



## 8. Inside economy's black box

---



## Inside economy's black box

---

The road of a product to consumer may go through a half dozen intermediate stages and producer's input resource may have to wait for several decades before it reaches consumer in a product.

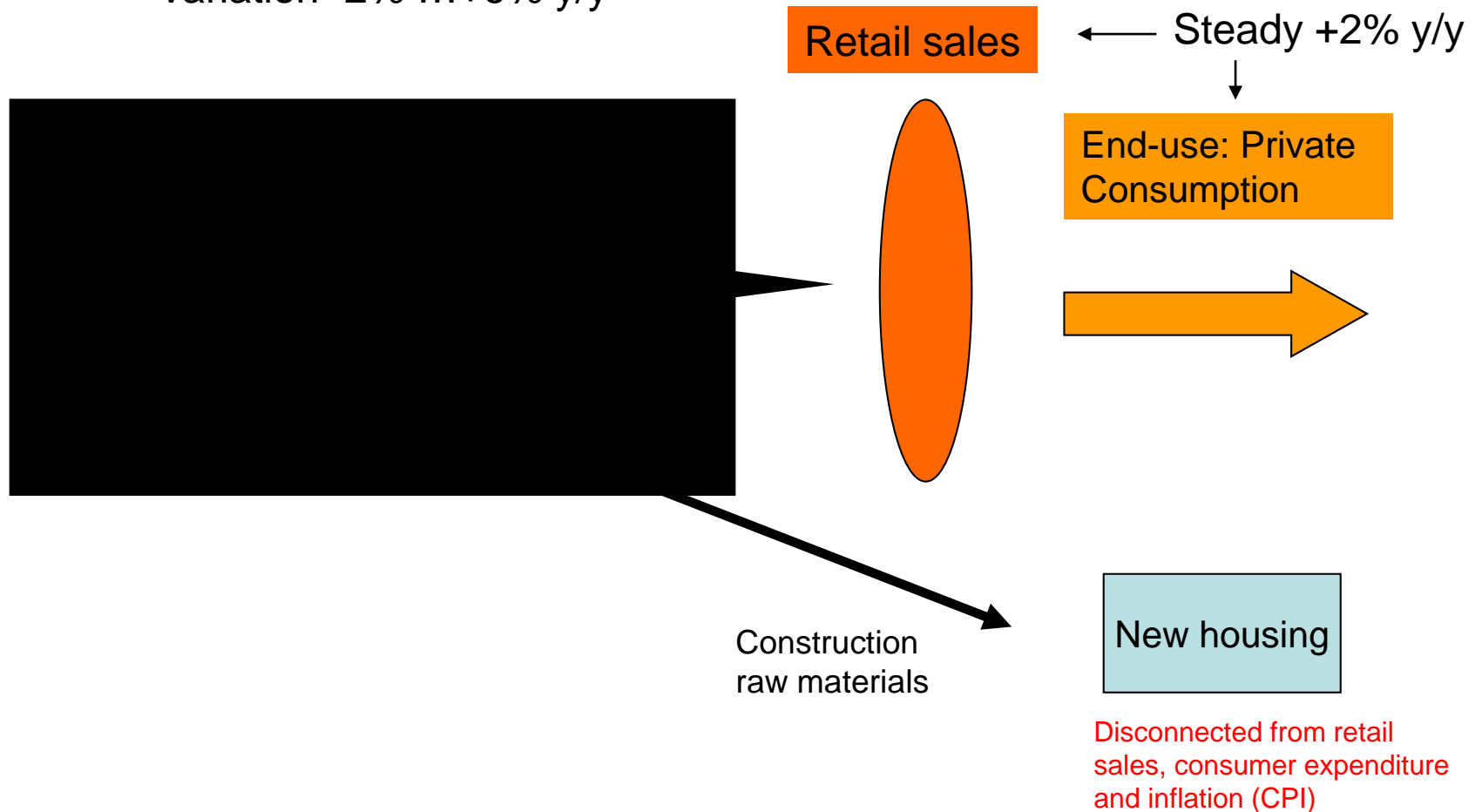
- Retail sales, broadly taken, is the intermediary from production to consumption. In spite of insufficient coverage, aggregate retail sales is the most important timely indicator on final demand in cyclical analysis. For some countries, exports have to be included to the demand picture.
- With steady retail sales growth, say +2% (y/y), total industrial output may still vary periodically between -2% to +6% (next page). This is due to continuous change of material flow in supply chain and oscillating plant&machinery investments. Taking machinery as input item to industrial production, producers have an average of 15 years' inventory of this resource. Inventory of buildings&structures reaches for 40-70 years of production.
- Consumers have regular buying habits as long as their disposable income remains stable.
- If retail sales starts to fall, not only to decelerate, cause is external event or radical change in economic fundamentals. Falling retail sales leads economy to recession as consumers' and producers' reactions take place at the same time. The steeper the demand fall, the more producers take input items from resource inventories, whether raw materials, intermediate products or plant&machinery.

# Industry, Consumers and Cyclical variation

## Typical business cycle, non-crisis environment

Industrial output:

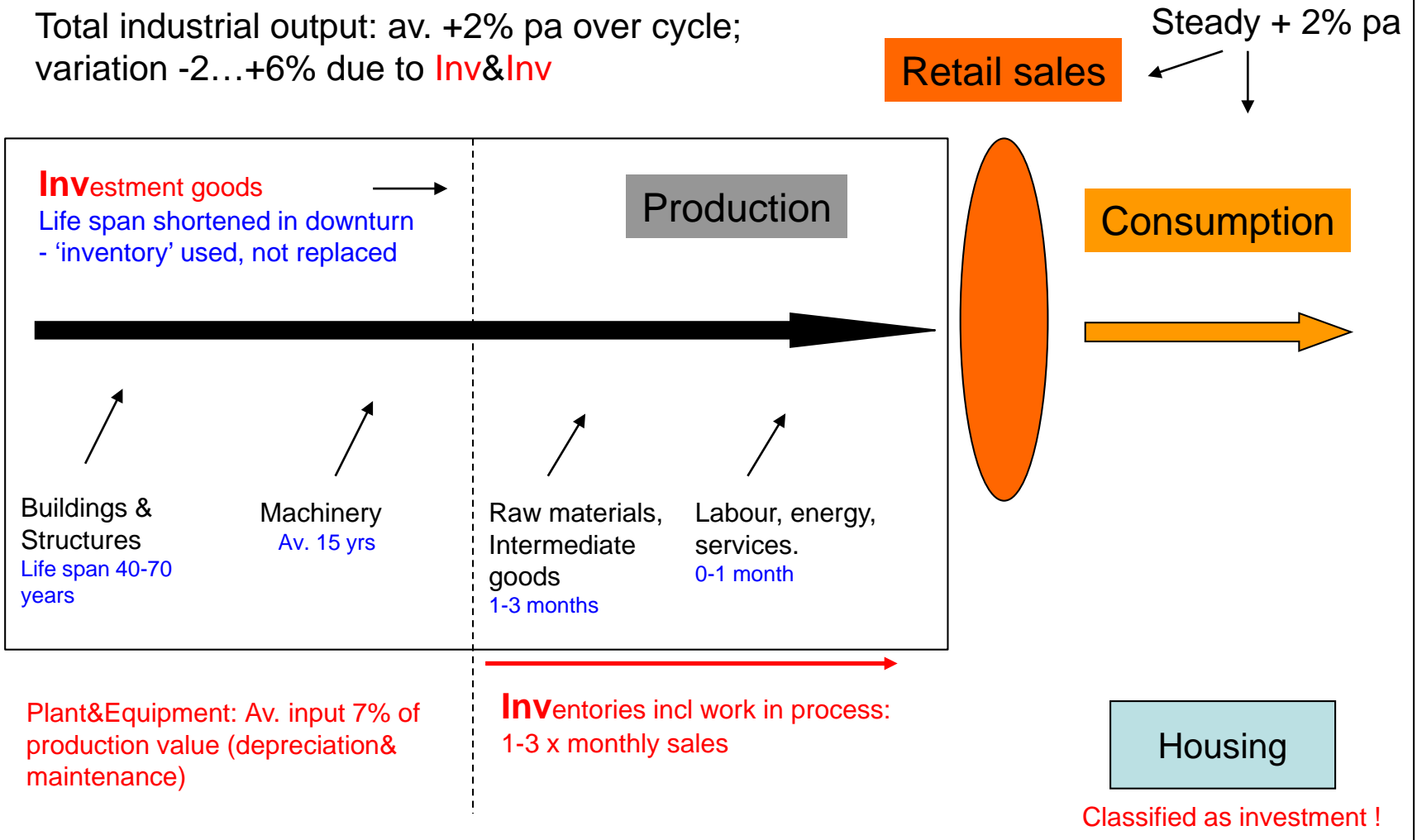
Variation -2% ...+6% y/y



# Production input components by life span

Typical business cycle, non-crisis environment

Total industrial output: av. +2% pa over cycle;  
variation -2...+6% due to **Inv&Inv**





## Production - Consumption mismatch

---

Economy's purpose is to satisfy the needs of human beings. Due to division of labor, called outsourcing today, there is a plethora of seemingly distant activities but even these have a citizen as an end-user.

GDP accounts are presented according to the basic distinction: you create your income as an employed on the production side, you spend as a consumer on expenditure side. The accounts are then detailed by type of production and items consumed, respectively. There is a big mismatch between what is produced and what is consumed.

### Production by NACE grouping (in parenthesis share of total EU GDP)

A. (2%) Primary production: Agriculture, Forestry, Fishing

B-E. (20%) Industry: Manufacturing, Mining, Public utilities (water, electricity etc.)

F. (6%) Construction. Is not 'industry'. Only value added is included; construction's input materials are industry's products.

### Groups not classified as industry or construction: Trade and Services

G,H,I: (20%) Wholesale&Retail trade, Transport, Accommodation (hotels etc.).

J-U. (52%) Private personal and *Business services*, Public services.

A to U. Gross Domestic Product, nation's total production of goods and services .



## *Post industrial society* – a matter of classification

---

*Post-industrial society* mantra: In advanced economies, services are rising and rising, industry becoming secondary.

According to GDP accounts' production side, Primary production, Industry and Construction make up only **28%** of EU economy. But consumers spend more than **2/3** of their money on material things.

Summing up personal consumption by item, industrial products and *services provided by machines, equipment and structures* (Austria on next page, highlighted) make up more than 70% of total expenditure. Check your own spending. Items confusingly classified as services are Housing&Energy and Transport services (cars&fuel): 25+15% of *total* GDP expenditure.

Housing purchases as consumers' expenditure is replaced with 'Housing *services*, equivalent owner's rent', i.e. a representative renting cost reflecting the *investment* in the housing.

Money spent on new housing is nowhere connected to consumers in national accounts nor included in retail sales.

The mismatch **1/4** vs **2/3** in production side comes from supply chain: outsourcing by industry is mainly classified as services. Transports, professional IT, marketing and accounting, technical consulting, hired staff, leasing and renting of facilities, maintenance etc. serve mainly industry and construction. Formerly these vital activities were within industrial companies. Outsourcing's share has increased constantly over the decades.

Monthly expenditures of private households 2009/10 - Main results

Austria

Selected expenditure groups	Expenditures			
	per household		per adult equivalent <sup>1)</sup>	
	in Euro	in %	in Euro	in %
Number of households	6 534			
Number of households weighted	3 605 090			
<b>Total consumption expenditures</b>	<b>2 910</b>	<b>100.0</b>	<b>1 880</b>	<b>100.0</b>
<b>Food, non-alcoholic beverages</b>	<b>352</b>	<b>12.1</b>	<b>220</b>	<b>11.7</b>
Food	315	10.8	197	10.5
Non-alcoholic beverages	36.8	1.3	23.2	1.2
<b>Alcoholic beverages, tobacco</b>	<b>71.1</b>	<b>2.4</b>	<b>46.7</b>	<b>2.5</b>
Alcoholic beverages	32.4	1.1	21.3	1.1
Tobacco	38.7	1.3	25.4	1.3
<b>Clothing, footwear</b>	<b>166</b>	<b>5.7</b>	<b>107</b>	<b>5.7</b>
Clothing	130	4.5	84.3	4.5
Footwear	36.0	1.2	23.1	1.2
<b>Housing, energy</b>	<b>691</b>	<b>23.8</b>	<b>462</b>	<b>24.6</b>
Actual rentals for housing	126	4.3	93.9	5.0
Imputed rentals for housing (first residence)	258	8.9	163	8.7
Maintenance and repair of the dwelling	68.4	2.4	43.6	2.3
Running cost for housing	101	3.5	71.5	3.8
Energy	137	4.7	90.2	4.8
<b>Furnishings, household equipment and routine maintenance of the house</b>	<b>202</b>	<b>6.9</b>	<b>128</b>	<b>6.8</b>
Furniture and furnishings	90.9	3.1	56.8	3.0
Household textiles	16.9	0.6	11.1	0.6
Household appliances	31.2	1.1	19.8	1.1
Glassware, tableware, household utensils	13.2	0.5	8.5	0.5
Tools, equipment for house and garden	17.4	0.6	10.5	0.6
Goods and services for routine household maintenance	31.9	1.1	21.3	1.1
<b>Health</b>	<b>102</b>	<b>3.5</b>	<b>67.3</b>	<b>3.6</b>
Medical products, appliances and equipment	68.5	2.4	45.6	2.4
Out-patient services	25.0	0.9	16.3	0.9
Hospital services	8.2	0.3	5.4	0.3
<b>Transport</b>	<b>436</b>	<b>15.0</b>	<b>272</b>	<b>14.5</b>
Purchase of vehicles	168	5.8	104	5.5
Operation of personal transport equipment	236	8.1	146	7.8
Public transport services	31.5	1.1	22.0	1.2
<b>Communication</b>	<b>49.3</b>	<b>1.7</b>	<b>32.4</b>	<b>1.7</b>
Postal services	1.7	0.1	1.1	0.1
Telephones and equipment	4.6	0.2	2.9	0.2
Telephone and online services	42.5	1.5	28.1	1.5
<b>Recreation and culture</b>	<b>371</b>	<b>12.8</b>	<b>241</b>	<b>12.8</b>
Audio-visual, photographic and information processing equipment	57.1	2.0	36.7	1.9
Major durables for recreation and culture	10.5	0.4	7.0	0.4
Items for sports, games and hobbies; garden and pets	69.5	2.4	43.9	2.3
Recreational and cultural services	70.5	2.4	47.2	2.5
Newspapers, books and stationery	41.9	1.4	28.1	1.5
Vacation	122	4.2	78.0	4.1
<b>Education</b>	<b>27.8</b>	<b>1.0</b>	<b>15.7</b>	<b>0.8</b>
Pre-primary and primary education	3.8	0.1	1.9	0.1
Secondary education	1.4	0.0	0.7	0.0
Post-secondary (non-tertiary) education	3.0	0.1	1.4	0.1
Tertiary education	2.4	0.1	1.5	0.1
Educational courses, private lessons	14.7	0.5	9.0	0.5
Other educational activities	2.6	0.1	1.2	0.1
<b>Café, restaurant</b>	<b>167</b>	<b>5.7</b>	<b>110</b>	<b>5.9</b>
<b>Miscellaneous goods and services</b>	<b>271</b>	<b>9.3</b>	<b>178</b>	<b>9.5</b>
Personal care	75.6	2.6	50.1	2.7
Personal effects	22.1	0.8	15.1	0.8
Social protection, child care	14.9	0.5	9.8	0.5
Insurances	126	4.3	80.3	4.3
Financial services	2.4	0.1	1.6	0.1
<b>Not for private consumption<sup>2)</sup></b>	<b>457</b>		<b>283</b>	
Housing - investments	315		193	
Investment, savings, donations	142		90.2	

Tot above  
51%

S: STATISTIK AUSTRIA, Konsumerhebung (Household Budget Survey) 2009/10. Compiled on 12 April 2011.

1) Expenditures per adult equivalent are calculated as followed: First adult in the household = 1,0; each adult thereafter (aged 14+ years) = 0,5; each child less than 14 years = 0,3. - 2) The expenditure group "Not for private consumption" is not included in the total consumption expenditures.



## We consume Housing and Cars in small pieces – and are getting service

---

Weights in EU's consumer price index, 'inflation' (shares of total consumer spending): Industrial goods and energy 57%, services 43%, thereof '*services related to transport and housing*' almost half. Housing prices, new or existing, are not included in consumer prices. In economic language, housing prices do not inflate but appreciate. Like stocks, housing is an asset. The better the higher the value? Hardly. Almost all of the 15 financial crises in advanced economies 1960- 2009 were preceded by deregulation of the housing loan market and subsequent price escalation. And those who were saving for their first apartment, experienced a very real inflation indeed.

In housing's economic impact, there is a conceptual problem - and the problem remains, whatever accounting solution is chosen. In today's GDP accounts, housing is an *asset* from which consumption is derived. On production side, *Residential fixed investment* creates the asset and then in Personal consumption, utility is derived. This is a return on - or depreciation of - consumer's housing *investment*. It turns a material thing into service.\*) The same happens in EU accounts to cars: purchase of a new car is turned into *Transport service*.

\*) Comes from the prevailing economic theory and models: '*The question is, how do we include consumption derived from real assets? ...we need to add the convenience yield (utility) of capital assets, wherever consumption is otherwise not included directly. That means for houses we add in equivalent owners rent, a value implied from the house value. ... There is an additional complication which is that all physical goods are capital assets, just more or less long lived. For sticky price time scales (key concept in the models) it makes sense to treat houses as capital, and iPads as consumption.*'





## GDP and the Business cycle

---

GDP as an ultimate measure of society's wellbeing is a relatively new concept. First national accounts were compiled 1942 in USA in order to see the size of the economy, how it has developed and hopefully to be able to trace the effects of government's actions. It was to show the key components of demand and supply as well as utilisation rate of resources. It was not designed to be a business cycle indicator.

Today, GDP is an eagerly waited indicator on short term developments despite the shortcomings: it uses only quarterly data and has a lot of artificial parts of doubtful relevance. United Nations' *System of National Accounts* manual contains some 700 pages.

European Central Bank chose *industrial production*, not GDP, as the business cycle indicator because 'the cycle indicator derived from industrial production is close to identical to the real GDP cycle.'

In US, *GDP Coincident indicator* has been in use for decades. Composed of Industrial production and three other components, it gives an early insight on coming official GDP figure. Recently, estimates on GDP have been constructed with models using *monthly* data on key components of GDP, updated continuously as new data arrives.

The question is, are the forces that cause oscillation in industry and in its branches also present in the aggregate, GDP? Academic research can not confirm. On next page GDP growth is presented with and without stock variation. Almost half of business cycle disappears when changes in inventories *and in plant&machinery stock* are removed.

Using changes in whole Fixed investment category as indicator for changes in productive *plant&machinery stock*, we get a rough picture how much stock changes, broadly taken, contribute to GDP growth. (Besides Business sector, fixed investment (GFCF) category includes Household and Public investment. These distorting items should not change the big picture. Capital depreciation is not included, i.e. only additions are counted in.)

