

Topic Review: 14.04 Midterm

I. Consumer Theory: 75-85% of Test

A. Construction of Utility Functions

1. Requirements for the construction of a utility function
2. Requirements for budget exhaustion
3. Proving Convexity and Monotonicity of indifference curves (Two Good Case)
4. Ordinal vs Cardinal Preferences
5. Requirements for vNM utility functions (Expected Utility)

B. Utility Maximization

1. Utility Maximization/Indirect Utility Functions
2. Expenditure Minimization
3. Marshallian/Hicksian Demand Functions
4. Envelope Theorem (Shephard's Lemma)
5. Kuhn-Tucker Optimization (At least know how to formally solve quasi-linear, leontieff, linear, Cobb Douglas. Problems will be similar, but not exactly the same as these)
6. Marginal Rate of Substitution – testing boundary conditions
7. Intertemporal Choice

C. Manipulations of Utility Functions

1. Properties of the Indirect Utility/Expenditure Functions
2. Finding the expenditure function from indirect utility
3. Finding Hicksian/Marshallian Demand from indirect utility/expenditure
4. Recovering one Hicksian Demand from another
5. Moving from Marshallian Demand \rightarrow Hicksian Demand
6. Constructing Utility functions from Indirect Utility
7. Money Metric Utility Functions
8. Properties of the Slutsky Matrix, properties of the symmetric matrix (Second derivatives of expenditure function)

D. Choice

1. Income and Substitution Effects
2. Construction of the Slutsky Matrix (With and Without Endowments)
3. Inferior Goods, Giffen Goods
4. WARP, GARP.
5. Recovering preferences from choices

E. Aggregation

1. Construction of Demand Curves
2. Homothetic utility Functions (Form of expenditure function, properties of Slutsky matrix)
3. Aggregation across goods
4. Gorman Form

F. Uncertainty

1. Properties necessary for vNM utility functions
2. Affine Transformations
3. Risk Aversion, Risk Neutral, Risk Loving
4. Absolute, Relative risk aversion
5. Certainty Equivalent
6. Risk Premium
7. Simple Insurance

II. Production 15-25% of test

A. Technology

1. Isoquants, Technical Rate of Substitution
2. CRTS, DRTS, IRTS
3. Production possibility frontier
4. Short Run/Long Run Constraints

B. Profit Maximization

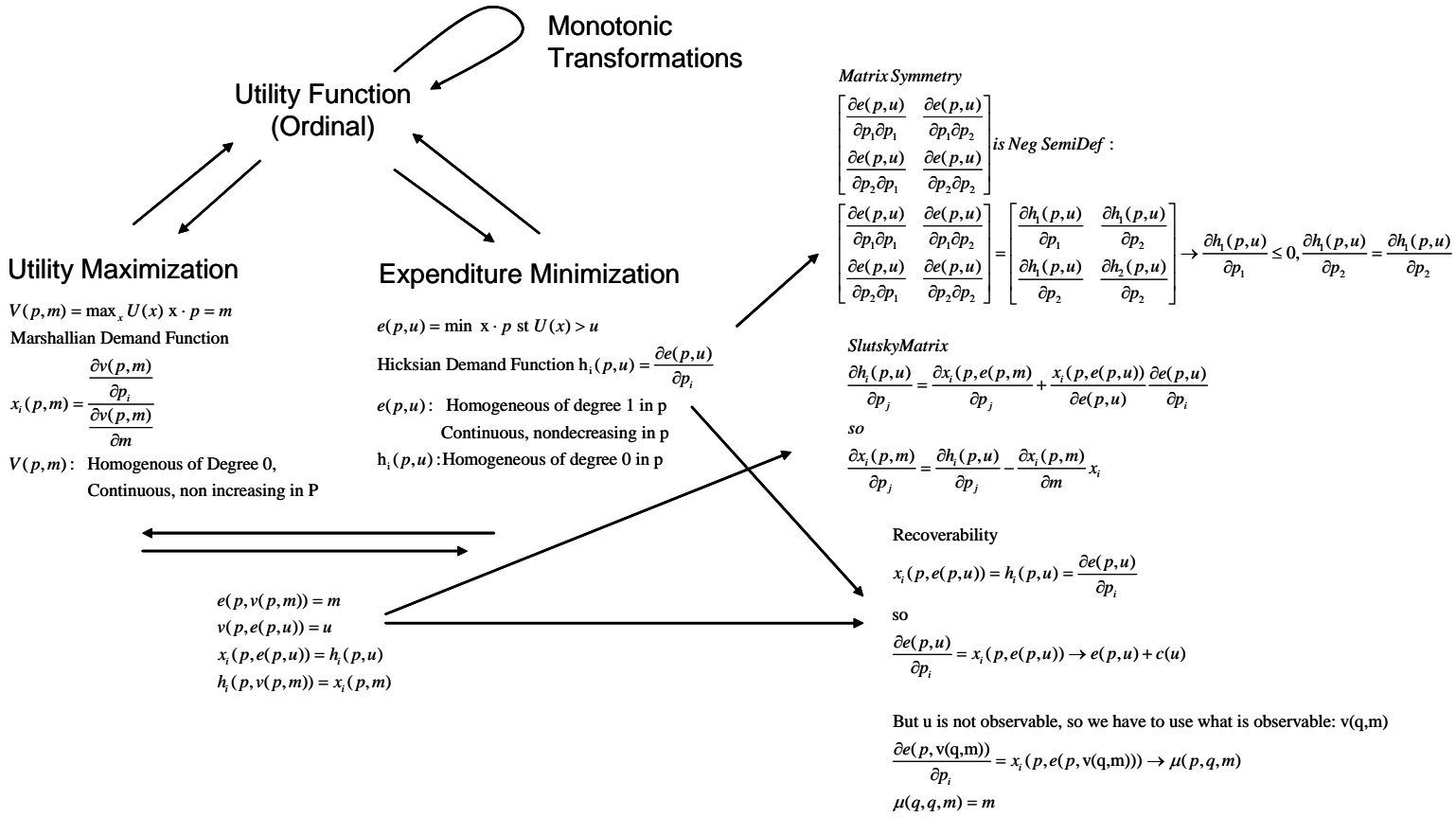
1. Setting up and solving profit maximization problems
2. Testing for firm shut down
3. WAPM
4. Cost Minimization \leftrightarrow Profit Maximization
5. Factor Demands
6. Supply Function

C. Cost Minimization

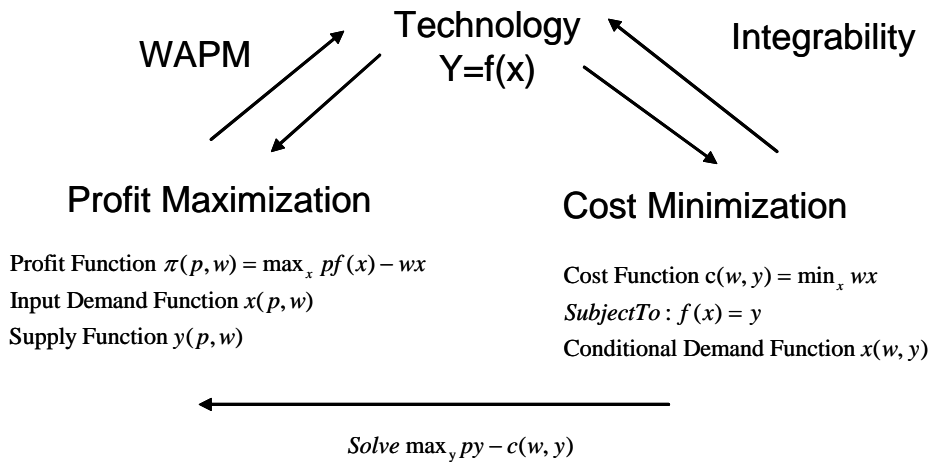
1. Techniques for minimizing costs
2. Multiple Plant Problems
3. Marginal Costs
4. Sunk Costs
5. Cost function, Conditional Factor Demands

Useful Diagrams:

Consumer Theory:



Producer Theory:



We can do something similar to WAPM here. Notice that for a firm to profit maximize $\pi(p, w) = \max_y py - c(w, y)$. Since for any p, w we know y and $\pi(p, w)$, we can reconstruct c(w, y) from the points.