1116-AC-1944 **David Housman*** (dhousman@goshen.edu), Goshen College, 1700 South Main Street, Goshen, IN 46526. *Solutions for Partially Defined Coalition Games.* Preliminary report.

Cooperative game theory provides methods for fairly dividing the benefits due to collaboration in a joint venture. A coalition game consists of a set of players N and a function w that specifies the savings $w(S)$ that a set of players S can achieve through collaboration. An allocation method is a function ϕ from coalition games to payoff vectors, that is, $\phi_i(N, w)$ is player i's recommended share in the savings. Lloyd Shapley characterized a unique allocation method satisfying four fairness criteria: efficient, equal treatment, subsidy free, and additive. This paper suggests allocation methods for coalition games in which not all of the coalitional worths $w(S)$ are known. One approach is to use fairness properties similar to those used by Shapley to characterize a method. A second approach is to use Shapley's allocation method on a centrally chosen, fully defined coalition game that is consistent with the partially defined game. With both approaches, it turns out that it is crucial to determine the class of games to which the partially defined game belongs. Some illustrative results are described and directions for future research are suggested. (Received September 21, 2015)