In this paper we attempt to study the interaction of home production and hours constraints. First, we consider a person who is deciding how to allocate his time between market work (N), home production (H), and leisure (L). Following [1] we assume the individual is indifferent between goods produced at home and those purchased in the market, i.e. for a commodity $X, X = X_N + X_H$ where X_N is the amount of the commodity purchased in the market and X_H is the amount produced at home. Note that this simplification abstracts from, say, market goods being normal and home produced goods being inferior.

References

[1] Gronau, Reuben. 1977. "Leisure, Home Production, and Work-the Theory of the Allocation of Time Revisited." *Journal of Political Economy*, 85(6), 1099-1124.