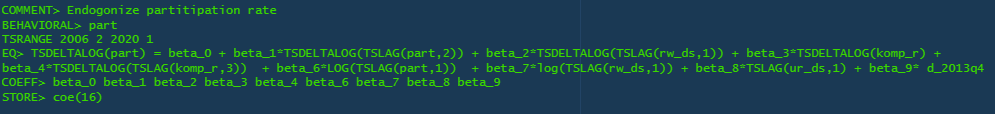
# Model description

The focus of this model is to analyze the effect of a change in the regulation of the maximum level of income insurance a person can receive after unemployment. To do so, we utilize the features of a stock-flow consistent framework and build upon the existing empirical stock flow consistent model for Denmark developed by (xyz). We contribute to the work of (xyz) by endogenizing the maximum level of income insurance. The dynamics of the model should be able to explain the macroeconomic effects of the change in the political regulations of the maximum income insurance. The next section will focus on the central equations added to include the new dynamics.

## Labor market equations

An addition to the labor market equations is the endogenization of the participation rate, with the explaining variables being the real-wage, compensations-rate, and unemployment rate. We include the real wage to capture the effect of a change in the incentive for people outside the labor force to start job searching (specificere hvad estimatet er I model, og sammenligne det med ADAM og andres?).   
The unemployment rate is expected to have a negative effect on the participation as a rise in the unemployment rate would shrinking the labor force and create lower participation. In addition to these the compensations rate of income insurance is included; this follows the work of (ADAM) who includes it as the only explaining factor of the participation rate. Increasing the compensation rate is expected to result in a lower participation rate, as the incentive to work would decrease with higher unemployment benefits relative to the wage.



The compensation rate included in the equation for participation also appears as an endogenous variable in the model estimated as the fraction of the average amount an unemployed on income insurance would receive (dp\_person), to the average wage received given employment (wage\_trim).



To calculate dp\_person we use a regression linking the maximum level of income insurance to the average benefits received by unemployed eligible for income insurance. This is done as an alternative of using aggregated data of benefits received by households, as the gap between observed unemployment and estimated unemployment in the model is large creating a lower average of benefits received. The regression is beneficial as we capture the direct effect of an increased level of maximum income insurance, (estimated vil dog være biased, da en stigning I lønnen hæver den maximale dagpenge sats, men også samtidig vil hæve det gennemsnitlige beløb modtaget af arbejdsløse på dagpenge + hæve det gennemsnitlige beløb da folk da nu komme på dagpenge og ikke ramme den makismale dagpenge sats også oplever en stigning I lønnen (dog mindre end stigningen for folk der rammer den maximale dagpenge sats) Derfor forventes estimatet at være under 1 men stadig indeholde en upwards bias grundet ovenstående forklaring.) The coefficient of the regression states that an increase in the maximum level of income insurance of 1% increases dp\_person by 0.95%.

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This leads to the equation for the maximum level of income insurance, as this level is only calculated once each year, the variable will only change in the 1. Quarter and stay fixed for the rest of the year. In the baseline model “max\_dp” follows the political regulations stated by the ministry of Finance (<https://www.retsinformation.dk/eli/lta/2003/373>). It follows that the maximum level of income insurance grows by the “statsregulerings procent” plus the “statstilpasningprocent” Each year.

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As the Ministry of Finance determine the Statsreguleringsprocenten it is held exogenous in the model. On the other hand, the “statstilpasningsprocent” is calculated each year, using the “tilpasningsprocent”. There are three conditions. First, if the “tilpasningsprocent is lower than 0 “statstilpasningsprocenten” is equal to the “tilpasningsprocent”. Second, if “tilpasningsprocenten” is between 0.0 - 0.3% the statstilpasningsprocent is set to 0. Third, if Tilpasningsprocenten is above 0.3% the “statstilpasningsprocent” is equal to the tilpasningsprocent minus 0.3% points.   
As “max\_dp” the statstilpasningsprocent is calculated in the 1. Quarter and held fixed to the end of the year.

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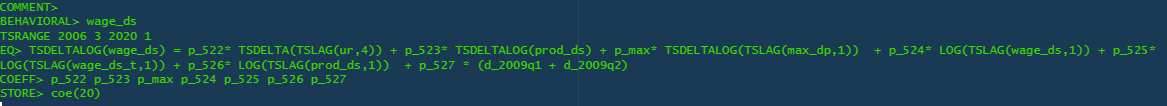
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Tilpasningsprocenten is calculated by taking the wage growth two years before the financial year subtracted by 2% point, it should be noted that it is the yearly wage growth which in the model is calculated using the 1. Quarter, therefor the tilpasningsprocent is only calculated for 1. Quarter and held constant for the rest of the year.

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The endogenization of “max\_dp” is now completed within the model, and we can adjust the same variables as the Ministry of Finance when making regulations to the maximum level of income insurance. Max\_dp is furthermore included in the wage equation, only having an impact on the wage in the short run.



# Validation of the model

We will in this section look at the performance of the model comparing the results from the simulation with actual data, with a specific focus on the variables in the labor market.

In the below figures we compare the simulated and actual data for GDP, Employment, maximum level of income insurance and compensation rate.



As can be seen the model seems to capture the same dynamics of the real economy as (xyz) with a small overshooting in the economic activity in the period 2011 - 2016 explained by a higher simulated value of real investment and consumption compared with the data. Overall the model seems to capture the medium to long-run tendency of the data even though there are some divergences in some quarters.



# Behavioral equations estimated

## Participation

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## Wage\_ds

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