

Appendix 2. Variables characterizing the livelihood of each cattle rancher

We studied 11 variables (Table A2.1) in a closed questionnaire to characterize the livelihoods of the cattle ranchers. The variables addressed basic information for each interviewee, such as age, education, place of work and residence. Other questions focused on the economic capital of each cattle rancher (for example, the number of cattle owned), if he had sons who contributed to work on the plot, or if he needed to hire labor.

We also explored the cattle ranchers' production strategies. Although each cattle rancher focused his activity on livestock, many individuals, for different reasons, also worked in other productive activities to improve family income. To understand more broadly their way of life, we asked about the economic or social support received, as well as if they received any kind of remittances from abroad. This was especially important for the profiles of cattle ranchers over 65 years of age, who worked partially in their productive activities with the help of their sons or a "cowboy".

Finally, we explored the relationship with the biological station and the academics to evaluate the role of possible biases associated with the history of the connection between the local townspeople and the UNAM academics, especially the biologists.

Table A2.1. Indicators and variables analyzed to characterize the livelihood of the cattle ranchers. The description of each variable shows the value that it would have if it was quantitative or categorical. The levels of the categorical variables were assigned following the assumptions underlying the definition of the indicator.

Indicator and definition	Variable	Description
Age structure		
Term used as a numerical value and also to be included in the multivariate analysis with qualitative data. The cut was made at 65 years according to the definition of life stages during the psycho-biological development of the human being.	1- Age	Years completed at the time of the interview "Minor" at 65 years old "Older" at 65 years old
Education Level		
Attendance, or not, at school and years of education in school. Some did not attend school or completed only the first years of primary school. Others completed primary school and higher levels of education.	2- Education level	None-Incomplete =0 Basic-Superior =1
Place of work and residence		
In cases where the interviewees lived outside the <i>ejido</i> where they had their plots of work, it was assumed that greater	3- <i>Ejido</i>	Place "where ejidatario was" at the time of the interview (that is, where he had land property

economic capital was required, especially for moving (which required gasoline) from their home to the working plot. There were those who travel few kilometers by foot or by horse), and other travel from 10 to 30 km.

4- Lived in the same place as the *ejidatario* titles).
No =0
Yes =1

Home's arrangement as a way to organize work

The way the home is organized affects how work is organized. Having the help of sons (and daughters) in productive work involves the integration of family and work. The term defines a livelihood and clarifies the role of the family in the rural work.

5- Sons who helped to work the plot
None =0
Some =1

Financial capital

Term suggests a specific management strategy linked to the cattle rancher's livelihood. Having enough capital enabled the cattle rancher to maintain or invest in extending and improving his productive activity. Livestock owners with low capital needed to expand their productive activities or to be employed in other jobs. In these cases, having cows became a "source of savings".

6- Hired labor
7- Number of cattle
No =0
Sometimes =1
Yes =2
Number of bovine animals at the time of interview

Productive strategy = diversity of productive activities

Although the cattle rancher focused his activity on livestock, many people in the region also engaged in other productive activities. For example: day laborer, mason, farmer, merchant, technical adviser. When there was a low number of livestock, a more diverse productive activity improved family income.

8- Another productive activity (besides cattle raising)
No =0
Yes =1

Economics support received

Economic support can come from the federal government and it can be of a productive or social type. Productive programs are for livestock or for

9- Type of support programs
None =0
Social =1
Productive =2
Productive-Social =3

cultivation. Social programs are for people older than 70 years. People with children abroad often received remittances that support family income.

10- Remittances No =0
Yes =1

Relation distance with the biologists and the Biological Station (BS)

The BS was established in the area about 40 years ago and since then has had an impact on the ecological management of the region. About 10 years ago, the station began to work with the local inhabitants in socio-ecological research. Every year since that time, the BS has promoted the visit of the locals to their facilities and offers workshops and talks.

11- A combination of variables qualitatively established a “distance” relationship with biologists

Distant =1
Medium =2
Close =3

Distant, if he had not participated in any research prior to this, but if he knew the BS.

Medium, if he had participated in other investigations prior to this, and if he knew, or not, the BS.

Close, if in addition to having participated in some research and knew the BS, he had also worked (or has a family member that worked or works) in the BS.
