Supporting Information

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SI Text

We provide additional figures on the diets, reactivity, and classification of four different groups countries: A, exporting countries, whose carrying capacity is substantially affected by food trade, K_T; B, trade-dependent countries, whose populations rely on food available through both domestic production and trade (import); C, countries in which the impact of trade on food availability is negligible; and D, countries exhibiting clear signs of food limitation as evidenced by the poorer diets (Fig. S1). In the following figures, we show the results of our classification for all of the countries considered in this study (Figs. S4–S11), their average diets (Fig. S1), and reactivity (Fig. S2). Black dots indicate demographic records, and the continuous line represents our evaluation for $K = K_T$ (in red) and $K = K_L$ (in green).

Figs. S12 and S13 show the delay as a beneficial effect on both stability and reactivity, shifting the distribution (and thus the mean) toward left in the eigenvalues axis. We also show a map of unstable countries for three different years (Fig. S3). Again, the increasing of instability with globalization is apparent.

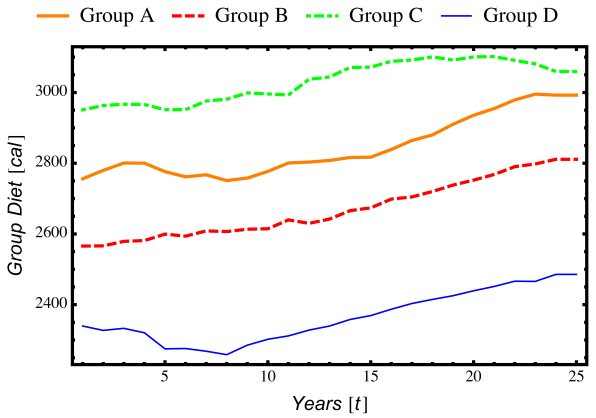

Fig. S1. Average per-capita daily diet (cal/d) for the different country groups.

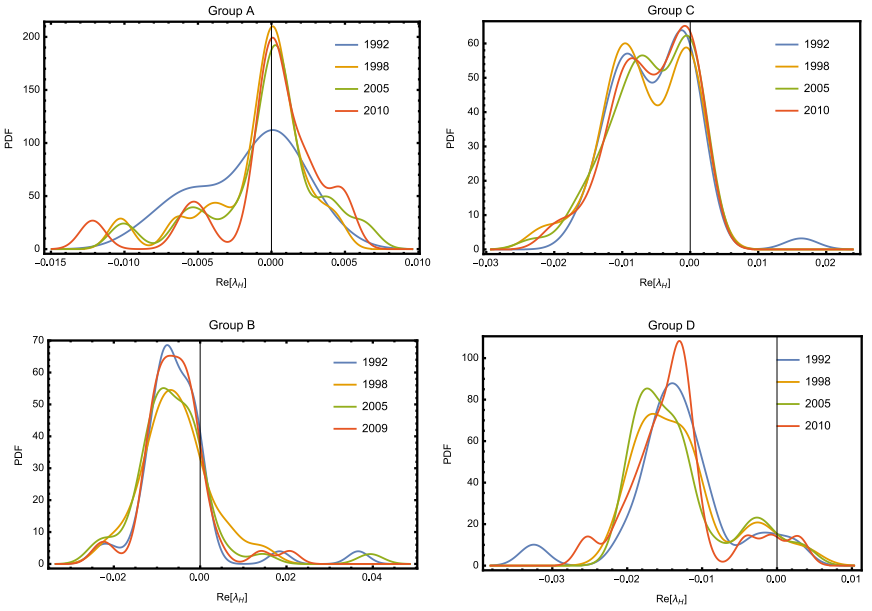

Fig. S2. Probability density function (PDF) of the reactivity λ_H of the nations belonging to the four groups for four different years.

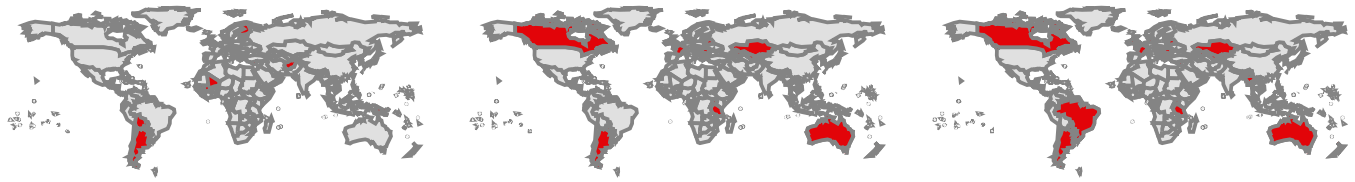

Fig. S3. Map of unstable countries (i.e., $\lambda > 0$, in red) on three different years: 1987 (*Left*), 1997 (*Center*), and 2009 (*Right*).

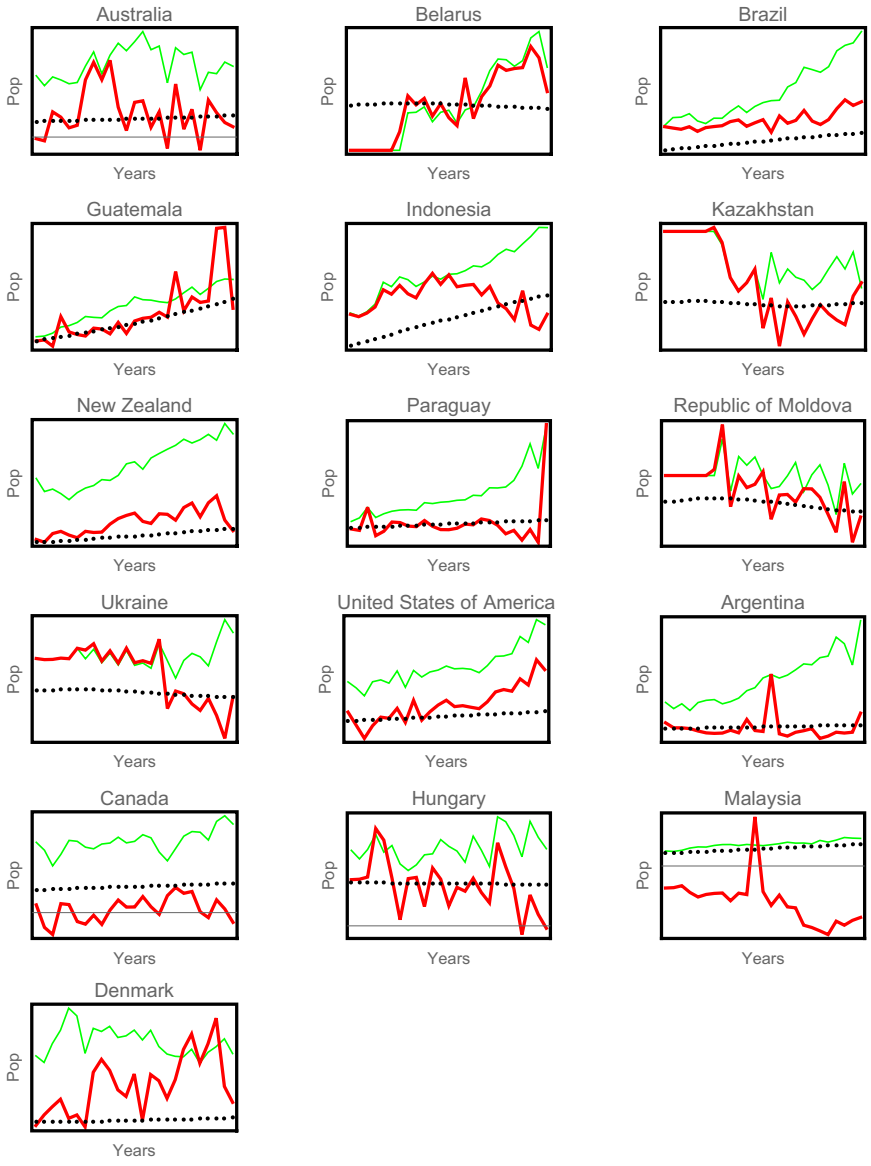

Fig. S4. Group A nations ($x \approx K_L > K_T$): net exporters and their exports substantially reduce the resources available to their populations.

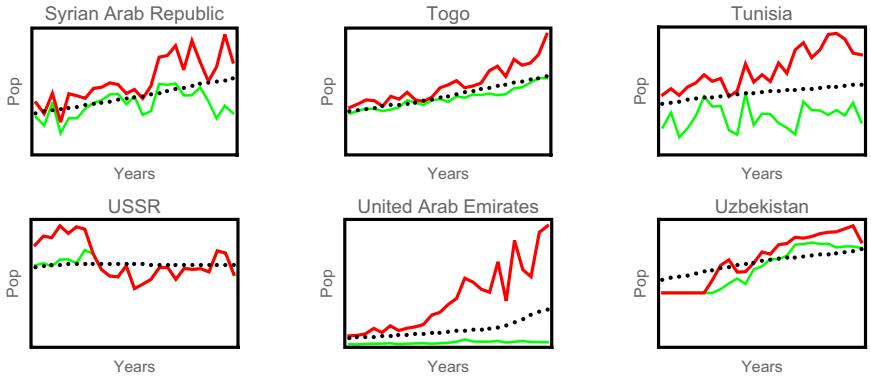

Fig. S5. Group B nations ($x \approx K_T > K_L$) exhibit an interdependency between demographic growth and food imports. These countries cannot sustain their population relying only on their local resources.

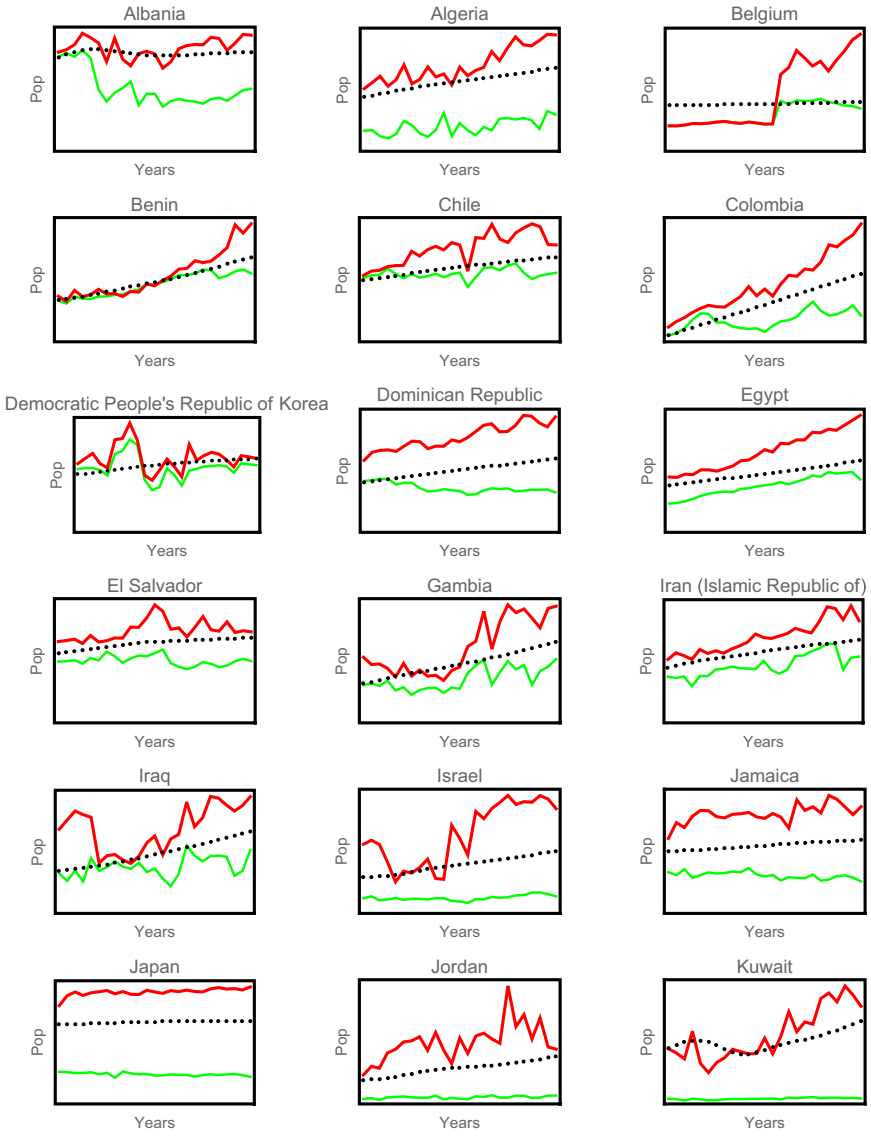

Fig. S6. Group B nations ($x \approx K_T > K_L$) exhibit an interdependency between demographic growth and food imports. These countries cannot sustain their population relying only on their local resources.

Fig. S7. Group B nations ($x \approx K_T > K_L$) exhibit an interdependency between demographic growth and food imports. These countries cannot sustain their population relying only on their local resources.

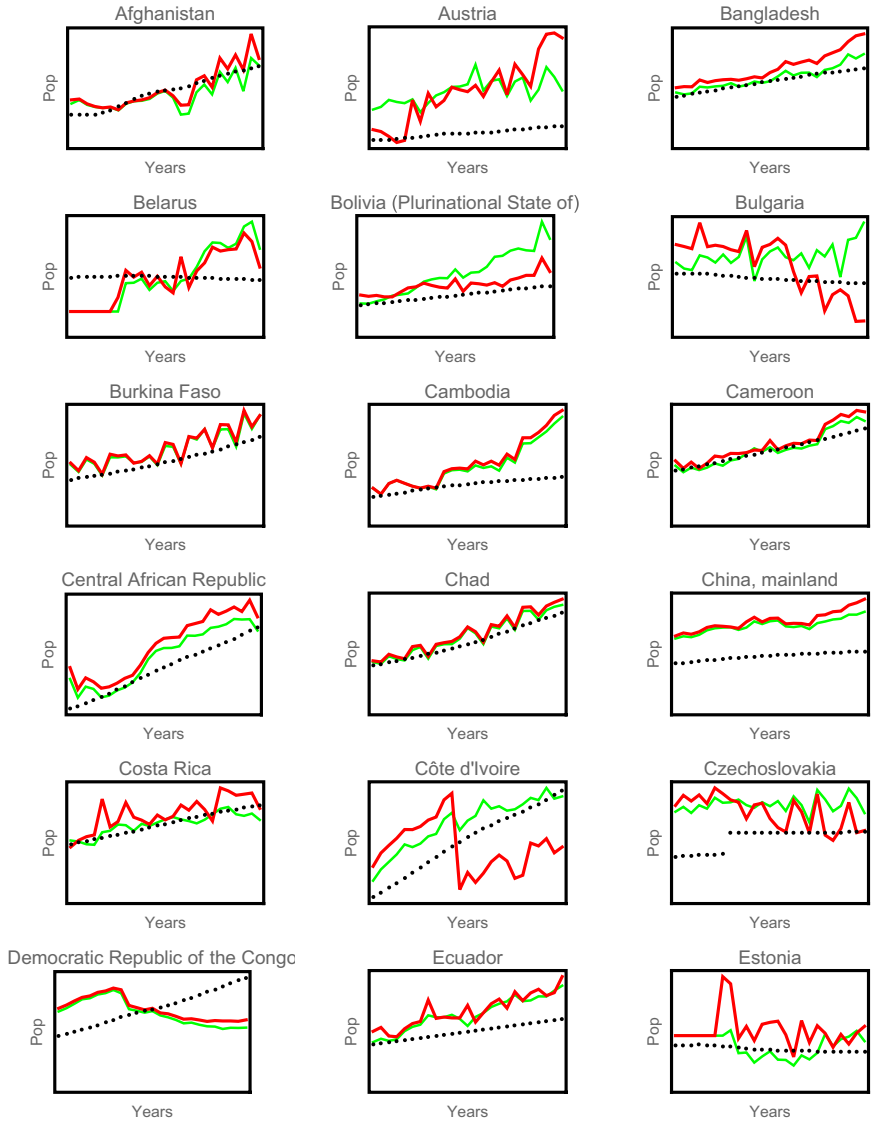

Fig. S8. Group C nations ($x \approx K_L \approx K_T$): countries in which food trade does not have a substantial impact on food availability.

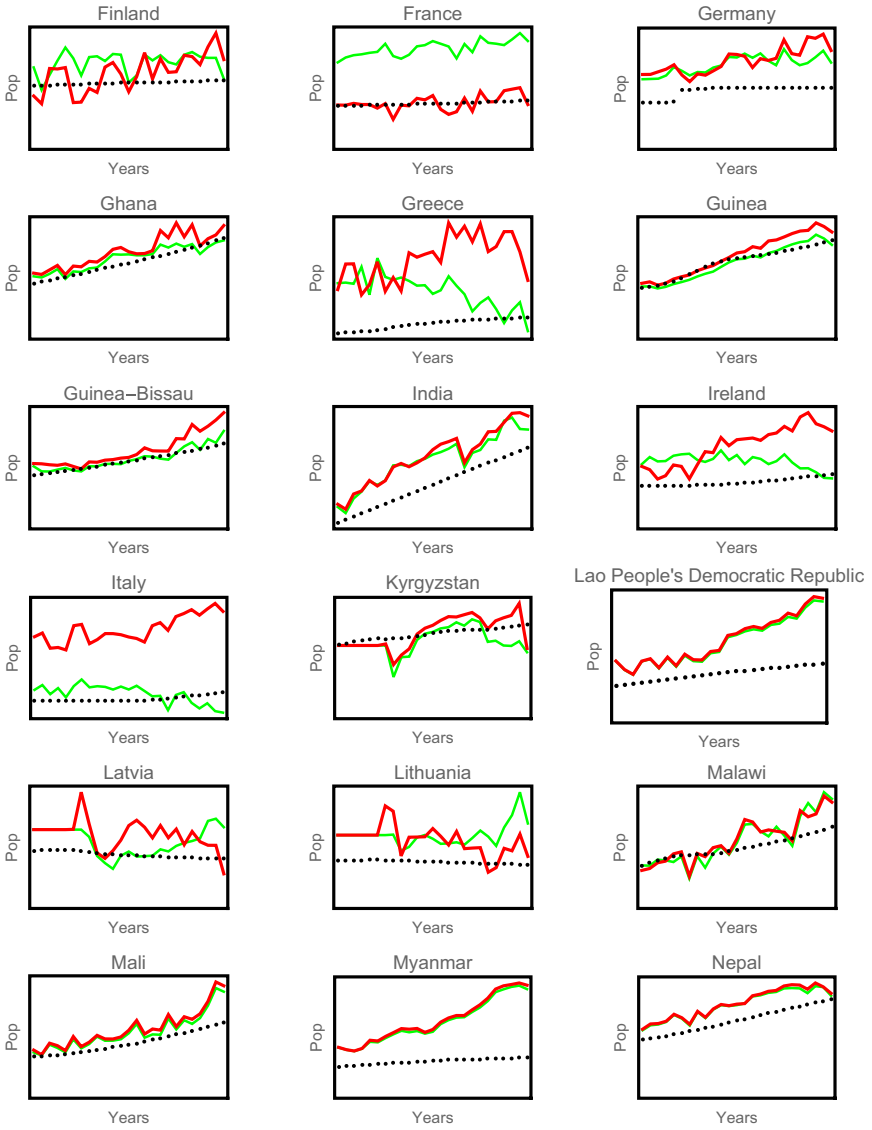

Fig. S9. Group C nations ($x \approx K_L \approx K_T$): countries where food trade does not have a substantial impact on food availability.

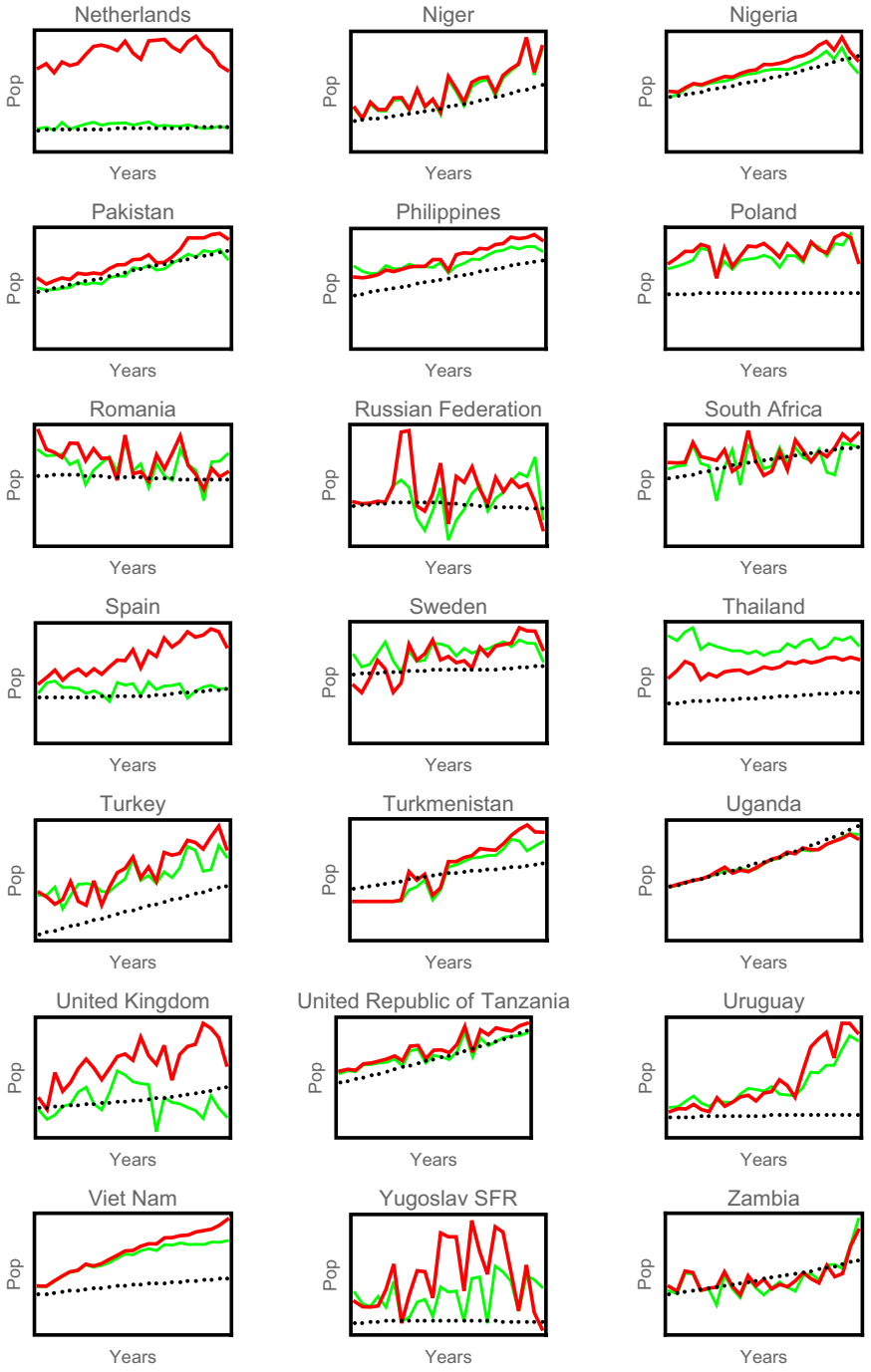

Fig. S10. Group C nations ($x \approx K_L \approx K_T$): countries where food trade does not have a substantial impact on food availability.

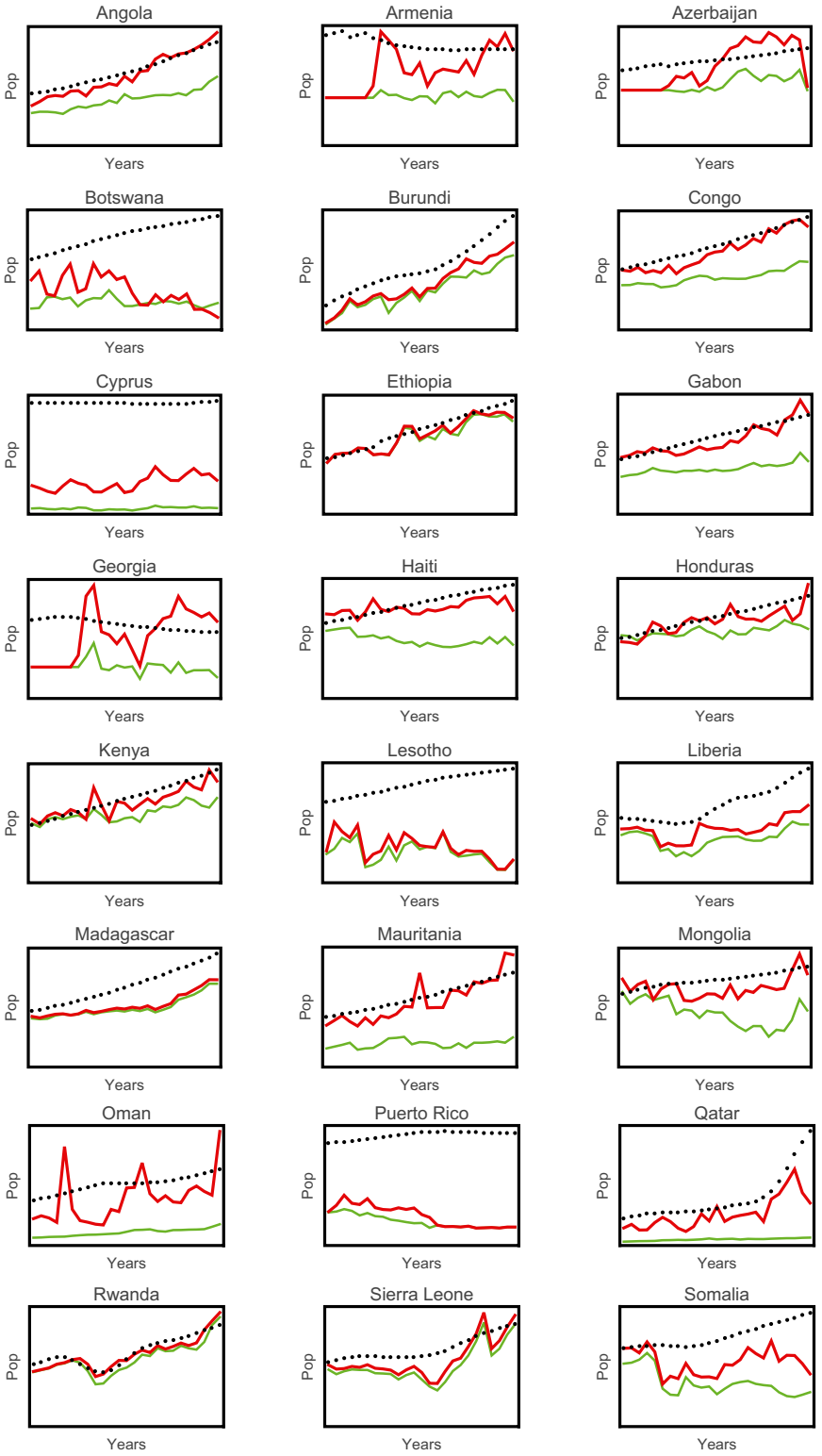

Fig. S11. Group D: countries that are affected by an overall food deficit.

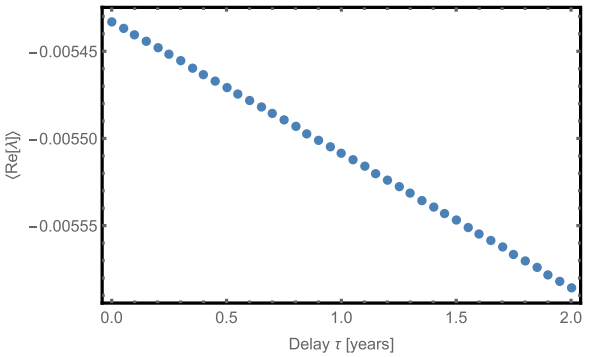

Fig. S12. Average eigenvalues of the Jacobian matrix (in the year 1996) for different time delays.

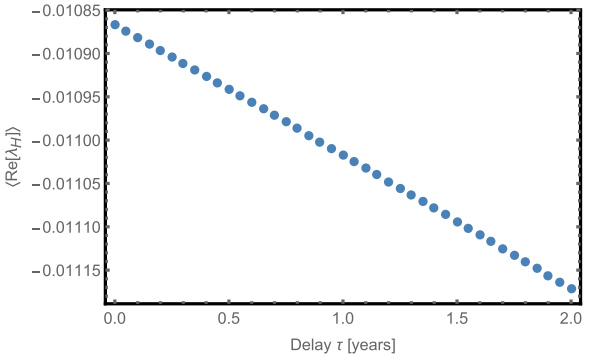

Fig. S13. Average eigenvalues of the reactivity matrix (in the year 1996) for different time delays.