



# HIV SUPPLY

*INTERNATIONAL  
DEMAND FORECASTING*



*By Beyza  
Ulasti*





# ABOUT ME

Beyza Ulasti

Data Scientist

BS in Physics

Management & Logistics

# AGENDA



Business Problem

Data Overview

Modeling Results

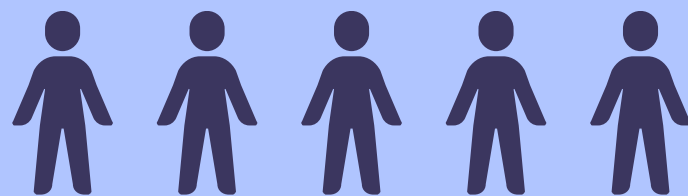
Future Steps

**" 27% INCREASE IN  
PEOPLE ACCESSING  
EFFECTIVE HIV  
TREATMENT SAW HIV  
INFECTIONS  
DECREASE BY 66%"**



# 38.4 M

HIV pos in 2021



# 2/3

in Africa







## DIAGNOSE

HRDT: HIV Rapid Diagnostic Test

## TREAT

ARV: Antiretroviral drugs for treating and preventing HIV infection.



# FORECASTING CAN HELP

01

## **AUTOMATE**

Automating the inventory management will make shipment more efficient

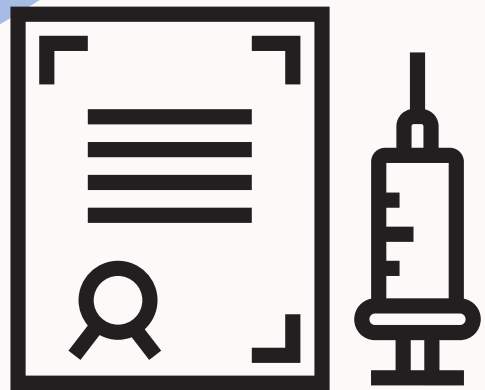
02

## **PREVENT**

Automated inventory optimization can help prevent vital stock running low.



# DATA OVERVIEW



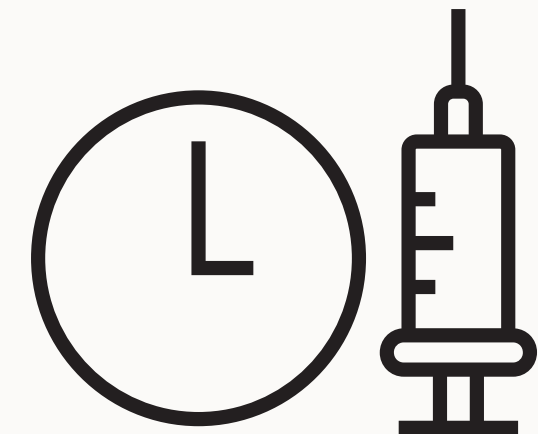
USAID



Supply Chain  
Shipment  
Pricing Data



22 Countries  
1. South Africa  
2. Nigeria  
3. Côte d'Ivoire

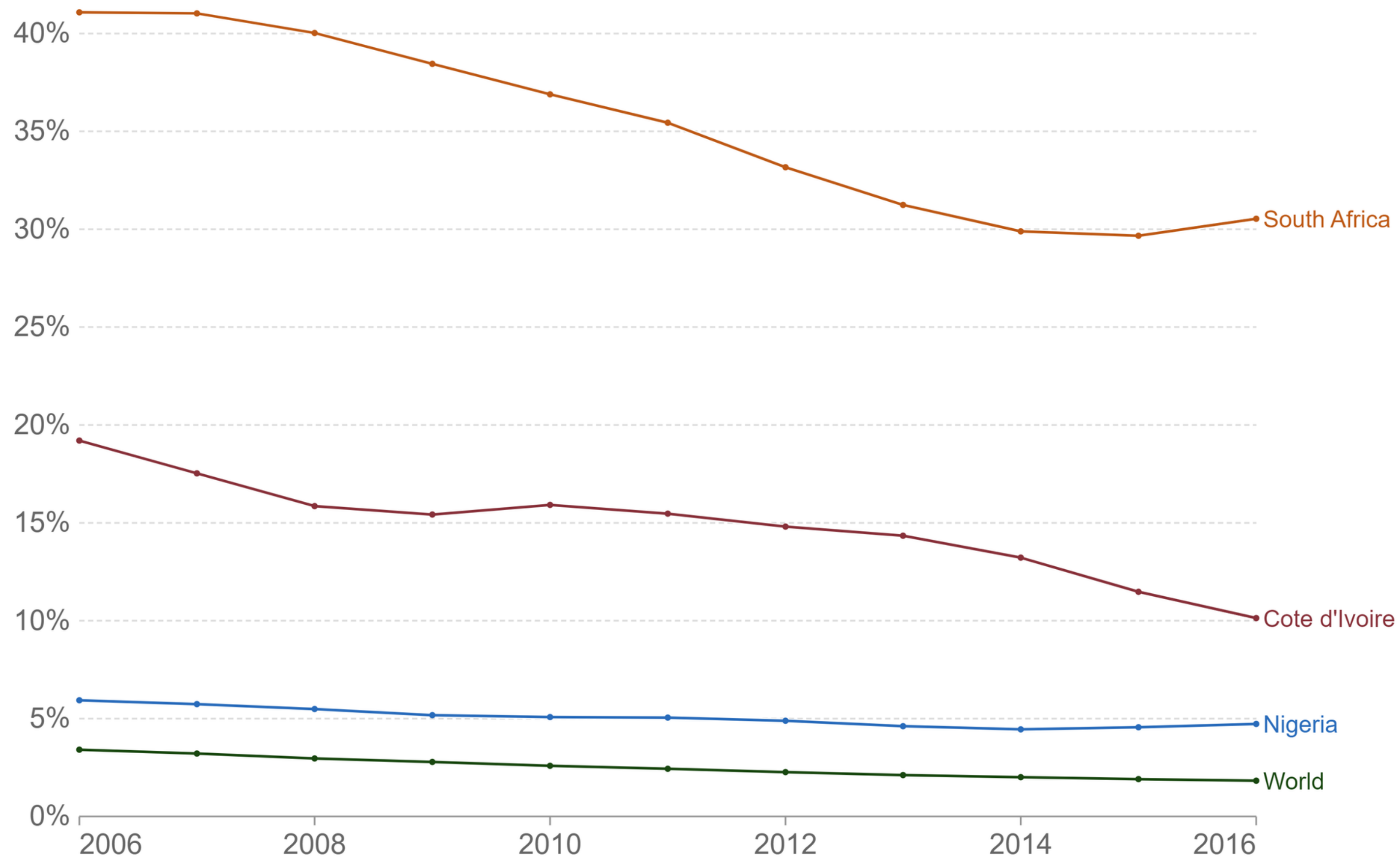


2006-2015



# Share of deaths from HIV/AIDS, 2006 to 2016

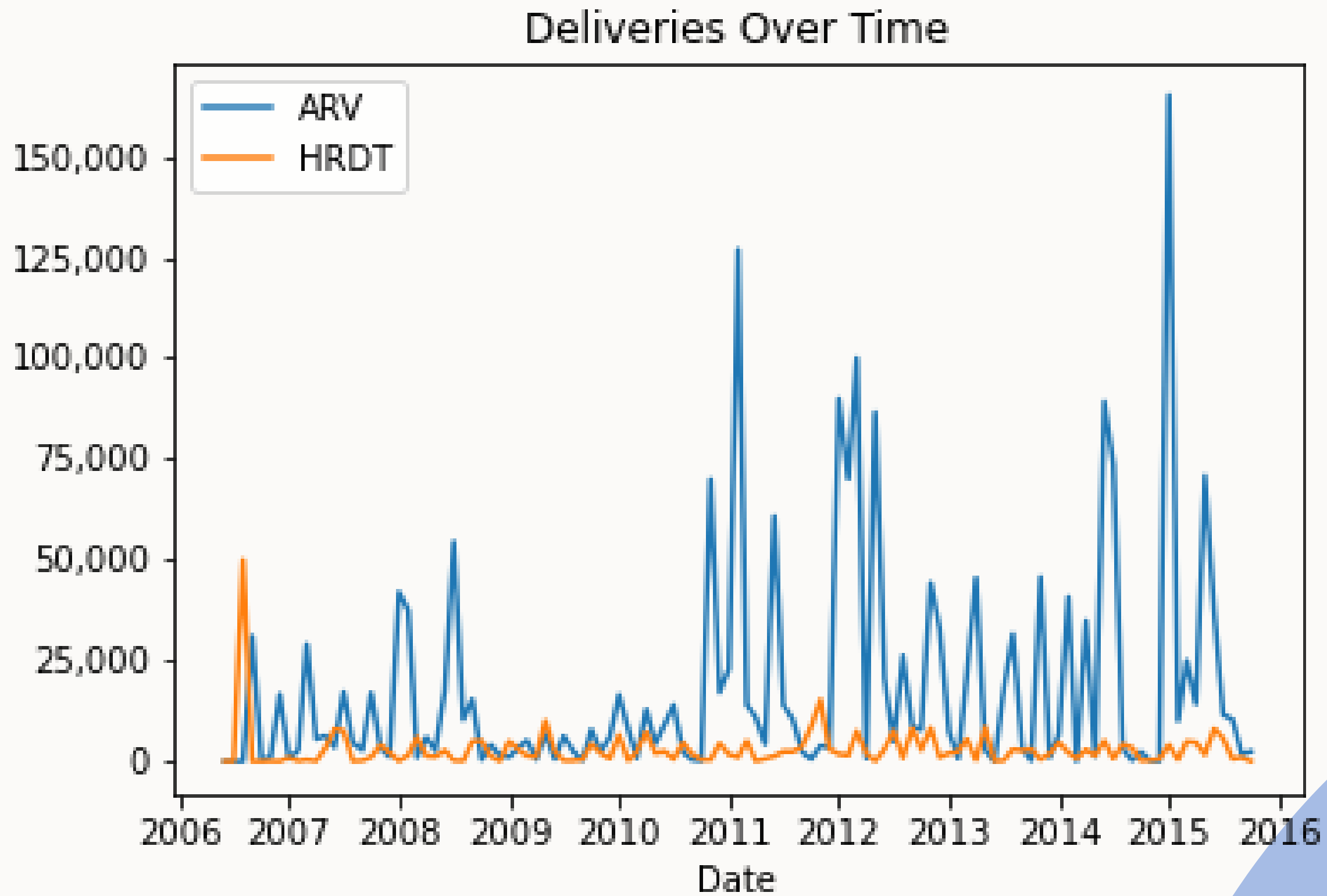
Our World  
in Data



Source: IHME, Global Burden of Disease (2019)

OurWorldInData.org/hiv-aids • CC BY

# FOCUSING ON TREATMENT OVER DIAGNOSIS

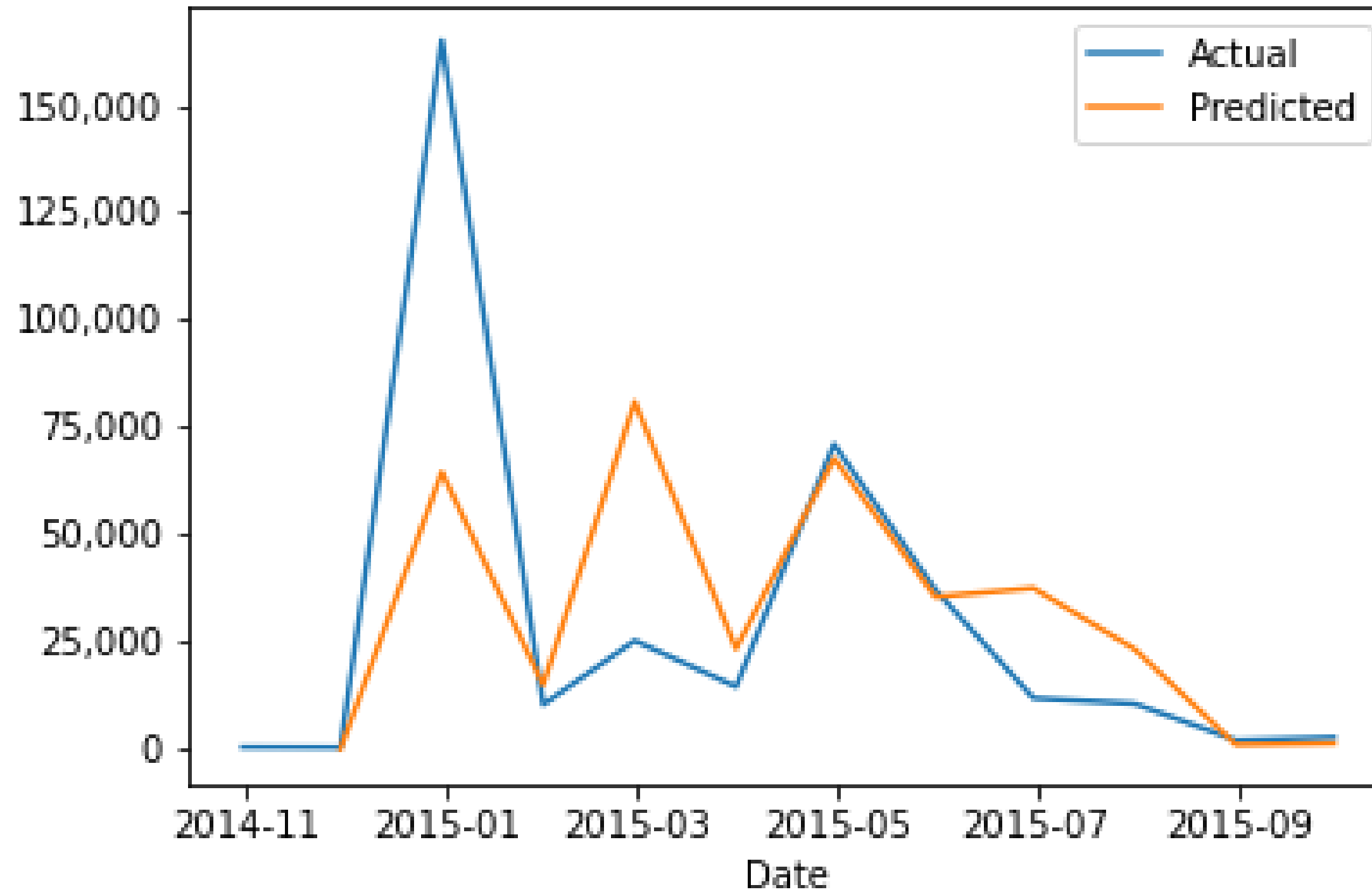


# MODELING PROCESS

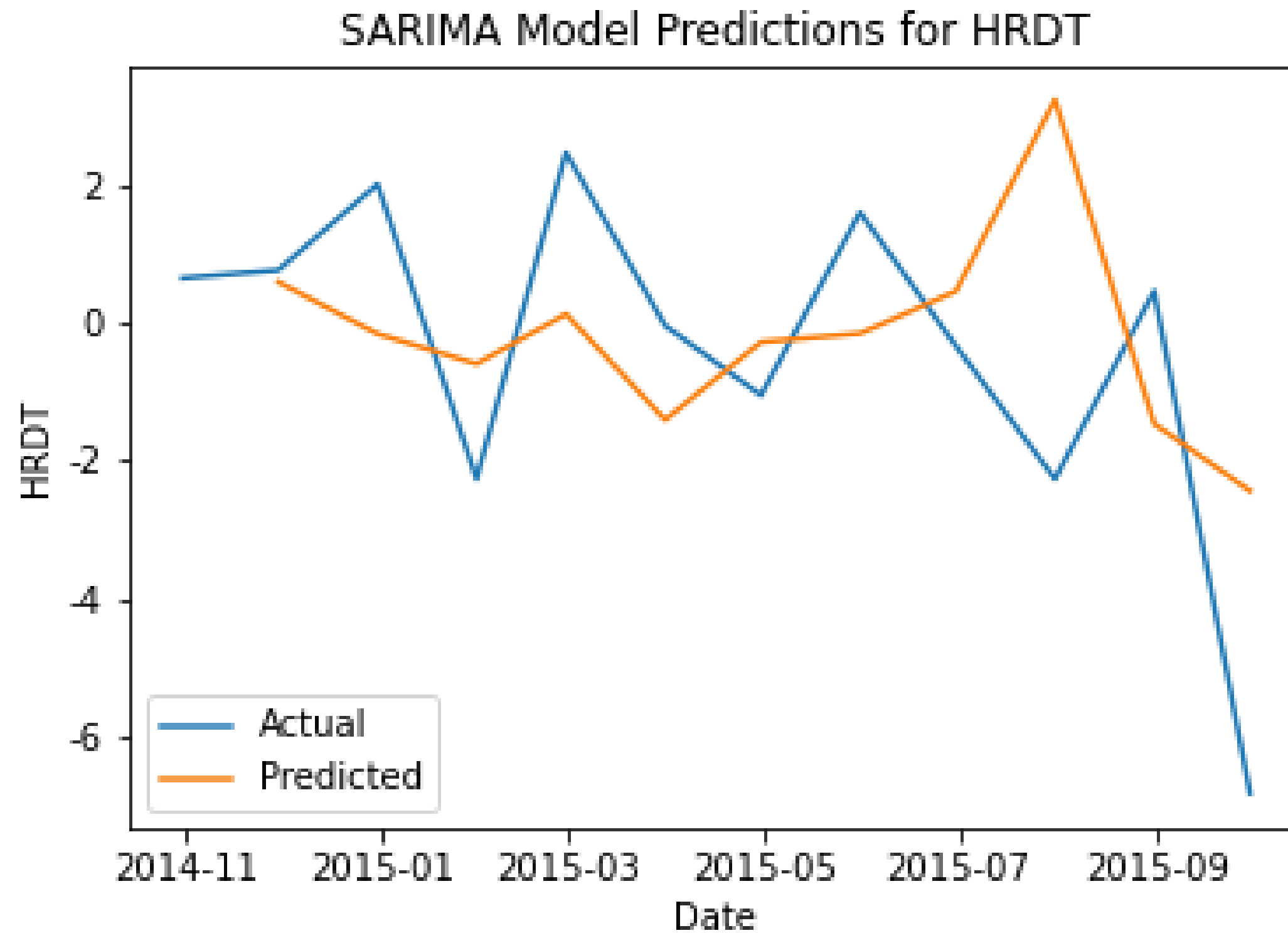


ERROR: 19K UNITS  
MONTHLY

SARIMA Model Predictions for ARV



ERROR: 2K UNITS  
MONTHLY



# MODELING RESULT RECAP



ARV: 19K  
UNITS



HRDT: 2K  
UNITS



# FUTURE STEPS



1

Vendor  
performance

2

Delivery  
schedules

3

Observing  
trends

# THANK YOU

## FOR QUESTIONS:

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[🐙](https://github.com/SBeyzaU) /SBeyzaU



# CITATION



## DATA SOURCE

Doby. 2020. Supply Chain Shipment Pricing Data. Dataset. USAID Development Data Library. <https://data.usaid.gov/d/a3rc-nmf6>.



## STATISTICS & STUDIES

UNAIDS

WHO

UNSW

CHARTS