



# WALMART DISTRIBUTOR INV. REPORT

A prediction report directed at improving  
Walmart distributor inventory management

## ABSTRACT

As demand tightens upon the consumer goods industry, the need for inventory management has reached an all-time high. Throughout the year demand may fluctuate, but how does one predict this flow of demand without giving in to ever increasing profit loss as a causality of poor supply? This is where the purpose of this report comes into display; by making machines forecast the upcoming necessary product inventory upkeep.

Troels Ryberg Andersen, Simon  
Søndergaard, Jacob Ellermann  
Pedersen & Kristian Thorndahl -  
SDSAAUB A/S

SDS, Applied Data Science and  
Machine Learning

# America, the land of the free...

## And hungry...?

- America's citizens have increased their spending throughout the years, showing there should be a growing market potential.

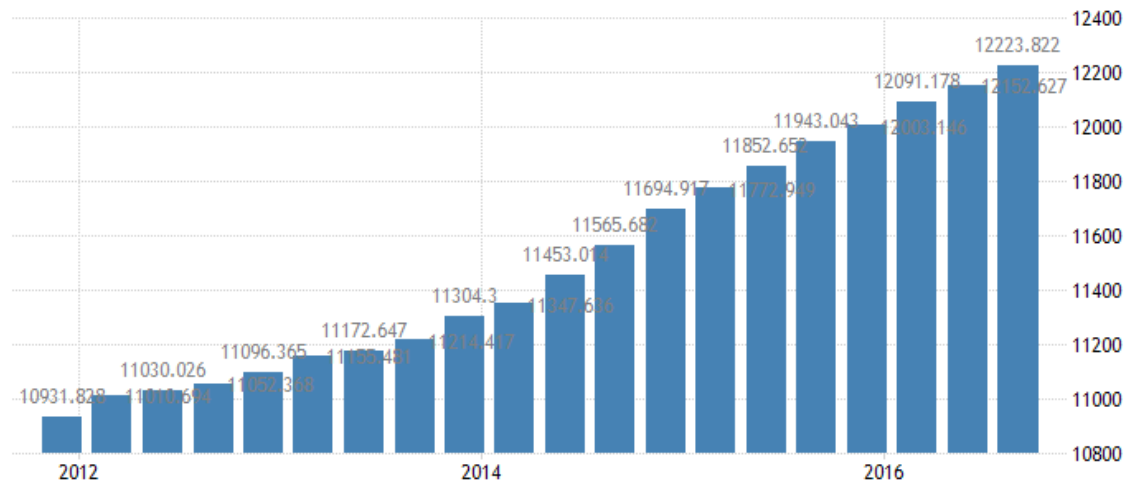


Figure 1, Consumer spending in Billion USD

Source: <https://tradingeconomics.com/united-states/consumer-spending>

- As this spending of the American people increases, so must the reliability of the stores which supplies them. Having stock, on time, when and where it is needed is paramount as to please the everlasting flow of patrons.

### **The general public deserves convenience, but how are convenient stores to adhere to this demand without notice?**

- Some stores may let down their valued customers by being unable to satiate their market share, but that could be the past for the Walmart corporation.

But that begs the question; how could Walmart identify and react to these planning proportions of customers?

# Let's investigate the problem...

Imagine yourself to be a modest shopper in the marvelous Walmart center.

The shopping list is set, and all that you need should be available at your local Walmart, though they seem to have run out of the key ingredients for your beloved oxtail stew. **Horrendously**, you would have to traverse to the neighbouring, less appealing SuperMart.<sup>1</sup>

Additionally, imagine the same scenario running late to your son's college football match, but to your horror, the supply of wieners has run dry causing the ruin of you and your sons' whole day.<sup>2</sup>

Though the above-mentioned scenarios would happen in a Walmart store, it is the work of wonders of the Walmart supply chain which makes sure that horrific scenarios like these does not happen.

These individual Walmart stores heavily relies upon state wise Walmart distribution centers, these centers are to be stocked to supply Walmart facilities with wares.

Lack of inventory information may be the factor causing supply deficiencies, which is why it can be a fantastic forecasting tool.

---

<sup>1</sup> SDSAAUB A/S does not promote and/or is monetized by aforementioned convenient store; the stores and events mentioned in this report are fictitious, any similarity to actual events or stores are purely coincidental.

<sup>2</sup> No wiener parties were ruined in the writing of these fictitious stories.

- As shown below, the Walmart stores of California has had a fluctuation of turnover especially on food items.
- We at SDSAUB A/S has made it our goal to create a sufficient solution as to predict these fluctuations. This should by extension be a preliminary towards never letting down a valued customer again!<sup>2</sup>

Figure 2, Rolling average of consumer goods turnover categorized on type

Source: SDSAUB A/S

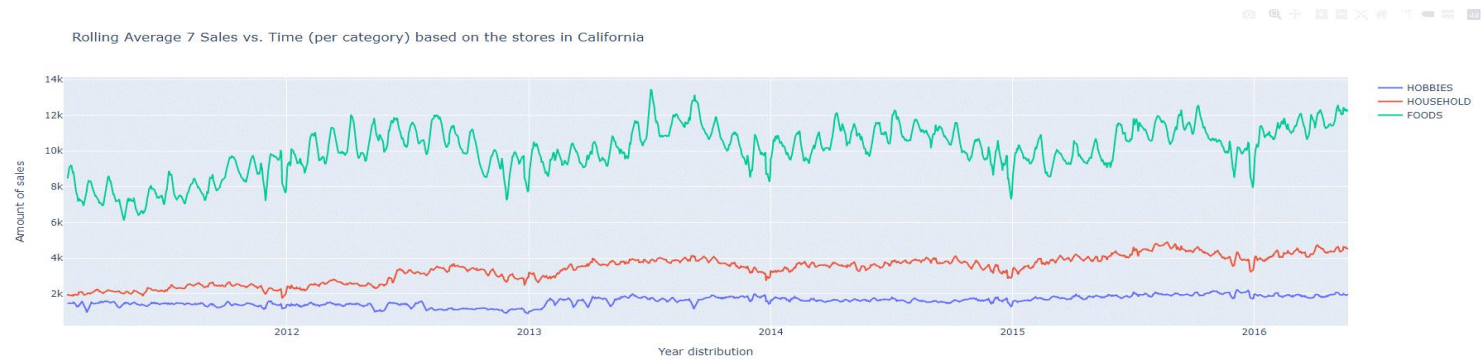
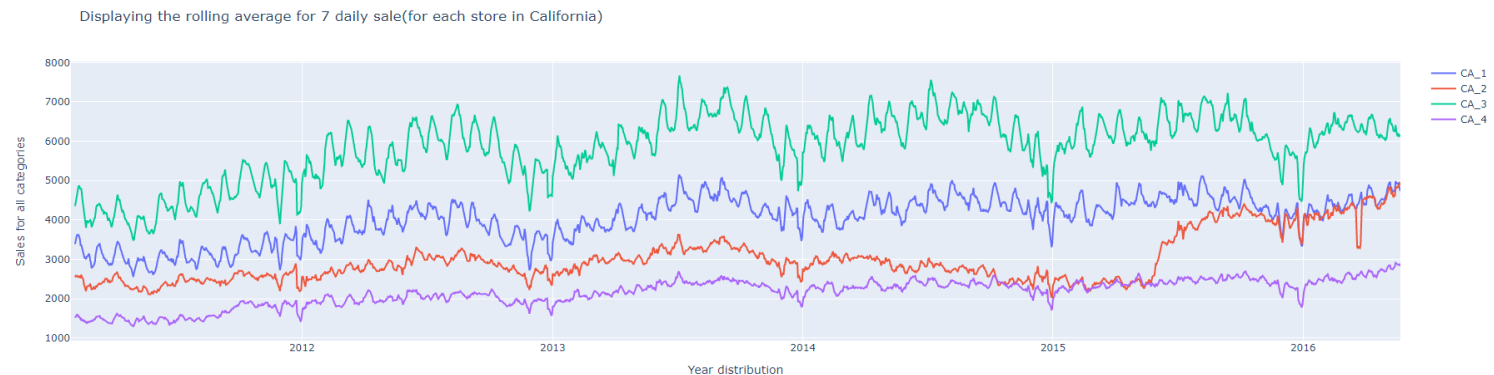


Figure 3, Rolling average of consumer goods turnover total sorted on Walmart California stores

Source: SDSAUB A/S



<sup>2</sup> SDSAUBS A/S will not be held responsible for any customer letdowns on any other premise.

# What solution can SDSAAUB A/S offer?

- As part of our new Neural Network certification, SDSAAUB A/S can now proudly supply the world renown Walmart with a solution, more advanced than ever before:
  - Imagine Neural Networks as a customized brain, only designed to only string together variables and their effect on the problem at hand as to predict patterns in data not feasible by any other machine learning model.
- The neural network even has the prediction capabilities of reporting demand distribution in state districts while factoring in the current date, day of the week, events<sup>3</sup>, price of goods, even respecting changes over time.<sup>4</sup> Furthermore, the neural network can even be modified with other variable data such as, but not limited to, cultural, socio-economic, and/or pandemic. **Thereby making a Walmart state distributor inventory planning tool.**<sup>5</sup>

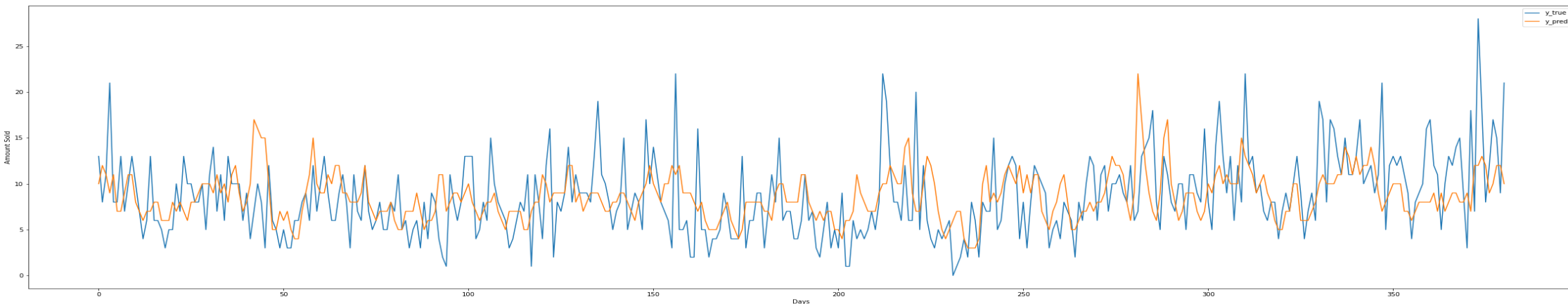


Figure 2, Neural Network model prediction vs. true turnover of select food item in CA  
Source: SDSAAUB A/S

<sup>3</sup> Events examples: Christmas, sporting events, holidays, Father's day etc.

<sup>4</sup> The model presented has been built as a proof of concept and has been trained and tested upon the state of California and the select Walmart stores.

<sup>5</sup> To learn more on our pricing model or to book an exam or meeting, visit us on: [www.sdsaaub.org/supplychainexpert/contact](http://www.sdsaaub.org/supplychainexpert/contact)