HECTOR RAFAEL SANCHEZ DIAZ

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PERSONAL STATEMENT

My experience has centered on using research techniques for tackling management and marketing related questions. This implies structuring the problem and developing specific hypotheses to be tested using statistical models estimated using available data, or by designing a survey or quasi-experiment. After having completed a Master of Science in Economics in Germany, I would like to join a role where I can help the company solve problems using economic theory, data and statistical analysis.

WORK EXPERIENCE

Research Analyst, Guidepoint, Düsseldorf, Germany 12/2017 – Present

Guidepoint connects the top Management Consulting companies in the world (i.e. McKinsey, Bain & Co., Boston Consulting Group, etc.) with experts in different industries. As a Research Analyst, I am tasked with identifying the right profile for the specific project the client is working on (Due Diligence, Market Research, etc.) and verifying they are knowledgeable. This role has introduced me to the European market by exposing me to several industries, projects and diverse business problems.

Senior Market Intelligence Analyst, Claro, Dominican Republic 06/2012 – 09/2015

Claro is the leading Telecommunications Service Provider in the Dominican Republic. As a Senior Market Intelligence Analyst, I was in charge of the outward looking information needs of the company – specifically for the Fixed Internet Line of Business. This included designing and executing quantitative market research projects for internal clients (Marketing, Advertising, Product and Customer Service departments) as well as creating and supporting monthly reports of marketing metrics such as Brand Awareness and Customer Satisfaction. Aside from these tasks, I was also involved in the following projects as lead analyst: Churn Prediction, Marketing Mix Modelling, Brand Equity Measurement, Optimal Store Distribution, and Drivers of Customer Satisfaction Indices. You can see a description of these in the Projects section.

Freelance Quantitative Market Researcher, Dominican Republic 01/2014 – 12/2017

I worked with two small market research agencies (Lupa RD and Quali Global) leading their quantitative projects. I advised them on the appropriate methodology to address the client’s information needs, designed the sample and questionnaire, coordinated with the surveying team to meet deadlines, analyzed the data, created the report and presented the findings to the stakeholders.

EDUCATION

Master of Science, Economics

University of Konstanz, Germany. August, 2017

- **Master's Thesis**: Business Cycle Asymmetries and Loss Aversion.
- **Theoretical Lectures:** Advanced Micro and Macroeconomics I, Advanced Microeconomics II (Auction Theory and Mechanism Design), Behavioral Economics (Hyperbolic Discounting, Prospect Theory, Altruism and Psychological Models).
- **Econometric Lectures:** Advanced Econometrics (incl. Bayesian Econometrics), Applied Microeconometrics (Fixed and Random Effect Models for Panel Data), Applied Time Series Analysis (incl. Financial Econometrics – ARCH and GARCH models), Advanced Time Series Analysis (VAR models, Cointegration, Structural Analysis).
- **Applied Lectures:** Computational Economics (Dynamic Optimization and DSGE models), Behavioral Economics (developing theoretical models).

Postgraduate Diploma, Statistics Applied to Business

Instituto Tecnológico de Santo Domingo (INTEC), Dominican Republic. May, 2014

Bachelor's degree, Marketing.

Pontificia Universidad Católica Madre y Maestra (PUCMM), Dominican Republic. November, 2011

PROJECTS

Projects when working at Claro (2012 - 2015)

- Churn Prediction: Using customers' demographic and behavioral data, I estimated a Logistic Regression to forecast the probability that a post-paid mobile subscriber would cancel their contract within the next three months.
- Marketing Mix Modelling: I estimated the effect of advertising spending and other marketing mix variables on mobile sales using Linear Regression. The model was used to determine the advertising half-life, the ROI of advertising spending, and the elasticity of sales to advertising.
- Brand Equity Measurement: Using a fractional factorial experiment design, I designed a survey where respondents chose among alternative mobile plans with, among other things, different brands of telecommunications companies. Using their choices as dependent variable, I used Logistic Regression to estimate a brand's Brand Equity as the probability of being selected *ceteris paribus*. I presented this finding to management as the Price Premium – the additional amount customers are willing to pay for a brand.
- Optimal Store Distribution: Using the location of the network towers as proxy for space, along with their respective neighboring population, I designed an optimization algorithm to determine the distribution of stores that maximizes reach and minimized the number of stores.
- Drivers of Customer Satisfaction Indices: Using historical data on customer satisfaction indices as dependent variable, I used Linear Regression to find the variation across time was mostly explained by variations in economic and weather data, and across companies by demographic variables.

Projects when studying the MSc. in Economics (2015 - 2017)

- Business Cycle Asymmetries and Loss Aversion: using a DSGE model with a utility function in line with Prospect Theory, I examined the hypothesis of whether asymmetric business cycles could be explained by a representative household characterized by Loss Aversion.
- The effect of Immigrant Students on the School Learning Environment of Australian Native Students: Using data from TIMMS 2011, I examined whether 4^{th} grade children in classrooms with a higher share of immigrant students were more likely to experience bullying. Since immigrants are non-randomly allocated to high density, low income areas, this creates an endogeneity problem that is solved by focusing on the variation within schools only, using a (schools) fixed-effects model.
- The Effect of Expecting to Procrastinate on the Procrastination Behavior of a $\beta\delta$ Agent: I created a theoretical model by combining the inter-temporal preferences of O'donoghue and Rabin (1999) with the intra-temporal reference dependent preferences of Koszegi and Rabin (2006) to examine the behavior of an agent that is faced with the choice of whether or not to procrastinate.

WORK SAMPLES

I am currently developing a personal website (https://sdhector.github.io/portfolio.html) where to publish a series of work samples to showcase my abilities. Below I summarize some that are already available, and others that will be in the near future.

Advertising Budget Optimization: An application of Marketing Mix Modelling and Linear Optimization.

I describe how to estimate the contribution to sales of commercials placed in several channels at different times. Afterwards, I use constrained linear optimization to select how many commercials to schedule on which channel and at what time in order to maximize the expected amount of sales.

Customer Churn Prediction: An application of Logistic Regression.

I start with an exploratory analysis to visually identify the factors that may result in a higher likelihood of churn. Afterwards, I estimate a Logistic Regression model and evaluate its accuracy using hold-out sample validation.

Determinants of Mobile Brand Choice: An application of Choice-Based Conjoint Analysis.

I describe how to design a fractional factorial experiment and how to use a survey to collect the data. Afterwards, when the data arrives, I estimate the part-worth of each factor using a Logistic Regression.

New Product Sales Forecasting: An application of the BASS diffusion model.

Using data of the number of downloads of a mobile application in Germany, I estimate the coefficients of a BASS model and use it to forecast the adoption pattern to be expected when the application launches in Portugal.

SOFTWARE TOOLS AND PROGRAMMING LANGUAGES

- R (Studio + Markdown)
- MATLAB
- SAS Ent. Guide & Miner
- SPSS
- SQL
- GRETL
- JMulti
- Microsoft Office

LANGUAGES

Spanish: Native

English: TOEFL 107/120

German: B1

REFERENCES

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