ECOS3004: Final Notes

Weeks 1-2: Formation of economic science

1.1 Economic science vs. Economic thought

- Economic thought: about material subjects (production, consumption, exchange) dating to human existence who depend on economic activity
  - E.g. Aristotle (western philosophy, ethics) and Thomas Aquinas (medieval scholasticism)
  - Where we find written records, we find notes about production and consumption
- Instead we make the history of economic thought coeval with history of economic science
- Economic science: **self-conscious project of seeking to explain the systematic structure/behaviour of human economic phenomena – to determined cause & effect and discover system in explanatory theory**
- Economic thought does not belong to economic science which has normative dimension as a policy science (many ethical disagreements)
- 1. Political economy derived from 'the Enlightenment' (European intellectual development in 17/18th C in Britain and France, along with modernity – advancing human mastery of nature)
  - Political economy is a means of escape from material scarcity and force of necessity that it imposes
  - Francis Bacon – relief of man's estate – making human life better and more materially secure
  - Essential precondition of human emancipation, material wellbeing and economic improvement
- Adam smith: pursuit of individual self-interest may be socially beneficial, Bacon: human conquest is something we are now more ambivalent about due to threats of human technology (nuclear weapons, climate change)
- 2. Supports the process of creation of the modern state and statecraft (nation-building) in Britain and France – exercising policy control over large domain – political economy was forcefully a policy science
  - Can executives exercise power over territory, citizens etc. – extending the reach of government through economic policy development

1.2 Petty, Cantillon, Quesnay

- Theorising the 'circular flow' and associated concept of economics/social surplus
- Cumulative development from each figure

1.2.1 Developing the concept of surplus

Petty

- 17th Century pre-enlightenment derives from the thought of Bacon and Hobbes
- 'Political arithmetic' – quantitative analysis or social accounting, conceptualised approach to classical tradition of economy theory
- Subsistence (necessary) consumption of workforce of economy consists of single commodity – plays role in income distribution as customary/conventional (not physiological)
- Sector of economy, in which output and input are homogenous – consumption of workforce is consumption itself
- Example: output/input are 1 for commodity corn, assuming CRS, then production of 1 unit during time period 1yr with a_{11} units of direct seed corn input and l_1 unit of labour input, requires $a_{11}Q_1$ direct corn + l_1Q_1 labour, fixed corn wage is c_1 (expressed as quantity of corn), where gross output is Q_1
  - Corn surplus: $Q_1 - (a_{11} - c_1 l_1)\, Q_1$ so $1 - (a_{11} - c_1 l_1) > 0$
  - $1 > (a_{11} - c_1 l_1) > 0$ so more output than corn input
- Necessary condition: agricultural surplus enables provision of consumption to 'others' than workers – revenue is income distribution, purchase manufactured goods (recipients to purchase agri produce via intersectoral exchanges)
  - Wages are set at subsistence at points in time – workers need only certain money
  - Note: capital and profits are not systematic at this point in time
- Provision of state is by compulsory extraction of agri surplus via taxation – must fall upon rents for landlords not workforce without surplus (due to subsistence wages)
  - Between land-owning and capitalist classes
- Pre-capitalist findings – maximisation & allocation of labour employment

Cantillon

- Writer of first genuine treatise in history of economic science in intersectoral exchanges (no capital and profits)

- Allocation and systematic treatment of economic surplus - well-defined/demarcated subject

Quesnay

- From the Physiocrats and the writer of the Tableau
- Income distribution in allocation of economic surplus connected with economic growth and development through capital accumulation
  - Economic growth vs. development: growth is quantitative vs. development is about new products, technologies for qualitative change
- Social surplus opens up a domain of human freedom in material/economic dimension
- First theorist of capital – surplus can be reinvested into production to expand production & economy

1.2.2 Income distribution and theory of prices

- In decentralised economies, allocation of commodities, income distribution and consumption determined by market exchanges/prices
- Once intersectoral interdependencies (production & consumption) are engaged, relative prices intrude
- Abandoning the self-sufficient corn sector, income distribution depends on relative commodity prices
- Once you allow of intersectoral exchanges, question turns to exchange ratio of agriculture to manufacturing – price theory
- Example
  - 2 sector economy – agri using output as input & manufacturing input and manufacturing uses output as input & agri as input (assuming CRS), economic surplus discerned at economic system level
  - Economic surplus: $[Q_1 - (a_{11} + c_1 l_1)Q_1 - (a_{12} + c_1 l_2)Q_2], [Q_2 - (a_{21} + c_2 l_1)Q_1 - (a_{22} + c_2 l_2)Q_2]$
  - Note: at least 1 has to be positive
  - Gross output commodity 1 – input of commodity 1 – input of commodity 1 used in manufacturing input, so this is gross output after it has been used in both (same for manufacturing)
  - Where a_{ij} is input of commodity i required per unit of production of commodity j so $(i, j = 1,2)$, and l_j is homogenous labour required per unit of commodity j, and real wage (c_1, c_2)
  - Gross output ignoring taxation (p is price and w is wage)
  - Aggregate rent in agriculture $= p_1 Q_1 - (p_1 a_{11} + w l_1 + p_2 a_{21})Q_1$
  - Aggregate profits in manufacture $= p_2 Q_2 - (p_1 a_{12} + w l_2 + p_2 a_{22})Q_2$
- Circular production systems: commodities appear both inputs and outputs
- Viability condition: production of corn per unit must use less than a unit of corn $(a_{11} c_{1/1} < 1)$ and manufacturing $(a_{22} c_{2/2} < 1)$ - must hold so when prices are positive, rent and profit in sectors are positive otherwise indirect cost (labour consumption) of own-input in each sector > prices
- Money wage must equal money value of given subsistence real wage
  - $w = p_1 c_1 + p_2 c_2$
  - Wage is just enough for consumption then reduce wage to input costs
- Assuming CRS, Aggregate rent/profit simplifies to
  - $\rho = p_1[1 - (a_{11} + c_1/_1)] - p_2(a_{21} + c_2/_1)$
  - $\pi_2 = p_2[1 - (a_{22} + c_2/_2)] - p_2(a_{12} + c_1/_2)$
- However, only relative prices can be determined (tech and consumption variables the only parameters) – measured in corn
  - $\rho/p_1 = [1 - (a_{11} + c_1 l_1)] - p_{21}(a_{21} + c_2 l_1)$
  - $\pi_2/p_1 = p_{21}[1 - (a_{22} + c_2 l_2)] - (a_{12} + c_1 l_2)$
  - ρ: Rents in agriculture per unit of output, measured in real times
  - π_2: Profit per unit of output in manufacturing, measured in real terms
  - $p_{21} = p_2/p_1$ (relative price ratio)
- Cantillon: assumes a rent share in 1/3 of agri output (to solve two equations with three unknowns)
  - $p_{21} = [\frac{2}{3} - (a_{11} + c_1 l_1)] / (a_{21} + c_2 l_1)$ (uses technology and consumption of labour)
  - Requires $a_{11} c_{1/1} < 2/3$ for rent share and manufacturing to use corn input, ensuring p_{21} positive
- Unit profit – substitute p_{21} into π_2/p_1
  - $\frac{\pi_2}{p_1} = \{[\frac{2}{3} - (a_{11} + c_1 l_1)][1 - (a_{22} + c_2 l_2)] - (a_{12} + c_1 l_2)(a_{21} + c_2 l_1)\} / (a_{21} + c_2 l_1)$ with the restriction $[\frac{2}{3} - (a_{11} + c_1 l_1)][1 - (a_{22} + c_2 l_2] > (a_{12} + c_1 l_2)(a_{21} + c_2 l_1)$