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Projecting demand and supply of labour by education

Experiences from Norway

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Statistics Norway

Main modules

- **Demographic projections**
  - Annual cohort-component model
- **Macroeconomic projections by main industries**
  - Quarterly/annual model based on National Accounts and econometric connections
- **Change in composition of employment in each industry**
- **Projections of labour supply by qualification/education**
  - Annual dynamic microsimulation model, but sufficient with a cohort-component model
- **Further information: Reports 2016/31**
  - https://www.ssb.no/arbeid-og-lonn/artikler-og-publikasjoner/education-specific-labour-force-and-demand-in-norway-in-times-of-transition

Other main information

- Long traditions for projections at Research Department of Statistics Norway
  - Macroeconomic projections since the early 1980s
  - Projections of labour supply by education since the 1970s
  - Projections of demand and supply of labour by education since the early 1990s
- Labour market projections with a scope of about 15 years
- Prepared every third or second year on demand from relevant Ministries

Labour classification

- Dependent on available statistics
- Classification by occupation common for analyses of demand for labour
- Skills or education more relevant for analyses of supply
- Your occupation may change when you start in a new job
- Skills and education more fixed
- More distinct borderlines between different educations than occupations
- In Norway level and fields of education from administrative registers

How many detailed groups?

It depends on:

- Available statistics
- More details demand more resources, and results are more uncertain
- Possible with more details when discussing the present situation
- Small benefits from separating groups with large possibilities of substitution
- Technical limits for the number of groups in a general approach
- No technical limits when dividing into subgroups and for partial analyses

Classification used for the Norwegian projections 10-15 years ahead

- General approach
  - 5 levels of education
    - Primary education
    - Secondary education, university preparatory
    - Secondary education, vocational
    - Education at bachelor level
    - Education at master level
  - Distributed over 28 educational groups

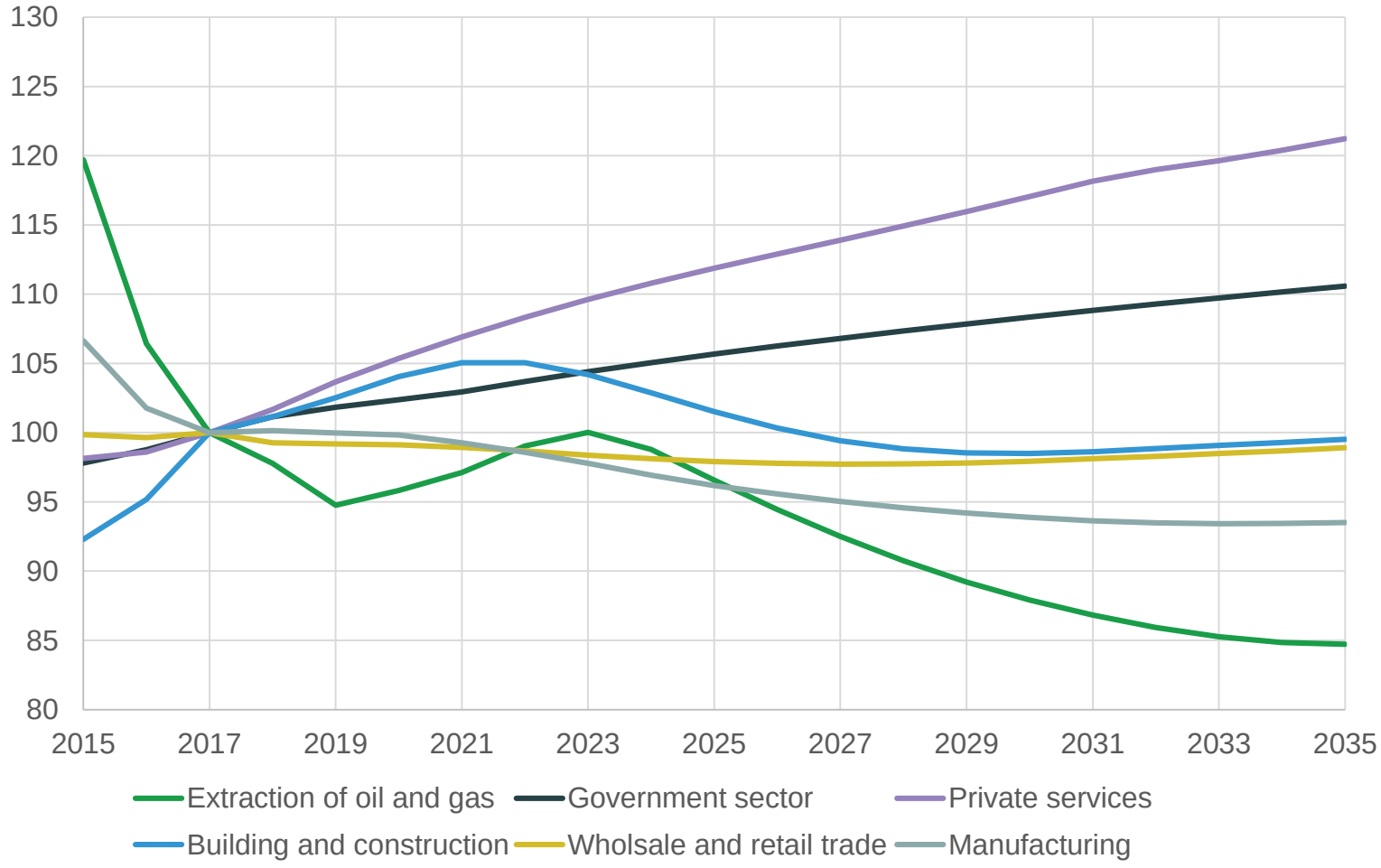
Classification used (cont.)

- Partial projections for specific groups
  - Educations towards health and care
  - Different kinds of teachers
- Common characteristics for these projections
  - Borderlines between different groups
  - Demographic development important for demand
  - Demand mainly regulated by local and central government

Macroeconomic projections of employment by industry

- Time-series from the National Accounts and econometric connections
- 15 main industries in the model
- Level of production determined from demand except from resource based industries
- Most important exogenous factors
  - Demographic development
  - Prices and activity in resource based industries
  - International economic development, prices and rate of interest
  - Economic policy including use of labour in the public sector

Employment by main industries (2017 = 1)



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Projections by level and field of education

Two main components

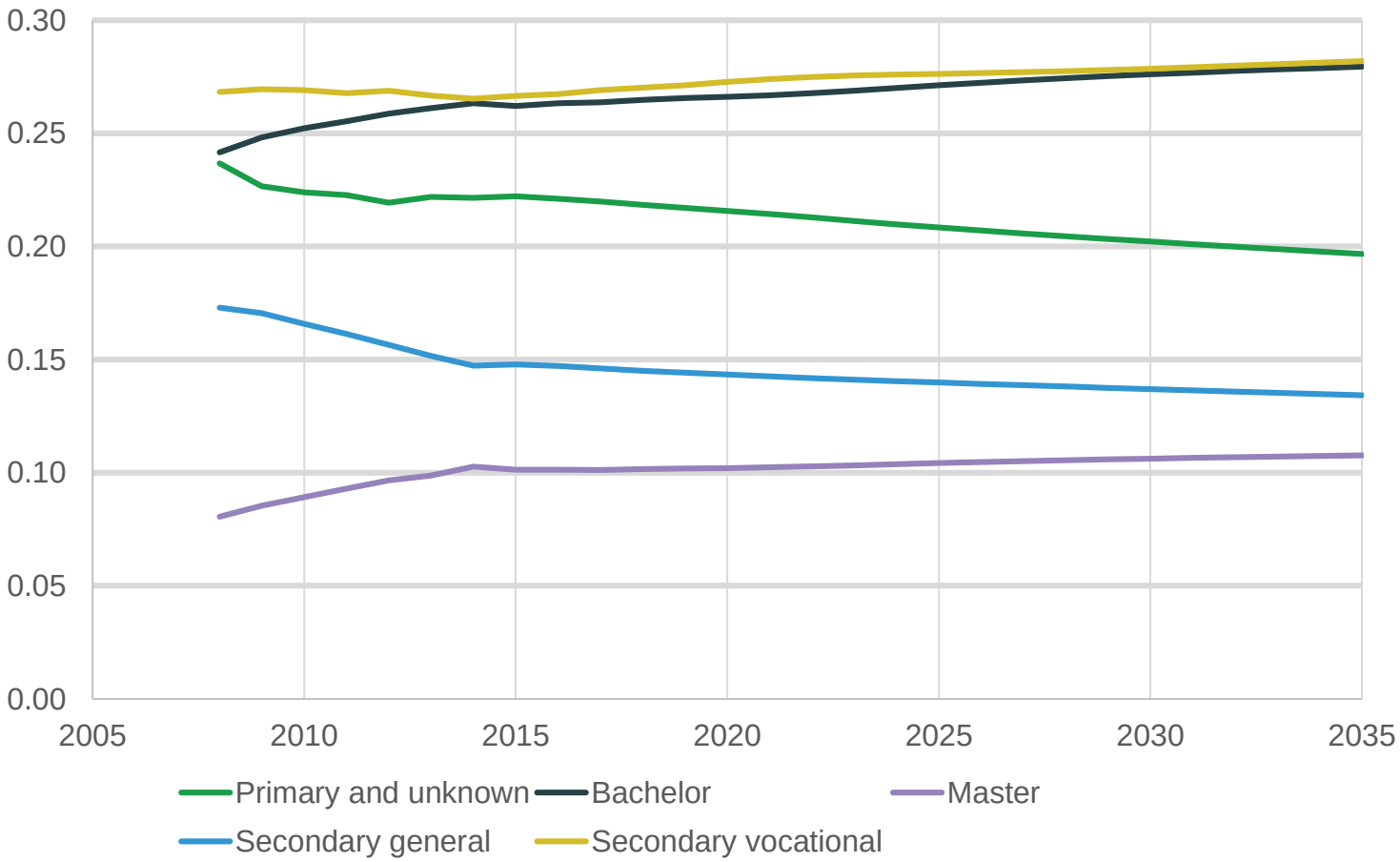
- Change in employment between industries
- Change in composition within each industry
  - Includes change in composition caused by technical progress

Composition by level and field of education

- Based on observation of recent changes for each industry
- Look at changes in composition between levels first
- Thereafter look at changes in composition between fields within each level

Change in composition by level of education

Share of total employment



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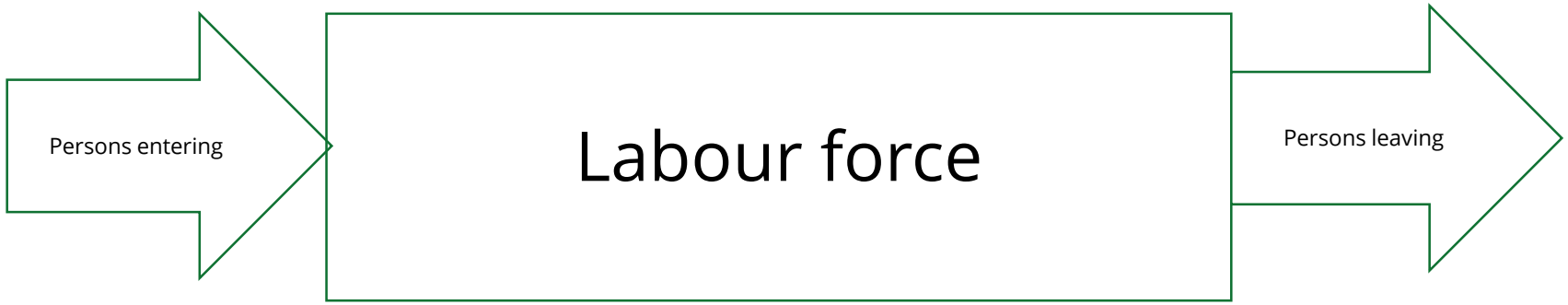
Projecting the labour force

- Labour force = Employed + Unemployed
- Population in working age from official projections 2018
- Labour market participation by age, gender and education
- Know the level and field of education for those in work
- Projection of education for natives and immigrants



Composition of labour force

- Dependent on those entering and those leaving
- Educational level among new entrants is much higher than for those who entered some decades ago
- Large changes over time in level and field of education

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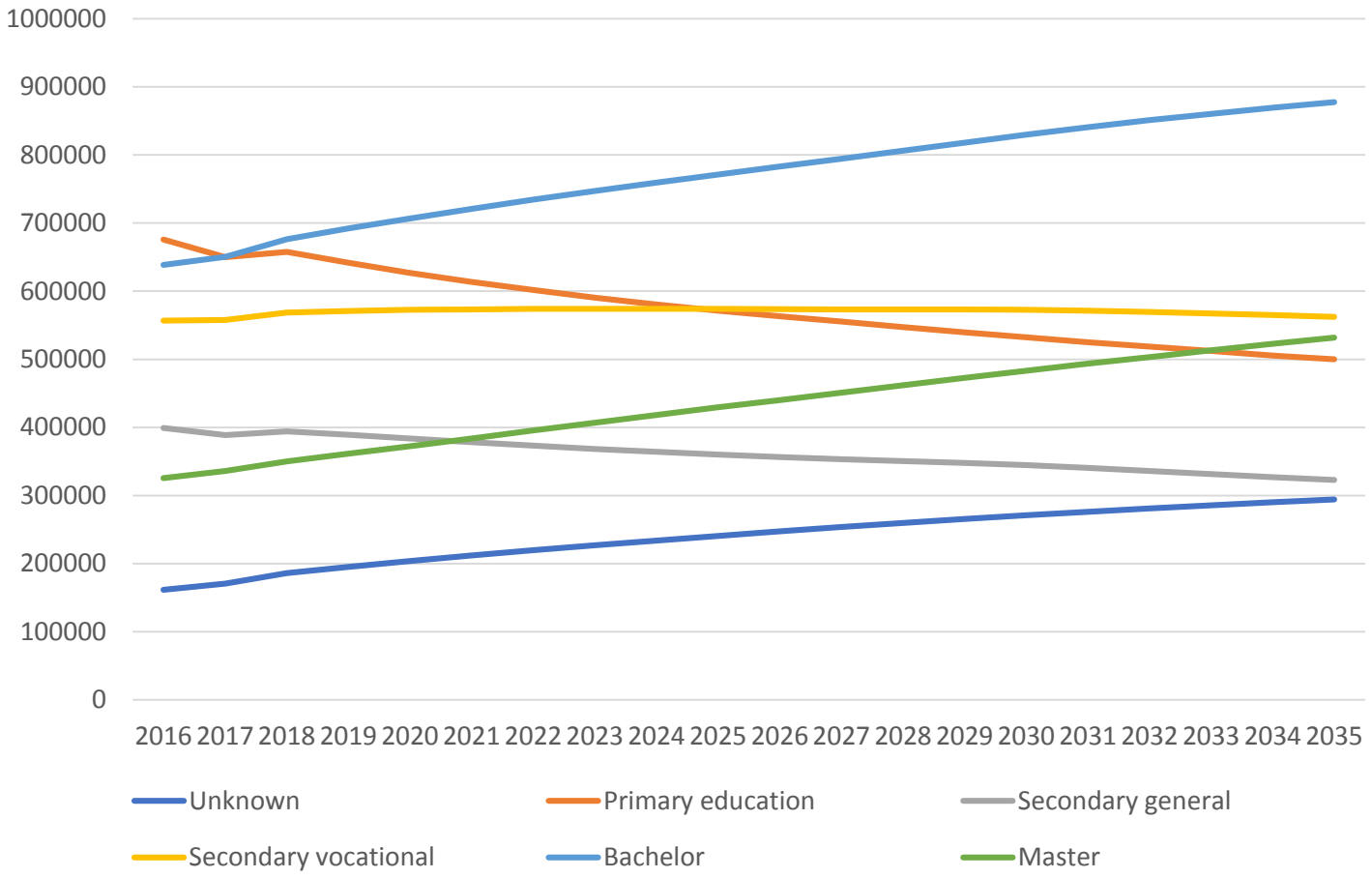
Labour force by level of education



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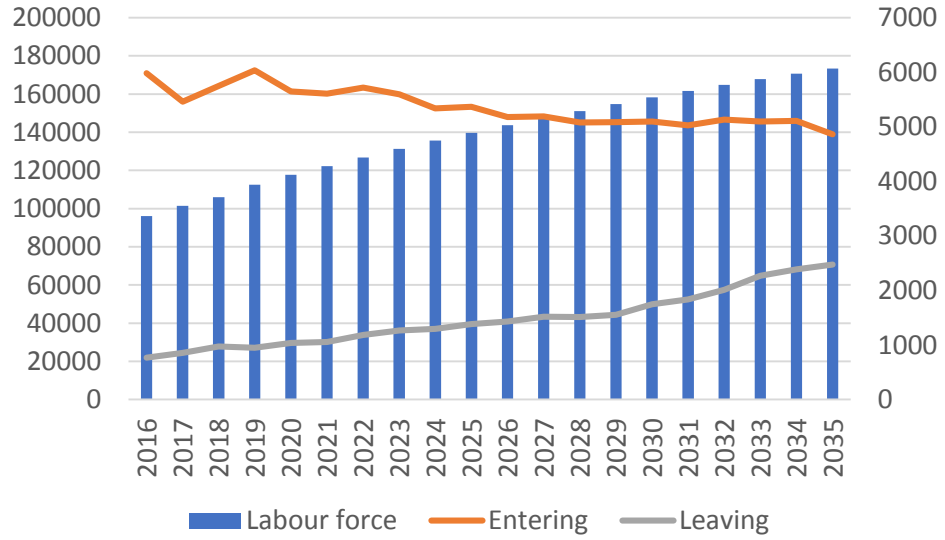
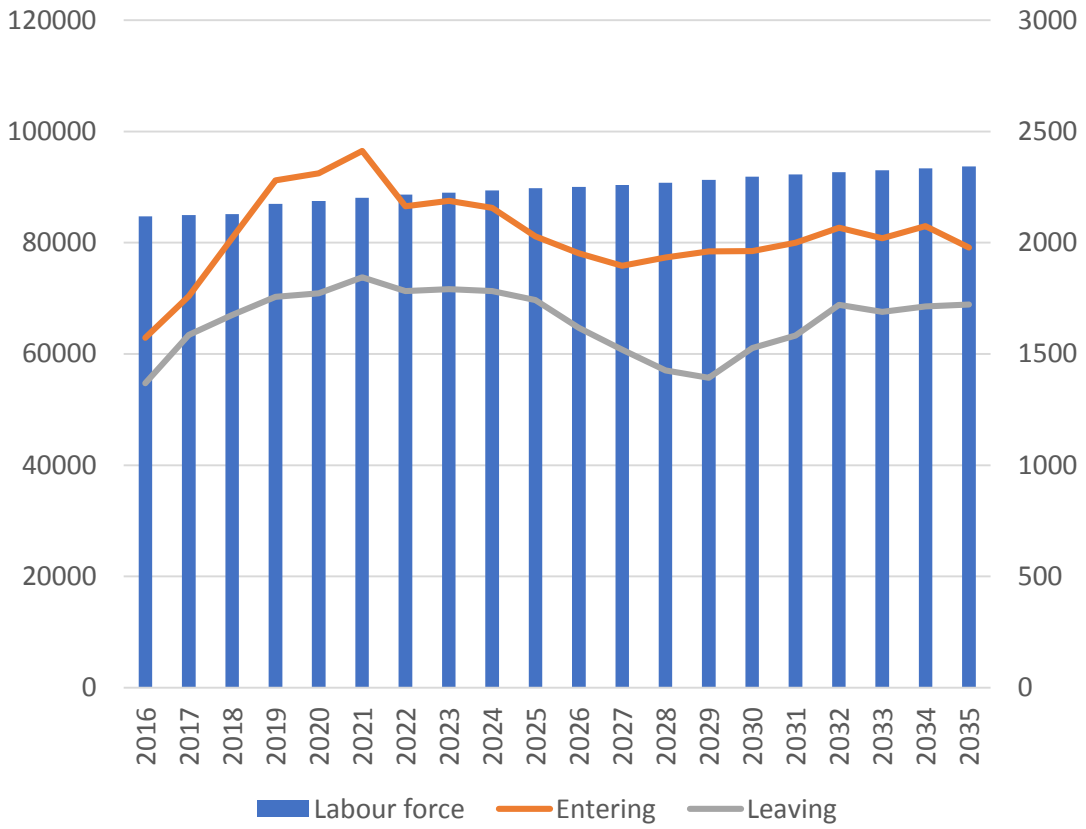
Inflow versus replacement demand

Economics and administration, bachelor level



- The number of new entrants is much higher than the number of those who leave

Nursing and caregiving, bachelor level



- Only a few more entering than leaving
- The number of persons in the labour force is almost constant

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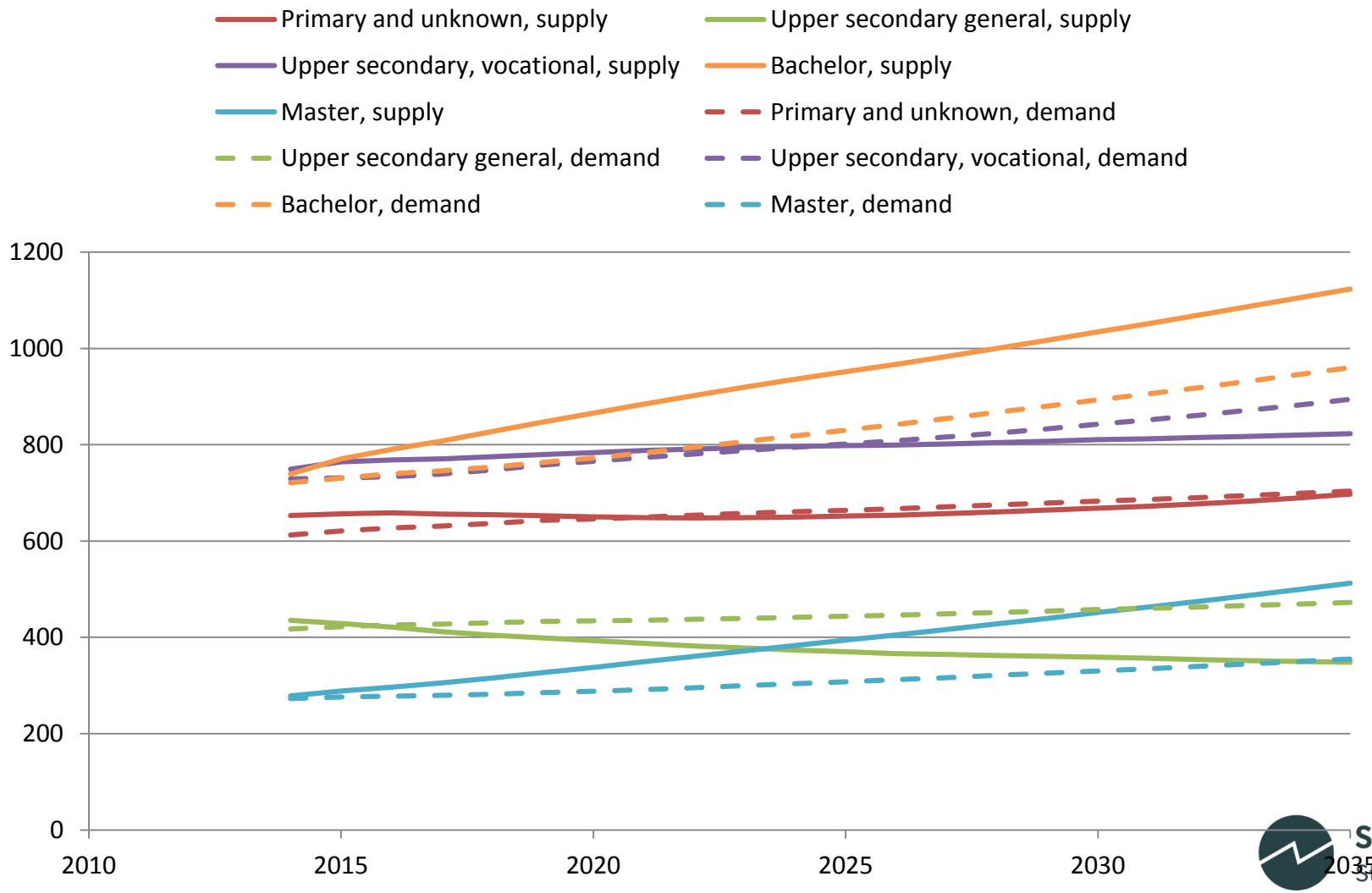
How do we compare projected demand end supply?

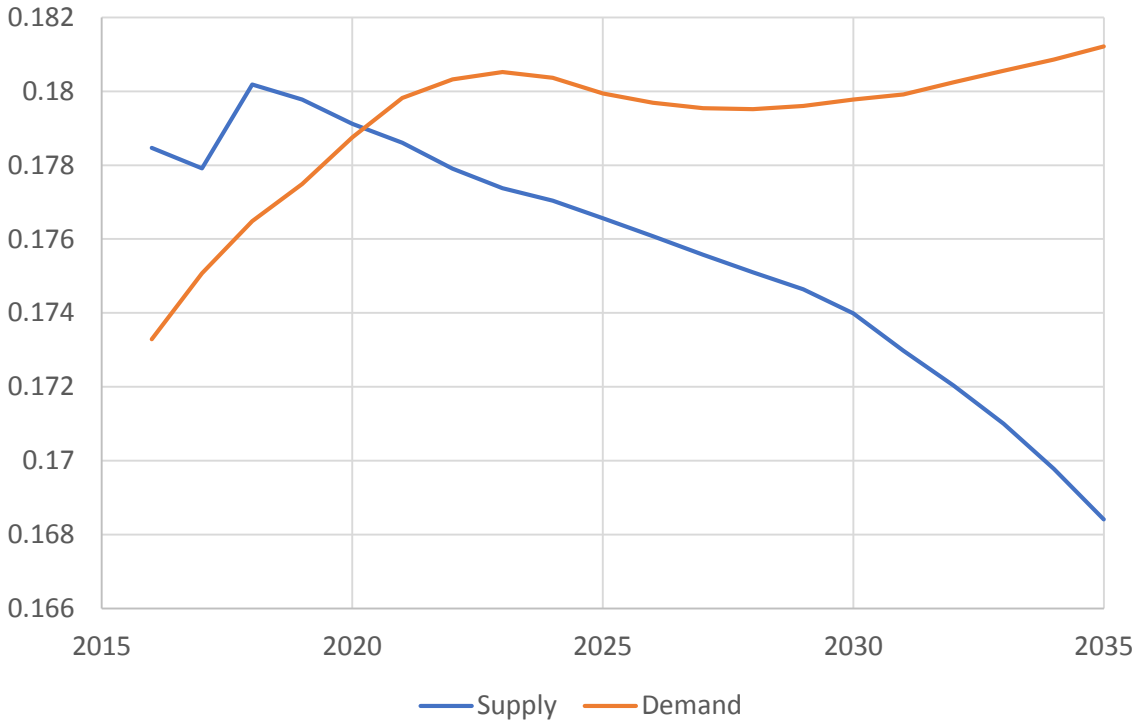
- Aggregate labour force and employment simultaneously projected in the macro model
- Demand and supply for different educational groups projected independently
- Comparisons indicates possible imbalances
- In the real world imbalances will be moderated
  - Educational and labour market policy
  - Educational choice
  - Demand for close substitutes is affected
  - Relative wages

Projections by level of education. 1000 persons



Secondary vocational education towards manufacturing, building an construction and crafts

Share of total labour force (17%)



Electronics, mechanical and machinery

Building and construction

Other crafts

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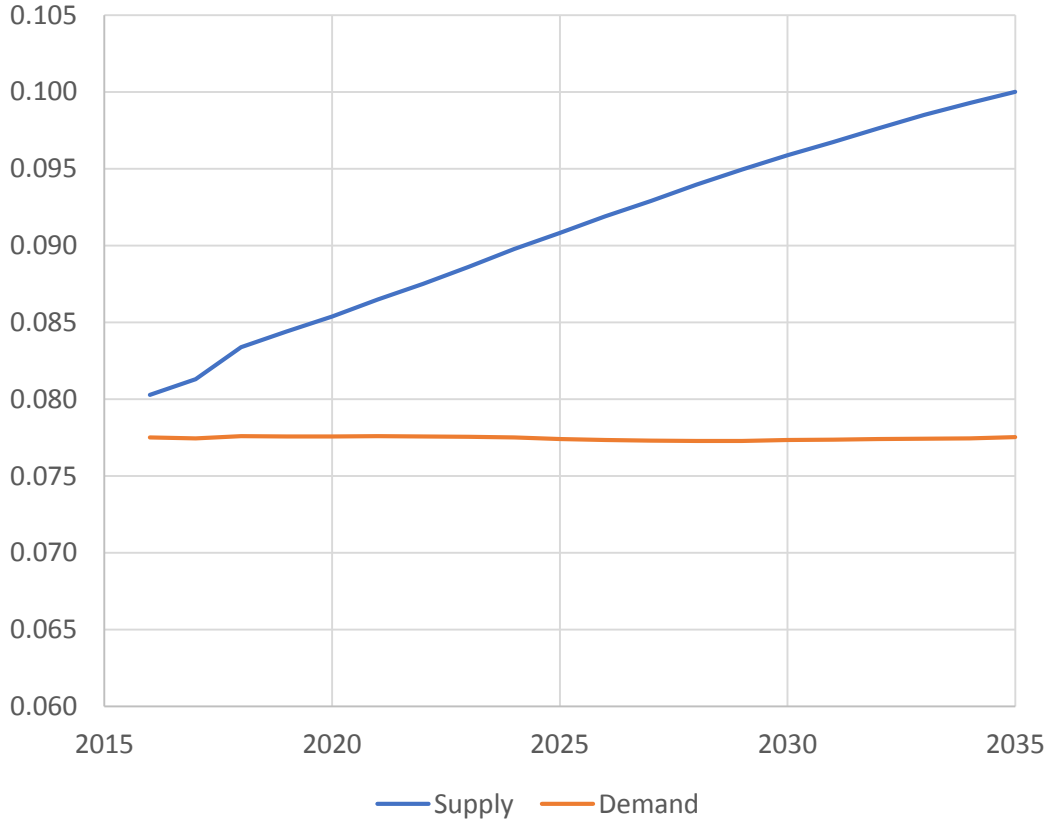
Engineering and tertiary education in science

Share of total labour force(8%)



- Relatively strong growth in labour force because several youths choose these educations
- Demand is rather stable because reduced activity in the petroleum industry and production of equipment and services towards this industry outweigh increased demand in most other industries

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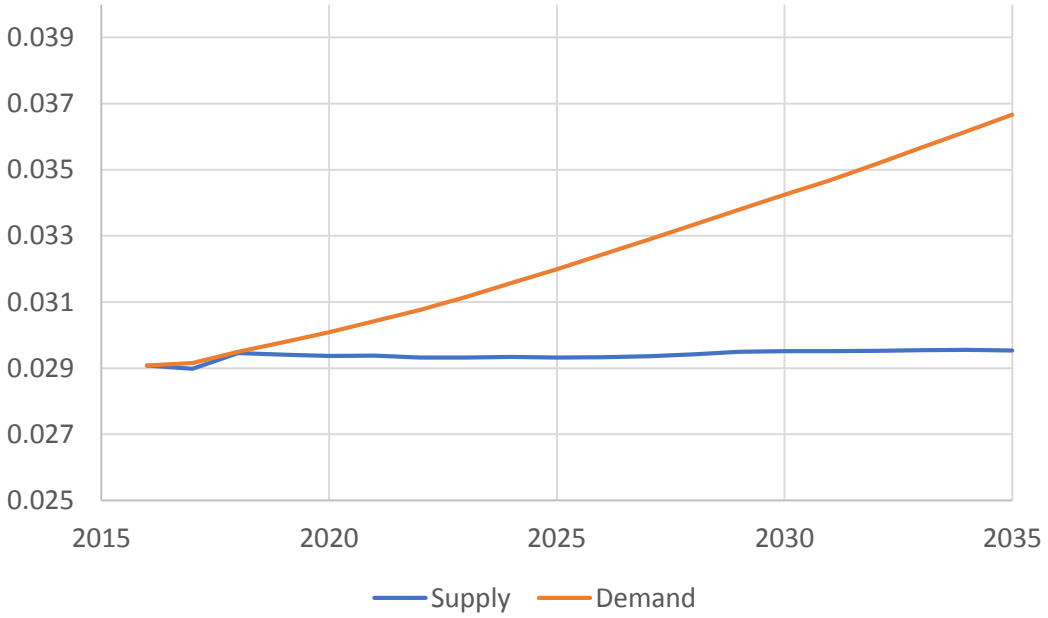
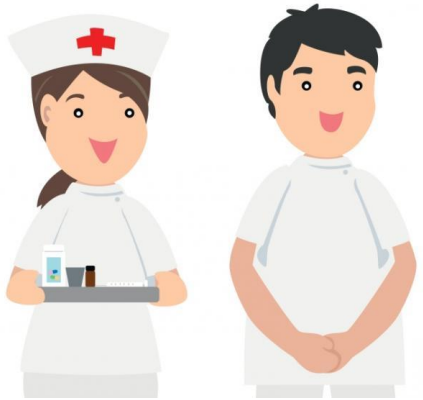
Nursing and caregiving, bachelor

Share of total labour force(3%)





- Demographic development causes more old persons and increases demand
- Labour force almost constant because the number of those entering corresponds to those retiring

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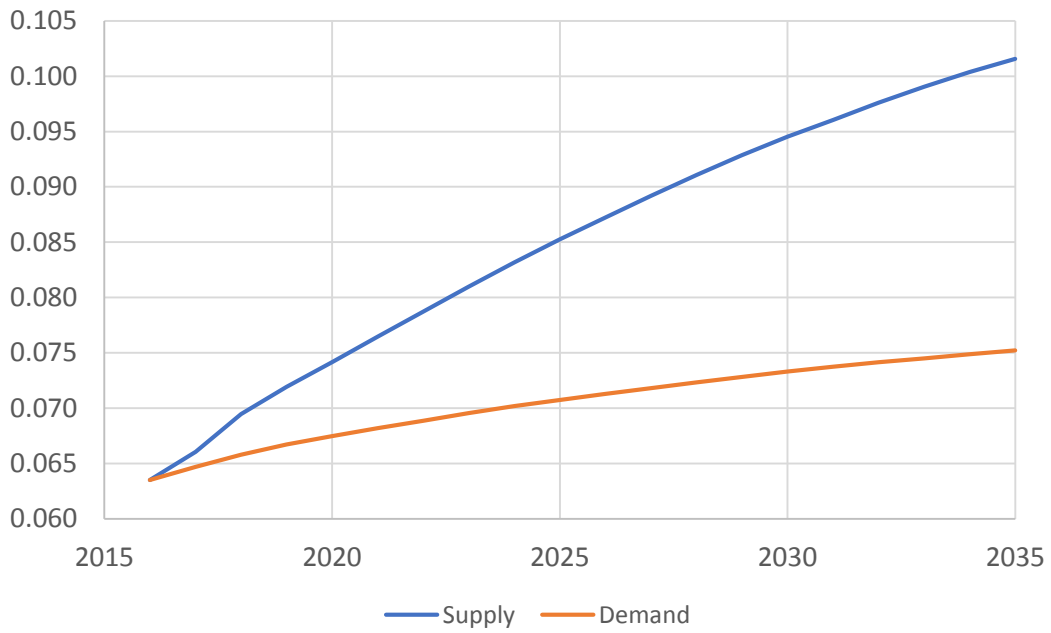
Tertiary education in economics and administration

Share of total labour force 6%



- A relatively strong growth in demand compared to most other groups
- A large expansion of capacity in education during last decades causes a high number of new entrants compared to the number of retirees

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Funding of Statistics Norway's skills projections

- The Ministry of Education and Research
- The Ministry of Labour and Social Affairs
- The Ministry of Trade, Industry and Fisheries
- The Ministry of Health and Care Services
- The Norwegian Directorate of Health
- The Norwegian Labour and Welfare Administration

Government Committee on Skill Needs established 2017

- Provide the best professional assessments of Norway's future skill needs
  - Basis for national and regional planning
  - Strategic decision making of both employers and individuals
- Annual report on skill needs
- Representatives from social partners, researchers/analysts and civil servants from the Ministries
- Statistics, analyses and projections from Statistics Norway part of the knowledge base

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Thank you

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