Report).

While there is a very large difference, as Rausser states at p. 46, between the 205A Report and the PLAS MF data, the vast majority of the apparent gross understatement of loan activity attributed to the PLAS Mainframe in Rausser's Table 4 relates to errors in the FSA 205A report. This also appears to be the case regarding Rassuer's conclusions about PLAS Mainframe's failure to show the appropriate mix of Ownership, Operating, and Emergency loans based on the PLAS MF and FSA 205A comparison in Rausser's Table 5. The FSA 205A report shows twice the loan activity reported in *Agricultural Statistics*. Which is correct—FSA 205A data Rausser cites in his October Report, or the *Agricultural Statistics* Rausser cited in his April Report? While the *Agricultural Statistics* data cannot provide the "correct" number of direct loans, since it included both direct and guaranteed loans, they do provide the total of *all* loans, and the total number of direct loans cannot be greater than the total number of all direct and guaranteed loans. Clearly, the FSA 205A data for 1981-1985 is grossly in error and describes USDA making more than twice the number of direct loans it actually could have made, assuming that the *Agricultural Statistics* report for this time period includes no guaranteed loans at all.

This FSA 205A error can be confirmed at least obliquely by looking at FSA reports on the dollars of new loans made via National Finance Center documents. If the total dollar value of loans made for the 1980's is divided by the new loan numbers from FSA Report 205A, we see that either the average value of loans dropped dramatically for the first 4-5 years of the 1980's and rebounded in the late 1980's or the number of loans included in Report 205A for the early 1980's is substantially overstated. Ironically, this means that Revised PLAS Mainframe data is demonstrably more accurate than Rausser's reference FSA

205A data for the 1980's.

B. Establishing the Representativeness of Revised PLAS Mainframe Loan Data: 1991-2004

But the decision to use PLAS Mainframe has to be based on a more positive measure of its representativeness for a period with reliable data on USDA activity. Figure IV-3 provides the basis for establishing this representativeness. It expands the information in Figure IV-1 by adding a column for National Finance Center data on new loans made and includes Rausser's PLAS STAT (PLAS STAT R) data and my only run on the PLAS STAT database (PLAS STAT O) using the codes identified by Dr. Ruasser. The data shown are for 1991-2004, the period for which there is complete PLAS STAT data. A comparison of Columns A and B indicates that the disagreement on how many new loans were made in the 1990's is considerably less than in the 1980's. The *Agricultural Statistics* and FSA 250A data are much more comparable and agree with National Finance Center reporting. While there are anomalies in the PLAS STAT (R) and PLAS STAT (O), both show approximately the same number of loans reported in Report 205A. However, there are several notable exceptions where PLAS STAT R does not match FSA 205A.

This suggests that the FSA 205A data can be used as a reasonably reliable reference for new loan activity only in the 1990's and that any comparison to establish the reasonableness of using the Revised PLAS Mainframe data has to rely on these years. I will follow Rausser's lead and focus on 1992-2004. However, it is noteworthy that Rausser begins his analysis of data comparability with 1992 when PLAS STAT starts with 1991. This appears to relate at least in part to the fact that there is a large discrepancy between Rausser's PLAS STAT data for 1991 and Report 205A for 1991.

Leaving aside for the moment specific annual comparisons and focusing on the

aggregate activity over 1992-2004, the results provides the basis for making a determination on representativeness. Comparing the Revised PLAS Mainframe data with the FSA 205A data, the PLAS STAT (R)and PLAS STAT (O) indicate that the Revised PLAS Mainframe data is indeed sufficiently representative to support its use. Looking at the total of all new loans for 1992-2004 shows that the Revised PLAS Mainframe comes within 1.#% of matching the FSA 205A reference while PLAS STAT R is only slightly closer.

Assuming for the sake of argument that problems with the Report 205A data are confined to the 1980's and the Report 205A provides a reliable accounting of new loan making over the 1990's, comparing Column B (the FSA 205A data) and Column C (Rausser's PLAS Stat Database) show that Rausser's data occasionally do not match. This discrepancy is even greater looking at Column D (my run of the PLAS STAT database using the codes provided by Rausser).

It is important in making these comparisons to focus on the operating loan category that accounts for the bulk of USDA loan activity over the period 1981-99. As Rausser notes on page 45-46:

> because Operating loans have much shorter repayment periods than Ownership loans (one to sever years, as opposed to up to 40 years), they are much less likely to have survived the repack. This is essentially important because Operating loans are reported to have made up 55% of the new direct ownership, operating, and emergency loans made between FY 1981 and FY 1988. In other words, the most frequent loan type is also the one least likely to have survived the repack.

As the data in Figure IV-4 show, the differences between Report 205A and Revised PLAS Mainframe for operating loans are the smallest in absolute and percentage terms of all three loan categories, with both series showing operating loans accounting for 50-55% of the loan total. While somewhat larger, the differences between Revised PLAS Mainframe and FSA 205A are also within reason and often closer to this benchmark than PLAS STAT (Figures

IV-5 and IV-6). Figures IV-7 to 9 also suggest that the Native American loan shares are also comparable.

Figures IV-1 to 9 do leave open one troubling question of why the annual data do not match more closely. Year-to-year comparisons show greater variations than the period totals. This is due to several factors. First, the PLAS STAT and Revised PLAS Mainframe data are for calendar years rather than for fiscal years, which are the basis of the Report 205A. This means that the data should be closer over a combination of years that "washes out" the distinction but could vary on a year-to-year basis given the difference of four months between the fiscal and calendar year. This is particularly important since USDA lending often swings widely from year to year in response to changing farm credit needs. In addition, it is not clear which final loan date is being used in the different data sets. The *Agricultural Statistics* data are for new loans made within the identified fiscal year. However, "made" is not defined. I classified loans as made on the date that the loan was closed—the date that the loan papers were signed rather than the date that the loan was approved, the date that funds were obligated, or the date that funds were disbursed.

Another question is why are there larger differences between the Native American counts for Revised PLAS Mainframe and PLAS STAT (R) than for the total loan count? At least part of the answer is to be found in Rausser's report where he notes that he used "longitudinal analysis" as the basis for changing race identifiers. This practice is discussed in my July report and led to the reclassification of loans as Native American loans when the applicant declared and/or the loan officer certified in accepting the application for a second, third, etc… loan that they were of another race. These "adjustments" to the data lead to the inflation of the Native American count and account for the PLAS STAT (R) data showing

more Native Americans than the Revised PLAS Mainframe data.

C. Data Issues: Decennial Census vs Census of Agriculture

1. *Background*

Dr. Rausser criticizes my use of 2007 Census of Agriculture data on average household size among farm operators to expand the farm operator count used in setting ownership and operating loan benchmarks to include new farmers in the pool of potential applicants. Rausser concedes that adjustment for sources of new farmers is appropriate, at least for Ownership loans, but argues that the adjustment should be made using Decennial Census data from the EEO supplement on employment. Conceptually, this issue is whether a count of the farm population based on operator household numbers provides a better indicator of the potential farm operator population than a count of farm operators and farm workers. USDA research indicates that most new farmers come from farm families, where they have often, though not always, worked as the secondary or tertiary operator. This allows them to meet the USDA requirement that new farmers have sufficient experience in farming. Ruasser contends, however, that adding in the farm work force is a better approach than adding in farm family members. While it is conceptually attractive to think of the farm work force as the source of new farmers, USDA has established that, leaving aside farm family members who make up over two-thirds of the farm work force, the data on the remaining 750,000 is unreliable, particularly when it comes to establishing race and citizenship.

Rausser also notes in his main report and on pages 1-5 of Appendix 1 that:

> As part of the Decennial Census, the U.S. Bureau of the Census produces a Special Equal Employment Opportunity (EEO) Tabulation, which includes data on race and ethnicity cross-tabulated by other variable such as occupations, worksite, state, and residence state. The dataset includes employment categories for farmers, ranchers, and agricultural managers (farm operators) and other farm employees. Mr. O'Brien,

without explanation, ignores this data.

My decision not to use the EEO data resulted from the conceptual considerations already noted but also to fundamental questions about the quality of the data. As I indicated in my July Report, I concluded that the Ag Census data was far more reliable given the efforts NASS has made to improve its quality. For example, while the 2007 Ag Census data doubled the reported Native American operator count, the Decennial Census data for 2000 (the last year available) showed a consistent count at roughly half this level over two cycles. Hence, the Decennial census has yet to catch up with improvements in the 2007 Census. Moreover, the EEO survey is structured in a manner likely to lead to undercounting in the farm sector where the majority of farmers work part time. As Dr. Rausser notes on page 1-5 of Appendix 1,

> Because many people hold more than one job in the course of a year, and only one can be reported in the EEO Census, the absolute numbers reported by the Census are an understatement for both owner-operators and for farm labor. However, there is no reason to believe that the ratio between these two categories (farm laborers: farm operators) is not accurately represented. As a result, I have used the data from 1980, 1990 and 2000 censuses in the construction of my own Native American benchmark.

Dr. Rausser's argument that simply because the basic count is wrong doesn't mean that the survey's ratio between operators and workers is unreliable is unacceptable. If the count of farm workers is undercounted to a different degree than the count of farm operators, the ratio will not be accurate either. I remain unconvinced that the EEO Census report is reliable, and continue to believe that use of the more reliable and more relevant Ag Census data is the appropriate way to proceed.

It is also important to note that Rausser's checking of his EEO data and analysis against the data for farm employment published by ERS is erroneous. The data source that Rausser cites is labeled agricultural-related employment, but includes upstream jobs in the

input industries (i.e. jobs in fertilizer and farm equipment plants) and down-stream jobs in the food processing industries. Hence, Dr. Rausser is using the wrong data from ERS to justify using data from the EEO Population Census that is questionable at best.

It is note-worthy that Dr. Rausser's use of the Decennial Census in setting his ownership loan benchmarks results in a higher expected share for Native Americans than using the Ag Census-based count of farm population. Hence, ownership shortfalls would be 20-30% higher had I agreed with Dr. Rausser and used his EEO-based count. Indeed, since new farmers may seek an Operating loan as their first loan, particularly when farming on leased land, there is no reason to use a different benchmark for Operating than Ownership loans. Hence, if I had agreed with Dr. Rausser's use of the EEO data and had extended it to operating loans, both ownership and operating loans shortfalls and Native American economic losses would be 20-30% greater.

Finally, in leaving this issue, Rausser claims that my use of the household factor means I am counting Native American children as eligible for USDA loans. His Appendix 8 Figure (Age Distribution of Native Americans and All Households Reported in the 2000 Decennial Census) reports that 33.9% of Native Americans in farm households are under 18 compared to 25.7% of the non-Native Americans. Of course, I do not expect that either those under-18 in Native American households *or* those under 18 in non-Native American households will apply for or receive loans. The USDA guidelines explicitly exclude those too young to enter into a legally binding debt. The adjustment to the expected Native American share based upon household size does not assume that every member of every household is eligible for a loan. In effect, the Native American farm population is proportionally somewhat larger than the non-Native American farm population and hence

likely to provide somewhat more of the new farmers than the non-Native American farm population given the history of new operators generally coming from existing farm families.

D. Data Issues: BIA Lease Data

Dr. Rausser is also critical of my use of BIA data. However, this issue is complex enough—particularly with the addition of output from the BIA's computerized system—that it is treated as a separate section that immediately follows.

V.
BIA DATA

A. Background

The role for and use of the Bureau of Indian Affairs' (BIA) data on Native Americans holding agricultural and grazing leases for reservation land has been a source of dispute between Dr. Rausser and me. The data in question is collected by the individual Tribal Realty Offices of the Bureau as part of their administration of trust lands. Their responsibilities include maintaining a registry of reservation land and a comprehensive listing of the leases in effect along with information on each lease (location, size, duration, etc,), the leasor(s), the lessee, and purpose of the lease. Hence, this data promised early in the case to be a critical source of information on the number of Native American farmers not included in the 2002 Agricultural Census, given the longstanding Census practice of counting each Native American reservation as a single farm.

Publication of the 2007 Agricultural Census results based on improved data collection for Native Americans in particular shifted use of the BIA data from being a major source of data to supplement the 2002 Census' undercounting of Native Americans farming on reservations to being a useful check on how far USDA/NASS had come in correcting undercounting in the 2007 Census.

The BIA data took on added importance with the submission of two expert reports on the so-called Indian land tenure mosaic by Dr. Dean Lueck. The BIA data do not support Lueck's finding that it is difficult to assemble viable farms and ranches on-reservations, given the problems associated with group, rather than fee simple, ownership of land. BIA data confirmed that, to the contrary, a sizeable number of Native American operators have done just that.

Using the BIA data to measure any residual undercounting in the 2007 Ag Census results required a shift in my analysis of the data. The approach that I used to analyze the BIA data after the 2007 Ag Census data became available is detailed in my July report. As noted there, the BIA data suggest that USDA has corrected most, but not all, of the undercounting. The 2002 Census count showed a roughly 100% increase in the count of Native American operators from the 1997 count in what was widely billed by USDA as the solution of the undercounting problem. The 2007 Census count showed another roughly 100% increase from 2002 levels which Dr. Rausser now claims resolves the undercount problem completely. The BIA data suggest that there is a residual undercounting of 10.8% (6,635). As Figure V-1 substantiating the 6,635 count indicates, this addition to the 2007 Ag Census is concentrated in six states with the largest reservations—namely Arizona, Montana, New Mexico, North Dakota, Oklahoma, and South Dakota.

The 6,635 BIA additions to the 2007 Census's total of 61,472 Native American operators (Census Table 55 count of "Native Americans Alone or in Combination") is the result of the careful consideration of the states' county data on operator numbers collected by the Ag Census and the data from the BIA keyed to reservation counties. That is, if the 2007 Census showed 1,000 Native Americans farming in reservation counties in a state and the BIA data showed 1,100 Native Americans farming on reservation in those counties, I assumed total overlap and the BIA addition to the Native American count was 100. In the same vein, if the 2007 Ag Census showed 500 non-Native Americans farming in reservation counties, and the BIA count showed 650 non-Native American lease holders for reservation land, the operator count used in my analysis would show an increase of 150 in the count of non-Native Americans. However, as my July report demonstrates, the BIA count of non-

Native Americans farming on-reservation was always below the 2007 Census count of Non-Native Americans farming in reservation counties. This precluded any change in the non-Native American operator count. This means that if the Ag Census count showed 500 non-Native Americans farming in reservation counties while the BIA data showed 350, I made no change in the non-Native American count, assuming that the 2007 Ag Census "over-count" captured non-Native Americans farming in reservation counties but not on reservation land.

Ironically, this 10.8% estimate of residual undercounting is consistent with USDA's own calculation of the standard error of the estimate for the 2007 Census' Native American count. The reference materials included with the 2007 Census show the standard error for the estimate of all farm operators is approximately 2.5%, but the standard error for the count of Native American operators is roughly twice as large. This is the highest standard error for any operator count and more than two and a half times the error for the count on white operators who make up the overwhelming majority of the operator count. This means that USDA's 2007 estimates of the Native American count with a 95% degree of confidence would be ±10 to 11%. Given that USDA's counting problem has historically been finding Native Americans rather than over counting Native Americans, the +10-11% parameter is particularly important. The BIA additions to the 2007 Census count of Native American farmers included in my report fall within a 95% confidence measure of the 2007 Census. Moreover, the 10.8% BIA additions have to be seen in the context of USDA's 100% increase in the Native American count in 2002 and second 100% increase in 2007. To put this into context, the USDA 1997 Census put the standard error of the estimate for its Native American count at less than 5% despite the fact that the 2002 Census ultimately indicated that the undercount was almost 100%. The USDA 2002 Census put the standard error of the

estimate for its Native American count in the same 5% range despite the fact that the 2007 Census ultimately indicated that the undercount was almost 100% again. In this context, a 10.8% increase grounded in the BIA data for the 2007 Census count seems quite reasonable.

B. Renewed Rausser Criticism

Rausser rejects my BIA analysis completely. See, e.g., Rausser October Report at 70-84. I respond to Rausser's criticisms one by one below.

1. *Sorting of the BIA data to Identify Native Americans Farming On-Reservation*

Rausser attacks my analysis (sorting) of the BIA data and my conclusions about the number of Native American lease holders that I included based on the timing of the lease, the commercial size of the lease, and their standing as Native Americans. Rausser asserts on pages 71-72 that:

> In the process of performing his analysis, Mr. O'Brien has
>
> 1. assumed that lessees without race data or with conflicting race data were Native American,
>
> 2. typically counted leases, rather than lessees, thus double counting many individuals (or in some cases counting the same individual five, six, or seven times),
>
> 3. included leases that were not active during 2002 and which pertain to other years, and
>
> 4. failed to consistently implement his rule excluding farmers on the basis that they are too small to be commercially viable.

Dr. Rausser seeks to support these erroneous allegations by doing his own count of Native Americans farming on reservations. On pages 77 through 84, he reports his own results and contrasts them with mine. He shows the following selection of states (excluding Arizona, the single largest reservation state, where the upgraded 2007 Census data confirmed my BIA count to within 1-2%):

BIA Count of Native Americans Farming On-Reservation

State	O'Brien Count	Rausser Count
Montana	2,221	792
North Dakota	404	165
South Dakota	2139	535
Wyoming	518	216
South Dakota	2139	535

Rausser's claims do not stand up to review despite the considerable amount of time and energy invested on the topic in his report.

First and most important, the selection criteria that I used were provided by the BIA specialists who participated in conference calls with me, and also provided information through counsel for USDA in correspondence. A copy of the relevant correspondence has been previously produced, and a review of it demonstrates the considerable time and effort that I had to invest to get the data and information in question from Defendant. Rausser seems to have overlooked that I analyzed the data provided by the BIA using the BIA's guidance concerning the data. Those rules are summarized by tribe and cited at the start of each of the tribal record files provided as production with this report. After no fewer than a dozen requests that moved between me, counsel for Plaintiffs, counsel for USDA, and BIA specialists, I was assured that the data provided over more than 18 months, in more than a dozen separate productions was indeed the best data available and that the data supported the analysis that I described in our exchanges. *See* letters from counsel for Defendant transmitting BIA data).

In responding to Rausser's criticisms, I reviewed the BIA lease data again for this November rebuttal report including the conflicting information provided by USDA on the codes needed to read the original data files. After correcting for these code errors from

USDA, I took the same steps as described in my February and July Reports. I have attached each of the tribal records provided by Defendant and reanalyzed them to take into account Rausser's latest concerns. The files show each individual counted as a Native American farming on reservation by a personal identifier.

2. ***Errors in Rausser Sorting***

A closer look at Dr. Rausser's results indicates that errors in his sorting explain much of his criticism that I count too many Native Americans farming on-reservation. For example, Rausser includes in Appendix 6 more than 50 pages of names of what he claims are individuals for Montana and Wyoming whom I doubled counted as Native American leaseholders. It is noteworthy that they are not included multiple times in my count (see files for Montana and Wyoming Tribes) as claimed. Indeed, their user code identifies them as non-Native Americans, and that is how I counted them. In an effort to substantiate this, I have attached as Appendix 3 a listing of the Native American leaseholders that I included for Montana and Wyoming. The Montana listing indicates that the 50-pages of duplicate names supplied by Rausser are in fact the result of his missorting of the data.

There are other indicators that Rausser's much lower count of the BIA lease data is erroneous. It is important to note first that Rausser provides state-wide data for only Montana, North Dakota, South Dakota and Wyoming—with the states cherry picked carefully to make his point. The data below repeats his findings for his selected states along with information for other states and from other sources. The data show:

Native American Operator Count on Reservation

State	O'Brien BIA Count	Rausser BIA Count	2007 Ag Census Count (On-Reservation)
Arizona	7,791	n/a	8,266
Montana	2,221	792	1,393
New Mexico	6,813	n/a	4,206
North Dakota	404	165	248
Oklahoma	535	n/a	486
South Dakota	2139	535	729
Utah	491	n/a	527
Washington	122	n/a	201
Wyoming	518	216	142
3 Rausser States	3,853	1,708	2,512
Total Above	21,034	n/a	16,198

Dr. Rausser's analysis does not stand the test of comparison. He has clearly discarded too many observations from the BIA records. First and foremost, his analysis of the BIA's count of Native Americans farming on reservation for his four states (1,708) amounts to substantially less than even the 2007 Ag Census's count (2,512). Rausser has clearly sorted-out Native American lease holders who should have been included in the BIA count. For Montana, he counts 792 BIA Native Americans farming on-reservation while the 2007 Census counts 1,393. He also undercounts for North Dakota and South Dakota when his BIA numbers are compared with the 2007 Ag Census numbers. Adding up his review of individual tribe numbers cited on the same pages of his report shows that his totals fall short of the partial 2007 Ag Census count for other states as well.

Could this be because even the BIA data is incomplete? The gross size of the overall BIA count and my selection of Native Americans farming on reservation from the BIA data base indicates that the issue is not incompleteness in the BIA count but rather Rausser's

selection of too few of the BIA leaseholders to include in his count.

Dr. Rausser also fails to acknowledge that my BIA count in Arizona (7,791) using the criteria stated above compares with the 2007 Census count of 8,266. It is not surprising that my selection generated a somewhat smaller number for a state where all leaseholders of reservation land have to document their race as Native American, the tribes shared their well-kept records with USDA, and public records are more complete. This indicates that, if anything, my selection criteria are too exclusive—possibly because a commercial viable operation can have less than 10 acres depending on the mix of commodities produced. It is also likely that there were at least this many individual operators farming fee simple holdings and hence not included in the BIA lease holder data.

3. ***Undercounting Non-Native Americans Farming On-Reservation***

Rausser claims that I have ignored the fact that some farmers operating on reservations are non-Native Americans and that I have left them out of the calculation and in the process inflated the Native American share. He notes on page 72 that

> Mr. O'Brien has adjusted *only* the Native American counts using BIA lease data and has left the non-Native American count unchanged from the 2007 Ag Census. As a result, Mr. O'Brien has once again inflated the numerator of his benchmark fraction while leaving the denominator unchanged.

This second criticism by Rausser was contradicted in my July report, during my deposition on October 1, 2009, and in the expanded production provided to support my July report. USDA raised the same issue during my deposition and requested that I modify a figure to make the calculation more transparent, even though my back up data already provided the information. I responded to the request for added production by supplying Figure V-2 reproduced here. As I indicated repeatedly, I treated the Native American and non-Native American leaseholders identified in the BIA data the same. However, as

demonstrated by Figure V-2 and noted in my July report, the BIA count of non-Native Americans farming on-reservation was always below the 2007 Census count of Non-Native Americans farming in reservation counties. This precluded any change in the non-Native American operator count.

It is important to put Dr. Rausser's claims on this issue into context. His count of non-Native Americans on reservations on page 73 is suspect again since his sorting of the BIA data is flawed by his use of the wrong sorting guidelines.

4. ***Disingenuous Government Response to Subpoena***

Moving beyond the disputes with Rausser described above, the government has been disingenuous at best throughout the entire process of obtaining the BIA data. In the process of reviewing my work for this third report, I contacted BIA staff responsible for realty record keeping (Bureau of Indian Affairs, Trust Administration). They described and demonstrated the BIA's Trust Administration Management System (TAMS) that includes information on reservation lease holding of the type provided by counsel for Defendant in response to discovery efforts. They demonstrated that the TAMS system:

1. Has more than double the 86,000 entries for Native American agricultural and grazing leases included in the files provided by Defendant and cited in Figure V-1;

2. Includes specific information on the name/personal identifier of the lease holder, the purpose of the lease, the race of the leaseholder, the size of the leased land holding, the location of the lease, and the current status of the lease. These are all pieces of information that Dr. Rausser claimed were lacking in my analysis and the basis for disregarding the BIA data;

3. Included in the system the agricultural and grazing land on reservations held by Native American owners for their own use and not available for leasing. This provides added insight into the number of Native Americans farming on a reservation who would not show up in the data provided by Defendant, since that only included leased land;

4. Had a sophisticated search engine that could have provided the information that I garnered from the dozens of separate tribal records in a fraction of the time;

5. Was producing system reports as early as 2006 and was fully operational by 2007. Defendant provided some, but not all, of the lease records used to populate the database on a piecemeal basis from and assured the Plaintiffs' counsel as late as 2007 that all information had been provided in response to the Plaintiffs' request for all relevant BIA information.

6. Is being used by a joint BIA-USDA working group as the basis for making USDA farm program payments to land owners and users on reservations.

Hence it becomes clear that Defendant has in its possession both the data and the information system necessary to put the issue of undercounting on reservations to rest. Moreover, the history of TAMS development and Defendant's delivery of BIA data to Plaintiffs' counsel raises serious questions about Defendant's compliance with discovery rules. Finally, the count made using this system indicates that my BIA additions are reasonable and in many states undercount Native American leaseholders and Native Americans farming fee simple land holdings on reservations.

VI.
FARM TYPOLOGY

A. Background

Farm typology—the demographic categorization of farms—plays a major role in how Dr. Rausser and I did our analyses. While I treated the topic at several different points in my February and July reports, Dr. Rausser's October Report introduced more demographic information, some of which is seriously mischaracterized, which warrants a more organized statement in this final report.

Farm typology is important to this litigation because of its direct link to four key questions, namely:

1. ***How to define Native Americans' expected share of USDA ownership and operating loans.*** While both Rausser and I begin estimation of "reasonable shares" with the 2007 Census of Agriculture's count of farm operators, the highly specialized nature of the USDA ownership and operating loan program requires breaking the general farm operator population down into the subgroups singled out for the loan programs;
2. ***How to define Native Americans' expected share of emergency loans***, given the somewhat different targeted farm operator population;
3. ***How to establish the relevant historical measures of income performance and asset appreciation*** for use in determining economic losses from shortfalls or windfalls in USDA program delivery; and
4. ***How to view the USDA loan program vis-à-vis its goal of using targeted concessional lending to boost the financial performance*** of small and medium-sized family farms, beginning farms, and limited resource farmers unable to obtain credit elsewhere and farms more generally faced with natural disasters and unable to secure financing elsewhere at reasonable rates.

The first section here focuses on describing the USDA farm typology and second applies it to the questions relevant to this litigation.

B. Description of USDA's Farm Typology

1. *USDA Classification of Farms*

USDA identified 2,196,791 farms in its most recent Census of Agriculture (2007).

These 2,196,791 farms were operated by 2,196,791 primary, 931,670 secondary, and 145,072 tertiary operators based on the Census' collection of information on up to three operators per farm. Most of these secondary and tertiary operators were related to the primary operator and often were "understudies" for the principal operator position. For Census purposes, a farm was defined as any operation that produced or could have produce $1,000 or more in agricultural products. Of this 2,196,791, over a quarter were "point farms" that were included in the count, despite not having produced $1,000, based on points assigned each farm by NASS enumerators to measure if they could have produced $1,000. These points were based on factors such as acreage, machinery, etc. rather than the value of farm output. The remaining farmers were included on the basis of their actually having marketed the requisite $1,000 or more in agricultural products. Figure 1 provides a graphic sense of farm numbers.

USDA has long used this extremely broad count of farmers. In part, it reflects the Department's broader concern about the well being of the rural population and a long-standing belief that improving farm performance among small and very small farms is the best approach for dealing with rural poverty.

This same concern about rural well-being has also been the basis for USDA's broadening its farm typology to include a count of the farm population by collecting data on farm household size. This allows USDA to monitor rural poverty and to track the potential pool of new operators since the overwhelming majority of new farm operators come from farm families. This USDA focus on farm households is reflected in the count of households and the average population per farm household reported in the Ag Census and included here in Figure VI-1.

2. ***USDA Classification of Farm Businesses***

USDA's integration of the Ag Census done every five years with annual USDA/ERS farm financial surveys provides the basis for identifying ***farm businesses*** and characterizing farms according to their annual sales. This alternative typology lends itself more to analyzing business operations and farm lending. The subset of farms involved is based on counting the individuals from the farm count who classify themselves as farm businesses rather than rural residences and identify themselves as full- or part-time farmers rather than working in some other occupation or being retried. This factors out the farms generally referred to more informally as "hobby farms." The so-called hobby farms eliminated this way generally include the large majority of the point farms.

While more detailed sales classes can be broken out, standardized ERS reporting available at www.ers.usda.gov/data/arms/GlobalAbout shows that there were 803,197 farm businesses in 2007 that can be broken down using the same sales categories shown in Figure VI-1. The results show:

1. Very Large Farm Businesses with average sales of $1,208,460. The 110,152 very large farm businesses in 2007 accounted for only 13.7% of farm businesses but accounted for 54.6% of sales, 32.3% of assets, 52.2% of operating capital, and 57.0% of net farm income.

2. Large Farm Businesses with average sales of $349,657. The 93,601 large farms accounted for only 11.7% of farm businesses but 13.4% of farm sales, 15.2% of farm assets, 13.4% of operating capital, and 14.3% of net farm income.

3. Farm Occupation/Higher Sales with average sales of $173,867. The 111,389 farms accounted for 14.2% of farm businesses but only 8.0% of farm sales, 12.9% of farm assets, 8.3% of operating capital, and 8.5% of net farm income.

4. Farm Occupation/Lower Sales with average sales of $32,252. The 434,599 farm businesses account for 50.4% of farm businesses, but only 5.7% of farm

sales, 28.4% of farm assets, 17.9% of operating capital, and 3.1% of net farm income.

This classification generally includes the added categories of :

5. Non-Family Farm Businesses

6. All Farm Businesses with a sales average of $303,697 for the 803,133 enterprises included in the grouping.

Following this same typology, the farms that do not quality as farm businesses are reported in a final category as:

7. Rural residences with average sales of $15,397. The 1,393,658 farms roughly 175% of the farm business total—report earning 6.9% of net farm income.

USDA often summarizes these categorization into two groups: Intermediate Farm Businesses (made up of the Farm Occupation/Lower Sales and Farm Occupation/Higher Sales) and Commercial Farm Businesses (made up of Large and Very Large Farm Businesses), with the residual in the rural residence category.

3. ***Patterns Across Categories***

What emerges from these different classifications of farm businesses is the sense of distinction between a large group of "farms" that are too small to provide a viable living for operators, a second group of small- and medium-sized "farm businesses" that suffer from scale limitations, and fully commercial enterprises that account for most sector output and have captured full scale economies and the rates of return that go with it. USDA's loan program focuses on the first and second groups—focusing particularly on moving operators with the strongest prospects for becoming viable farm businesses out of the bottom category into the intermediate category and helping farmers in the intermediate category improve their profitability.

As the data in Figure VI-2 indicate, profitability—measured as net farm income—is

directly related to sales, in turn to assets, and ultimately to the operating capital available to support farm activities. Farming is capital intensive and large/very large farms report both high sales and more income retained as net farm income, with the large amounts of capital invested in their businesses serving as the best explanatory variable. Income ratios—the dollars earned per dollar invested in the farm business—range from 0.7% to 11.0% with an all farm business average of 6.3%.

This is critical for analyses in this litigation for two reasons. First, the relationship between capital and farm performance underlies the farm loan program's use of a mix of commercial and concessional lending to advance its goals of strengthening operation of small and medium sized family farms and helping a broader array of farms deal with natural disasters. This is particularly true for operating capital which Figure VI-2 shows is more skewed in distribution across the Very Large, Large, and Farmer Occupation categories than any of the other measures. The USDA farm loan program was designed with these characteristics in mind. Lack of access to capital was correctly identified as a serious impediment to small farms becoming more viable from an income perspective and an even greater problem for rural residences.

USDA assistance with this problem of access to capital is provided through FSA operating, emergency, and ownership loans which make up roughly 80%, 10% and 10% respectively of the USDA loan portfolio. Second, the data points to the considerable amount of operating capital necessary to boost farm income significantly but also to the potential for USDA loans to bridge the gap. With the high ratio between operating capital and sales in particular, several years of lending at average USDA levels combining both short and long term loans can boost even small farm performance substantially.

Dr. Rausser's Tables 44-45 make these points in considerable detail. His Table 44 shows that for the FARM Occupation/Low Sales Category (Sales of $0-$100,000) only 82% of farms with sales below $1,000 report making any return over cost. However, this relationship changes quickly so that by the time a farm reports making $25,000 in sales, 60% are earning a profit; 82% report making profit with sales over $50,000. These numbers are somewhat misleading in the sense that good and bad weather can affect returns in any one year. However, they are generally representative.

The vast majority of the Farm Occupation/Lower Sales farmers operate part-time farm businesses and report limitations on their resources as the major constraint on their operations. While the definition is less than precise, many farmers in this FO/LS category generally, and virtually all below the $50,000 sales level fall into the classification of limited resource farmers. For Farm Occupation/High Sales, roughly 87% of farm businesses in this class report making profits. With the variations in weather and product prices from year to year likely to catch at least some of these farmers every year, it is safe to say that all operators in the class usually make money.

The importance of the farm loan program is reflected in the contribution a USDA loan—averaging $25,000-35,000--can make over the several years (the average is 7) a borrower typically deals with USDA in boosting farm business sales toward the $100,000 or even the $250,000 level. As Table VI-2 indicates, this boosts their income ratios from 0.7% to 4.2%, with USDA loans both providing more dollars to finance the expanded farm business and leveraging returns on the capital already invested in a small operation.

What of the last category of rural residences? The rural residence group is by far the most diverse category, with a bimodal distribution that includes a small number of affluent

rural households and a large number of households living at or below the poverty level. This same pattern applies across farm sales, net farm income, farm assets, and operating capital. Looking specifically at capital, the average farm included in this category has only 30% of the operating capital reported for the small/medium-sized farm business category made up of the FO/LS and FO/HS groups but often has access to land through longstanding family relationships and the size of their homesteads. This group's net farm income is only 25% of the net farm income reported for the small/medium sized farm businesses. Overall household incomes in this rural residence category are also bimodal distributed, with the large majority below the poverty line and including off-farm earnings from what are generally part-time low-wage jobs. Many of these rural residences report the equivalent of negative farm income, with their taxes more than offsetting what can be grown without access to operating capital or enough foundation capital to put together viably sized operations.

C. Typology Applications in this Case.

1. *Defining the Target Population—the Potential Borrower Pool--for the Ownership and Operating Loan Program*

The farm ownership and operating loan programs have multiple borrower criteria—five of which are particularly relevant here. First, an applicant must demonstrate that he or she cannot get the credit needed to operate his or her farm business at reasonable rates from other sources. This point was critical and is highlighted in a January 14, 1981 letter from FmHA Administrator Gordon Cavanaugh to all State Directors, District Directors, and County Supervisors. Cavanaugh notes

> To insure that FmHA strictly maintains its required status as a supplementary and last resort credit source, it is extremely important that all appropriate field personnel keep currently informed on the credit situation in their areas… In processing all farm loan applications there must be adequate documentation on the availability of other credit.

Cavanaugh documents the importance of avoiding any displacement of commercial credit

further when he notes in the same letter that:

> The awareness of credit availability from all sources is also most necessary to conduct informed graduation reviews. In all cases where there is any question about the borrower graduating to other credit, the borrower will be requested to do so and the file completely documented on the results. Many borrowers may be able to graduate from the insured (direct) loan program to the guaranteed program when other credit without a guarantee is not. FmHA borrowers are expected to graduate when they have repayment ability for private sector credit, either with or without a guarantee, regardless of the other lender's interest rate charge.

Second, the applicant for an ownership and/or operating loan had to pass the family farm test—that is demonstrate the farm would fit in the family farm category from both a size and organizational perspective described in detail in my February July Reports. As I note in these reports, there is no single precise size cutoff for family farms but I have used the USDA typology and the $250,000 sales level as the cutoff for the reasons stated previously.

Third, an applicant had to present a Farm and Home Plan (essentially a farm business plan) that "cash-flowed" in the unique parlance of the USDA. That is, the plan had to show that the farm would generate enough income to cover all cash costs, capital costs (all debt and debt related payments), and family living expenses. The Plan does not show a profit line as such, but rather a cash balance amount after these three items are covered. Family living expenses obvious vary widely, but with this cost item often in the $7,500 range. Generating this much of a return over and above cash and capital costs means that many small farms had to actually show more than the sector-average rate of return, depending on how much non-farm income was available to contribute to supporting the farm business operation.

Fourth, an applicant could qualify as a beginning farmer or as a limited resource farmer. This involved evaluating his or her ability to cash flow based on the farm business' projected performance after the loan was made and the farm business plan was implemented. With lending targets for these two categories high --70% for farm ownership and 30% for

operating loans for beginning farmers and 20-30% for loans to limited resource farmers—this consideration was critical. Given that these two groups of farmers have traditionally had the most difficult time securing commercial credit, the emphasis on this type of lending is a good indication of the concessional element built into the USDA program.

Fifth, a successful applicant for an ownership or operating loan also had to demonstrate sufficient familiarity with the farming activities in question to make the enterprise work. This was generally measured in terms of having at least three years of experience in farm operations. This essentially ruled out applicants from outside the farm community and tied even the beginning farmer program to the farm community.

Lining up these qualifications with the farm business typology suggests that the pool of potential applicants has to:

1. Include farmers in the Smaller Sales and Higher Sales Categories in order to reflect the family farm size and organization criteria;
2. Exclude farmers in the Large and Very Large Sales Categories generally since their performance and asset positions suggest that they would have had difficulty passing the "no-credit-elsewhere" test and meeting the family farm size requirements;
3. Include the Rural Residence category to reflect ownership and operating loan emphasis on beginning farmers who could meet the farm experience requirement and on the limited resource farmer program;
4. Exclude the Non-Family Farm category; and
5. Include an adjustment to reflect farm household size to make provision for the beginning farmer category extending beyond the operator count. This is not to say that the minor children of farmer operators can apply for USDA loans. It does imply, however, that some provision has to be made in defining the potential pools for these two loans for the size of the farm families across racial groups that will supply the large majority of beginning farmers in the future.

The benchmarks I used to establish Native Americans' reasonable expectations draw on these considerations to arrive at a potential pool of borrowers for these two loan types that is very different from Dr. Rausser's benchmarks. Dr. Rausser's pool of potential borrowers:

1. Excludes most Rural Residences based on their inability to pass the projected cash flow test. This is inappropriate since the provision for beginning and limited resource farmers to cash flow explicitly provides for meeting this projected cash flow requirement after the loan is taken into account along with implementation of the farm business plan with USDA's technical assistance;

2. Includes Large and Very Large farm business categories. Dr. Rausser bases their inclusion on USDA's failure to provide a precise cut off of the family farm requirement, though that requirement is explained in detail in my July report;

3. Excludes any provision for farm population or farm household size and instead uses a count of farm workers to broaden the pool to reflect the emphasis on beginning farmers. This decision is discussed at length in my July report and is counter to concerns about the reliability of his farm employment count given the gross undercounting of illegal migrant workers who impact the ratio between farm operators and farm labor and the inclusion of upstream workers in input industries and downstream workers in the food processing industries in Dr. Rausser's farm worker count.

2. ***Defining the Potential Pool for Emergency Loans***

The requirements for emergency loans include the same credit-elsewhere and cash-flow tests. However, an applicant must operate a farm per USDA's definition of a farm, with no upper or lower bound on farm output. To the extent that farm size reflected in sales is a concern, it is reflected in loan amounts. In theory, the requirement that a successful applicant must farm in a county designed a disaster county and must document losing more than 30% of his or her normal sales is a far more significant limitation on the number of applicants who ultimately get emergency loans.

Keeping these provisions in mind, I set the benchmark for emergency loans to include:

> All operators included in the Census count of farms adjusted to reflect the probability of their counties being declared disasters based on analysis of county data to arrive at state-level probabilities.

What does this mean for the farm typology? Clearly, the language is all inclusive and provides a very broad basis for calculating losses by including provision for lending to repair damages to basic farm facilities resulting from natural disasters. This suggests that pool has

to focus on farms rather than farm businesses and should include all farm operators as defined in the Agricultural Census.

3. ***Identifying Historical Measures of Income and Asset Performance***

USDA's farm typology provides a basis for defining not only the pool of ***potential borrowers*** but the pool of farms to be considered in developing financial performance measures for average USDA borrowers to use in converting hypothetical loan and servicing shortfalls into economic losses.

This is a different issue than defining potential borrowers, but no less important given the wide range in farm financial performance reflected in Figure VI-1 and 2. For example, the generally small/very small farms included in the rural residence categories are included in the pool of potential applicants because of the program's emphasis on beginning and limited resource farmers and the provision for meeting projected cash-flow requirements ***after*** the loan is made and the plan implemented with USDA technical assistance. However, they have to be excluded from the pool of farm operations used to measure financial performance since the fact that they qualified for a loan means that they would have moved out of the rural residence category into the Farm Occupation/Lower Sales or even the Farm Operator/Higher Sales category.

While in theory a USDA borrower could make the move from FO/HS to the Large or Very Large farm operation categories with double or triple the rate of income return, this group is presumably small and this kind of a move would trigger "graduation" from the USDA program. Hence, the Large and Very Large farms also have to be excluded from the pool of operators used to estimate average income and asset appreciation rates for USDA borrowers.

In short, keeping all of the major provisions in mind, successful borrowers would

have been heavily concentrated in the FO/LS and the FO/HS categories. These are the two categories that I used to develop financial benchmarks for net farm income and asset appreciation performance measures using the USDA's database to calculate income ratios (the ratio of dollars earned in net farm income compared to dollars invested in the farm business) and asset appreciation ratios (the ratio of dollars earned from capital gains compared to dollars invested in the farm operation).

4. ***How to view USDA As Both a Commercial and Concessional Farm Lender***

Looking at USDA's farm typology and lending program guidelines simultaneously points to the unique role of USDA as both a commercial and concessional lender. The commercial element is reflected in Dr. Rausser's repeated observation that USDA loans were not grants but rather were loans made with the anticipation of repayment with interest and made with appropriate security to protect the Government's interest. This suggests that USDA had to keep the "conventional wisdom" of commercial lenders in mind when making ownership, operating, and emergency loans.

However, the USDA program clearly had to go beyond this. Why? First, as FmHA Administrator Cavanaugh indicated in his letter referred to earlier, the clientele identified in the loan guidelines had to prove that they could not get credit elsewhere—that they had been found to be "uncreditworthy" in commercial lending circles. Basing the USDA program solely on commercial lending guidelines would have required that USDA reject every one of over 500,000 applications approved over 1981-2007. Second, the mandate to lend to troubled borrowers in particular—such as limited resource farmers—means that USDA was investing in the anticipation of stronger performance from applicants whose record might suggest otherwise.

Why is this important? Dr. Rausser repeatedly emphasizes that Native Americans

and very small and small farmers generally were poor credit risks and that USDA's application of accepted commercial lending guidelines were an adequate justification for the shortfalls in Native American lending identified in this case. His concerns, though exaggerated, might be valid if USDA was just one of many commercial lenders. But this rationale fails to hold up in light of the fundamentally concessional nature of the USDA farm loan program, repayment expectations notwithstanding.

The unusually borrower friendly nature of USDA's problem loan servicing is another indication of the concessional element built into the USDA program. As noted in Sections II and IX, the decision to provide a problem borrower with servicing was dependent on satisfying two goals: 1) protecting the Government's interest in the loan; and 2) advancing the farmer's goals in obtaining the loan originally. This inclusion of a concessional element in the USDA loan program has to be kept in mind in measuring USDA's performance in delivering loans and servicing and in calculating any economic losses incurred by Native Americans as a result of differences in program delivery.

VII.
BENCHMARKS

A. Background

There is no other issue as critical to these analyses as estimating Native Americans' expected share of USDA loan and servicing. Both Rausser and I start our estimation of expected share with the 2007 Census of Agriculture's count of Native American and all farm operators, taking advantage of the new Ag Census operator definitions. This is because the USDA loan program is foremost a farm operator lending program and the 2007 Census is the most reliable source of information on farm operator numbers by race.

In my analysis, I arrived at a Native American operator count and in turn an estimate of Native Americans' expected share of USDA loans and servicing by following the steps outline below, namely:

1. Establishing a beginning operator count for the general population and for a Native American subgroup. This involved selecting which of the 2007 Census' multiple farm operator counts was the most appropriate for analysis here;

2. Adjusting the count established in #1 to reflect the three sets of unique characteristics of the farm ownership and operating loan programs, the emergency loan program, and the problem loan servicing program;

    - For farm ownership and operating loans, this involved incorporating measures of family farm size and organization into the operator count to reflect their explicit link to this subset of the operator population. This also involves adjusting the measures from #1 to reflect emphasis on helping beginning farmers and limited resource farmers;

    - For emergency loans, this involves adjusting the initial operator count from #1 to reflect the limitation of emergency loans to existing farm operators faced with a substantial loss linked to a natural disaster as reflected in a county disaster declaration. Since emergency loans are not focused on family farms, the other adjustments made for these loans are not called for;

    - For servicing, this involves using USDA's ***actual*** loan records on the one hand and the ***expected*** ownership, operating, and emergency loan shares on the other to establish two benchmarks for problem loan

servicing, one directed at liability issues and the second to calculate economic losses. The first of these benchmarks postulates that Native Americans could reasonable have expected the same share of loan servicing as they ***actually*** received for loans. That is, if they received 2% of loans, they could have expected 2% of problem loan servicing. This reflects the guideline that problem loan servicing is limited to pre-existing USDA borrowers with a repayment problem, and assumes that Native Americans and non-Native Americans were equally likely to be in financial distress.

3. Adjusting the final benchmark counts in #1 and #2 for any residual undercounting of Native Americans farming on-reservation and not accounted for in the 2007 Census. Given the sensitivity of this issue, the modified benchmarks developed using this expanded count are treated separately (as Alternative II) from the analysis using just the Census counts (Alternative I).

Looking at each of these steps in turn indicates that Dr. Rausser's criticism of my benchmarking is unfounded and that his own benchmarking is seriously flawed and biased toward a gross undercounting of Native Americans and their reasonable loan and servicing expectations.

B. Establishing Benchmarks

1. *Establishing a Beginning Count*

The 2007 Ag Census dramatically improved reporting on Native American farm operators, as reflected in Dr. Rausser's observation in both his April and October Reports that the count doubled from 1997 to 2002 and doubled again from 2002 to 2007. The results of the last round of 2007 improvements are presented in three tables—Table 54 (Selected Characteristics by Race of Principal Operator), Table 55 (Selected Farm Characteristics by Race), and Table 57 (Selected Operator Characteristics by Race).

Table 54 provides a count of farms by the race of their single principal operator, with the race designation limited to American Indian or Native Alaskan, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, and More Than One Race (See Figure VII-1). With the Census question emphasizing principal operator only and the

reporting of any mix of races as "More Than One Race," the national results summarized in Figure VII-2 show 34,706 Native Americans out of 2,204,792 principal operators (1.57%). Figure VII-2 also shows the results for Alabama and Montana—with Alabama serving as an example of a non-reservation state and Montana serving as an example of a reservation state.

This dramatic increase in the count of Native Americans—up 124% for the national total from 2002 and up 33% and 60% for Alabama and Montana—provides a graphic insight into how unreliable the data on Native Americans in agriculture was prior to the 2007 Ag Census upgrade. Since most other enumerations tended to follow the Census pattern of serious undercounting prior to 2007, the 2007 Ag Census data essentially becomes the only reliable data for this analysis. Table 54 of the 2007 Ag Census is an improved count of Native Americans compared to the 2002 and earlier Ag Census (34,706 versus 15,494), and this begins to remedy a long-standing flaw in the USDA's count used in a number of different programs stretching from USDA lending to USDA funding formula for agricultural research institutions. It also has the advantage of linking the count to farm numbers since USDA loans are not made to "operators" independent of farm operations. In particular, the fact that a farm has three operators does not mean it can get three times the number of loans as a farm with only one operator. There is still just one farm, one set of collateral available, and USDA loans require the commitment of the principal operator. Therefore, a count linked to the number of farms, as the count of principal operators in Table 54 is, has certain advantages.

However, the Table 54 measure suffers from limiting the Native American count to essentially "full blooded" Native Americans, which is not a requirement for being considered Native American for purposes of this litigation. Moreover, Table 54 only considers the race

of the principal operator, when in reality family farms often have "co-principal operators" rather than a single principal operator, and either might be identified as Native American and identified as the borrower in USDA's records. Tables 55 and Table 57 both permit identification of all full and mixed blood Native American primary, secondary, and tertiary operators, for a more accurate count.

Table 55 (included here as Figure VII-3 here) considers all operators (primary, secondary, and tertiary) involved in running the nation's 2,204,792 farms, and, for each racial category identifies the number of farms with at least one operator of that race, including the category Native American "alone or in combination" with another race. The Ag Census recorded responses for up to three operators per farm, with respondents selecting as many race categories as they want and with individuals who selected more than one race appearing in the relevant columns--e.g. "Native American alone or in combination" ***and*** in "White alone or in combination." The Table 55 results in Figure VII-2 show that 61,472 farm operations had one or more Native American operators, including as Native Americans those who reported that race "alone or in combination with another race." The number of farms shown on Table 55 if one adds up the number in each racial group is 2,250,068 -- 2% higher than the actual total farm count (shown in Table 54 as 2,204,792). This small difference reflects farms with more than one operator, where the operators were not all the same race. For farms where all of the up to three operators were of one race, the farm is entered in Table 55 once, in one racial category. On the other hand, if a farm had three responding operators, each of a different race, the farm was counted in each of the three responding race categories. Since this measure was not included in previous censuses, it is not possible to tell how much this measure changed from 2002.

Table 55 is not without its limitations. It does not report a total number of farms, and the total computed by adding each of the columns is inaccurate because, as noted, a farm can appear in more than one column. However, since the total number of farms is established in other tables in the Ag Census, that number can be used in combination with the count of farms with a Native American operator in Table 55 to calculate the Native American share.

Census Table 57 (shown here as Figure VII-4) provides an alternative count of all operators (primary, secondary, and tertiary), as well as alternative counts for Native Americans "Alone" or Native Americans "Alone and In Combination With Another Race." As Figure VII-2 indicates, this provides two operator counts of 55,889 for Native Americans alone and 77,437 for Native Americans alone or in combination. This count is the most comprehensive in terms of counting bodies, but moves away from any link to the count of farms and thus is decoupled from a reasonable expectation of lending. As noted, two operators cannot use the same farm or farm output as collateral for two different loans. The Table 57 count of all respondents using the narrower "Alone" count of race stands at 3,256,988 while the count of respondents using the broader "Alone or in Combination" stands at 3,306,858.

Table 57 is so far removed from the farm count as to be misleading. Dr. Rausser used Table 57 in his April Report, and a special tabulation that suffers from the same defects as Table 57 in his October Report. Counting secondary and tertiary operators as equal to primary operators overlooks the critical point that USDA does not lend to operators in a vacuum, but rather to operators of a single farm operation as a unit, based on the commitment of its principal operator. In effect, USDA could not consider a secondary or tertiary operator for a loan without linking the individual to a farm and without the commitment of the farm's

principal operator. This ensures the same collateral is not pledged for two different loans. How significant a problem is this? The margin between the Table 54 count of farms (2,204,792) and the Table 57 respondent counts (3,256,988 and 3,306,858) is large enough to make use of the results highly problematic. Rausser's use of Table 57, or any other count including all primary, secondary, and third operators treats a farm with three operators as eligible for three times as many loans as a farm with a single operator. That is not correct.

As I indicated in my February and July reports, I opted for using the Table 55 data as a beginning count. I did this after weighing the advantages of all three counts, keeping in mind that one of the factors contributing to the historical pattern of undercounting minority operators was the exclusion of anyone reporting mixed race from the specific race categories. This led to a serious undercounting of minorities generally and Native Americans in particular for two reasons. Native Americans demonstrate a marked tendency toward interracial marriage that worked to lower their count when race reporting was limited to a single "full blooded" category or a Mixed Race Category. Moreover, the Ag Census's past focus on primary operators often worked in cases involving small family farm husband and wife partnerships to leave key participants out of the picture.

Dr. Rausser criticizes my decision strongly in his October Report. He concludes that the principal-operator count (Table 54 in the Census and Figure VII-1 here) or the all-operator count (Table 57 in the Census and Figure VII-4 here) should have been used instead. Rausser notes on pages 66-67 that:

> Mr. O'Brien has misinterpreted and misused this data, selecting the wrong starting counts. . . . The computation he has preformed to arrive at this starting point is completely wrong. Mr. O'Brien apparently misunderstands Table 55 of the Ag Census, which reports the number of farms arranged by the race and ethnicity of their operators. One its face, one might think that the sum of the numbers in Table 55 is equal to the sum of all farms. However, that is not the

> case. ***Individual farms are often counted multiple times*** in this table, because a principal operator who identifies as multi race will be counted twice (or more) and a farm that reports three operators, each of a different race, will be counted in all three race columns of Table 55. Farms with Hispanic operators are in every case counted at least twice, once in a race column and again in the Hispanic ethnicity column. As a result, Table 55 is not a reliable means of counting the number of farms in each state. Neither is it a reliable means of counting farm operators. In contrast to the multi-entry examples provided above, a farm that has three operators, all of the same race, will be counted only once in Table 55.…At deposition, Mr. O'Brien defended this flawed calculation as conservative saying it increases the denominator off of which the fractional share of Native Americans will be calculated. My own check of his calculations proves that this is not true and that this initial flaw (like each of those which succeeds it) ***overstates the expected Native American share.***" (emphasis added)

Dr. Rausser's criticism has two components, neither of which withstands scrutiny. First, he criticizes a calculation which added up the number of farms reported in each racial category, or as Hispanic, to arrive at the denominator of the total number of farms. As noted above, farms may be double counted, and specifically, Hispanic farms were already counted in a racial category, so adding up all columns increases the denominator – which ***understates*** the Native American share. However, this was corrected in an errata provided to Dr. Rausser on October 22, 2009. It is easily addressed by using the total number of farms as reported on other tables. Nonetheless, even in his Supplemental Report of November 11, he continues to criticize the use of Table 55 as "inflating" the Native American share. There is nothing in the calculation that artificially inflates the Native American share. As Dr. Rausser's citation to his Appendix 5 reveals, his claim of "inflation" is really a claim that Native American share should be calculated by reference to the principal operator count, or to the all-operator count.

As already noted, however, Table 57's count of all operators breaks the key link between operators and farms, and improperly impacts the calculation of Native American share by assuming that a farm with three operators should receive three times the number of loans as a farm with one operator. Table 54's count excludes those who consider themselves

"Native American in Combination With Another Race," and counts only those who consider themselves Native American Alone. It also makes no provision for differences in races across multiple operators—despite the fact that a majority of the farms in question are small/medium-sized part time family farms where husbands and wives are often "co-principal" operators. Consequently, using Table 54 leaves out almost half of Native Americans (61,472 - 34,706 / 61,472). Significantly, the benchmarks will be used to compare with PLAS data – and PLAS data records only one race for each loan – not the race of multiple operators. Thus, Table 57, or the Special Tabulation thereof which is used by Rausser, is not an appropriate match for the data that will be analyzed.

2. ***Adjusting the Beginning Count to Reflect Ownership and Operating Loan Program Characteristics***

Both Dr. Rausser and I agree that any benchmark developed as a staring point based on the 2007 Census has to be adjusted to reflect the particular qualifications for ownership and operating loans. However, our two views on where this adjustment takes Native Americans reasonable expectations are diametrically different.

I treated this issue at length in my July Report. The key points made there are that:

a. Both ownership and operating loans are targeted at family farms, with the definition of family farms including both size and organization dimensions that emphasize small/medium sized operations and deemphasize large operations;

b. Both programs include provision for lending to limited resource farmers and beginning farmers that puts added program emphasis on lending to the smallest, most marginal farms in the extreme left tail of the farm size distribution and to lending to new entrants that are not included in the farm count or fall into even the so-called "point farm" category including farms that could have but did not produce more than $1,000 in products in 2007 assuming that they could meet the viability threshold after the loan was made and their farm plans implemented. The program guidelines make it clear that a successful applicant must present a Farm and Home Plan that indicates that his/her farm is viable—that it generates enough income to cover production costs, debt payments, and family living expenses—***after*** the loan is made and USDA has assisted the farmer in implementing his farm business plan.

These conclusions are well documented in USDA's loan program literature such as the *FmHA Farm Loan Handbook* published in multiple editions over 1981-2007 by the Center for Rural Affairs in Walthill, Nebraska. They lead me to conclude that the beginning operator count has to be modified to:

1. Eliminate large farms. Keeping in mind that determining which farms are large, medium, or small has to include some flexibility, the issue becomes where to set an indicator that appropriately reflects program orientation. Figure VI-1 and VI-2 shows the classification of farm businesses currently in use by USDA and detailed in USDA/ERS's *Farm Typology* using a sample 2007 output from the Department's farm financial data base. The typology includes 6 categories of farm businesses—1). All Farms, 2). Farms with Sales of less than $100,000, 3). Farms with Sales of $100-250,000, 4). Farms with Sales of $250,000 to 499,999, 5). Farms with Sales of $500,000-999,999, and 6). Farms with Sales of $1,000,000 or more. The $250,000 annual sales level as a measure of small/medium versus large size is used throughout USDA/ERS's reporting on farm finances. In keeping with this USDA typology, I removed all farms with more than $250,000 in sales—Native American and non-Native American alike—from the beginning operator count based on Census information on sales;

2. The loan program definition of family farm also excludes non-family farms (farms organized on a corporate basis rather than a family basis with the exception of family-based corporations) and firms that have hired managers. In keeping with these provisions, I used 2007 Census data to remove non-family corporate farms and farms with hired managers from the beginning count as well. A special tabulation of the Census was done by USDA at my request to capture the overlap between these two groups. The end result again was a cut in both the Native American and all farm counts, but with the cut in Native Americans smaller than the all farm count. Hence, the adjustments in #1 and #2 worked to raise Native Americans' share of the adjusted beginning count; and

3. Modify the Census count resulting from the two steps identified immediately above to reflect the fact that new farmers specifically targeted in the ownership and operating programs would have to come from a population outside the 2007 count of existing farmers. I used the 2007 Census's count of farm population (as reflected in farm household size by race of operator) to adjust the modified Census count further. As the Census results indicate, the Native American farm population is proportionally larger per operator than the general farm population. That is, the average Native American farm operator has a household size 11% larger than the average farm household size. I used this 11% difference to inflate the Native American share to reflect their larger household populations and higher likelihood of there being Native Americans who qualify for beginning farmer loans. I did this based on research by USDA cited in my July report showing that

> beginning farmers generally come from farm families. The fact that beginning farmers must have previous experience farming in order to qualify for a loan and the fact that many of the secondary and tertiary operators who eventually become primary operators come from farm families reinforces the reasonableness of this decision.

Figures VII-5 to 10 track the steps outlined above to demonstrate how my ownership and operating loan benchmarks for Alabama and Montana and for a national total were calculated. As the figures indicate, the adjustments increase the Native American share at the national level from the beginning count's 2.75% to 3.1% -- up 13% ((3.1-2.75)/2.75=12.7). In short, I concluded that Native Americans could reasonably have expected 13% more in ownership and operating loans than their simple share of the farm operator pool would suggest based on their "fitting" the ownership/operating borrower profile better than the general farm operator population.

a. Rausser's Criticism

Dr. Rausser criticizes each of these adjustments and substitutes his own that lower, rather than raise, the Native American share. His first criticism is noted on page 84 where he writes that:

> Mr. O'Brien further biases his benchmarks by excluding all family farms whose annual sales are $250,000 or more. His unsubstantiated argument that these operators are outside the Farm Loan Program's "target population" is controverted by the facts.

While he cites several sources regarding the percentage of FSA direct loan debt held at various points in time by farms with more than $250,000 in annual sales, his citations do not establish that FSA makes Ownership and Operating loans to operators in that size category, as discussed below.

On looking closer, Dr. Rausser's criticisms of my first adjustment to the beginning count is unfounded and his statement misleading. Several questions have to be answered, including:

1. Do the ownership and operating loan guidelines target small and medium sized family farms regardless of Dr. Rausser's observations? Dr. Rausser says no and includes what USDA classifies as large farms (farms with sales from $250,000 to $499,999, farms with sales from $500,000 to $999,999, and farms with sales over $1,000,000) in his pool of potential USDA ownership and operating loan applicants. The finder of fact in the case will have to make this determination.

2. If indeed ownership and operating loans are targeted to small/medium sized family farms, what threshold is appropriate for defining the break between small/medium and large. USDA's own extensive research on farm typology published by ERS establishes the $250,000 threshold noted above. Once again, the finder of fact will have to make this determination.

3. Does the fact that USDA does carry farms with sales over $250,000 in its loan portfolio undermine the targeting concern? Dr. Rausser's arguments here warrant specific responses that bring his contentions into doubt.

Dr. Rausser states unequivocally than 8% of USDA's borrowers in 1999 had sales over $250,000. He cites another source indicating that 31% of FSA loans outstanding as of December 31, 1998 were held by farms with sales over $250,000. Does this indicate that targeting does not apply or that USDA is lax in targeting? A closer look at the facts indicates a third alternative—that Dr. Rausser has not included all of the relevant facts. First, his examples include borrowers with FSA loans outstanding, rather than only ownership and operating loans outstanding. He fails to mention that a large portion of the 15-31% of USDA's outstanding loans in 1998 and 1999 held by borrowers with sales over $250,000 were outstanding emergency loans (not ownership and operating loans). Emergency loans are made to farmers regardless of their size, and my benchmark for Emergency loans is set accordingly.

He also fails to note that he is referencing outstanding loans rather than new loans made in 1998 or 1999. USDA's loan program data show that the average term negotiated for ownership loans was over 20 years, with 1-7 years for operating, and over 20 years for emergency loans. Ownership loans traditionally account for less than 10%, operating loans

more than 80%, and emergency loans less than 10% of USDA lending. With the long term for emergency loans compared to operating loans, emergency loans accumulate to a far greater extent as "outstanding" loans. The data cited by Rausser regarding debt that is outstanding cannot be used to determine what the sales revenue was of the farm at the time the debt was incurred; at the time the debt was incurred the farm might have been smaller. Moreover, the outstanding debt includes emergency loans for which the size restriction does not apply.

Dr. Rausser also fails to note that FSA routinely reviews borrowers' farm performance and graduates them over a 2-3 year period to allow them to arrange for alternative financing when their performance warrants. Given the difference between the negotiated terms and the actual terms on USDA loans, this appears to happen as quickly as after 3-5 years from the initial USDA loan but can take much longer. His examples provide no information on how many of the 15-31% with outstanding loans and sales over $250,000 were approaching the end of their direct borrowing from FSA and moving into graduation, and would not be able to get a new FSA loan, even if they were permitted to pay off their existing loan.

Dr. Rausser also fails to note that successful USDA borrowers are expected to expand their sales over time and what might have been an operation with sales below $250,000 at the time that the loan was first made could well reach and exceed the $250,000 mark over time. Looking at the feed grain sector, the value of sales from 1999 to 2008 increased from $19.5 billion to $62 billion. A farm borrower with $100,000 in feed grain sales when a loan was made in 1999 would have $300,000 in sales by 2007 assuming that his yields grew with the average and he sold at sector average prices. While growth in yields and receipts for feed

grains have been particularly marked, they are an example of a farm's nominal revenue growing over time and pushing a borrower up the scale of farms based on annual sales.

What would these data look like if they did indeed focus on the sales of borrowers at the time that the loans were made? As pointed out in the Nwoha, Ahrendsen and Dixon paper (*Farm Service Agency Farm Loan Program Effectiveness Study*, December 2005 University of Arkansas Press)

> Nationwide, nearly 89% of FSA Direct Loans went to small family famers, with 65 percent of the states devoting at least have of new direct loans to small farmers…A better indication of the state-level loan servicing involvement of FSA in small farms is obtained by using the combined FSA New Loan and Farm and Home Plan data sets….Results show that by state, the percentage share of small farm borrowers to the total FSA farm borrowers who received new loans in FY 2000-2003 ranges from 74.1% (Connecticut) to 100% (Alaska, Montana, and Rhode Island). Over all 92.4 percent of FSA borrowers were small farms.

Looking further at the research materials cited by Rausser, the article by Dodson and Koenig (*Explaining Regional Demand for Federal Farm Credit Programs: An Ordinal Probit Approach* at pp. 1, 5), notes that:

> USDA's farm Service Agency (FSA) provides subsidized farm loans to family-sized farmers unable to obtain credit from conventional sources at reasonable rates and terms…FSA loans are intended to serve family-sized farms and under served groups of family farms. Congress provided no definition of a family farm, but FSA guidelines for determining a family farm stipulate that the farming enterprise compares to similar farming operations in the community and that the family provides most day-to-day labor and management decisions…USDA research showed that in 1997, 89% of direct loan borrowers met the National Small Farms Commission definition of a small farm (less than $250,000 in sales.

Keeping these concerns in mind along with the guideline that emergency loans, which make up 10% of the loan portfolio, can be made to farmers of any size, this data confirms the small farm focus on the ownership and operating programs.

Perhaps of greatest concern in conclusion is Rausser's characterization of my $250,000 indicator as a hard and fast cut-off above which no loans can be made if indeed the

ownership and operating programs were targeted at small/medium sized family farms. As I have already indicated, I use the $250,000 level as a general reference and relied on the ERS Farm Typology and other sources such as the USDA Small Farms Commission to identify the appropriate indicators.

b. Rausser's Alternative

Dr. Rausser's alternative approach warrants close scrutiny since it indicates that Native Americans should have expected fewer, not more, ownership and operating loans than the 2007 Census operator count implies. Not only does Rausser include the large farms and very large farms with sales over $250,000 in his calculation of benchmark, he eliminates roughly a quarter of the farms identified in the 2007 Census with sales less than $1,000. The Census counts these "point farms" on the basis of assigning point values to their resources to determine if they have the potential, possibly compromised by bad weather, to produce over $1,000 in sales per year. Dr. Rausser justifies this exclusion on page 89 where he asserts:

> Mr. O'Brien includes in his benchmark farms that generate less than $1,000 in sales each year, on the basis that they have the potential to do more. There operations are classified in the Agricultural Census as "point farms" and, as explained on pages 70-71 of my April report, I have excluded them from the potential borrower pool because these farms generally cannot demonstrate the feasibility of making loan payments….Mr. O'Brien's inclusion of these farms in his pool…significantly inflates the Native Americans' expected share of FSA direct ownership and operating loans.

This exclusion of the bottom quarter of the farms counted in the Census is difficult to rationalize on several counts. The first flaw is that this conclusion is based on Rausser's "judgment" that their historical performance *without* USDA capital is sufficient to establish that the farms in question "cannot demonstrate the feasibility of making payments" *with* the infusion of USDA's capital and technical assistance. It is important to note here that the determination of viability is to be made based on projected Farm and Home Plan performance ***after*** a loan is made and USDA has helped the farmer in question implement his

farm business plan. Hence, the considerable details that Dr. Rausser marshals on pages 89-92 are irrelevant since they reflect data on farm operations that have ***not*** receiveid the assistance in question. The data also point at the extreme difficulty a small farmer operating at the scale reported by Dr. Rausser faces without USDA help. Rausser's exclusion of this bottom segment of the farm count based on size would also cut off most of the 42,858 farmers that USDA classifies as "limited resource farmers" and has worked to enroll in its loan programs through various different outreach programs.

3. ***Modification of Shares for New and Beginning Farmers***

As noted above, I adjust the expected Native American share to take into account the larger average household size among Native American operators as compared to the population as a whole, to account for the greater number of Native Americans likely to consider entering farmers. Dr. Rausser's initial reaction to my use of the farm family size indicator to adjust shares to reflect USDA's emphasis of making ownership and operating loans to beginning farmers is summarized on page 86 where he claims that:

> Mr. O'Brien's has also artificially increased the Native American share by creating and using a family size multiplier . . . Native American households are significantly lathed than non-Native American households … Capitalizing on these demographic differences, Mr. O'Brien multiplies his number of operators … by the average household size. . .to calculate his state shares.

Hence his concern seems to be not that the Ag Census operator count needs to be adjusted to reflect beginning farmers not included in the Ag Census but that my use of the family proxy to expand the count is inappropriate. This leads to two questions. Is my use of farm population based on operator times family size "plainly unreliable"? And is Dr. Raussers' alternative a better way to expand the operator count to reflect the importance of beginning farms who are targeted to get 70% of ownership loans and 30% of operating loans?

In answering the first question, several factors have to be taken into consideration. The first is the materials reported in my July report where the issue is treated at length. The second is do the program guidelines provide any insight into the question of how to make this adjustment? As I noted in my February report, Congress explicitly linked the making of beginning ownership loans to Native Americans to the farm population.

Congress also tied making operating loans to rural population. At the time these regulations were passed, Native American farm and rural population shares were substantially larger than their seriously undercounted share of the farm operator pool and essentially targeted them for a larger share of loans presumably in connection with the beginning farmer programs. Hence, there is at least a general indicator pointing to these two measures. The 2007 Census provides a unique basis for arrive at this farm population by multiplying its improved operator count by family size and using racial codes to calculate Native American shares. This is exactly what I did.

Dr. Rausser's somewhat comical comment that my "Native American benchmark calculation includes infants and small children who plainly cannot apply for or obtain FSA loans," ignores that fact that the family size adjustment was used to provide a sense of whether emphasis on beginning farmers worked to raise or lower reasonable Native American expectations of ownership and operating loans. At the very least, he fails to note that non-Native American "infants and children" would be waiting in the same line with Native American "infants and children" to apply for USDA loans. Dr. Rausser claims that I ignore that second and tertiary operators who "are more likely to take over the farm on which they work than household members who are not already functioning as farm operators." This ignores that fact than the majority of the multiple operators reported in the Census are part of

the principal operator's family and are hence included in my analysis (with the household size adjustment) despite his statement to the contrary.

In summary these concerns, along with the factors identified in my July report, lead me to conclude that using farm family size is a reasonable way to adjust the operator share count to reflect ownership and operating loan focus on beginning farms.

What of the second question of how valid Dr. Rausser's alternative measure is? Dr. Rausser describes his approach on page 88 where he notes that:

> As discussed in Section III of this report, I relied upon the Agricultural Census as the most reliable count of farm operators and then expanded the count to reflect the ratio between farm operators and farm workers derived from the EEO census.

Hence, Dr. Rausser starts with the 2007 Census operator count, with which I agree. It has already been established as the most reliable data set on farm operations by race. However, he mixed the operator data with farm worker data. This leads to serious questions about concept and data reliability. Conceptually, Dr. Rausser argues that basing the adjustment for beginning farmers on a combination of the operator count and the worker count is the best way to approximate the size and distribution of the pool of potential new farmers across race. He presents no research basis for his claim that simply because an individual works in agriculture, there is a greater probability of him or her becoming a new farmer than there is for a member of a farm family. The empirical evidence suggests otherwise. First and foremost, the NASS farm labor survey indicates that two out of three farm workers are farm family members. Moreover, the information available on the remaining one out of three suggests that these individuals seldom can muster the capital, even with USDA's help, necessary to make the transition from worker to owner. In addition, while the numbers have changed dramatically over the last 15 years, the Pew Foundation estimates that 50-75% of

"hired" as opposed to family workers in agriculture are illegal immigrants or H2A guest workers. These individual clearly fall outside USDA's clientele for farm loans. This indicates that even if Dr. Rausser's alternative measure was conceptually attractive, the data indicate that it is moot at best.

What of the question of data? Where did Dr. Rausser get the worker data for his calculation? He indicates that the data came from the EEO report of the Population Census. As I pointed out in my July report, the EEO census data is seriously flawed and well behind the improvements made in the 2007 Census. As Rausser admits, the EEO census shows the current count of Native American farmers well below the upgrade 2007 Census count. Dr. Rausser notes that my concerns about the quality of the EEO data is irrelevant because he simply takes "the ratio between farm operators and farm workers" for Native Americans and All operators from the census. This assumes that the degree of undercounting of farm operators and farm laborers is the same, for both Native Americans and non-Native Americans. This is difficult to accept in the absence of evidence regarding Native Americans and evidence that this is not true for Non-Native Americans based on comparing their Decennial Census and Agricultural Census operator counts. He notes that "There is no evidence to suggest that farmers and ranchers are more or less undercounted than farm workers in the EEO census."

This may or may not be true. However, the question is not the one posed by Dr. Rausser but the question of whether the EEO census can be relied on to provide a reliable measure of Native American practices compared to all operator practices when it incorrectly identifies only half of a total of Native American operators and lumps the other half into the non-Native American category.

The final issue with Dr. Rausser's analysis of farm workers is his statement that

> My resulting Farm Worker and Operator population (ownership loan benchmark) closely approximates the ERS's separately derived count of persons employed as farm owners and in related agricultural occupations. ERS estimated total US farm labor at 6,822,771 persons in 2002, while my own estimate is 6,7120,850. The difference is a mere two percent. A table comparing these counts on a state by state basis appears in Appendix 10 to this report. My figures are not only a good approximation of the total pool of potential applications for new Ownership loans, they have a logical underpinning that is missing in Mr. O'Brien's count of the farm household family members.

This last of Dr. Rausser's statement is discredited by fact that the ERS farm labor count of 6,822,771 includes not only actual farm labor, but also "upstream" employment in the input industries such as fertilizer, and also "downstream" employment in industries such as food processing. Table E-1 of ERS Report "The Effects of NAFTA on Agricutlrue and the Rural Economy," shows farm labor associated with production agriculture at less than 3 million. Hence, Dr. Rausser's calculation is off by more than 100% and his extensive treatment of the issue is irrelevant at best.

Finally, it is noteworthy, however, that Dr. Rausser's ownership benchmarks are actually higher than the benchmark I set for ownership and operating loans. However, he develops a separate benchmark for operating loans to reflect the inclusion of new and beginning farmers in their targeted clientele. There is no basis for using different benchmarks for ownership and operating loans, because new farmers could begin farming by seeking either category of loan. Thus, if Rausser's flawed data were to be accepted for the ownership loan benchmark, it would also have to be applied to operating loans, and the resulting shortfalls in operating and ownership loans would be *higher* than those I have reported.

C. Conclusions

All of these concerns taken in combination point to the Native American ownership

and operating loan shares shown in Figure VII-10. The Court will note that the figure includes both the Alternative I benchmarks that exclude the added BIA count and the Alternative II benchmarks that include the added BIA count. The BIA issue has already been treated in Section V.

VIII.
EMERGENCY LOAN BENCHMARKS

A. Background

Dr. Rausser and I reach very different conclusions regarding shortfalls in USDA delivery of emergency loans and the resulting economic impact on Native Americans. This relates first and foremost to the range of years analyzed. Dr. Rausser limits his analysis to the 11 years (1991-1995 and 2001-2006) for which he has disaster data and disregards the other 16 years of the period. Moreover, his treatment for years for which he has data is biased by his starting off his analysis with benchmarks for Native Americans that seriously understate their reasonable expectations of emergency loans. Keeping this difference in years analyzed in mind, I will focus on the more substantive differences in our respective benchmarks for calculating the emergency loans that Native Americans could reasonably have expected from USDA.

B. Customizing Emergency Loan Benchmarks

The fact that emergency loans are not targeted to family farms but are available to all existing farm operators eliminates the need to adjust the 2007 Census operator count in setting Native American benchmarks to reflect farm size and organization as was done for ownership and operating loans. This means that the 2007 Census operator data can be used as reported. However, benchmarks for emergency loans do have to be customized to fit the loan option's link to natural disasters. A successful applicant for emergency funding had to demonstrate that his or her county had been declared a disaster county. My July Report describes this requirement in detail. After this general qualification is met, a successful applicant for an emergency loan had to prove that he or she suffered at least a 30% loss associated with the disaster in determining the amount of the loan.

In my initial February Report, I assumed that all counties met this disaster declaration requirement based on data from FEMA showing that for the last 10 years, virtually all farm counties -- on average over 95% -- were declared disaster counties every year, leaving little room for variation in exposure to natural disasters between Native American farmers and those of any other race. This is largely explained by two facts: (a) counties contiguous to counties experiencing a disaster were also declared disaster counties; and (b) a disaster designation is generally "good" for an extended period of time—often 8 months which can carry disaster eligibility over from year to year. Based on this assumption, I made no adjustments in the Census' 2007 farm operator count.

Dr. Rausser challenged this assumption in his April Report, arguing that ***all*** counties had not been designated disaster counties over the 11 years that he focused on in his analysis (1991-1995 and 2001-2006). This meant that the emergency loan benchmark had to be adjusted to reflect the small probability that a county was not declared a disaster county. My July Report includes a description of the analysis that I did to incorporate Rausser's concerns. I used FEMA data for a somewhat longer 16 year period (1991-1997 and 2000-2008) than used by Dr. Rausser to determine that Native American counties were in fact declared disaster counties slightly more often (5%) than general farm counties.

In Dr. Rausser's October Report he continues to dispute my Native American emergency loan benchmarks even after adjustments were made to reflect his concern about county designations. He summarizes how I did this supplementary analysis between by February and July reports on page 104 of his October Report, noting:

> Mr. O'Brien now offers a separate emergency loan benchmark for what he characterizes as the "Native American counties" in most states based on his estimate of the probabilities that those counties would have been affected by a declared disaster. He creates a similar probability estimate for the state as a whole and thus

> claims to determine whether the Native American counties would have been more or less likely to have experienced a disaster and become emergency loan eligible.

He continues on page 105:

> having derived a ratio for each of 16 years ***(for which Mr. O'Brien has FEMA disaster declaration data)***, Mr. O'Brien then calculates an average of these ratios for each of the 39 states (the other 11 he disregards). These state specific ratios are then used by Mr. O'Brien to represent how much more or less likely Native American operators would have been, relative to the general population, to be affected by a disaster and thus potentially qualify for an emergency loan….Using this method, for the United States as a whole Mr. O'Brien indicates an annual average ratio of 1.05, meaning that he concludes that native American counties were 5% more likely than "all" counties to be hit by disasters and, thus, that Native Americans should expect to receive 5% more Emergency loans.

While Dr. Rausser's description of my analysis is basically correct, his conclusion that it is statistically unsound is wrong. This is easiest to demonstrate by addressing the nine points the Dr. Rausser raised over pages 104-110 of his October Report, keeping in mind that the methodology I used involved three distinct steps that are well documented in my supporting production, namely:

1. Identifying the Native American farm counties based on the 2007 Census of Agriculture's count, by county, using a 1% threshold (i.e. counting those counties with at least 1% of the number of Native American farm operators as Native American counties);
2. Identifying the general farm counties using the same 2007 Census data and the same numerical threshold used to identify Native American counties (i.e. counting those counties where the number of operators of any race is equal to or greater than the figure used in step 1, 1% of the number of Native American operators); and
3. Using data for 1990-1994 and 1998-2008 to establish the pattern of disaster declarations over time and to determine whether Native American farm counties were declared disaster counties more or less often than general farm counties.

First, Dr. Rausser complains on page 104 that, "In performing his analysis, Mr. O'Brien arbitrarily disregards counties which have less than 1% of a state's Native American farm operators."

I used this 1% rule to identify *both* Native American counties *and* general farm counties to eliminate counties with little or no agriculture from the analysis. To the extent that some counties have little or no agriculture, including them in the analysis would bias the results. Application of this rule resulted in exclusion of just 9 counties in 39 states as noted by Dr. Rausser in footnote 173 on page 104. These counties include counties such as Richmond City in Virginia and Orleans County (the location of New Orleans) in Louisiana. With less than one county omitted for every four states studied, inclusion of these counties would not be likely to affect the results.

Second, Dr. Rausser notes on page 105 that: "Mr. O'Brien then calculates an average of these ratios for each of 39 states (the other 11 he disregards)." While Dr. Rausser implies that I "cherry picked" states to include in the analysis and left important states out, my July Report showed that the states not analyzed in detail had a minimal number of Native American operators in both absolute and percentage terms compared to all farm operators in the state. Using Connecticut as an example, I did not perform the state/county analysis described above and present the results for the less than Native American operators located in the state. In order not to bias my analysis, however, I showed these states with the same probability of disaster for both Native Americans and the general farm population.

Third, Rausser raises what he refers to as "Mr. O'Brien's Invalid Demographic Assumptions," complaining on page 105 that I counted counties equally, given them equal weight in my analysis, even though Native Americans are not equally spread out across the Native American counties in the state.

Of course, the same is true of non-Native Americans, however, given that virtually all counties have a disaster declaration in place affecting virtually every year, I consider this a de

minimis issue. Nonetheless, I redid the analysis to weight each county by its share of either the Native American or the general farm operator population. The results presented in Figure VIII-1 changed by less than 2% but are incorporated into this analysis to eliminate a potential point of disagreement. That is, even with counties weighted by their respective Native American and general farm population, Native American counties were fractionally more likely to be declared disaster counties than general farm counties.

It is important to note, however, that Dr. Rausser's language leaves open the possibility of another misunderstanding. I did not assume, as he claimed at 105, that "there are two types of counties—Native American and non-Native American." I assumed that there was one set of counties that included a subset that could be referred to as Native American counties. I compared the instances of disaster declarations in this subset of counties with the incidence of disaster for the *full* set of counties (excluding the 9 counties referred to above). All Native American counties were also included in the general farm county group.

Fourth, Dr, Rausser asserts on page 106 that: "Mr. O'Brien's probability approach fails in any way to accurately account for the number of potential borrowers who actually experience the effect of a disaster."

While not everyone in a "disaster" county necessarily experienced the effect of a disaster, there is no reason to believe that Native Americans in a disaster county were less likely to be affected than non-Native Americans in the same county. In a related complaint, Rausser states at pages 108-110 that:

> Mr. O'Brien's emergency loan benchmark not only misuses the available disaster data, it also ignores the unique qualification requirements for emergency loans, namely that applicants for Emergency Loans must show they have suffered at least 30% loss in production of crops and livestock, or damage to essential assets used in

> the farming operation…Even once one has identified the number of farm operators in counties affected by disasters (which Mr. O'Brien has failed to do), there are no data sources that would allow one to further identify the subset of these operators who have suffered the types and amounts of losses required for an Emergency Loans.' This insurmountable problem (which necessarily depends upon individual proof for its solution) is explained at length at pages 51-52 of my April report.

Dr. Raussuer's point is irrelevant. No data exists identifying which farms in disaster counties actually experienced natural disaster losses of 30% or more. There is no evidence that disasters are more likely to cause losses of 30% or more for non-Native American farm operators in a county than for Native American operators. Thus, there is no evidence which suggests that Native Americans would have been less (or more) likely to obtain Emergency Loans than non-Native Americans in the same county.

Fifth, Dr. Rausser asserts on page 104 that:

> In essence, the emergency loan benchmark Mr. O'Brien uses for each state is nothing more than his previously described Operating and Ownership loan benchmarks for the states (before adding all household members) multiplied by this probability factor…This conclusion is statistically unsound and leads to massive increases in shortfall and claimed economic losses.

Dr. Rausser is mistaken on two counts. First, my emergency loan benchmarks are based upon the unadjusted 2007 Census count of operators, not the adjusted benchmarks used for ownership and operating loans. This raw count of operators is multiplied by the disaster declaration probability factor. This means as indicated in Figure VIII-1 that at the national level, a 4% higher probability of Native Americans operating in a disaster county raises their expected share of emergency loans from 2.73% Hence, his first point is simply wrong. Dr. Rausser is also in error when he stated that this "leads to massive increases in shortfalls and claimed economic losses." To put the issue into perspective, the 2.75% vs. 2.86% Native American share applies only to USDA's 1981-2007 emergency loans, which accounted for less than 10% of all lending. Hence, at its maximum, this issue affects less than 1% of

Native Americans' actual and expected lending.

Sixth, Rausser claims on page 104 that: "He appears not to recognize that his data [my longer series of FEMA data]…is partial, representing only one type of the several disaster declarations." While Dr. Rausser overstates the extent of this error, he is correct. The data that I got from FEMA shows fewer—generally 5-10% fewer—disasters per year than the data used by Dr. Rausser. Thus, it does appear that some types of disaster declarations were not included in the FEMA data set. This compromises the appeal of the FEMA data, even though it includes 16 years compared with Dr. Rausser's 11 years of data. Hence, I re-did my analysis using Dr. Rausser's shorter but more complete data and incorporated the results from this revised run into my analysis. The analysis of the shorter period with more complete data (and, as noted above, weighted with respect to population in each county) shows that Native Americans were still more likely to farm in a disaster county than farmers generally. However, once again, the differences were small and on the order of 3-4%.

But while the magnitude of the difference between the two measures is small, it is important not to over look that it indicates that the USDA emergency borrower profile "fit" Native Americans better than general farm operators. With this information in hand, it is clear that the entire loan program—ownership, operating, and emergency loans—was targeted at Native Americans to a greater extent than the farm operator population generally.

Seventh, Rausser also criticizes my use of the average for the years with disaster declaration data for the years without disaster declaration data. The alternative adopted in his April and October reports is to eliminate the years without data from the analysis. This leaves USDA's delivery of the emergency loan program unexamined for 60% of the relevant

period.

Several factors argue in favor of my use of the average for the years with data for the years without data. First, the same definitions of disaster were in effect for the entire period, with the same principal actors making the declarations. Second, the 11-year and the 16-year data point to the same conclusion and indicate that the standard deviation for both data sets were relatively narrow. Third, the results indicate that failure to include the years without disaster data in the analysis would seriously understate Native Americans' reasonable expectations of emergency loans and bias the results of the analysis against the plaintiffs. Fourth, Rausser argument that there is too much variability in whether or not a county is declared a disaster county to permit using averages does not stand up to scrutiny. Looking at the actual data, there is enough consistency to support use of the average. This is also reflected in the narrow range of observations for the Native American measure and the general farm county measure in the 39 states with detailed analysis. The two measures moved together over time, with a relatively stable pattern in effect across the counties in a state.

These considerations lead me to disregard Rausser's concern and use the results of analyzing 11 years of complete data to set a benchmark with which to analyze the years without data. Hence, the analysis reported here sets Native Americans' expectations of emergency loans at the national level at their 2.75% share of the 2007 Census' operator pool times an adjustment factor of 1.04--or at 2.86%.

C. Conclusion

The impact of this emergency analysis in setting Native Americans' expected share of USDA's emergency lending are summarized in Figure VIII-2. The figure shows 1). the beginning count of Native American farm operators from the 2007 Census without any

adjustment to suit the special provisions of the ownership and operating loan programs; 2). the disaster adjustment ratio described above; and 3). the application of the ratio to the operator share to arrive at the benchmark for Native American emergency loans. The data indicate that, while the differences are typically small, Native American farm counties are declared disaster counties more often than farm counties generally. Hence, Native Americans did have the basis for expecting slightly more of the emergency loan money than just their operator share would have suggested.

IX.
LOAN SERVICING

A. Background

The differences between the treatment of and conclusions regarding problem loan servicing reached in Dr. Rausser's October 2009 Report and my reports relate to: (1) how I defined the task; (2) Dr. Rausser's misunderstanding of what I did; and (3) several substantive disagreements on key issues. Below, I initially address the first two causes for disagreement to clear the way for a more substantive discussion of our disagreements on the key issues.

B. Defining the Servicing Issue

Dr. Rausser correctly recognizes that I define the job of evaluating USDA's service delivery as a twofold process. He notes that:

> [O'Brien] measures this [servicing] data against two benchmarks . . . . The first benchmark is the Native American share of actual Ownership, Operating and Emergency loans which Mr. O'Brien has wrongly determined using PLAS Mainframe. The second benchmark is the hypothetical Native American expected share of all loans which Mr. O'Brien concludes should have been made based on his loan share benchmarks constructed from Census data. This second benchmark defies logic given that only existing loans—and, indeed, only those borrowers who are experiencing financial distress–can receive servicing.

Rausser Report Oct. 2009 at 131.

As I previously explained, I provide two analyses of loan servicing because they serve different purposes. The first analysis is designed to address the issue of whether Native American borrowers were treated differently than non-Native American borrowers in provision of loan servicing, an analysis that goes to the issue of liability. The second alternative analysis is to measure the amount of loan servicing that could have been expected had Native Americans received their expected share of loans, in order to capture the full

scope of economic losses. I am well aware that only an actual loan can receive servicing, but when calculating the economic losses associated with being denied loans (i.e. the value of hypothetical loans), one must consider the loan servicing that such loans would have received.

Accordingly, there are two questions to answer with respect to loan servicing:

(1) Did Native Americans who succeeded in obtaining USDA loans obtain the loan servicing that they could reasonably have expected given the standard of treatment (*i.e.*, the frequency of and dollar values associated with servicing) received by the non-Native American borrower population?; and

(2) How much more servicing could Native Americans have expected if Native Americans who could reasonably have expected to obtain USDA loans, but did not in fact obtain them, are considered?

C. Dr. Rausser Misunderstands My Analysis

Dr. Rausser's October 2009 report demonstrates that Dr. Rausser does not understand how I conducted my analysis and, as a result, offers an erroneous critique of my loan servicing analysis.

Dr. Rausser's description of my loan servicing analysis is not erroneous in all respects. I did compare actual and expected loan servicing for the four main USDA servicing options—that is, loan restructuring, shared appreciation/net recovery buy out agreements, write off agreements, and deferrals—and I did analyze five different time periods—1981-2007; 1981-1999; 2000-2007; 1981-1990, and 1991-1999— in my July Report, with the selection of time periods designed to cover both the time periods I thought it appropriate to study, as set forth in my February report, and also the shorter time periods that Dr. Rausser prefers to study, as set forth in his April Report, in order to provide better opportunities to compare my analyses with Dr. Rausser's. *See* Rausser October 2009 Report at 130-31. Dr. Rausser is also correct that I conducted my analysis for each state, for a 35-state aggregate,

for a 15-state aggregate, and for a national total. *Id.* at 131.

However, Dr. Rausser incorrectly assumed that I preformed my analysis on something other than a year-by-year basis, and thus spends a considerable amount of time explaining his rationale for adopting a year-by-year approach. Because I agree with the year-by-year approach, I performed my analysis for each year and *also* reported the results for the five different time periods to serve as summaries.

Dr. Rausser also claims that "Mr. O'Brien uses the same benchmark regardless of which of four types of loan servicing he is analyzing[,]" and refers later to "Mr. O'Brien's all-purpose benchmark[.]" Rausser Report Oct. 2009 at 139-40. These statements can be misleading. I used the same benchmark for each service option only in the sense that the benchmark for Native Americans is the benchmark set by USDA's delivery of the specific service in question to the general borrower population. If shared appreciation agreements were rarely offered to any borrowers, the benchmark for Native Americans is set equivalently low; if restructured or rescheduled loans were provided to a lot of borrowers, the benchmark for Native Americans was set correspondingly high. This means that each benchmark reflects the unique characteristics of the service option, and that Native Americans can expect the same servicing dollar for dollar borrowed across service options as the general borrower population.

Next, Dr. Rausser mistakenly assumes that I am unaware that only borrowers who experience financial distress through no fault of their own are eligible for servicing. Of course, I was acutely aware of this provision and indeed considered it when structuring my original loan servicing analysis. After having had an opportunity to analyze the FOCUS data provided by Rausser with his October Report, I was able to establish that Native Americans

do indeed need servicing more frequently than non-Native Americans. As I note in Sections II and III, I have incorporated the results of this review of the FOCUS data into my analysis. While they show considerable variability from state to state, the FOCUS delinquency measures indicate that for the states with the largest Native American operator populations, Native Americans' limited financial resources meant that they more often need servicing than non-Native Americans.

Dr. Rausser also charges that "Contrary to Mr. O'Brien's assertion, the timing between loan delivery and loans servicing varies substantially across individual borrowers." Rausser Report Oct. 2009 at 133. However, I made no contrary assertion. In fact, I specifically provided for the difference in time between loan delivery and loan servicing in both my analysis of original loan delivery and loan servicing. As the PLAS data indicates, this can be as long as 6-7 years or more. This lag has to be taken into account in order to arrive at both a sense of the service applicant's financial situation and the potential for a servicing option to put the enterprise back on track.

Having addressed these preliminary critiques of Dr. Rausser that are based on his misunderstanding of my analysis, I will proceed to the major substantive issues in question.

1. ***Universal Eligibility and Related Issues***

Dr. Rausser claims that I assume that all borrowers are eligible for servicing and that I ignore the requirement that a successful applicant for servicing has to pass several added "tests" above and beyond having a pre-existing USDA loan to actually receive servicing. Specifically, he alleges that I assume that all Native Americans receive servicing whether they need it or qualify for it, stating that:

> Mr. O'Brien incorrectly presumes all additional loans which would hypothetically have been made to Native American borrowers would also have been eligible for servicing. He makes no attempt to estimate the portion of these would-be Native

American borrowers who would never have needed or qualified for loan servicing. *See* Rausser Report Oct. 2009 at 135-36.

This perhaps is Dr. Rausser's most blatant mischaracterization of my analysis intended to discredit my results based on what is a question of semantics at best. I assume that all FSA borrowers are ***eligible to be considered for servicing*** if they meet the first and foremost test for servicing: they have a pre-existing USDA loan. Yes, there are other subsequent qualifications that must be met before servicing is provided. Indeed, a successful applicant has to demonstrate that he or she is in financial distress through no fault of his own and that the servicing package sought will advance both the government's interests in recovering as much of its investment at risk as possible and the farmer's interest in building a successful farming business. While I use a farmer's initial receipt of a USDA loan as a first cut at defining the relevant population for servicing analysis, I certainly do not assume that all borrowers will receive loan servicing.

Although the second general qualification for servicing is that a successful applicant must show that he is under financial distress, as I noted on in my July Report, there was no basis in the PLAS data provided by USDA for assuming that Native Americans were any more or less likely to need servicing than USDA borrowers generally. *See* O'Brien Report July at 116-18. This means that Native Americans would meet this qualification at about the same rate as USDA borrowers generally.

Dr. Rausser challenges my conclusion that Native Americans are not less likely to need servicing than other borrowers:

> [A]ttempting to identify the pool of financially distressed borrowers is important for any analysis of FSA's loan servicing delivery. There is no support for Mr. O'Brien's supposition that the [incidence of financial stress in the] population of all borrowers makes a suitable proxy for this specialized

> subset [of Native Americans].

Rausser Report Oct. 2009 at 135. Based on his use of the 1999-2006 FOCUS and Ag Credit databases to identify financially stressed borrowers, Dr. Rausser criticizes my "Failure to Account for Differences in the Likelihood of Financial Distress[,]" and asserts that:

> Depending on the state, the percentage of borrowers applying for loan servicing is higher for Native Americans in some years, while higher for non-Native Americans in others. These annual differences, although not generally statistically significant, indicate that the Native American share of loans made to all borrowers is not reflective of their share of financially distressed borrowers

Id. at 136. Notably, Dr. Rausser generally criticizes referring to any differences as something other than "equivalent" unless the differences are statistically significant (Rausser at 37 n.32) – yet when there are a few states and years in which the percentage of borrowers applying for servicing is lower for Native Americans than non-Native American populations, even where those differences are *not* statistically significant, he cites it as evidence that Native Americans should expect less servicing.

But Dr. Rausser did not merely apply a double standard as to when he will acknowledge differences that are not statistically significant, the statement is also less than candid. Dr. Rausser refers only to those who had actually applied for loan servicing as reflecting those who were financially distressed. However, he also reported, for 18 states, on the percentage of borrowers who were 90 or more days past due. As Figure IX-1 drawn from data in Appendix 18 of Dr. Rausser's October 2009 Report indicates, USDA data on delinquency (being 90 or more days past due) show statistically significant differences in the need for servicing, and those differences reveal that Native American borrowers have a greater need. While Dr. Rausser only presented information from 18 states on delinquency rates, all of the states show statistically significant differences between Native Americans

and non-Native Americans. Equally important, the data shows a marked tendency for Native Americans in the heavily Native American-populated states to need servicing based on this measure of financial distress far more often that the non-Native American borrower population. As already noted in Sections II and III on servicing results, I have incorporated this analysis into estimating servicing shortfalls.

By way of explanation of shortfalls in Native American servicing, Dr. Rausser also charges that I have failed to take into account the fact that some servicing options are more clearly associated with certain loan types than others. *Id.* at 136. This suggests that my analysis of servicing should take into account differences in the mix of ownership, operating, and emergency loans in the typical Native American and non-Native American loan portfolio. In particular, Dr. Rausser states that:

> Mr. O'Brien's all-purpose benchmark disregards the fact that Native Americans' direct loan portfolios have a smaller percentage of these Emergency loans and, instead, a higher percentage of Operating and Ownership loans, than non-Native Americans.

Id. at 140. This otherwise valid concern becomes *de minimis*, however, when differences in the typical Native American and non-Native American portfolios are identified. As Dr. Rausser notes later in his report, both Native Americans and non-Native Americans report about 80% of their loans in the operating category. *See id.* at 149. The remaining 20 percent is split with somewhat more going to Native Americans in ownership loans and less in emergency loans compared to non-Native Americans. *Id.*

2. ***Class Versus Individual Analysis***

Dr. Rausser raises the concern that there are too many different servicing options applied across too many different borrower circumstances to undertake anything but a borrower-by-borrower analysis. Rausser October Repot at 132-140. He concludes there not

only that my analysis is invalid, but also that *any* class-wide analysis would be invalid. He attempts to support this view by emphasizing how "selectively" and "infrequently" USDA provides servicing In particular, he states that:

> [O'Brien] fails to recognize that eligibility for loan servicing, and the selection of the particular loan servicing package to be provided, depend on factors highly specific to individual borrowers including, but not limited to: payment history; prior servicing received; composition of loan portfolio; and financial strength of the borrower's farming enterprise.

Id. at 132. Following Dr. Rausser's argument to its logical conclusion, however, there could never be an assessment of USDA's delivery of loan servicing other than a case by case review of the half-million instances of servicing provided from 1981 to 2007. This proves too much. There are many issues impacted by multiple factors that are nonetheless regularly addressed by statistical analysis. One doesn't determine that cigarettes cause cancer by looking individual by individual, even though many individual health factors can affect whether one gets cancer. While computing *which* particular combination of loan servicing options will make the best fit for a particular borrower involves some individual assessment, those individual factors do not affect the determination of whether an individual is qualified for consideration for servicing. The details that he claims are critical are relevant at a much later stage in the process after eligibility has been established and financial stress documented. Therefore, USDA's general delivery of servicing can be evaluated by using the benchmarks described in my report.

In evaluating the issue of class versus individual evaluation of delivery, it is important to note that Dr. Rausser's efforts to characterize servicing as "highly selective" and "infrequent" are ill-founded. As Figure IX-1 shows, servicing is far more common-place than Dr. Rausser's language suggests. The figure shows the number of servicing transactions

made each year compared to the number of loans made each year. But because one servicing transaction can involve multiple loans, the simple ratio between loans and servicing substantially understates the frequency with which servicing was provided. Looking at the dollar value of the servicing provided and the dollar value of the loans made in a single year show that USDA has often invested half or more of its dollar activity in any one year to servicing.

3. ***Alleged Miscounting of Servicing***

Dr. Rausser invests considerable space in his October 2009 report to make the case that I miscounted servicing. Rausser Report Oct. 2009 at 140-41. Dr. Rausser accuses me of counting servicing based on the number of loans serviced. Specifically he claimed that I count one service agreement that covered three small problem loans as three servicings, while a servicing agreement covering a single much larger loan would only count as one servicing. Thus, as Dr. Rausser points out, "[t]he number of loans serviced is not equivalent to the number of servicing decisions[.]" *Id.* at 140. However, Dr. Rausser incorrectly assumes that I counted each loan serviced, rather than the number of servicing agreements, stating that "Not only does Mr. O'Brien incorrectly measure FSA loan servicing delivery as the number of loans serviced (disregarding the number of borrowers), he does so for as many as 27 years at a time." *Id.* Moreover, in an effort to offer an example, Dr. Rausser states that:

> I illustrate the unreliability of Mr. O'Brien's approach (counting serviced loans rather than borrowers) with two simple examples. **Restructure Example**: Consider four FSA borrowers each of whom become financially distressed. Borrower A has three outstanding Operating loans, while Borrowers B, C and D each have a single outstanding Operating loan. In the course of servicing, Borrower A has his three operating loans consolidated into a single loan with modified payments, while Borrowers B, C and D each have their single operating loan re scheduled. Each borrower received equivalent loan servicing benefits from FSA in a single delivery. However,

> pursuant to Mr. O'Brien's method of counting serviced loans, Borrower A received a 50% share of the total loan servicing delivery (three loans out of six) while Borrowers B, C and D each received only 16.66%. Although they were treated identically by FSA, Mr. O'Brien's analysis requires us to reach different conclusions about them. Further, because Native Americans are less likely than non Native American borrowers to receive consolidation due to differences in their loan portfolios, it is more likely that Borrower A is non Native American while Borrowers C, D, and E (for whom Mr. O'Brien has thus computed smaller shares) are more likely to be Native Americans.

Rausser Report Oct. 2009 at 140-41. It is difficult to imagine how Dr. Rausser reached this conclusion. As I previously explained in my July report, I counted service frequency in the same manner as the USDA's own database. This means that each servicing transaction—*i.e.*, each decision to service one or more loans for the same borrower at the same time—was counted as a single observation. No matter whether the servicing package dealt with a single loan or a bundle of loans, I counted the transaction as a single incident of servicing. This should have been obvious to Dr. Rausser, because otherwise my count of servicing would have been immensely swelled by the USDA's common practice of building 2, 4, or even 6 loans in a single servicing package. As our respective figures reporting actual and expected servicing indicate, this clearly was not the case.

D. Conclusions

Dr. Rausser's criticism of my servicing analysis is generally without foundation. The one exception is in his provision of the USDA data indicating Native American borrowers were more likely to be in financial distress over the 1994-2007 period as provided in the AgCredit and FOCUS databases. I have incorporated this data into my analysis.

X.
RESPONSE TO DR. RAUSSER'S CRITIQUE OF ECONOMIC LOSSES

A. Background

Dr. Rausser's extensive critique of my economic analysis in his October Report includes a plethora of data and observations that ultimately relate to five basic questions, namely:

A. Is my approach to "measuring differences in treatment," which then provides the basis for calculating economic losses valid?
B. Can any assessment of economic damages be done using "averages" to convert shortfalls in loans and servicing into economic losses based on historical measures of financial performance?
C. Can a class wide-assessment of economic damages be done or is any meaningful analysis of economic losses limited to individual-by-individual assessments?
D. Should economic damage estimates be done on a "static" or "dynamic" basis?
E. Is Dr. Rausser's own citation of performance averages including large and very large farms in their calculation relevant for evaluating economic losses for a USDA program with a distinct small/medium-sized farm focus?

The relevance of the considerable detail on economic performance that Dr. Rausser provides and the validity of his criticism of my analysis depends on the answers to these five questions. I address these five questions first and then move on to identify errors in Dr. Rausser's comments ranging from simple misstatements of what I have done to more substantive issues that render his comments largely irrelevant.

B. Is my approach to measuring differences in treatment valid?

Dr. Rausser begins his discussion of my economic analysis by noting on page 151 that:

> Even though he is unable to establish that the lending shortfalls that he observed for Native Americans are the result of discrimination rather than a non-discriminatory reason, he nevertheless proceeds to measure losses by converting shortfalls—including statistically insignificant shortfalls—into lost income, lost capital appreciation, foregone interest rate subsides, and foregone income in the form of debt forgiveness.

If my analysis of loan and loan servicing delivery is not found to have established differences in treatment, then no further discussion of economic losses is warranted. However, if the analysis – which I believe is valid and is similar to the methodology used by USDA in evaluating loan program delivery in other discrimination cases – is accepted, then economic losses must be calculated.

Dr. Rausser contends that economic losses should only be calculated for the specific states, and specific years, and specific loan types, which were independently statistically significant. Rausser October Report at pages 150-152. This is incorrect. The analysis, both state-by-state and the overall logit regression, establish that there is a national pattern of discriminatory decision making by USDA. Given the overall pattern, it is appropriate to calculate losses due to shortfalls which, if viewed in isolation, are not statistically significant. Windfalls, of course, do not generate any economic losses under my methodology, and in fact, serve to offset losses from shortfalls in my aggregate analysis.

C. Can an assessment of economic damages be done using "averages"?

Dr. Rausser's description of my approach to estimating economic losses provided on page 152 is largely correct. He notes there that:

> Mr. O'Brien's basic approach to calculating economic losses related to loan making is to measure the total dollar amount of lending shortfalls he determines Native Americans experienced, treat the amortized total dollar amount of these lending shortfalls as the value of the assets which would have been invested in their farming operations each year over the life of the loan, and then measure annual foregone income from continuing operation of the farm or ranch and capital appreciation based on these foregone assets.

However, Dr. Rausser questions the validity of this approach on two grounds—on the general ground that averages are in and of themselves unreliable and more particularly on the ground that the averages that I used are inappropriate. Regarding the first concern, Dr. Rausser notes on page 152 that:

> While this methodology sounds formulaic and simply, it is inappropriate because it is dependent on the use of averages at every turn and thus fails to account in any meaningful way for the myriad of individual factors determining the characteristics of individual would-be loans, and the economic returns borrowers would have generated with the use of the loans funds to purchase and utilize farm business assets.

He notes further on page 152 that:

> Further, Mr. O'Brien's methodology runs counter to professionally accepted methods in finance and economics.

While the use of averages has to be monitored carefully to ensure that the averages chosen are appropriately tailored to the purpose for which they are used, their use is consistent with economic theory and practice. The approach that I used to arrive at the averages used in my analysis focused heavily on insuring they are representative of the population denied loans. I took several steps to ensure that the financial return ratios or any other averages used were tailored to the particulars of the issue at hand. For example:

1. All analysis of loan and service shortfalls and their economic impacts is done on a year-by-year basis to avoid any loss of representativeness due to aggregating across time;
2. All analysis was done on a state-by-state basis for the 50 states; for a 35-state aggregate, with the 35 states selected on the basis of their having a large enough Native American population (more than 1% or more of the farm operator population) to support robust analysis; and for a separate 15-state aggregate for the states where Native American numbers were too small a share of the operator population to support robust analysis;
3. The loan and credit shortfalls used to calculate income losses were calculated for the individual ownership, operating, and emergency loan programs along with an individual restructured loan category. This means, for example, that the amortization of loan shortfalls could be done year-by-year and state-by-state using the actual loan term averages calculated for each loan type--that is, using an average of each loan option's particular interest rates, negotiated repayment periods, and actual repayment periods, based on loans made in that year, in that state;
4. Service analysis was also done option by option (i.e. for restructured loans, for write-downs, write-offs, and deferrals) to provide for the same specificity in calculating windfalls and shortfalls and their economic impacts;
5. The income performance averages (i.e. the ratios of dollars in income earned to dollars invested in a farm operation) were initially calculated for each state as a whole in my February Report. In an effort to accommodate Dr. Rausser's concerns, I

recalculated income performance again by year and by state but looking more specifically at operators in the $0-250,000 sales class for ownership and operating loans targeted to small/medium-sized family farms. I used the all-operator income ratios for emergency loans since they were made to small, medium, and large farm operations.

All of the measures in question come from the USDA/ERS's Farm Income and Finance Information System (the ARMS Database) maintained by USDA's Economic Research Service and National Agricultural Statistics Service. This information system and its use in farm financial analysis (including all aspects of data collection, analysis, and reporting of the performance measures used in my analysis) was carefully review by the American Association of Agricultural Economics and received Association commendations. The standard errors of the estimates associated with all of the performance measures are published by USDA and meet the statistical reporting standards of both agencies (ERS and NASS). I have learned through analysis of the farm business plan data produced by Dr. Rausser, that the data indicates that rates of return for FSA borrowers were actually HIGHER than average rates of return for the sector as a whole and for corresponding sales classes.

This is consistent with the goal of the USDA loan program to provide funding only to those otherwise viable farm operations that could not get commercial credit and the inclusion of technical assistance in the USDA support package. This finding based on the 176,000 farm business accounts for FSA borrowers over 2002-2007 is dramatically inconsistent with Rausser's repeated insistence that these operators are substandard performers.

6. The national interest rate measures that I use in my analysis are drawn again from the USDA database and were approved for publication as valid national averages by the ERS. The interest rates used at the state levels were derived from the USDA loan program database by year, by state, and by individual loan and servicing option; and
7. The capital gains ratios (i.e. the dollars in capital gains earned per dollar in investment) used in my report were also drawn from the same USDA database as income ratios, with the data subject to the same qualifications for reliability. The asset appreciation rate for land and buildings used in my alternative capital gains calculation also come from the same USDA database and were published after the same internal NASS and ERS review. Hence, everything that could be done to insure that the averages are as representative as possible has been done. Despite Dr. Rausser's statement to the contrary, the materials in question do meet professional standards.

To provide more detail on why I concluded that these financial performance ratios are representative, I have also prepared Figure X-1which summarizes standardized relative errors. These statistical measures were prepared by the USDA National Agricultural Statistics Service and the Economic Research Service. These measures indicate that the

measures that I used are well within professional standards.

Finally, Dr. Rausser's concern about the use of averages in analyzing the case against his client ignores the fact that USDA itself used the same approach and many of the same averages in its own evaluation of claims of discrimination. This was true prior to the resolution of the *Pigford* case when Assistant Secretary Rosalind Grey directed the Department's Civil Rights Office and drew heavily on the Economic Research Service and the expertise of Dr. Praveen Setia. This approach and the averages in question were used even more broadly in the *Pigford* case by the Department and the plaintiffs in resolving multiple Class B cases (See for example the Griffin Todd, Clarence Fryer, Darrell Greene, Odell Davis, Tommy Hill, Ben Hillsman, Robert Holmes, Harrison Locke, Leon Matthews, and Raymond Reeder Class B Cases in the *Pigford* Class Action Case). Somewhat ironically, Dr. Rausser himself falls back on the use of averages in his criticism of my analysis.

Hence, while I appreciate Dr. Rausser's theoretical concern about the use of averages, they are inapplicable in this particular instance.

D. <u>Class versus Individual Damage Estimates</u>

Dr. Rausser makes the same argument repeatedly throughout his report that it is improper to analyze these issues at the class, rather than individual, level. In making that argument in the context of economic losses, Dr. Rausser argues that individual borrowers are so different that no average can provide a valid measure of what each one's economic performance would have been in the hypothetical world where each received loans that were not actually received. This argument depends on the same points treated above in section C immediately above, with the added claim that small/medium-sized operators in question are particularly vulnerable to mischaracterization via the use of averages. The only observation

that I would add to the discussion in C is that USDA has put special emphasis on increasing its sample size for small and medium sized farms in its farm financial surveys to insure against just this concern. While small/medium size farms make up less than a quarter of USDA's total for annual farm sales, they account for over two-fifths of the survey population in the Department's keystone Farm Financial Surveys. Dr. Rausser's criticism implies he disagrees with the combined judgment of the agricultural economists at USDA that the averages in question were meaningful indications of sector performance, but it does not provide sufficient evidence to support that conclusion.

Dr. Rausser's argument collapses of its own weight. He insists that farmer performance varied, and each individual farmer should be judged based on his or her own crop yields, etc. However, it is impossible to know the yield on a crop never planted or the survival rate of calves never born because FSA declined to make a loan, and thus seed was not available to be planted or breeding stock purchased. What we do know is that FSA routinely used average crop yields, calving rates, and similar state or county averages for the price of inputs and the yield and sale price of outputs, in developing farm business plans for potential borrowers. Therefore, USDA has historically identified such averages as appropriate assumptions to make, even in the case of a single individual.

Dr. Rausser assumes that a more accurate estimate of the economic losses of a particular individual could be calculated if damages were required to be calculated on an individual, rather than class wide basis. He ignores several factors: (a) the number of class members who sought and did not receive loans in a given state, in a given year, may be greater than the number of loans in the shortfall I have identified; it would be impossible to guess at which class members would have received the loans in the absence of

discrimination, given the lack of records regarding the precise timing and content of any applications; (b) not only did USDA fail to keep application files until very recently, but even borrower files for those who received loans are missing documents; in short, there would be no reliable documentation with which to re-create precisely what did happen, let alone estimate what would have happened in the absence of discrimination; (c) even if records existed for a few of the many class members, sufficient to recreate their application from 1985, and how it compared to the applications of those who received loans in 1985, and even if the Farm Home Plan (as Farm Business Plans were called then) was based on individualized estimates rather than the average yields and prices commonly used, nonetheless, we would have to use the average term, interest rate and other data from loans that were actually granted in that state and year – just as I do in the class-wide formulation – in order to provide an estimate of the loan terms this class member would have received. At most we could get a slightly more refined analysis of economic losses for one year. Then, however, we would have to consider a series of interrelated impacts: the initial loan could lead to higher revenue; that additional revenue could then be invested in the farm business, and perhaps a larger loan sought for the following year, over the time period covered by this case, it becomes increasingly speculative what size loan a person would have sought or been eligible for in year 3 or 4, if only he or she had not been wrongfully denied a loan in year 1. Moreover, it is highly common for farmers to be involved in multiple crops, such as both small grains and cattle. Even if, at the time of the first application for a loan, an individual borrower had a particular mix of crops, with the availability of capital from FSA, the borrower might expand in one area, not another, or add a third product to the mix. It is impossible to know for certain what might have happened, how an individual's farm would

have evolved over time, if it had obtained infusions of capital from FSA loans. Thus, contrary to Dr. Rausser's suggestion, calculations of economic losses do not become more reliable when done at the individual level. Indeed, at the individual level, some variation is expected, and twenty years later it would be speculative to decide whether Plaintiff A or Plaintiff B would have had a higher rate of return on an investment neither had the opportunity to make. However, if the appropriate average is selected, specific to the state, year, and sales class of these farms, then it is highly reliable to assume that the class of plaintiffs would have averaged rates of return about the same as the appropriate statewide average. Therefore, calculating economic losses on a class-wide basis may be highly reliable for the class as a whole, while an individual analysis may quickly become more speculative. Indeed, in cases where USDA has developed individual plaintiff-specific measures of economic losses, they used the same approach and the same performance averages that I did in my analysis here. This can be verified by referring to USDA's damage filings in the cases referred to above with regard to the *Pigford* Case. This is evidence that the use of such average financial performance ratios is the most accurate way to create the "but-for" world in which class members received the loans they ought to have received.

Having considered Dr. Rausser's concerns, I continue to believe that my approach provides a valid formulaic approach and generated credible estimates of both windfalls and shortfalls in lending and servicing and of economic damages.

E. <u>Should Damages be done on a "static" or "dynamic" basis?</u>

In the simplest terms, the issue here is which point in time to use when selecting the financial performance ratio to use in assessing economic damages—when a very small/small farm operator initially gets a USDA loan, at the end of what is generally a multi-year (on average roughly 7 years) period of working with USDA as a lender and a provided of

technical assistance to upgrade his operation, or somewhere in between? The reason why this is important is that USDA's farm income performance indicators show, all other things being equal, that larger farms generate a higher income return on investment than smaller farms. This is true both for farmers generally and, based on Rausser's Farm Business Plans, for FSA borrowers as well. Stated alternatively, the issue is how much importance to afford the dynamic that USDA's loan program is designed to promote—the dynamic of strengthening the viability, expanding the scale, and increasing the profitability of targeted farms. This dynamic applies across the ownership and operating loan programs that accounted for 90% of USDA lending over 1981-2007 and is most applicable to the beginning farmer, limited resource farmer, and the very small farmer.

Why is this issue important? Dr. Rausser makes repeated statements about the substandard performance of small farms, particularly very small farms, based on where they stood size-wise before their initial USDA loans were made. For example, he emphasizes that the farms in the lowest size categories seldom make money and that even my use of income performance ratios for the $0-250,000 sales class overstates the income performance of USDA borrowers—based on where they started from. Any appropriate measure of damages has to look at where USDA loans allow a farm operation to go—both during the period when USDA is actively supplying credit and after USDA has graduated the borrower to full commercial credit. I addressed this issue at length in Section VI in this report and refer the court there for added discussion.

In effect, Dr. Rausser postulates "Once a loser, always a loser" in the sense that he assumes farms that start off at the bottom of the scale measured by assets, sales, or income stay there despite the considerable support provided by USDA. If this was indeed that case,

the loan program would have to be recognized as a failure and the loan staff would have to be reprimanded for making loans that did not meet the qualifications for economic feasibility required for USDA to make a loan. It is important to note that the Farm Business Plan data on farm financial performance referred to earlier in this section and in Section III demonstrate that the opposite is true—that FSA borrowers report via USDA's own records of their farm performance that they out-performed other farmers in the same sales classes without USDA loans and out-performed the overall agricultural sector based on sector performance averages.

F. Are Dr. Rausser's repeated references to farm sector averages based on the full distribution of small, medium, large, and very large farms appropriate for a loan program analysis?

This issue of when it is appropriate to use averages is also seen here since Rausser's production of the USDA farm business accounts (FBP) data referred to above indicates that he had access to over 200,000 farm business accounts for FSA borrowers. One might argue that the most appropriate averages to use in converting FSA loan shortfalls into income lost by would-be FSA borrowers is the performance of actual FSA borrowers. However, Rausser consistently quotes averages for the general farmer population when he has these much more particular records available. It is noteworthy that had he used these more appropriate, more representative data on FSA borrowers' financial performance that his entire line of argument would have been discredited since the data in question indicates that FSA borrowers out-performed rather than under-performed other borrowers in their sales classes and average borrowers across the sector (See Figures III-3 and 4).

G. Specific Rausser Complaints

Dr. Rausser also raises a number of specific complaints treated here in the order in which they appeared in his October Report.

1. ***Purported Flawed Measurement and Use of Aggregate Lending Shortfalls: Average Loan Size***

Dr. Rausser claims on page 154 that my measurement of loan shortfalls is flawed, with his ultimate concerns related to measuring shortfalls by loan number or dollars lent and my assumption that Native American and non-Native American loans would be comparable in size. Rausser incorrectly states on page 154 that:

> While Mr. O'Brien conducts a statistical analysis of differences in actual and expected lending in terms of the *number of loans*, his economic loss calculation measures shortfalls and windfalls based on the *dollars of loans made* without any connection to the shortfall or windfall in the number of loans.

A more careful reading of my report indicates that this is a mischaracterization of what I did. I analyzed USDA delivery of loans by looking at first at the number of loans made and then at the dollar value of loan made using the same benchmarks for ownership, operating, and emergency loans and using the same USDA loan data base. In keeping with Rausser's arguments that the primary focus should be on loan numbers, I started there but then moved on to analyze dollars loaned. Hence, the two analyses are closely connected. What the analysis showed was that most Native Americans faced a combination of lending problems based on USDA providing not only too few loans but loans that were too small. Nationally over 1981-2007, fewer loans accounted for about two-thirds of the lending shortfall, while smaller loans accounted for the remainder.

Assuming that this explanation resolves the charge that my analysis of loan numbers and dollars was done "without any connection," we can move on to the core issue of how valid my assumption is that Native Americans could have expected the dollar value of their loans to approximate the distribution of loan values for the general borrower population—that is, that both groups could have expected the same average loan size.

Dr. Rausser notes on page 154 that:

> In doing so [assuming average loan size], he has assumed that the myriad of factors specific to individual borrowers that determine loan size are unimportant, and that the average size of FSA loans made to Native Americans is the same as the average size of FSA loans made to non-Native Americans.
>
> Mr. O'Brien makes these sweeping assumptions to justify using a formula common to all putative class members, but in doing so he has overstated the size of any alleged economic losses related to loan making.

He notes further on page 155 that:

> The inescapable fact is that measuring foregone loan funds requires an individual analysis of wrongfully denied loans.

Dr. Rausser attempts to support his position by citing a myriad of factors that could make loan values different. He notes that loan size varies by loan type and purpose. Looking first at ownership loans, his Figure 35 shows the wide variation between building and land value by commodity type---animal products $312,000 per farm vs. $1,384,000 for cotton at the national level. He concludes at page 156 that

> These facts invalidate Mr. O'Brien's method of measuring Ownership loan shortfalls by assuming Native American Ownership loans would have been the same size as those made to non-Native Americans.

Rausser exposition over looks several critical factors. First, as interesting as his national differences in the value of land and building are, they are irrelevant since my analysis is done at the state level—that is Native American loans are set equal to the average for non-Native Americans for each state and each year. Second, his emphasis on the wide differences in commodity orientation of Native American and non-Native American refers back to his effort to emphasize how much more Native Americans were concentrated in livestock operations—a contention disproven by the data presented in my Figure X-2. Following Dr. Rausser's logic, to the extent that my figure indicates that many states (31 including Alabama, Colorado, Georgia, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan,

Minnesota, Mississippi, Montana, Nebraska, New Mexico, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Washington, Wisconsin and Wyoming) have more non-Native Americans concentrated in livestock than Native Americans, his argument works in reverse to suggest that Native Americans should have received larger loans than non-Native Americans. Third, Dr. Rausser's analysis is static—that is, he assumes that there are no changes over time in operations supported with USDA loans. This ignores the fundamentals of farming described in my Farm Typology discussion at Section VI—that, with adequate capital in hand, Native American operations would have gravitated toward the commodity mix that generated the highest returns. Fourth, Dr. Rausser ignores the concessional nature of USDA lending and its farm viability goals. This should also have translated into a propensity to lend more to commodity operations and small-sized operations that need more credit to generate more income and move up to running more profitable enterprises.

Lastly, Dr. Rausser claims on page 157 that:

> The difference in type and size of farm lead to a wide distribution in the size of Ownership loans made to all FSA borrowers. . . . Mr. O'Brien's use of averages completely disregards this consistently wide distribution.

If this is a valid perspective despite the concessional nature of the program emphasizing helping the farms at the low end of the size distribution, Dr. Rausser's point has to be evaluated looking more closely at his measures of size distribution. His striking comparisons of Native Americans and non-Native Americans are based on including large and very large farms where Native American numbers are particularly few. While some size differences persist, looking at sizes for the $0-250,000 sales category, which is the group for which the loan program is targeted, indicates that the size distribution is much more similar. Hence,

Dr. Rausser's ownership loan critique is seriously overstated at the best.

Dr. Rausser lays out the same claim for operating loans. He presents Figure 38 where he once again shows the wide distribution in ***national*** average production expenses by farm by commodity specialty. He shows the range being $14,409 for sheep and goats at the low end and $409,962 at the high end for cattle feed lots. He notes on page 159 that:

> What figure 38 shows is that the type of operations in which Native American farmers and ranches are most concentrated . . . are among the least expensive to operate.

Once again, Dr. Rausser has overlooked the fact that it is not the distribution of Native American farms by commodity on a ***national*** basis that is relevant, but rather their distribution within each state. Hence, nationally Native Americans may be more concentrated in states with more beef operations than the national average but still qualify for the same size loan as their in-state non-Native American counterparts based on concentration at the state level. Alternatively stated as the USDA record supports, average loans ***to all borrowers-- Native Americans and non-Native Americans alike--*** are higher in states with a greater concentration in capital intensive commodity specialities and lower in states with more livestock concentration. Dr. Rausser's reference to national averages ignores that within states such differences are smaller. In addition, Dr. Rausser has overlooked the fact that the appropriate measures of commodity concentration gauged at the state level indicates that his claims about Native American concentration in this area are simply wrong. Differences in concentration are relevant only at the state, not the national level. Again as Figure X-2 indicates, the differences in livestock concentration within states is far less than Dr. Rausser indicates and indicates for many states that there is no significant difference in distribution or that the difference in distribution shows Native Americans with less

concentration than the general borrower population.

Lastly, Dr. Rausser overlooks his own statement about the concessional nature of USDA loans in his statement of their goals on page 14 of his first April Report. USDA's goals for beginning, limited resource, and small/medium size family farms indicates that these borrowers often make up a majority of the borrower total and could well have expected the larger loans needed to grow out of poverty. This topic is treated at length in Section VII of this report. It is also important to note that Dr. Rausser's analysis is based again on the comparison with the entire farm population—large and very large borrowers as well as the small/ medium-sized farms focused on in the ownership and operating programs accounting for 90% of lending.

2. ***Alleged Flawed Measurement and Use of Aggregate Lending Shortfalls: Using History to Justify History***

Dr. Rausser tries to reinforce his argument that Native Americans' average expected loan sizes should be smaller by observing on page 160 that:

> [H]is assumption that there is no difference in the average size of FSA loans made to Native Americans and those made to non-Native Americans is counter to the data. Mr. O'Brien was aware of this because he measured the dollar value of shortfalls based on the average size of FSA loans Native Americans actually received, but without explanation, his economic loss calculation did not consider these shortfalls. I can only deduce that he did not use these alternative shortfalls because the total loan shortfalls in Arizona, South Dakota, Texas, Arkansas, Montana, North Dakota, and New Mexico would have been 24% lower (79% in Montana alone) if he had used this alternative measure, and these states account form 69% of his loan making economic losses during 1981-2007.

This observation does not stand up to closer scrutiny. The fact that the subset of Native Americans who did get USDA loans got smaller loans in no way establishes that their expected loans ***should*** average less than the general farm operator population. Once again, Dr. Rausser offers USDA's loan history as a justification for its loan history. In addition, the essence of the Native American claim is that they did not receive the support that they could

reasonably have expected from USDA. This support ultimately takes the form of a combination of loan numbers and loan values. I would have been remiss if I had not done the analysis to identify both types of shortfall and combined them to arrive at a dollar value for use in economic loss analysis.

3. ***Alleged Flawed Measurement and Use of Aggregate Lending Shortfalls: Arithmetic***

Rausser notes on page 160, in reference to Figure 39 that:

> Another problem with Mr. O'Brien's methodology is that in many instances, he finds that Native Americans have experienced a lending shortfall in terms of dollars of loans made, when the associated shortfall in the number of loans made is less than one. In other words, Mr. O'Brien's economic loss calculation assumes that FSA should have made a fraction of a loan, which is not possible.

To reinforce this charge, Dr. Rausser claims in Figure 39 that that 31.5% of operating loans, 60.3% of ownership, and 50.2% of emergency loans identified as shortfalls were instances where the shortfall was less than one loan. A re-review of my results tables provided to Rausser indicates that this simply reflects that I reported unrounded numbers, i.e. 12.7 loans or 8.6 loans. The same arithmetic practice was followed with loan windfalls insuring that this practice of reporting the numbers with decimals shown created no bias. Rounding my results up when the fraction is .5 or higher and down when the fraction is lower than .5 produces the same number of loan shortfalls

In a final attempt to obfuscate the issue, Rausser notes on page 161-62 that:

> Mr. O'Brien has failed to conduct a reality test of his lending shortfalls. In many instances, the annual lending shortfalls he has measured surpass the remaining funds FSA could have obligated during the fiscal year. . . . In other words, FSA did not have enough remaining Ownership funds during the year to make all of the additional loans which Mr. O'Brien's analysis determine should have been made to Native Americans in that state.

He notes further on page 162-163 that:

> In other words, FSA did not have enough remaining Operating loan funds to make all

> of the additional loans which Mr. O'Brien's analysis determines should have [been] made to Native Americans in that state. . . . These comparisons show that Mr. O'Brien's measure of lending shortfalls is often out of touch with reality. In short FSA would not have had enough funds to cover all of the additional loans Mr. O'Brien's analysis has determined that an unidentified pool of Native American farmers and ranchers should have received.

At the risk of repetition, my analysis of Native American loans shortfalls assumed that USDA operated the loan program within its existing budget. I applied Native Americans' ***expected*** shares of USDA's lending to the amounts that the Department ***actually*** lent. Hence, I assumed no increase in USDA funds, rather that USDA's funds were distributed along the lines that reasonable Native American expectations warranted. Perhaps the most telling of Dr. Rausser's comments is that FSA did not have sufficient "***additional funds***" funds or "***remaining funds***" to cover the Native American shortfall. This assumes that despite a pattern of depriving Native Americans of their reasonable expectation of loans – and providing more loans to non-Native American borrowers than their reasonable expectation – that Native Americans are not entitled to any remedy for the difference in treatment because USDA used up its budget giving additional loans to white borrowers. That assumption is unsupported by any authority, and runs counter to the idea, which Dr. Rausser elsewhere acknowledges, that we should calculate what Native American borrowers would have received in the absence of discrimination. In the absence of discrimination, USDA would not have spent so much of its budget on non-Native American borrowers and would have had funds available to cover the shortfalls I have identified. Moreover, Dr. Rausser's comparison of the shortfalls to the amount of SDA funding left unspent each year makes even less sense – Native American borrowers are not restricted to borrowing only SDA money. The SDA allocation was an attempt to set a floor (rarely actually met), not a ceiling.

Lastly, as the limited data on program allocations and obligations for 1990-2000

provided by USDA shows, USDA consistently spent less money via the loan program than they had available (Figure X-3). Hence, Dr. Rausser is wrong both conceptually in how he sees Native Americans being funded and fact-wise regarding the funds USDA did or did not have to lend Native Americans.

4. ***Claimed Inappropriate Use of Amortization***

Dr. Rausser spends considerable time addressing the issue of amortization when the question is elementary. Both Dr. Rausser and I agree that:

1. Amortization is the appropriate way to translate a loan amount into a multi-year credit stream:
2. The standard approach to evaluating the return on investment in agriculture is to relate dollars earned as income to dollars invested in the operation. Applying this approach in this litigation means treating the credit proceeds of a loan as capital invested in the farm operation, with the amount of the credit "earning" income each year set at the declining balance—the remaining principal outstanding—on the original loan;
3. Amortization requires four pieces of information about a loan: its original amount, the interest rate, the negotiated term, and the actual term. This distinction between negotiated and actual term is important in evaluating USDA loans since they were often terminated before the negotiated data due to graduation, servicing, etc.

Rausser's concern about my calculations relates solely to the issue of how to calculate amortization for a hypothetical loan – a loan that should have been made, but was not, and thus is counted in my calculation of a shortfall. In calculating amortization for such a loan, we do not have *actual* information about interest rate, term, etc. I find that use of the averages for these values, calculated for each year, for each state, and for each loan type is appropriate, because the average values for the loans made are representative of the additional loans that should have been made. Dr. Rausser notes on page 164 that:

> He does not and cannot know the dollar amount, interest rate or scheduled repayment period of the hypothetical individual loans compromising his aggregate lending shortfalls… he now submits that this doesn't matter and that he can amortize based on the aggregate lending shortfall comprised of loans varying in size, interest rates

> and repayment periods. In doing so, he fails to acknowledge that certain borrowers receive special interest rates and that original loan repayment periods can vary by the loan purpose, even for the same type of loan.

Rausser's general argument against the use of averages is least convincing in this case of amortization since USDA regularly provides agency lending guidelines for these parameters.

Looking first at interest rates, the agency specifies the interest rates to be offered for individual ownership, operating, and emergency loans, with the only variation being whether the borrower is given the regular rate—presumably the bulk of USDA borrowers—or a special limited resource rate routinely set a fixed margin below the regular rate. These rates had to be applied across all county offices and states without exception. This means that variations in interest rates was small and related only to changes in the proportion of limited resource loans per year, with USDA specifying a targeted proportion for such loans common across all states and counties. Those same USDA guidelines would have applied to the hypothetical loans counted in lending shortfalls in my analysis, and thus use of those rates is appropriate.

Rausser asserts USDA had wide latitude in the term (number of years) for each loan. In fact, however, over three-fourths of operating loans (which account for 80% of USDA's total lending) were for annual operating loans with repayment after one year. The variation in ownership and emergency loan terms was generally wider, but with most loan officers providing the applicant with the best possible "deal" by negotiating the longest term possible. Moreover, while Rausser emphasizes the potential for wide variations in the 10% of lending made as ownership loans, the data suggests that the actual term for the majority of ownership loans was 8-10 years. In addition, emergency loans were generally provided with the maximum term to assist the borrower recover from a natural disaster. And as with ownership

loans, actual terms were much more comparable across borrowers, even if the negotiated term showed more variation. This worked to minimize the variance associated with the repayment term average.

Rausser's statements on amortization also include a number of errors that warrant identification since they provide artificial support for his sense that the amortization analysis cannot be done using averages. For example, he states on page 164 that

> Mr. O'Brien's use of averages can cause him to amortize one-year operating loans over 5-years.

This is theoretically correct if a particularly skewed distribution of the repayment data warranted. However, the actual repayment period average for operating loans is less than 3 years based on the data actually observed and reported in the PLAS data bases. Rausser also cites an arithmetic impossibility on page 166 for dramatic effect. He claims that I use the average of 11 years for amortization for the loans shown in his Figure 43. Using the figure as a reference, the actual mean is 7.3—not 11-- which comports closely with the mode of 7.

Rausser also claims that I provide for the "same amortization per dollar…whether it be $1 in a $30,000 or $1 in a $50,000 loan." Rausser at page 164. This statement is designed to confuse. Yes, I treated $1 in a $30,000 loan the same as $1 in a $50,000 loan *if* the interest rate, negotiated term, and actual term were the same. It is irrelevant in calculating the amortized value of a dollar whether it is part of a $10 loan or a $1 million loan ***if*** the terms are the same. I did not treat $1 in a small loan the same as $1 in a large loan if the loan terms were different.

5. ***Allegedly Flawed Measures of Lost Income on Loan Shortfalls***

Rausser's description of the steps in my analysis of this topic is accurate. I used ERS Farm Sector Balance Sheet data to develop customized measures of the relationship between

income and investment by state and by year. I then applied these ratios to the credit equivalent of the relevant loan shortfalls, with the analysis done on a state-by-state and year-by-year basis. For example, since emergency loans are provided to all operators—that is to small, medium, and large farms—I used the sector average ratios without tailoring these ratios to "fit" small/medium-sized family farms. For ownership and operating loans, I recalculated these ratios using only the income and investment data for farms in the small/medium-sized categories—that is farms with from $0 to $250,000 in annual sales. This added refinement was in direct response to Dr. Rausser's original criticism in his April Report that the income ratio should be tailored to the small/medium-sized farms he identified as the typical USDA clientele.

However, Rausser now rejects these "tailored" calculations, noting on page 168 that:

> Mr. O'Brien's new income ratios remain nothing more than averages, which are inappropriate when calculating economic losses incurred by individual farmers. Even if one accepts the use of averages, they are unrepresentative of average rates of return experienced by FSA borrowers and unrepresentative even of Native American small farm businesses.

Dr. Rausser attempts to reinforce his rejection of my analysis by noting on page 169 that:

> which operations gain or loose is determined by individual factors such as farm size, production scale, production specialty, operator skill, and conditions in the markets for agricultural commodities

Dr. Rausser proceeds to present considerable information indicating that these factors do indeed affect income. Setting aside his argument about the unrepresentativeness of averages for a moment, his presentation is designed to mislead. There are several errors in his analysis.

First, for example, none of the measures that he presents are <u>income ratios</u> when my analysis clearly focuses on income ratios -- that is a measure of the ratio between income

earned and dollars invested — rather than general rates of return. If he had, he would have seen that income ratios are far more similar than his income earnings. That is because the income ratio takes into account the size of the operation — with a small farm with low income generally having less capital invested in the farm operation than a large farm generating higher income. That is, looking at dollars earned per dollar invested shows less variation that looking only at dollars earned.

Second, Rausser continues to emphasize differences in commodity specialty as a factor discrediting use of averages. However, he fails to consider that differences in production specialty at the ***national*** level are not relevant—that in order to support his conclusions regarding production specialty, the variation has to be at the state level where the income ratios are calculated and the analysis done. USDA's own data included in the Agricultural Resource Management Studies available at www.ers.usda/gov/ARMS demonstrate that variation in production specialties at the state level is far less than Dr. Rausser claims. Moreover, his examples used to challenge the use of averages fail to provide any measure of variability over time—a measure which, had he reported it, would show that variations over virtually any combination shows substantially less variability than variation within one year. In other words, while particular production specialties may demonstrate some variation in income ratios within a single year, over time these differences are far less pronounced.

Third, Dr. Rausser notes on page 173 that the fact that FSA borrowers get their capital from FSA is not reflected in the averages. He notes:

> His data are far from representative of FSA borrowers, given that only about 9% of small family farm businesses held FSA loans at year-end 1988.

He proceeds to report on page 173-174 and in Figure 47 that FSA borrowers in the

small/medium category reported negative average operating profit margins for 2005. He also proceeds to claim that Native American performance averages were even more questionable. Rausser is correct that if more detailed data that is reliable and tailored more closely to the FSA borrower pool exists, the more appropriate average income ratio to use would be the income ratio calculated using the FSA borrower data. Rausser is not correct, however, that looking at such data will show negative average earnings for small-medium farmers. Rausser claims to have looked at this data and found that FSA borrowers reported loosing money—that is not being able to cover their variable costs, let alone cover capital cats and generate a profit.

At this point, Rausser's criticism looses all credibility. In an effort to verify his statements about FSA borrowers consistently loosing money, I analyzed the FSA borrower records that Rausser refers to as the Farm Business Plans file. As Figure III-3 and III-4 from Section III indicate, Rausser's conclusions are based on abuse of the data. As the figure shows, FSA borrowers report low/negative returns *only* if one includes in the analysis the 5-10% of FSA borrowers who reported $0 in sales – not a single dollar of gross sales. Should these borrowers be considered in gauging farm financial performance? No, since their reporting of sales of $0 means that they are in clear violation of the USDA guidelines providing that their loans be used for farm purposes and should immediately have been investigated for violation of their loan conditions. As established in the loan application process, a successful loan applicant has to produce a Farm and Home Plan that shows a projected income that is adequate to cover all operating costs, capital costs, and family living expenses. In what circumstance could a borrower who passes this test at the loan application stage have $0 in sales at the end of the year? Theoretically, a farmer might have suffered a

natural disaster that wiped out 100% of his farm product. However, even in most cases of natural disaster, a farmer would have at least *some* income from sales. This is particularly troublesome in that most of the 15,000 farm records in question show detailed expenses for items such as fertilizer and capital expenses indicating that they were in fact in the farm business.

Excluding these questionable records from the analysis reveals an entirely different picture of FSA borrower performance. FSA borrowers with gross incomes of $1-$250,000 show returns *above* the corresponding values for farmers without FSA loans in the same size category. Rausser's claim that FSA borrowers reported substandard rates of return is, therefore, disingenuous at best.

6. ***Improper Exclusion of Hobby Farms Increases Mr. O'Brien's Measure of Lost Income on Operating and Ownership Loan Shortfalls.***

Rausser notes on page 176 that I consciously excluded hobby farms from my analysis of income ratios for small/medium-sized family farms getting ownership and operating loans. This issue is addressed in more general terms in the Farm Typology section (Section VI). Dr. Rausser argues that hobby farms should be included in my income analysis, and claims that their exclusion from the calculation biased my analysis to produce higher income ratios than with the hobby farms included. He also claims it is inconsistent to include hobby farms in the applicant pool in setting a lending benchmark, but to exclude them from calculating income ratios. There are several problems with this assertion.

First, the information in my Farm Typology section indicates why Hobby Farms should be included in the applicant pool, but not the financial ratio calculation. A successful applicant for a USDA loan from among the ranks of hobby farmers would have had to demonstrate his or her ability to make the transition to a farm business. That is, one might be

a hobby farmer when applying for a USDA loan, but one would have to demonstrate in the Farm and Home Plan that a loan would be used to move from a hobby operation to operating a farm business in order to get the loan. This is reinforced by USDA's requirement that successful applicants demonstrate a dependence on farm income. As already noted, hobby farms traditionally depend on farm income for a small share of their household income.

Second, Rausser argues that including hobby farmers would result in a more accurate set of income ratios. This completely overlooks the Farm Business Plan data, which I have agreed provides the opportunity to calculate the income ratios from data specifically from FSA borrowers. As noted above, looking at that data shows returns higher even than the average I had calculated excluding hobby farms, and thus totally discredits Rausser's argument for including hobby farmers in an effort to apply lower income ratios and thus calculate lower economic damages for Native Americans.

It is important to note that there would indeed have been some number of the Hobby Farmer group that who might have obtained loans, and thus should be included in estimating income ratios for small/medium sized family farms. However, such hobby farmer applicants *are* considered in my analysis because they would have "moved up" into one of the categories that I included in the $0-250,000 sales class used to calculate income ratios—quite likely the transitional Farm Occupation/Lower Sales category.

Finally, Rausser is blatantly inconsistent in his treatment of this issue, basing his treatment of hobby farms and small/very small farmers as best suits his needs of the moment. He notes on page 177 that:

> Based on these facts, it is clear that Hobby Farms should be considered both in the eligible pool of direct loan borrowers as well as when determining probable rates of return for would-be loan recipients.

However, Dr. Rausser argues strongly earlier in his report that farms with less than $1,000 in sales should be excluded from the pool of potential USDA borrowers. As noted above, however, roughly two-thirds of the hobby farmer pool is made up of individuals with less than $1,000 in sales. Of course, excluding the farmers in question earlier in the report works to lower the share of USDA loans and servicing that Native Americans could have expected since many of them fall into this category. However, when it comes to calculating economic losses, he now argues for *including* the same farmers he excluded earlier, with the impact being the calculation of a lower income ratio. If farmers with less than $1000 in sales could not obtain a loan, then they could not be representative of those who did get loans, for purposes of calculating economic losses. In effect, hobby farmers are excluded from Rausser's analysis when their inclusion raises Native Americans' expected shares and included when their inclusion lowers the income ratios used to calculate their economic losses. While I also treat hobby farmers differently for the two different purposes, the difference in treatment is related to the actual FSA loan process and impact of receiving a USDA loan. Rausser's difference in treatment is completely unexplained and inconsistent with the logic of his argument.

7. ***Purportedly Invalid and Flawed "Lost Direct Loan Interest Subsidy"***

Rausser's treatment of my lost interest calculation is designed to distract from several basic facts which get lost in his verbiage. These include:

1. The average income ratios calculated using USDA data do include an interest expense deduction to arrive at net farm income. This is demonstrated in Figure X-4 where the interest deduction is shown on the table. This interest expense is measured directly in USDA's enumeration of the survey along with questions about the interest rates paid and the number of dollars on which the interest was paid. This insures that the interest rate charge, the interest rate reported, and the debt in question are all consistent and that the expense is considered in calculating net farm income. Had the interest expense been lower, then the income ratio would have been higher;

2. The interest rates charged by USDA for its loans are reported in the USDA Loan Data base. Comparing the rates for regular USDA loans and the rates for "loans elsewhere" indicates that USDA borrowers paid lower interest expenses on that component of their debt supplied by USDA. The margin between commercial rates and USDA's even lower limited resource interest rate is even wider and more favorable to the borrower. To the extent that USDA borrowers pay less for USDA money than the average farmer pays for money from all other sources, the USDA program provides a subsidy. As Rausser admits, this subsidy is often greater than the rate of return on farming;

3. I measured the interest rate subsidy by establishing what the actual difference was between the USDA interest rate and the average interest rate by state and by year as reported in the USDA data. If the average commercial rate was 10% (the approximate average for 1981-2007) and the observed USDA rate as 8% (the average of the regular USDA rate for 1981-2007), the subsidy amounted to 2% of the loan per year over the life of the loan. If the average commercial rate was 10% and the USDA rate for limited resource loans was 6%, the subsidy was 4% of the value of the loans for each year of the life of the loan; and

4. Using a $1,000 loan example with a commercial rate of 10% and a USDA regular rate of 7%, the non-USDA borrower would have paid $100 in interest expense while the average USDA borrower would have paid $70. This is clearly a $30 "added benefit" that has to be included in analyzing damages associated with inappropriate loan denial.

Was this subsidy occasionally more than the rate of return on farm operations? Yes. In many years farm income was negative as reflected in my income ratios being negative in almost a third of the years analyzed depending on the state while the interest rate subsidy is always positive when a loan has been made.

Dr. Rausser claims on page 180 that I have improperly calculated interest rate subsidies. He writes:

> Although I disagree with the concept of Mr. O'Brien's lost interest subsidy calculation and his use of average income ratios, the proper way to calculate the increment to his net farm income ratios that would result from lower FSA interest rates is to recalculate interest expenses at the lower FSA interest rates and then recalculate net farm income.

He asserts further on pages 180-181 that:

> The implications of Mr. O'Brien's error can be illustrated using the line-item ERS Farm Sector Income Settlement and Balance Sheet data that he relied on in developing his new

> income ratios. Nationwide, net farm income was $50.7 billion in 2000, and accounted for 4.21% of farm business assets. In other words, Mr. O'Brien's income ratio is 4.21%. During the same year, there was a 3.47% difference between the sector-wide average interest rate on short term debt (8.98%) and the average FSA interest rate (5.51%). Assuming a 100,000 on a one-year loan, Mr. O'Brien would measure $4,210 in lost income, and an additional $3,470 in incremental lost income based on the 3.47% interest rate differential. The correct approach would be to assume that the $14.5 billion interest expense incurred nationwide on farm debt during 2000 was in fact measured at the sector-wide interest rate Mr. O'Brien utilizes (8.98%), and then re-calculate a lower interest expense of $8.9 billion based on average FSA interest rate in the same year (5.51%). In doing so, net farm income increases to $56.3 billion and accounts for 4.68% of assets. This is the only approach that would be consistent with the justification offered by Mr. O'Brien for calculating a "lost interest subsidy"--that the average income ratios that he uses would be higher if interest expenses on debt were calculated at lower FSA interest rates, thereby raising net farm income. An adjusted income ratio of 4.68% results in just $4,682 of total lost income, 40% lower than the lost income measured using Mr. O'Brien's approach.

Yes, Rausser describes an alternative way to do the calculation. However, it would have mixed the income loss and interest subsidy measures and resulted in a set of income ratios that would have appear to be too high compared to non-USDA borrowers. My approach insures transparency and emphasizes the degree to which the USDA program supported borrowers both with capital not otherwise available at subsidized interest rates.

It is important to take note of the arithmetic in question. Assume a $100,000 loan, 8.98% and 5.51% interest rates for the average borrower and the USDA borrower respectively for a 3.47% difference, a $4,210 income return, and a resulting 4.21% income ratio ($4,210/100,000). The non-USDA borrower would pay $8,980 in interest while the USDA borrower would pay $5,510—that is $3,470 less. This is exactly the same as taking the interest rate differential times the loan amount (3.47% times $100,000). The USDA borrower enjoys $4,210 in income and $3,470 in interest subsidy—a total of $7,680. If we were to follow Dr. Rausser's approach, the borrower's income ratio would increase from 4.21% to 7.68% ($7,680/$100,000). Applying this new income ratio of 7.68% to the

$100,000 in debt in question generates the same results—the USDA borrower enjoying a combined income and interest subsidy total of $7,680. However, using a 7.68% income ratio in anything less than a totally transparent calculation would raise serious questions about why the net farm income return for USDA borrowers was almost double the return for non-USDA borrowers.

8. ***Purportedly Flawed Measures of Forgone Capital Gains on Loan Shortfalls***

Rausser includes several criticisms of my capital gains calculations on pages 181, each of which I will address each in turn. In all of these cases, Dr. Rausser mischaracterizes what I have done or leaves critical factors out of his presentation.

a. Rausser Wrongly Claims that I Incorrectly Measure Foregone Capital Gains on Loan Funds Which Do Not Purchase Capital Appreciating Assets

Dr. Rausser chides me for using the USDA approach to measuring capital gains using the ratio calculated by USDA comparing the dollars a farm operator garners in the form of capital gains and the dollars in capital investment made to operate the farm. He notes on page 182 that:

> The main problem with Mr. O'Brien's methodology is that much of the FSA loan funds comprising his hypothetical loan shortfalls would not have been used to purchase appreciating capital assets. While farm real estate may appreciate in value, loan funds used to fund on-going operations of the farm or ranch or cover annual living expenses do not. For example, while the price of productive inputs for operating the farm in the current year will generate farm income, but not capital gains.

Dr. Rausser's statement is correct—as far as it goes. A large share of USDA loans are used for purposes other than buying assets that can appreciate over time. As I discussed at length in my July report, this is not at issue. How the USDA capital gains ratios are calculated is the issue. The capital gains ratios that I used were taken directly from USDA's methodology where the ratio is constructed by dividing ***all*** of the capital gains garnered by a farmer by ***all***

of the capital invested in the farm operation. Since the USDA ratio is calculated based upon *all* capital invested, regardless of purpose, it should be applied to *all* capital lost, regardless of purpose. If one were to calculate solely the capital gains return on capital invested in long term, appreciating assets, then the ratio used would be a different one. As I noted in July, this USDA approach has considerable conceptual validity—not the least of which relates to 1) the difficulty of identifying which dollars do or do not contribute either directly or indirectly to asset appreciation; and 2) the fact that asset appreciation on the 10-15% of the loan portfolio invested in items such as land depend on the farmer being able to generate the income to carry the ownership loans.

However, as I also pointed out in July, Dr. Rausser's claim that this USDA ratio inflates capital gains is unfounded as demonstrated by simply doing the arithmetic. Take for example a farm with $25,000 in short term operating loans and $10,000 in longer term loans invested in capital appreciating items. Assume for simplicity sake that the rate of appreciation in the appreciating items in question was 5%. Using USDA's approach, the actual gain would be $500 ($10,000 times 5%), the total capital invested is $35,000 ($25,000 short term and $10,000 long term), and thus the capital gains ratio is 1.43% ($500/$35,000). Using Dr. Rausser's approach, capital gains would only be calculated on the $10,000 ownership loan, but the applicable ratio would be 5% ($500/$10,000). In applying Dr. Rausser's ratio to a loan shortfall of $25,000, with $7,150 in ownership and $17,750 in operating loans (the same proportions as in the initial loan example above of $10,000 and $25,000), the Rausser model would calculate capital gains loss to be $358 (5% of $7,150). In applying the USDA approach, the capital gain would also be $358 (1.43% of $25,000). Dr. Rausser has overlooked that both the numerator and denominator in the capital gains ratio

change and that USDA's approach ultimately gives the same answer as his preferred approach. It is important in considering this example to note that USDA's mix of operating and ownership loans is relatively constant over time (with ownership loans accounting for Dr. Rausser's average of 12%) and that my expected share analysis builds this pattern into loan shortfalls. This relatively constant make-up of loan shares insures that the use of the USDA ratios in calculating capital gains losses is appropriate.

b. Average Capital Appreciation Rates are Allegedly Unrepresentative of Actual Appreciation Rates

Rausser restates his opposition to my use of averages published by the Department of Agriculture's National Agricultural Statistics Service in the 1999 Agricultural Economics and Land Ownership Survey in calculating capital gains. Specifically, he claims that land values can range widely according to production specialty, farm size, and location within a state. He thus argues on page 186 and 187 that:

> His use of average capital appreciation rates will cause him to find lost capital gains when there are none….Mr. O'Brien's use of statewide average capital gain appreciation rates introduces immeasurable bias into his economic loss calculation.

This concern is unfounded. The standard relative errors shown in Figure X-1 provide an empirical measure of the representativeness of asset appreciation rates used in my analysis that speaks for itself.

It is worth noting that I provided two measures of capital gain losses. The first is described above and depended on the use of USDA's capital gains rations. In response to Dr. Rausser's April report, I also presented an alternative measure considering only loans that had to be invested in assets (such as ownership loans for buying land) and used USDA's rates of appreciation by state, by year published in successive Ag Censuses. This was consistent with Dr. Rausser's claims that calculation of capital gains losses should be limited to loans

used to purchase assets with a direct appreciation measure. This second approach has the distinct advantage of being more transparent than the USDA capital gains ratio, even though the USDA capital gains ration provides a correct economic loss figure, as set forth above.

Finally with regard to this question, it is important to note that this same measure of changes in asset values was used by the Department under Assistant Secretary Rosalind Grey to determine economic losses.

c. Rausser Wrongly Charges My Economic Loss Calculation for Loan Shortfalls Illustrates Lack of Common Impact

Rausser correctly notes on page 190 in conjunction with my economic analysis that

> In many states and time periods, the net return on farming has been negative--meaning the borrower would have lost money on their farming operations during the year. Further, there are several instances in which the net return over a series of years is negative, even when returns are positive in one or more year.

Dr. Rausser then cites a critical statistic. He states that there are 245 state-year combinations if he were to look across the 35 major states and across the 1981-2007period on a state-by-state and year-by-year basis. He then notes that the data that I used showed 104 of these combinations were negative—that is farmers lost money farming or ranching 40% of the time or 104 times out of 245. He also notes that 17 states lost money consistently over 1981-1987. He concludes on page 191 that

> This example clearly illustrates that Mr. O'Brien's proposed formula for measuring economic losses cannot be applied broadly to a putative class of Native American farmers and ranchers

While I disagree with Dr. Rausser's conclusion, I refer the Court to a key fact in Rausser's comment. My use of averages incorporates ***good*** and ***bad*** years into my economic analysis, with roughly 40% of the state-year combinations negative. This corroborates what I have said repeatedly--all of Dr. Rausser's arguments about the variability of income and asset appreciation rates over time are reflected in my measures of what are ***net*** economic losses.

All of Rausser's comments about how low and occasionally negative farm incomes are in smaller sized farms have been incorporated in my analysis. The damages that I report are consequently the netting of his 104 years and states with negative returns and the remaining 141 years and states with positive combinations. In effect, I recognize that

1. Agriculture is a highly variable businesses with wide swings in returns;
2. Native American credit from USDA had to be invested in agriculture: and
3. Native Americans' credit shortfalls and damages have to be tied to the highly variable returns to agriculture reported by USDA by state by year.

Rausser also implies that the methodology that I used was somehow inappropriate and biased in favor of Native Americans--that my process could not be "applied broadly to a putative class of Native American farmers and ranchers." This symmetric treatment of shortfalls and windfalls, of economic gains and losses indicates that my approach does provide a reasonable formulaic method for assessing economic losses, economic gains, and net economic losses. This points to the consistency of my approach and its equity in measuring how much better off or worse off Native Americans would have been had USDA provided them with the expected number of loans and loan dollars—no less but also no more. Dr. Rausser seems to imply that despite this variability over time, that some class members denied loans could have experienced *only* losses, while others could have experienced *only* gains, and thus, the net economic performance I present is unfair to individual class members. He ignores two facts. First, people cannot jump in and out of farming with the same ease that they might change their investment portfolio to switch between stocks and bonds depending on which rate of return looked most promising. Thus, anyone who farms is going to experience bad years as well as good ones. Second, my analysis is based upon calculating the economic losses (or gains) associated with each particular state and year. Thus, if the court determines that it would be appropriate, the pool of money for each

state/year could be allocated to those class members fitting those state and year criteria, with no funds being distributed for state/year combinations in which my calculations show negative rates of return or no shortfalls. Each class member would likely be a member of several different pools, with varying amounts of money to distribute in each depending on whether that was a good or bad year for farming. However, if someone really did only participate in farming during a short period of time when returns were uniformly good or bad, then that would be reflected in their share in the total, because the pools in which they would share would be larger or smaller than average. Thus, Rausser's concern is easily addressed.

9. ***Economic Losses related to Loan Servicing -- Rausser Misunderstands My Purpose In Calculating Servicing Shortfall for Loans that were Never Made***

Rausser claims that I inflate the servicing shortfall by including servicing that should have occurred on loans that should have been made. This issue was addressed in Section II and IX on servicing analysis, as well as in my February and July Reports. I analyzed two economic losses associated with loan servicing. The first reports on the shortfall in servicing provided the subset of Native Americans who successes in getting USDA loans. This demonstrates the existence of differential treatment in loan servicing. Damages can be calculated for that element of damages alone. However, in measuring the economic losses associated with the denial of loans, the economic loss must include the potential for loan servicing that comes with a USDA loan, as opposed to commercial credit. Therefore, I provide a second measure of loan servicing that Native Americans could have expected on the loans that they could reasonably have expected but were denied. The combination reflecting *both* the difference in loan servicing among those who received loans *and* the lost value of loan servicing to those who were denied loans is reported separately, with the first

measure accounting for about one-third of the economic losses and the second measure account for the other two-thirds.

10. ***Purportedly Invalid Treatment and Measure of Restructured Loan Shortfalls***

To understand the dispute Rausser raises over treatment of restructured loans, it is important to get the terminology correct. I refer to loan restructuring as the package of servicing options reported as a single category in the USDA PLAS Database. This can and generally does include several individual service options packaged together including consolidation, restructuring, and reamortization. Dr. Rausser refers to consolidation and other elements of restructuring. But it is not clear that we are referring to the same package.

The first issue is whether restructuring provides the USDA client with resources that they would not otherwise have. I find that the answer is yes -- the resources could be the non-performing borrower's collateral posted for the problem loan, which would be forfeited as part of the loan acceleration and liquidation, or the resources could be other assets, including cash, used to repay the problem loan. These resources, made available because of restructuring, allow the farmer in question to farm—more appropriately to continue to farm—when his or her financial situation would otherwise force downsizing or exit from farming. I find this to be the case because of the requirement that a service applicant be under significant financial stress, not of his or her own making, and that the restructuring allows him or her to continue farming when the outcome *without* restructuring would be either a reduced operation or exiting entirely from farming.

I also included provision in my analysis of restructured loans for the potential for the replacement loan to come with more favorable borrower terms including longer repayment periods, lower interest rates, and easier collateral requirements. As to each potential change

in loan terms, I analyzed the servicing details included in the PLAS database, and established that restructured loan terms were almost always more favorable than the terms of the loan(s) that they replaced. This is consistent with the goal of the servicing program to restructure farms financially with two goals in mind—protecting the government's interest in the loans and advancing the borrower's goals.

Dr. Rausser argues the opposite. He emphasizes that restructured loans are not new loans. He notes that "there are many reasons why a farmer may not loose his assets" without restructuring and that the farmer does not get new loans—that there is no new money provided by USDA. These points beg the issue. The debate over classifying restructured loans as "new loans," "old loans" or "continued loans" clouds the issue. They are effectively different loans. The restructured loan provides the farmer with resources that he would not otherwise have, based on a decision made by a USDA loan officer. Access to these resources allows the individual to generate farm income and garner asset appreciation otherwise out of reach. Without restructuring, the troubled borrower would be short resources roughly equal to the size of the loan or loans being restructured. Hence, restructured loans have to be included in calculating Native American economic losses using roughly the same approach as used for original ownership, operating, and emergency loans, but setting the terms for these loans based on the terms of actual restructured loans – with corresponding changes in the interest rate subsidy and other elements of economic loss.

a. Rausser Claims Flawed Measure of Lost Income and Foregone Asset Appreciation on Restructured Loan Shortfalls

Rausser raises two issues here—the first being a repeat of his earlier complaint about any analysis based on averages. I have already addressed this concern at length and will not repeat the discussion here.

Rausser's second complaint is that my assumption that restructured loans could earn income returns as high as new loans is erroneous—that the income ratios that applied to restructured loans should be lowered than the income ratios applied to original loans. I based my decision to apply the same income ratios to the credit shortfalls resulting from restructured loan shortfalls as to initial lending shortfalls on my reading of the servicing guidelines. A loan servicing agreement can be put into effect only if the Farm and Home Plan for the operation receiving the servicing demonstrates that the operation can cash flow—that is cover operating costs, capital costs, and family living expenses. For many small and medium-sized farms, covering family living expense can require higher returns that the sector average. Thus, given that loan servicing only occurs when a loan officer has found a plan will cash flow, it is reasonable to assume that the income ratio for farmers who obtain loan servicing will be comparable to those who do not. The Farm Business Plans provided by Rausser as part of his April and July production provide further empirical evidence that this is a reasonable assumption.

Dr. Rausser mischaracterizes the situation when he asserts on page 197-198 that:

> He indicated that his reasoning was that FSA would only agree to a loan restructure if it found that the borrower would rebound and then prosper following the restructuring. This is not true. Although the borrower must develop a feasible plan to operate the farm after a restructuring, the purpose of primary loan servicing including loan restructuring is to allow the borrower to meet payment obligations on their loans, not to increase the profitability of their farm over and above meeting debt obligations. The failure to understand this renders his measure of lost income from the denial of restructuring even more flawed than his calculation of economic losses related to loan making.

At the risk of oversimplification, Rausser's description of servicing would have a farmer to continue farming at less than a viable rate of return in order for the government to collect on its initial investment. This smacks of indentured servitude and sounds very different from

the guidelines for servicing that clearly provide for advancing dual interests—the farmer's business interest and the government's capital interest. The relevant language from the servicing guidelines indicates that "dual goals"—the farmer's and the government's—must be advanced with a servicing agreement.

b. Interest Savings ("Subsidy") on Restructured Loans

Rausser's multiple criticisms of my calculating an interest subsidy for restructured loans are also unfounded. First, he claims that I calculate the interest rate differential on restructured loans using the wrong reference rate. It is important to note that since a serviced loan generally replaces several loans, the appropriate interest rate differential for this calculation is the average rate for all ownership, operating, and emergency loans made over the previous six years compared with the average commercial rate in effect in the year the restructuring is done. The PLAS data indicates that the interest rate on the restructured loan is typically below the rates on the loans being restructured which in turn is below the commercial market rate. Hence, there is a double subsidy. This maximizes the value of the restructuring by substituting a lower rate for the same capital borrowed earlier. For simplicity's sake, however, I used the current commercial rate which results empirically in a somewhat lower subsidy measure than the alternative. This six year benchmark is based on the PLAS record showing that over four-fifths of the loans replaced with a restructuring package were put in place within six years prior to the restructuring.

Rausser raises three other points. First, he claims that my analysis is dependent on the assumption that the borrower would lose the asset securing the loan without restructuring. He claims on page 198 that:

> Mr. O'Brien assumes that Native Americans will lose the assets securing the loan. If that were true, then being denied loan restructuring would actually save them the interest expense that they would have incurred by getting the restructuring and having

> to continue paying interest with their loan in place. For this reason alone, Mr. O'Brien's entire measure of interest savings on restructured loans must be rejected.

This is convoluted logic at best. Once again, the issue is whether or not restructuring provides the borrower with access to resource that he would not otherwise have. This can be in the form of collateral that would be forfeited without servicing, or other assets including cash. Rausser's added point that the problem borrower would actually pay less interest if he were denied servicing and the loan was liquidated misses the point entirely. While there may have been less interest paid if servicing were denied, that denial would also mean that the applicant loses access to, or use of the capital in question needed to operate the farm, and may forfeit crucial assets. The farmer may pay less interest, but is out of business or operating at a reduced level if servicing is denied. That hardly leaves the farmer better off.

Second, Rausser argues that: "the new interest rate may be lower than the original interest, but not always." That may be literally true, but that possibility is already incorporated into my analysis. My analysis calculates the interest rate differentials using the actual data in the USDA PLAS database. Hence, there is no "assumption" of an interest rate discount. Any differential in effect is based on *actual* data, with a higher interest charge levied in those very few cases where the restructured rate was not lower than the original rates.

Third, Rausser asserts on page 199 that:

> Finally, Mr. O'Brien ignores that fact that this form of servicing typically involves extending the repayment period. Although this offers the borrower relief, it means that the total interest paid over the life of the loan may increase, rather than decrease, despite the substitution of a lower annual interest rate.

This statement is ill-conceived at best. Rausser fails to note that the potential to pay more in total interest expense is the cost of using borrowed capital over a longer period of time. If

the term of the loan in extended and the rate lowered, the borrower has use of the capital in question for a longer period of time at a lower cost per dollar per year. This is essentially a triple benefit that provides the borrower with longer use of the capital, and more time to repay, and a lower cost per year per dollar for the use of the capital. This is a key benefit and too valuable a component of USDA servicing not to consider in estimating Native American losses associated with servicing shortfalls.

c. Claimed Failure to Account for Offsetting Gains Resulting from FSA's Delivery of Deferral Payments to Native Americans

This issue is treated at length in Section II's treatment of windfalls and shortfalls in problem loan servicing and Section IX's response to Rausser's servicing comments.

d. Purported Failure to Account for Repayment of Debt Written Down

Rausser correctly describes my approach to analyzing write-downs on page 200-2001 where he notes that:

> In computing the value of the write-down shortfall, Mr. O'Brien deducts the actual amount of principal and interest write down…

However, he is incorrect when he concludes "This approach is flawed for several reasons." First, he notes that the amount of any write-down is limited by the guidelines putting the maximum write-down at the difference between the loan outstanding and the value of their collateral. This presumably limits Native Americans to lower write-downs than afforded other USDA borrowers. He notes further that since I cannot know the exact values for these two factors, my analysis of write-downs is invalid. This is nothing more or less than a repeat of the argument that analysis can only be done on an individual by individual basis. My analysis assumes implicitly that Native American and non-Native American loans provide for the same ratio of collateral to loan value—that is, on average, Native American loans included the same potential for write-downs as non-Native American loans. Since my

analysis focuses on the value of the write-down *relative* to the value of the loan, the fact that Native Americans may or may not have had smaller loans with lower (or higher) valued assets is irrelevant. The critical assumption is that Native Americans could have expected about the same rate of write-down service---dollars in write down compared to dollars of original loan value—as non-Native Americans.

Putting aside this issue of averages for a moment, Rausser's statement is also in error in that the loan program database shows two entries for write-downs—the amount of "secured write-downs" and the amount of "unsecured write-downs." Even in the case of "secured write-down," the issue in question is not the market value of the collateral or its posted value but USDA's estimate of its "net recovery" value after the items are "sold on the court steps" and appropriate auction fees and USDA carrying fees are considered. This often leads to a net recovery estimate well below the posted value of the collateral and provides USDA loan officers with considerable room to maneuver.

Second, Rausser asserts that:

> The dollar amount of the write-down is not, in any way, an appropriate measure of its value. Rather the debt write down must be measured as the degree to which it relieves financial strain on the operation.

This is circular logic at best. Since the extent to which a write-down "relieves financial stress on the operation" is directly related to its size, the dollar value of the write-down relative to the value of the loans emerges as the critical element in evaluating write-downs. Assuming that Native Americans got the same percentage write-downs (the same dollars of write-down per dollar of debt), they would in effect be getting the same degree of support as non-Native Americans.

Lastly, Rausser cites the shared appreciation component of the write down program

as a cost to be subtracted from its benefits. Under this provision of the program, a borrower pays USDA a part (generally 50%) of any appreciation on the assets specified in the agreement. He fails to note, however, that the shared appreciation program was not started until the late 1980's and the link between write-downs and shared appreciation agreements that he cites dates to the late 1990's. in any event, my analysis accounts for this provision by limiting any appreciation in the assets in question to 50% of the market rate. That is, if a $50,000 write down allowed a farmer to continue operating a farm with $250,000 in land that appreciated at 5% per year over a 10 year period, the denial of this servicing would cost the farmer not only the $50,000 in debt reduction but also $6,250 in foregone asset appreciation (i.e. $250,000 at 5%, but reduced to 50% of that total to account for sharing the appreciation between borrower and USDA).

e. Compensation for Native Americans for Denial of Write-Offs

Rausser argues in this section of his report that a farmer given a loan write-off—the full discharge of all debt and fees outstanding—receives little or no benefit from this servicing transaction. The fact remains that an individual who owed USDA a potentially sizeable amount of money one moment is debt free the next. He notes that "a write-off makes it a final, and unattractive option for the borrower."

This is true in the sense that any farm failure is an unattractive option for the borrower.[4] However, by the time a borrower reaches the write-off stage, his or her options are essentially limited to paying USDA what he or she owes or walking away debt free. In the most simplistic terms, the IRS has the last word and classifies the value of debt write-off

[4] Rausser's recognition that losing one's farm is a bad thing here is inconsistent with his insistence that being denied servicing could benefit the farmer because he would not have to continue to make interest payments.

as the equivalent of earned income. Given the other losses generally associated with farm failure, much, if not all, of this "income" ends up being tax-free. While it may not put cash in the farmers pocket, a write-off does mean that if he or she is able to earn income in some other occupation, that the income will not be required to be turned over to USDA to pay off the outstanding debt.

f. Measuring Economic Losses When There was no Statistical Evidence of Shortfall

Rausser complains that I calculate economic losses for states and years where the shortfall in lending was not statistically significant. The issue here is also clear. Given that statistical significance has been established at the national and state level, should the calculation of economic losses be limited only to those years and states where the individual results are statistically significant? That is, if a pattern of statistically significant shortfalls has been established for a state over the relevant period, should damages exclude losses for specific years within the damage period when shortfalls are not significant? Dr. Rausser argues that economic losses should only be calculated for those individual years and states with statistical significance. The reason for testing for statistical significance is to determine if a shortfall or windfall is "real" or not. Individual years and states are each viewed in isolation by Rausser. However, when the overall pattern is considered, and an overall finding of difference in treatment is sustained, that provides a basis for finding that shortfalls which, when viewed in isolation are not "statistically significant" are, when viewed in context of all the data, very real.

Not only is Rausser's view unacceptable conceptually, he also fails to mention that my analysis treats all windfalls and shortfalls the same. While I calculate losses including all shortfall years and states, I also calculate the offsetting impacts of windfalls for all states and

years with windfalls whether they are statistically significant or not. In an effort to address Rausser's concern, I redid my analysis and found that shifting to calculating damages only for years and states with statistically significant windfalls or shortfalls reduces damages far less than Dr. Rausser anticipates because very few of the windfalls identified in my analysis were statistically significant while the large majority of the shortfalls were found to be statistically significant.

g. Alternative Measures of Economic Losses

Rausser's final comments respond to the comments at the end of my analysis indicating that my loss estimates should be considered conservative. I cited the BIA information on Native American operators and the issue of the dynamic versus the static nature of the USDA program as factors that could raise economic losses significantly if incorporated into the estimates. Rausser refers to these comments as alternative damage estimates and points out that I erroneously based my reporting of economic losses in my July Report on the shortfall measures including the BIA adjustment in Native American farm operator numbers. He was correct; however, after this same question was raised in my deposition several weeks ago, I double checked my underlying programming, admitted the oversight, and provided corrected tables. Hence, Rausser's claim that I am "engaging in double counting" is outdated, and not consistent with the current state of my materials. Hence, the question is moot.

h. Case Studies of Representative Plaintiffs

Rausser raises the interesting point that my analysis does not mirror the deposition testimony of several of the named plaintiff's who all indicated, in their own particular way, that they had not been treated the same as other USDA clients. It is unreasonable to expect me to conduct a class-based investigation based solely on the details of one particular

witnesses' testimony. It is also unreasonable to expect that any individual plaintiff would have the breadth of view and the access to data that my role as an economist provides.

XI.
RESERVATION LAND OWNERSHIP PATTERNS AND USDA DIFFERENCES IN TREATMENT OF NATIVE AMERICANS

A. Background

Early in his September 28, 2009 report, Dr. Dean Lueck states that he concluded that:

> Mr. O'Brien's analysis failed to examine or properly control for the effects of the unique patterns of property rights regimes found in Indian Country, what I call the land tenure mosaic and, therefore, could not be relied upon to accurately identify the presence or absence of racial discrimination in USDA's lending practices. I concluded that his methodology of identifying discrimination was fatally flawed in both its economic underpinnings and its statistical methods.

Expert Rebuttal Report of Dean Lueck, Ph.D. (Sept. 28, 2009) ("Lueck Report Sept. 2009"), at 6. Later on, in greater detail he concludes that:

> **Evidence from Statistical, Legal, and Historical Studies Shows that Indian Land Tenure has Important Economic Effects on Land Use and Land Value which Directly Impact the Market for Agricultural Loans**. . . . [T]he Indian land tenure mosaic adversely affects the ability of some Native American farmers and ranchers to obtain loans.
>
> **The Failure of the Plaintiffs' experts Ms. Hayes and Mr. O'Brien to Carefully Consider Land Tenure is a Major Oversight**. . . . Plaintiffs do not present evidence that identifies racial discrimination and rules out adverse effects of Indian land tenure.
>
> **The Unique Mosaic of Land Tenure that is Found in Indian Country Makes it Costly for Some Native American Farmers to Secure Agricultural Loans and Loan Services.**

Lueck Report Sept. 2009 at 32-33 (emphasis in original).

Dr. Lueck's conclusions are unfounded for two reasons. First, Dr. Lueck fails to consider the extent to which I used Bureau of Indian Affairs (BIA) data to establish benchmarks for the loans and loan servicing that Native Americans could reasonably have expected from USDA.

Second, in a broader sense, Dr. Lueck fails to grasp the key link between the special

problems that Native Americans have experienced in obtaining farm loans and the unique mandate of the USDA's farm loan programs to address these types of problems. In both cases, a closer look at my analysis and the USDA's lending mandate reinforces my conclusion that Native Americans received far less in loans and loan servicing from the USDA's farm loan programs than they reasonably could have expected.

B. Indian Land Tenure Mosaic Reflected in Benchmarks and Shortfall Analysis

In claiming that "Mr. O'Brien's analysis failed to examine or properly control for the effects of the unique patterns of property rights regimes found in Indian Country," Lueck Report Sept. 2009 at 6, Dr. Lueck overlooks how I developed the benchmarks used to estimate the loans and loan servicing that Native Americans could reasonably have expected from the USDA. Dr. Lueck suggests that my estimates of Native Americans' expectations would be lower if I had properly considered the Indian land tenure mosaic. However, by using the BIA's records of Native Americans who actually assembled viable farm operations, my analysis essentially incorporates any special difficulty that Native Americans might have had in assembling viable operations.

By assuming that I glossed over this issue, Dr. Lueck also fails to address key land tenure questions, such as (1) the distinction between Native Americans who farm on-reservation and those who farm off-reservation and (2) the critical distinction between ownership loans tied to land holding and operating loans that are not. These considerations significantly limit any potential impact of the land tenure issue. Moreover, Dr. Lueck overlooks the key distinction between commercial loan services provided by private sector bankers and the special loan services that USDA is mandated to provide.

As I describe below, by looking more closely at all of these factors, it becomes clear that Dr. Lueck's conclusions are flawed and unfounded.

1. ***Estimating Native American Benchmarks***

A closer look at how I estimated the benchmarks for Native American loans and loan servicing easily addresses Dr. Lueck's first concern. My benchmark analysis centers on establishing the number of Native Americans farming on- and off-reservation, and combining the two counts to arrive at a measure of Native Americans' share of the general farm operator pool. Hence, the basis of my count is people who actually are farming, and thus have already overcome any potential obstacles to having a farm operation posed by the land tenure issues raised by Dr. Lueck.

I use the 2007 Census of Agriculture as the primary source to determine the count of Native American farm operators. The Ag Census is the only source I use for off-reservation counts, however, the land tenure patterns to which Dr. Lueck refers are limited to reservation land. To the extent that such land tenure problems affect off-reservation farm operations, the problems are shared by Native Americans and non-Native Americans alike. In other words, Native Americans who farm off-reservation buy and sell land, as well as rent out and lease in land, just as other farm operators do.

While the Ag Census is adequate to identify farm operators off-reservation, I have found that it continues to undercount Native American farms operating on reservation. Therefore, in addition to conducting an analysis based solely on the Ag Census, I also analyzed data from the BIA to determine the extent of the undercount of on-reservation farm operators. As detailed in Section V of this report, I compared the BIA data on leaseholders operating farms on reservations and the 2007 Census data to arrive at a minimal count of additional Native Americans farming on-reservation, not included in the Ag Census.[5]

[5] I also examined whether there were any non-Native American farmers operating on reservations who were not accounted for in the Ag Census. Applying the same methodology

I began by using the BIA reservation leaseholder data to count the number of people farming on-reservation who meet the criteria the 2007 Census employs to identify farms. I included these individuals in the count based on the BIA's documentation that the individuals have assembled viable, lease-based farming and/or ranching operations. While the BIA data provided no insight into how difficult it may have been for these individuals to assemble the leased acreages in question, despite any Indian land tenure mosaic at work on reservations, it *did* attest to the fact that these individuals had done so successfully.

Next, I took steps to address any possible overlap between the BIA and the Ag Census data in counting individuals farming on-reservation. Since the 2007 Census was the first count to include Native American farmers operating on-reservation, it raises the question of whether the Ag Census count could include the same individuals identified in the BIA count? However, given that the BIA reservation counties are easily identified and the Census results are reported by county, I was able to eliminate any double counting, by assuming a complete overlap between the Ag Census Native American operators on-reservation and the BIA Native American operators on-reservation. In every case, the BIA count was larger than the Ag Census count. This was critical, because every Native American that I identified as operating on-reservation had a lease record under the BIA's leaseholder data.[6]

The Montana calculations offer a clear and useful illustration. The BIA lease data from the Office of Indian Affairs (OIA) for the reservations in Montana show that there were

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as I did for Native American farmers, I determined that there were no additional non-Native American farmers in the BIA data who were not already included in the Ag Census.

[6] I followed the same process with respect to non-Native Americans, but always found that the number represented in the BIA data was smaller than the number counted for the relevant county in the Ag Census, and thus there were no additional operators to add to the non-Native American count.

about 4,500 individuals holding farming or ranching leases of a commercial scale. The number of individual leases was several times larger, because many individuals held multiple leases. Of these 4,500 leaseholders, 3,593 were Native Americans. The remaining leases—almost 1,000—were held by non-Native Americans who found leasing reservation land attractive enough to commit to farming/ranching several million acres. The average Native American holding included multiple individual lease tracts and was 10-1000 acres in size for agricultural leases and several thousand acres for grazing leases. The average lease was for 6 years. The BIA "facilitated" the leasing transactions by maintaining a reservation land registry, providing a basis for fractionalized lessors to cooperate, assisting in lease negotiations, and distributing rent proceeds to the appropriate lessors after the lease was signed.

The alternative benchmark that I believe is more accurate for setting Native American loan expectations in Montana is based on combining this 3,593 BIA on-reservation count with the 2007 Census count, after eliminating any potential overlap. The 2007 Census reported 1,993 Native Americans farming in Montana, with 1,530 of them farming in the nine reservation counties that were included in the BIA data. Assuming that there was a complete overlap between the number of Native American farmers reported as farming in the counties for which both BIA and the Ag Census provide data(1,530 under the Census data, and the 3,593 under the BIA's data), there were approximately 2,063 Native Americans farming on-reservation that were not included in the 2007 Census count (i.e., 3,593 minus 1,530). As shown below, this calculation resulted in an overall count of Native Americans farming on- and off-reservation in Montana of 4,056.

2. ***Montana Calculations***

2007 Census Count of Native American Farmers	1,993
2007 Census Count of Native Americans farming in reservation counties	1,530
BIA Count of Native Americans farming in reservation counties	3,593
BIA Native American farmers not included in 2007 Census reservation counties	2,063 (3,593-1,530)
2007 Census Count of Native Americans farming outside reservation counties	463
Total Native American operator count	4,056 (1,993 + 2,063)

One empirical result from the Montana calculations warrants further explanation. The BIA count of Native American farmers with lease documentation is larger than the 2007 Census count of *all* Native American farmers that presumably includes both farmers who lease land and farmers who own land. To the extent the Ag Census failed to count any farmers who operate on land they own on reservation, even the total adjusted to include the BIA data will not capture these additional farmers. As Dr. Lueck points out, the difficulty of obtaining loans—given the Indian land tenure mosaic—is most pronounced when an applicant attempts use something other than a fee simple title to his land as collateral for a loan, and thus has the most significant impact with respect to loans used to buy land, as opposed to loans used for operating expenses, since land is not used as collateral for such loans. The BIA data used to identify the 3,593 Native American farmers included in my count was based solely on counting farmers who leased land. Thus, reinforces that fact that the process I used *did* "control for the effects of the unique patterns of property rights regimes found in Indian Country," Lueck Report Sept. 2009 at 6, by looking only at those Native Americans who, according to the BIA, were able to overcome land ownership issues

by farming leased land.

Once again, it is important to point out that although the BIA data does not provide any indication of how difficult it was for Native Americans to assemble viable farm/ranch leaseholds, the BIA data does substantiate that 3593 Native Americans were successful in doing so. And only those 3593 individuals, plus the individuals identified by the Ag Census as operating farms, are included in the 4,056 individuals in my analysis.

Finally, while my Native American benchmarks, if anything, understate the Native American count and their resulting loan and loan servicing shortfalls, Dr. Lueck incorrectly suggests that my Native American benchmarks are too high and overstate the shortfalls. But Dr. Lueck's criticism is far more difficult to substantiate than the reverse claim that my benchmarks understate the Native American count. Because the BIA data does not include any Native American farming on his or her own land on-reservation (unless the farmer also leases additional land on reservation), my on-reservation count based only on BIA data is necessarily biased downward. Moreover, adopting an assumption that there is complete overlap between the Census count of Native Americans farming on-reservation and the BIA count of Native Americans farming on-reservation works to bias my results downward. It is difficult to imagine that there is *complete* overlap between the two data sets—that is that each Census farmer effectively replaces a BIA farmer—and that there are no viable Native American operators farming just owned-land on-reservation. However, based on the records provided by the USDA, it is impossible to measure how much these two limitations on available data artificially reduce the Native American count. Accordingly, to the greatest extent possible, my benchmarks for establishing Native Americans' reasonable expectations do indeed reflect and address Dr. Lueck's concerns.

C. Broader Conceptual Concerns

Evaluating Dr. Lueck's analysis more broadly, his report seriously overstates the importance of the land tenure mosaic in Native American agricultural borrowing and understates the importance of USDA's farm loan program in addressing the borrowing problems that arise from the Indian land tenure mosaic. First, Dr. Lueck improperly extends the results of his land tenure analysis to include *all* Native Americans rather than the subset that live on-reservations. He also extends his results to include all loans, including: commercial and concessional loans; and loans tied to land ownership and those not tied to land ownership. Second, he overlooks the fact that USDA's farm loan programs were explicitly established to remedy the very types of borrowing problems—capital market imperfections and credit market failures—cited in Rausser's April Report on page 14. Consequently, Dr. Lueck paints an unduly restrictive picture of USDA purpose and potential for lending to Native Americans.

1. ***Defining Indian Country***:

Dr. Lueck's report makes it clear that he views his analysis as applying to Native Americans broadly, and not merely Native Americans who farm on reservations. He does this by focusing his discussion of land tenure issues generally on "Indian Country" rather than specifically on reservation land. He defines "Indian Country" as the "reservation land and the surrounding area off-reservations where Indians live, work, and own land." Lueck Report Sept. 2009 at 5 n.9 (citing Dr. Lueck's April 2009 Report at 7). With this broad definition of "Indian County," Dr. Lueck eliminates key distinctions between Native Americans farming on-reservations, Native Americans farming off-reservations in states with reservations, and Native Americans farming off-reservation in states with no reservation history. This allows him to tie all *Keepseagle* class members to the "complexities and

idiosyncrasies of agricultural lending in Indian Country" and to conclude that these difficulties, if properly considered, would explain away the shortfalls in lending to Native Americans demonstrated in my reports. Lueck Report Sept. 2009 at 5.

The data produced in the *Keepseagle* action thus far shows that that Dr. Lueck's definition of "Indian Country" grossly overestimates the extent of any land tenure problem. For example, the 2007 Census of Agriculture combined with the BIA leaseholder data show that approximately 44,000 Native Americans operate farms off-reservation, many in states with reservations and some with no history of reservations at all. For these 44,000 operators, individual fee simple ownership of land is virtually the universal tenure system, either through personal ownership of land or leasing others' land held in fee simple. The same sources show that only 22,000 Native Americans farm on reservations where fee simple ownership of land is the exception. Despite this critical difference, Dr. Lueck assumes that all Native Americans are affected by his Indian land tenure mosaic based on some variant of group ownership of land.

Although Dr. Lueck defines "Indian Country" in such a broad manner and despite the fact that he repeatedly references Indian Land and the broader Native American community, Dr. Lueck himself acknowledges that his conclusions apply, at best, only to those Native Americans farming on-reservations. For example, Dr. Lueck notes that:

> The complicated and unique land tenure mosaic *on Indian reservations* creates incentives that *make it more costly for some Native American farmers* to borrow funds and invest in agriculture than for farmers (Indian and non-Indian) using land under more typical tenure systems. . .

Lueck Report Sept. 2009 at 8 (quoting April 2009 Lueck Report at 7) (emphasis added).

He later notes that numerous studies show:

deviations from fee-simple based property regimes lead to lower economic

> output, lower land values, and less wealth. . . . [A]ll of these confirm that the Indian land tenure mosaic complicates the loan processing practices of FSA and BIA, thereby *adversely affecting the ability of some Native American farmers* to obtain loans.

Id. at 8 (emphasis added).

Dr. Lueck might choose to be make an argument that land farmed by Native Americans off-reservation is subject to the same land tenure problems. But he fails to make that argument, at least in part because the land tenure issues that he discusses stop at the edge of reservations where tribal authority ends. Furthermore, Dr. Lueck notes that tribal rules, regulations, and guidelines adopted when reservations were established perpetuate land tenure problems and are the root cause of those problems. But even if these problems might also exist on a much smaller scale off-reservation, they would affect Native Americans and non-Native Americans in the same manner and to the same extent.

Because Dr. Lueck's analysis only applies to on-reservation farming, it must be limited to the one-third of the Native American population farming or ranching on-reservation—i.e., it only applies to 22,000 Native American operators rather than the 66,000 operators at issue in this case.

2. ***Distinguishing between Ownership Loans and Operating and Emergency Loans***

Dr. Lueck's analysis further concludes that (1) the lack of fee simple ownership of land that would normally be posted as collateral and (2) fractionalization of ownership rights makes it difficult for Native Americans to qualify for USDA loans. But not only is this analysis limited to the 22,000 Native Americans farming on-reservation, it also overlooks the key distinction between USDA's farm ownership loans that are generally linked to land and operating and emergency loans that are not linked to land.

First, turning to the issue of borrowing without fee simple land ownership to secure

the note, any analysis has to start by identifying the types of loans that require fee simple ownership of land as security. USDA and most other agricultural lenders generally "match" loans and collateral. That is, long-term durable assets such as land are generally required as collateral for long-term loans, such as loans used to purchase land. In effect, the land being purchased is posted as collateral for the loan to purchase the land. This ensures that the value of the collateral holds over the life of the loan in order to offset any risk of loan failure. Short- and intermediate-term assets such as machinery and livestock are generally posted as collateral for short- and intermediate-term loans. They are semi-durable, but hold their value long enough to secure a shorter term loan. Moreover, they can be readily liquidated to cover a loan default without the longer period of time and higher costs that are typically involved in liquidating land holdings.

In this setting, therefore, the lack of fee simple ownership of land and the resulting inability to post land as collateral would have the greatest impact on Native Americans' ability to negotiate long-term loans. Given USDA's pattern of lending from 1981 to 2007, the lack of a fee simple could have possibly impacted no more than 5% of all loans to Native American operators, because 33% of Native Americans operators farm on-reservation and roughly 15% of USDA's loans are long-term (.33 x .15 = .05).

But even this 5% figure overstates the problem, when the difference between commercial and concessional lending is properly considered. Dr. Lueck's concerns are relevant to decisions made by commercial lenders who follow traditional lending practices. His concerns, however, are mitigated or irrelevant when the loan is a concessionary FSA loan, due to USDA's special lending guidelines. For example, USDA and the Department of the Interior (BIA) established a special arrangement to facilitate longer term farm ownership

loan making to Native Americans. The two agencies have agreed that USDA will accept and the BIA, in its role as manager of the Native American trust, will approve the use of land interests other than fee simple ownership as collateral for longer term loans. This included USDA agreeing to accept leaseholds as collateral for longer term loans. Accordingly, the special arrangement between USDA and BIA, which is unique to the FSA's lending procedures, offsets and addresses a significant part of Dr. Lueck's concerns.

Second, Dr. Lueck's claims that the lack of fee simple ownership and difficulty assembling enough leased acreage to be viable, given the extent of fractionalization common on reservations, also compromised the ability of Native Americans to negotiate short- and intermediate-term operating loans. CITE. Given the "matching" of collateral and loans, however, the lack of fee simple land to post as collateral was generally not an issue for securing operating loans. As already noted in my February report in the Appendix on Loan Program Guidelines, and again in my July Report, USDA routinely accepted livestock, machinery, and expected earnings as security for short- and intermediate-term loans, and seldom required land collateral to secure these loans.

Next, Dr. Lueck argues that fractionalization makes it difficult for Native Americans to skirt land ownership issues and assemble large enough rental tracts on-reservation to justify USDA loans. Dr. Lueck states that the transaction costs of leasing on reservation where often prohibitively high from the perspective of operators and lenders. He notes that many leases had to be signed to piece together a single enterprise, and that each lease often involved dealing with multiple lessors, given the extent of fractionation. According to Dr. Lueck, this made lease-based farming on-reservation difficult and costly enough to discourage USDA loan making.

These theoretical concerns, however, overlook the extent to which the BIA records show that many Native Americans were able to assemble enough leased acreage to be viable. Because the BIA successfully used its tribal realty offices to facilitate leasing, iin practice the transaction costs of leasing on-reservation—which Dr. Lueck asserts were high—were often lower than the transaction costs of leasing off-reservation.

The same Montana example, which I discussed above, shows why this is the case. The BIA maintained a land registry, facilitated negotiations between lessors and lessees (and often acts as the agent for lessors), collected rents, and distributed rents to multiple lessors. The BIA's Montana records also indicate that the leases were for much longer periods of time (on average 6 years) than the "one to three year[]" leases cited by Dr. Lueck as the standard off-reservation. Lueck Report Sept. 2090 at 9. Many of these leases were also renewed 2 to 3 times and blurred the distinction between ownership and rental. This challenges Dr. Lueck's claim that land productivity suffered because on-reservation lessees did not take adequate care of rented acreage in their effort to mine the acreage up-front without regard for the longer term impacts. In this setting, Native American operating loans for on-reservation farming and ranching fall largely outside the scope of Dr. Lueck's land tenure mosaic critique. Critically, from 1981 to 2007, 81% of USDA's lending took the form of operating loans which are not secured by land.

Emergency loans also fall outside the scope of Dr. Lueck's land tenure mosaic critique, given that the collateral guidelines for emergency loans were by far the most flexible and that emergency loans were only made to farms already in operation. In effect, an established Native American farmer operating on-reservation—presumably based on leased acreage—who faced a natural disaster could post as collateral for an emergency loan any mix

of assets, including forthcoming income and his "good reputation," and the USDA was authorized to lend in such cases without full security. Therefore, there is little or no basis to contend that the Indian land tenure mosaic had a significant impact on Native Americans' ability to apply and qualify for emergency loans.

In sum, when looking across USDA's three major farm loan types and the split between Native Americans farming on- and off-reservation, it is difficult to fathom how Dr. Lueck's concerns involve more than 5% of potential loans or provide any rational basis for concluding that the large shortfalls reported in my February, July, and November reports resulted from the Indian land tenure mosaic, as opposed to discrimination. Ironically, if the Lueck analysis were correct, the shortfall in farm *ownership* loans would have been the largest. But, to the contrary, there were larger shortfalls in *operating* loans and *emergency* loans, where the link to the Indian land tenure mosaic is tenuous at best.

D. Back to Basics: USDA Loan Program Goals

My last and most significant concern with Dr. Lueck's analysis is his failure to consider the following: (1) USDA's loans, compared to commercial loans negotiated in the open market, were designed specifically to address problems like the Indian land tenure mosaic; (2) Dr. Lueck's Indian land tenure mosaic leaves Native Americans more dependent on USDA loans than farm operators generally and much more likely to meet the "no-credit-available-elsewhere qualifications" for USDA loans; and (3) by being more dependent on USDA loans, Native American operators could have expected to receive more—not less—in USDA loans and loan servicing than simply their share of the farm operator population.

As substantiated in the Appendix on the Farm Loan Program of my February Report, USDA's farm loan programs were not designed to be yet another commercial source of farm credit, but rather were intended to provide credit to farm operators who were otherwise

viable but could not obtain commercial credit at reasonable rates. Moreover, in his April Report, Dr. Rausser further notes that:

> Throughout its history, there have been two primary purposes of the program (USDA Farm Loan Program): (1) to correct market failures due to information asymmetry, externalities, economic disequilibrium, lack of competition, insufficient lending resources, and incomplete markets: and (2) to redistribute resources to disadvantaged regions and populations.

Rausser Report April 2009, at 14-15.

It is difficult to identify a more graphic example of the failure of the commercial credit market referred to in Dr. Rausser's first point ("market failures due to . . . externalities, economic disequilibrium, . . . and incomplete markets") or of disadvantaged regions and populations than the Native American farming and ranching community, particularly the community farming on-reservation and implicated by Dr. Lueck's Indian land tenure mosaic.

However, these problems can hardly be used to justify shortfalls in loans and loan servicing from a highly specialized concessional loan program that was specifically designed to address just such problems. While Dr. Lueck's belief that Native Americans' reasonable loan expectations should have been diminished to reflect their land tenure may apply to commercial loans, it clearly does not apply to the USDA concessional loans at issue in the *Keepseagle* case.

In this context, USDA's role as the "lender of last resort" takes on special meaning, as Native Americans faced with Dr. Lueck's land tenure mosaic look to USDA as their "preferred lender." With these concerns in mind, if anything, any adjustment in the Native American benchmarks used to evaluate USDA program delivery should be ***raised*** rather than ***lowered*** when estimating Native Americans' expectations. However, given the highly subjective nature of the issue, my analysis makes no provision for either raising or lowering

Native Americans.

XII.
FACTORS RAUSSER ALLEGES EXPLAIN NATIVE AMERICAN LOAN SHORTFALLS

Dr. Rausser identified several factors in his October Report on pages 122-130 in an effort "to examine some of the reasons (other than random chance) why such shortfalls may arise." While some have superficial appeal, the reasons Dr. Rausser advances for shortfalls in USDA lending to Native Americans do not stand the test of scrutiny. In several cases, they actually argue for a larger rather than a smaller share of USDA loans going to Native Americans and in the process would have made their shortfalls larger and their economic losses greater if provision for the factors in question had been made in the initial setting of lending benchmarks.

In the broadest terms, Dr. Ruasser cites reasons why a ***commercial lender*** might not lend to Native Americans seeking farm credit generally and in particular if the credit were to be secured with tribally, rather than individually-owned/fee simple land. However, Rausser fails to recognize that USDA is not a commercial lender and is explicitly prohibited from displacing commercial loans by providing credit to any borrower who can get commercial (i.e. bank) or cooperative (i.e. Farm Credit System) credit elsewhere. The guidelines defining farm ownership, operating, and emergency loans state explicitly (7 CFR 1941-1943) that lending is limited to otherwise viable farm operators who are unable to secure credit elsewhere. Dr. Raussert recognizes this ***concessional*** nature of USDA lending in his references to the Department as the "lender of last resort." However, he ignores the impact this has on evaluating potential reasons other than discrimination for the established shortfalls.

He acknowledges the difference between commercial lenders and USDA in his identification of the goals of the loan program. He notes on pages 14-15 of his April, 2009

Report that:

> Throughout its history, there have been two primary purposes of the program (USDA Farm Loan Program): (1) to correct market failures due to information asymmetry, externalities, economic disequilibrium, lack of competition, insufficient lending resources, and incomplete markets: and (2) to redistribute resources to disadvantaged regions and populations.

USDA clearly cannot advance these goals with a "business as usual" approach to lending.

This means that the factors Dr. Rausser cites as possible explanations for Native American shortfalls have to be viewed in terms of the program guidelines rather than banking conventions.

In addition to overlooking this basic concern, Dr. Ruasser makes serious substantive errors in his explanation of the specific "reasons" that he cites for shortfall. Moreover, Dr. Rausser has no actual evidence that there is a causal relationship between any of the factors that he identifies and the the loan shortfalls that I identified. He admits they are merely theories about what "may" (and therefore "may not") explain lending shortfalls.

A. <u>Reservation Ownership: Group versus Fee Simple Ownership</u>

Dr. Rausser cites land tenure issues as a key explanation for Native American lending shortfalls. He writes on page 123-124 of his October Report that:

> As summarized on pages 30-31 of my April report, land tenure issues on reservations can act as barriers that reduce Native Americans access to FSA direct loans because: 1). In many cases the land on reservations is not owned by the farmer but instead by the tribe; 2). Even land owned by individuals may be held in trust by the Federal Government and require approval by the Bureau of Indian Affairs before it can be used to secure a debt; and 3). In other cases the ownership of a single tract is "fractionated"—owned in common among many people in undivided shares.

Rausser also states regarding Indian land tenure on page 122 of his October Report that:

> The major factors include: 1). Increased difficulty in the ability to pledge real estate collateral required to secure FSA Ownership loans resulting from the unique and complex nature of land tenure issues on Reservations; 2). The cumbersome process of joint approval from BIA; and 3). Reduced operational efficiency (a greater percentage of revenue comprised by expenses) resulting from constraints imposed by

the small, fragmented tracts of lands compromising many reservations.

My response to these contentions is included at length in Section XI of this report. I conclude as substantiated there that:

1. The Indian land tenure issue has to be put into context. Fully 60% of Native Americans farm off-reservations, as I indicated in my July Report at page 130. Since Native Americans off-reservation buy and sell land the same way and rent and lease land the same as other farmers, they are not affected by the Indian land tenure pattern; and

2. With the Indian land tenure issue linked to some form of group ownership versus fee simple ownership and since land is generally used to secure long term farm ownership loans rather than operating and emergency loans, the land tenure issue does not spill-over from ownership loans to affect shorter term operating loans and often emergency loans where collateral is generally assets other than land.

Keeping this in mind, along with Dr. Rausser's point about wide variations in the importance of reservations by state, I calculated how much of the Native Americans' loan portfolio would be affected on a state-by-state basis. The state shares shown are simply the percentage of a state's Native American operator population farming on- reservation times the percentage of the state's reservation land not divided as shown in Dr. Rausser's data on pages 123-24 times the percentage of the state's actual lending made as farm ownership loans. The calculation indicates that with 90% of reservation land included, 40% of Native American operators farming on reservation, and 10% of USDA credit in ownership loans, roughly 5% of Native Americans' loan portfolio is affected at the national level, with the share by state ranging from a low of less than 1% to a high of 10%.

But is even this minimal share of the Native American portfolio an overstatement? On closer scrutiny, the rational for Dr. Rausser's argument is "increased difficulty in the ability to pledge real estate collateral required to secure FSA Ownership loans resulting from the unique and complex nature of land tenure issues on Reservations." However, as Dr.

Lueck concedes, USDA and the Department of the Interior (BIA) established a special arrangement in the mid 1980's designed to address just this concern. The two agreed that USDA would accept and that the Interior Department in its role as manager of the Native American trust would approve the giving of land interests other than fee simple ownership as collateral for longer term loans. This included USDA acceptance of leaseholds as collateral for longer term loans.

This suggests that while commercial banks would have "shied away" from making ownership loans to Native Americans farming on-reservations, USDA had a special mandate and unique authority to do so. This would also have worked to make USDA the preferred lender for Native Americans and should have matched up strong Native American interest in USDA loans with USDA's unique lending authorities. This would work to raise—not lower—ownership loans from USDA to Native Americans compared with a benchmark based solely on Native Americans' share of the operator pool. Reinforcing this view is the fact that both experts found shortfalls in farm ownership loans smaller than for operating and emergency loans despite Dr. Ruasser and Dr. Lueck's conceptual case for shortfalls in farm ownership loans being larger given the closer link to the Indian land tenure problem. Regarding Dr. Rausser's added statement about delays in working with the BIA, he fails to mention that the lag in question is concurrent with USDA's processing of the loan, which, for ownership loans often takes 150 to 200 days (See Farm Loan Program Appendix in my February Report). Equally important, USDA cannot base its decision to lend or not to lend of this factor since it is not recognized in either the programs eligibility or the economic feasibility criteria for lending.

B. <u>Indian Reservations: Fractionalization</u>

Dr. Lueck and Dr. Rausser also refer to fractionalization—the ownership of a single

tract by multiple individuals—as an important impediment to USDA loan making that can explain shortfalls. While this is part of the tenure issue addressed above, it has special meaning in that it complicates the leasing of land since multiple owners have to be involved in the leasing of a single tract and the distribution of rental receipts. As they correctly observe, fractionalization is a common phenomenon on reservations. However, once again, it is an on-reservation phenomenon that affects at best only the 40% of Native Americans farming on-reservation. More importantly, however, the key question is not whether fractionalization exists or does not exist. The issue is whether or not fractionalization reduced Native Americans' ability to assemble viable, commercial-sized farm- and ranchsteads needed to secure a USDA loan. The BIA data on Native Americans farming on-reservations discussed in Section V of this report and even the more limited 2007 Census data for Native Americans farming on-reservations indicate that it did not—that Native Americans on-reservations routinely assembled viable farm- and ranch-steads through leasing.

How was this done in the face of fractionalized ownership? One key reason that Native Americans succeeded is the role that BIA Reality Offices played. The BIA reality offices, as already explained in Section V, served as leasing clearing houses that often over-compensated for fractionalization. The end result, whatever its origin, is that the data show a pattern of large-scale, lease-based agricultural operations in effect on all of the reservations, with the option of leased-based farming on-reservations attractive enough to draw a sizeable number of Non-Native Americans lease holders. Regarding the mechanics of lease-holding, Figures V-1 and -2 show leases on reservations tended to be as large or larger than leases in the same state off-reservation and are as or more common than leasing off-reservation.

Reservation leases also tended to be substantially longer than the 1-3 year common commercially off-reservation, with the BIA lease data suggesting 5-6 years a norm. In addition, the BIA data indicates that many leases were routinely renewed on expiration, contributing even further to a sense of stability that challenges Dr. Lueck and Dr. Rausser's description.

These factors tended to drive down the "high" transaction cost of leasing land on reservations alleged by Leuck and Rausser as an inevitable consequent of fractionalization and discredits their claims that 1) fractionalized ownership and leasing difficulty lead to both Native Americans' inability to get funding for leased-based operations---generally farm operating credit---and 2) fractionalization leads to disregard for longer term land development and productivity because of the lack of continuity in use and no long term interest in a tract on leasors' part.

C. Farm Size: Native American versus non-Native American Farm Size

Dr. Rausser argues that Native American loan shortfalls relate to farm size—that is, the lower average size for Native American farms compared with non-Native American farms somehow explains fewer and smaller loans to Native American farmers. He writes on page 125 that:

> Farm size significantly influences whether operators will seek and obtain FSA credit. As explained in Section VIII, farms with less than $1,000 in annual sales are very unlikely to have FSA direct loans. Less that 2% of these extremely small farms had FSA direct loans during 1988, whereas 10.2% of small farms having $10,000 to $249,000 in sales, and 15.1% of large and very large family farms (at least $250,000 in annual sales), had FSA direct loan debt (see Table 20). In other words, small family farms with at least $10,000 in annual sales were 430.2% more likely than farms with less than $1000 in annual sales to have direct loan debt. Whereas large family farms were 686% more likely.…Moreover Ag census data show that Native Americans are more likely to operate very small farms and less likely to operate large farms relative to non-Native Americans. It follows that small farm size may explain why Native American farmers are less likely to receive Ownership and Operating loans than non-Native Americans.

At first glance, this appears to be a reasonable theory. However, the rationale does not stand up to closer examination. At the risk of oversimplifying, Dr. Rausser is saying that:

1. USDA doesn't lend to very small farms;

2. Native American farms are concentrated disproportionally in the very small farm category; and

3. Therefore, USDA does not lend to or lends less to Native Americans.

This line of reasoning is flawed. First, it is based on Dr. Rausser's assumption that the appropriate population to consider for USDA lending includes large and very large farms. This issue is treated at length in my July report and again here in Sections VI and VII, addressing the question of farm typology and benchmarks. The size difference between Native Americans and non-Native Americans is indeed quite large looking across the entire operator population including large and very large operations. However, the difference is size is considerably less—albeit still present—if the focus is put on the small and medium-size farms that are targeted in FSA lending.

Second, Dr. Rausser's analysis assumes that USDA's historical lending pattern justifies USDA's historical lending pattern. The issue is rather that the program guidelines and the qualifications of the Native Americans indicate the historical pattern should have been different.

Third, on closer look, Dr. Rausser's historical data does not say what he claims it says—that USDA doesn't lend to small/very small farmers and this explains shortfalls since Native American farms are proportionately small. In citing data based on outstanding USDA debt, he fails to distinguish between what a successful borrower's annual sales were *at the time a loan was made* from what they are in the year his measurements were taken. Given

the average actual term of 7-10 years for USDA loans established in our respective PLAS analyses, his 1988 quotes on how USDA debt is distributed by sales class is quite likely made up of 1/7 first-year borrowers, 1/7 second-year borrowers, etc……and 1/7 seventh year borrowers. Why is this important? Given the substantial support that comes with a USDA concessional loan (capital that would otherwise not be available at unusually borrower-friendly terms including long repayment schedules and discounted interest rates, unusually borrower-friendly problem loan servicing, and technical assistance), a small/very small borrower would not stay small/very small for long with USDA support. This is particularly true since Dr. Rausser uses a $10,000 cut-off in his examples and a farmer would only have to move from sales of $1,000 to sales of $10,000 to move between Rausser's categories. This well within reach given that the average USDA operating loan was $25-35,000. In short, I cannot tell from Dr. Rausser's data whether the 10.2% of small farms having $10,0000 to $250,000 in annual sales reflects the debts and sales of first-year borrowers or seventh-year borrower or more likely a mix that discredits his claim that USDA does not lend to very small farmers.

Is this idea that a small/very small farmer would not stay small/very small for long with a USDA loan a viable perspective on the program? Several factors suggest that it is. First, the successful small/very small farmers had to prove that his or her Farm and Home Plan was "economically feasible" and would "grow them out" of their current impoverished situation in order to qualify for a USDA loan. In addition, the limited resource loan program treated at length in the Farm Loan Program Appendix of my February Report focuses specifically on these small/very small farms and targets USDA funding to this group, with the expectation that USDA assistance would move them out of their current status.

Hence, at the very least, Dr. Rausser is comparing apples and oranges when he compares the small/very small farmer who has not gotten as USDA loan with the *once* small/very small farmer who did get a USDA loan and has had several years to work his or her way up.

Dr. Rausser seeks to add weight to his claim that small size explans loan shortfalls by introducing the idea of scale into his discussion. He notes on page 126 that:

> Reduced scale can constrain operational efficiency and the ability to generate cash flow necessary to repay debt, suggesting another reason why Native Americans receive fewer loans than their share of the eligible pool would predict.

Once again, Dr. Rausser mixes cause and effect. Do Native Americans get fewer USDA loans because they are small-scale or are they small-scale because they get fewer USDA loans? It is important to remember that these small-scale operators are precisely the individuals who cannot get loans commercially for the very reasons Dr. Rausser cites. Hence, they depend on USDA for credit if they are to get credit at all. Once again, the language for the limited resource loan program suggests that, with Native Americans concentrated at the small end of the scale curve and moving up the scale dependent on getting USDA credit, they could have expected at least their operator share of the funds, possibly more.

Further, this discussion of size also misses the point that, even assuming that Dr. Rausser's perspective is correct, Native Americans could have expected smaller loans—that the loans that they got would have been smaller than provided bigger operators. However, Native American shortfalls related not only to smaller loans but fewer loans—with fewer loans contributing roughly three-fourths of the shortfall and smaller loans accounting for the remaining quarter.

Lastly on the farm size issue, it is important to contrast Dr. Rausser's argument here that "USDA doesn't lend to small/very small farms" with his position on pages 122-24 regarding how to estimate the income ratios to be applied to loan shortfalls to determine farm income losses. He argues there that the income ratios should be calculated to include precisely the small and vey small operations that he claims here cannot get USDA loans. He also claims here that large and very large farms should be included in the USDA borrower pool. However, when it comes to calculating historical income ratios, he includes the small and very small farms with the lowest rates of return and insists that the large and very large farms with the highest rates of return be excluded. This insures that the measure of Native American loan shortfalls is minimized by excluding the small and very small farms where many of them fall in the size distribution. It also insures that even the Native American shortfalls measured translate into minimal damages by using the lowest possible historical rates of return to calculate the ratios used in the analysis. This is disingenuous at best and introduces considerable downward bias into his analysis.

D. <u>Concentration in Livestock and Not in USDA Farm Commodity Program Crops</u>

Dr. Rausser offers the following on page 126 as another possible explanation for Native American shortfalls:

> Another factor contributing to potential loan shortfalls experienced by Native American farmers and ranchers is that their farm and ranch operations tend to be concentrated in production specialties that require little capital, representing some of the least expensive types of farms to operator. As explains on pages 27-28 of my April report, these types of farms, as classified by the North American Industrial Classification System (NAICS) are: 1). sheep and goat farming; 20. beef cattle farming and ranching; and 3). aquiculture and other animal production.

He also notes that:

> beef cattle, sheep and goat, and aquaculture and other animal production operations are the least likely types of farms and ranches to have FSA direct loan debt.

Presumably, since these farms require the least capital to operate, they require fewer and smaller loans. Moreover, USDA's historical pattern of lending again is put forward as a justification for USDA's historical pattern of lending. Does this contention hold up to logical examination?

1. ***Establishing the Extent of Livestock Concentration:***

First, it is critical to establish what the basic facts on livestock concentration are. Figures X-2a, b and c on livestock concentration in Appendix 1 provide the numbers. I have included beef, sheep and goats, aquaculture, and other animal breeding as separate categories to reflect Dr. Rausser's concerns. The conclusions even with these additions are the same as in my July report. Dr. Rausser overstates the degree of Native American livestock concentration at the state level where both of us do our analyses of this case. I have addressed Dr. Raususer's concern about t-testing by including a comparison of Native American vs. Non-Native Americans in addition to Native American vs. All Operators.

Dr. Rausser attempts to distract from this point by incorrectly arguing that I compared apples and oranges. He claims on page 128 that:

> Mr. O'Brien made a fundamental error in his calculation of the proportion of farm sales derived from livestock. While he used the dollar value of sales for all operations regardless of race to calculate the percentage of income derived from livestock, Figure G-2 to his report shows he used the number of operations instead of the dollar value sales for Native American farms and ranches. In other words, Mr. O'Brien compared apples and oranges.

This is not the case. Both the numerator and denominator in my analysis of the Native American and general farm operator shares are the same—the value of livestock sales as a share of the value of all commodity sales, with the 2007 Census of Agriculture Tables 2 and 54 as the source.

Dr. Rauser other comments on how to measure livestock concentration move the

discussion well beyond the question at hand and bespeaks a misunderstanding of the data he is using. All of his farm concentration data are collected and classified by USDA based on whether a farmer generates 51% or more of his income from a single commodity operation. This means many farmers (over a third in the 2007 USDA Farm Income database) have *no* commodity specialty, because no single source amounts to more than 50% of their income. It also means that a farmer's classification can change entirely with as little as a few percentage points shift in sales receipts. For these reasons, the appropriate way to measure commodity concentration is to use sales receipts as I have done. This provides a truer picture of the extent of commodity concentration and is a better indicator for the issue at hand--that is, how much did Native Americans depend on livestock sales compared to other operators and did any disproportionate concentration explain Native American lending shortfalls.

2. ***Establishing Capital Intensity***

Second, how does Dr. Rausser measure "least likely to have FSA debt" and "required the least capital to operate" in his attempt to link livestock to lower loans since he believes he has linked Native Americans to livestock? Dr. Rausser has been selective in his reporting. The livestock operations in question are also the operations least likely to have *any* debt and consequently would naturally have less FSA debt than other types of operations. Looking at the *share* of their debt carried by FSA indicates that the differences between the commodity groups is less than Rausser implies.

Dr. Rausser's claim that his livestock categories "required the least capital to operate" and by implication required less USDA credit also does not stand up to scrutiny. The appropriate way to measure capital intensity—how much capital an operation needs—is to compare capital investment to annual sales or to income. Since many livestock operations tend to be smaller, their absolute debt levels and capital requirements can be smaller.

However, the data showing the broader relationship between dollars of capital invested and dollars in annual sales and dollars in income for different commodity producers drawing on the USDA/ERS ARMS system used throughout our reports indicates that this is true. Indeed, the amount of capital needed to operate the average livestock ranch is lower than to operate the average farm for most other commodities. This is due at least in part to the small size of the typical livestock operation—operations that are typically less than half of the average measured in terms of annual sales. However, the *ratios* of capital to annual sales and capital to income are the reverse—that is higher than for most other commodity groupings. That is, it may take less capital to run what are generally small livestock operations but it requires more capital to make sales and earn income in these operations.

Given the USDA loan program goal of improving the viability of and income-earning potential of small/medium-sized family farms including limited resource farmers, these higher sales and higher income ratios point to the opposite conclusion that Dr. Rausser reached. That is, more not less credit is needed to bolster these operations and expand their scale in an effort to reach USDA's ultimate goal of economic viability and graduation to commercial credit. For example, the specialty commodity categories show that farms specializing in these commodity often require $250,000-300,000 in initial capital investment to generate $25-50,000 in income and $100-200,000 in annual sales. But the beef producer (cow/calf operator) often needs only $20-25,000, but often generates only a $2-3,000 return. Hence, the very operations that Dr. Rausser says should have gotten less funding from a commercial bank's perspective should have gotten more from a USDA concessional lending perspective. Once again, his analysis applies, at least to some degree, to a commercial lender but less so---in some cases not at all—to USDA as the concessional "lender of last resort."

3. ***Overlooking the Dynamic and Concessional Nature of USDA Lending:***

Dr. Rausser overlooks another instance of cause and effect in emphasizing how few livestock operators report holding—as opposed to getting-- USDA loans. Once again, Dr. Rausser's data does not capture the commodity concentration of the borrower at the time his or her first USDA loan is made but generally at some point well into a borrowing period of 7 years on average. His citation of the low capital entry requirements for livestock operations and the much higher capital entry requirements for program commodities and specialty crops point to something of a self-fulfilling prophecy. Given that a key advantage of the USDA loan program is cheap and plentiful capital, it is quite logical for successful borrowers to gravitate toward commodity operations with higher capital entry requirements but high rates of return on capital. The issue then becomes how much USDA lending contributed to the gradual concentration of borrowers in commodity categories other than livestock and how much USDA's lending was concentrated in these commodities to start with. In either case, Native American operators were underserved.

Dr. Rausser also notes on page 127 that USDA loans were concentrated among program commodities (commodities with government price and income supports) while Native Americans are concentrated in non-program commodities. This raises the issue again of the purpose of the USDA program. As Dr. Rausser indicates, producing program commodities generally makes borrowing easier since commercial lenders recognize the advantage of price and income supports in boosting borrower earnings and providing a floor on producer returns. However, Dr. Rausser fails tor recognize that program commodity producers are consequently much more likely to fail the "no-credit-available-elsewhere" test and that loans to non-program commodity producers are much more likely to meet the "correcting market failures" criteria included in Dr. Rausser's statement of loan program

goals quoted initially on page 14 of his April Report.

Lastly, Dr. Ruasser ignores another dynamic of the USDA loan program--USDA technical assistance in developing and implementing viable farm business plans for successful borrowers. In short, a Native American borrower concentrated in livestock operations (cow/calf) operations at the time a loan was made initially could reasonably have expected counseling on how to improve farm performance---which as Dr. Rausser points out well might have included advise to modify commodity concentration. As the application guidelines included in the CFR indicate, in the worst case situation where a Native American applicant's Farm and Home Plan failed because of his proposed concentration in a low-return livestock operation, USDA was required to advise the applicant of alternatives that could make his or her plan viable, be they changes in commodity concentration or scale of operation.

E. Conclusions

Hence, on balance, Dr. Rausser's reasons for loan shortfalls raise as many questions as the settle and point again to the conclusion that the benchmark for loan expectations set to reflect operator share quite likely understates the lending that Native Americans could reasonably have expected from USDA.

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