Tradeoff between Efficiency and Equity in the Targeting of the Conservation Reserve Program

Junjie Wu
Department of Agricultural and Resource Economic
Oregon State University
307 Ballard Extension Hall, Oregon State University,
Corvallis Oregon 97331-3601
Email: junjie.wu@oregonstate.edu

Jialing Yu
Department of Agricultural and Resource Economic
Oregon State University
312 Ballard Extension Hall, Oregon State University,
Corvallis Oregon 97331-3601
Email: yujia@onid.orst.edu

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appears on all such copies.
To achieve higher efficiency, CRP funds should be shifted from the Corn Belt and Lake States to the Northern and Southern Plains and the Southeast under the current measure of benefits (Fig. 3).

To improve efficiency, some CRP dollars should be shifted away from the Corn Belt and Lake States at least under the current measure of environmental benefits.

The current allocation of CRP acres across counties is not Pareto optimal, as indicated by point B in Fig. 2. CRP funds could be reallocated to increase both efficiency and equity.

• To achieve higher efficiency, CRP funds should be shifted from the Corn Belt and Lake States to the Northern and Southern Plains and the Southeast under the current measure of benefits (Fig. 3).

• To achieve higher equity, CRP funds should be shifted from the Northern and Southern Plains to the rest of the country (Fig. 4).

• Targeting parcels with the highest environmental benefits per unit (A in Fig. 2) and the most equitable allocation (C in Fig. 2) can achieve a higher level of efficiency at a cost of lower equity.

1. Generate the most efficient allocation of CRP funds using the benefit-cost ratio targeting, and calculate the the efficiency measures for the distribution.

2. Start from the most efficient allocation, and redistribute a small amount of fund (AM) from one county to another, and find the redistribution that results in the largest improvement in equity for a given loss in efficiency among all possible redistributions.

3. Iterate the redistribution process until no more equity improvement can be made to trace out the whole frontier.

Table 2: Cumulative percentage of fund allocation

<table>
<thead>
<tr>
<th>Cumulative percentage distribution (US)</th>
<th>Most efficient allocation (WE)</th>
<th>Most equitable allocation (C)</th>
<th>Current allocation (B)</th>
<th>Most efficient allocation (WE)</th>
<th>Most equitable allocation (C)</th>
<th>Current allocation (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>11.41%</td>
<td>10.98%</td>
<td>10.98%</td>
<td>9.86%</td>
<td>9.68%</td>
<td>10.98%</td>
</tr>
<tr>
<td>25%</td>
<td>31.23%</td>
<td>30.29%</td>
<td>30.29%</td>
<td>28.59%</td>
<td>28.30%</td>
<td>30.29%</td>
</tr>
<tr>
<td>50%</td>
<td>57.37%</td>
<td>56.33%</td>
<td>56.33%</td>
<td>54.48%</td>
<td>54.19%</td>
<td>56.33%</td>
</tr>
<tr>
<td>75%</td>
<td>81.41%</td>
<td>80.10%</td>
<td>80.10%</td>
<td>78.48%</td>
<td>78.12%</td>
<td>80.10%</td>
</tr>
<tr>
<td>90%</td>
<td>90.65%</td>
<td>89.62%</td>
<td>89.62%</td>
<td>88.92%</td>
<td>88.54%</td>
<td>89.62%</td>
</tr>
</tbody>
</table>

Conclusions

• The current CRP acreage allocation is highly inequitable in both program access and program outcomes, nor is it efficient.

• CRP funds can be reallocated to increase both the program’s efficiency and equity.

• To improve equity, some CRP dollars should be reallocated from the Northern and Southern plains to other regions.

• To improve efficiency, some CRP dollars should be shifted away from the Corn Belt and Lake States, at least under the current measure of environmental benefits.

Contact Information

JunJie Wu, Department of Applied Economics, Oregon State University, Email: junjie.wu@oregonstate.edu