How Can I Sell My Car In Lebanon

I)   Problem Statement

While planning my relocation to Barcelona, I was constantly worrying about one specific thing. The same questions kept coming back to me and these were: **"How will I be able to sell my car? Is there even demand for it? Will I be able to get a decent price for it?"**

Given the Lebanese economic collapse, the recent fuel crisis and COVID-19 restrictive measures, I was unsure that selling my car was at all possible.

I currently own a 1999, 3-series BMW with a manual transmission. While it may not be the shiniest or the newest car on the market, you could always count on it to have a following. Enthusiasts loved these cars for their drivability, durability, as well as their potential for tuning.

Being a data fanatic, I have decided to answer my own questions using the world's most precious resource: Data.

To be able to sell my car, I would need to understand the demand for this specific brand, model, and specs. I would need to understand how to market my car and how to set up an ad on OLX to successfully sell it.

In Lebanon, the indisputably most popular online marketplace is OLX. With ads ranging from vehicles and real estate, all the way to electronics and home furniture, OLX is truly an all-inclusive marketplace that is dominating the online Lebanese shopping scene.

I will thus be basing my analysis on the data gathered and processed from OLX. I will also use all of my learnings to set up my own ad on OLX to sell my car.
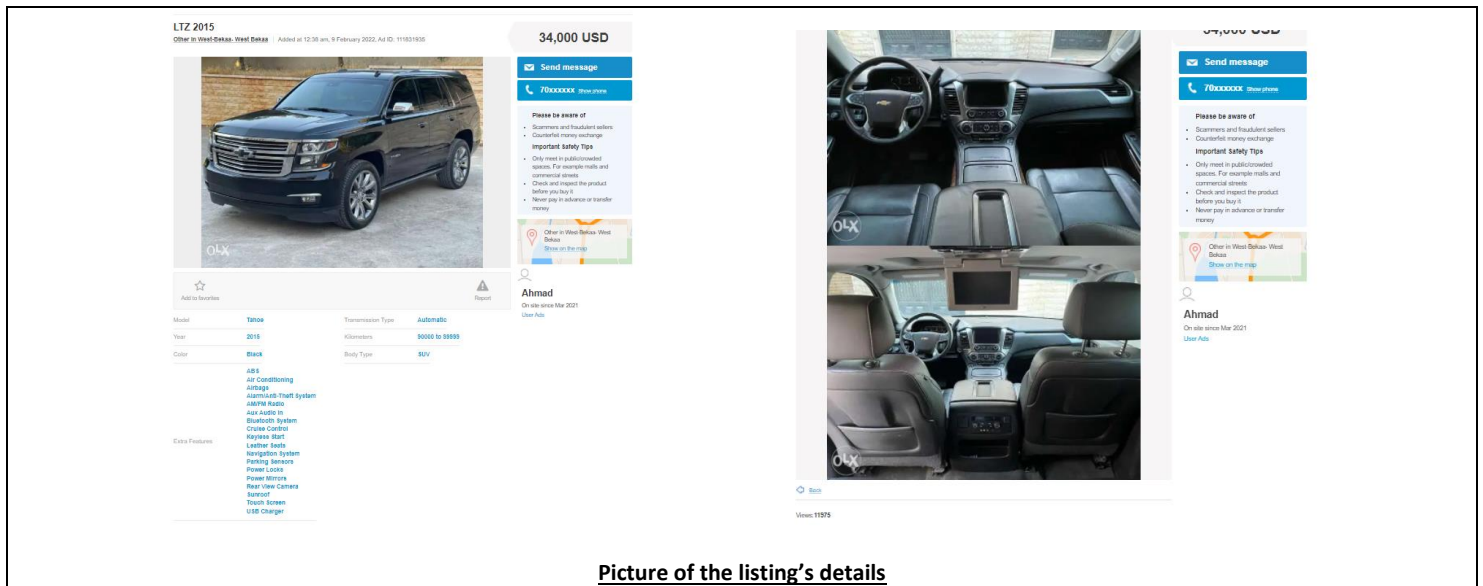

Disclaimer:

For this analysis, I will assume that OLX offers an accurate depiction of the Lebanese Secondhand Car Market. This may introduce some bias and may neglect potential sellers or buyers that do not 1. Own Phones, 2. Have an internet connection, or 3. Do not use OLX.

II)   Data Preparation | Data Processing

Picture of a vehicle ad on OLX

Picture of the listing's details

To be able to address the business problem and effectively sell my car, I will need to gather some key data points and set up **KPIs** to measure the variables that go into a successful sale.

1) Given that OLX has a 30-day initial listing period, all ads will be automatically removed after 30 days if the advertisers do not disable or delete the ads first. For the purpose of my study, I will assume that all ads removed before the 30-day period were removed because the ad was sold. Thus, _success will be defined by the status of an ad changing from Published to Unpublished within 30 days of its initial publishing date_.

2) Because advertisers can "recycle" ads by re-posting them after the initial 30-day period, with the click of a button, I will define unsuccessfulness or failure by:

- _Either:_
  The status of an ad not changing after 30 days of its original publishing date while still being published

- _Or:_
  The status of an ad changing from Published to Unpublished after 30 days of its original publishing date

The above means that in addition to an initial data retrieval of all available ads, I will need to monitor and update the status of all pre-retrieved ads for a period of 30 days.

The following are important constituents of an ad:

Variable/Editable Information	Fixed Information
Title	Location
Photo(s)	
Price	Car Brand and Specifications
Publishing Date	
Description	Views
Advertiser Name	

I will also need to identify how every one of the variable information can affect number of views and by consequence our KPIs.

I have thus, set up a web scraper using Python to perform the following:

- First, retrieve a list of all ads posted on the OLX website, vehicles category. The list is limited to 3 information: Title, Price, URL of the individual listing
- Second, go through the previously obtained list of ads, access the individual listing, and return a new list of all the ad information: from brand all the way to number of views
- Finally, review the list of all ads, on a daily basis to check in on the updated view count as well as the publishing state. Any ad that has been unpublished, will be removed from the ad list in order to reduce the Run Time of our script over time.

III)   Data Analysis

1. After collecting the data, I have imported the Data into a MySQL database. I then cleaned the data before proceeding with the analysis.

To better address the business problem, I have first decided to segment the market into 4 car categories based on their price point. These are:

- Economy 0 – 5'000
- Standard 5'000 – 20'000
- Premium 20'000 – 50'000
- Luxury 50'000+

Using the data, I was able to create the following tables:

category	price_range	number_of_ads	ads_total_percentage	views	views_percentage	views_per_ad	interest_vs_availability
Economy	0-5000	412	10.75	1101927	9.08	2675	0.84
Standard	5000-20000	2553	66.59	6692575	55.12	2621	0.83
Premium	20000-50000	676	17.63	2933965	24.17	4340	1.37
Luxury	50000+	193	5.03	1412772	11.64	7320	2.31

Table comparing supply (ads) and interest (views) of the car market

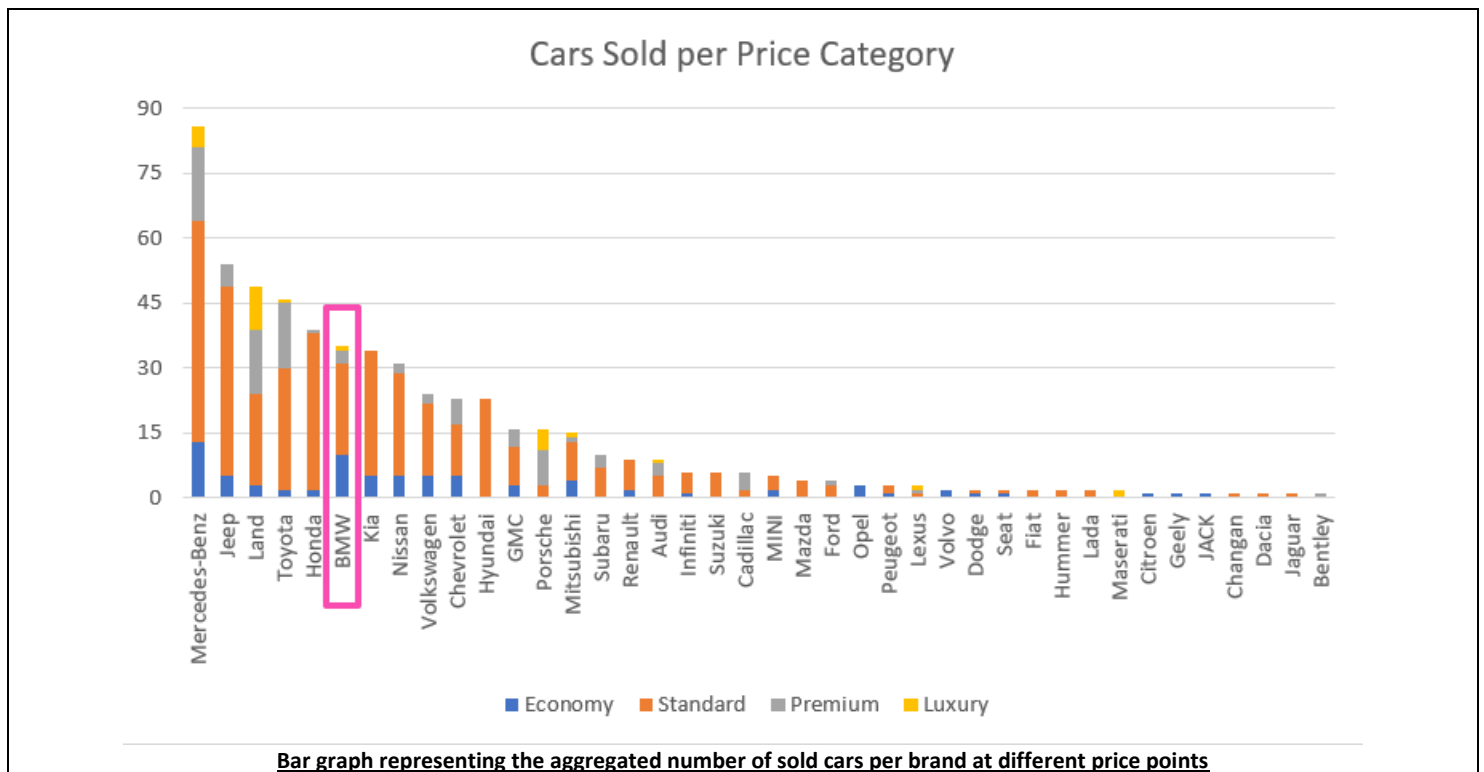| category	price_range	sold_cars	unsold_cars	total_ads	success_rate	failure_rate	views_per_sold_ad_per_day	views_per_unsold_ad_per_day	views_difference_percentage
Economy	0-5000	78	23	412	18.93	5.58	188.0115	83.1465	55.77
Standard	5000-20000	382	326	2553	14.96	12.77	162.2765	86.6014	46.62
Premium	20000-50000	91	100	676	13.46	14.79	239.8738	112.3257	53.17
Luxury	50000+	26	38	193	13.47	19.69	380.6589	233.4860	38.67

Table presenting the correlation between sales and views

Key takeaways:

- The majority of the total views are going towards the Standard and Premium Cars (79% of total views)
    - This is because there are more ads being placed in these 2 categories
- The Luxury category is attracting the most views per ad on average
    - This is understandable as looking at higher end cars online can be entertaining.
    - This category seems to also have less serious buyers than the others.

- The highest sales success rate can be seen in the Economy cars with the lowest being in the Luxury cars.
- The highest sales failure rate can be seen in the Luxury cars while the Economy cars are at the lowest rate.

- On average, cars that are not successfully sold, tend to get 48.6% less views per day than their counter parts that sold successfully.

- We can correlate a higher daily view count with a higher chance of successful sale.

2. While looking at the popularity of the various brands of cars listed on OLX, I can see that Mercedes-Benz takes the lead in the overall categories.

The top 10 selling car brands make up over 75% of the total sales of the market. The breakdown is as follows:

Bar graph representing the aggregated number of sold cars per brand at different price points

The above bar graph then shows that BMW is the second most sold car for the Economy category, which happens to be the category to which my own car belongs to.

- Very encouraging results regarding the demand of this specific brand at the lower price range.

3. Comparing average prices of successful ads to non-successful ads and all ads, I can see the following:

category	sold_avg_price	unsold_avg_price	all_avg_price	sold_to_unsold_difference_ratio	sold_to_all_difference_ratio	unsold_to_all_difference_ratio
Economy	3601	3998	3683	-11.02	-2.28	7.88
Standard	10169	11315	10838	-11.27	-6.58	4.22
Premium	31503	33073	31365	-4.98	0.44	5.16
Luxury	79977	79695	78112	0.35	2.33	1.99

Table comparing average pricing across categories for sold, unsold and all posted ads

For the Economy category in particular, we can discern a range of 2.3% to 11% reduction in prices for sold ads in contrast with unsold ads and all ads.

As we go up towards the higher end cars, we can see that this range shrinks and even reaches a point where Luxury cars are on average 2.3% more expensive than all luxury ads.

It is also clear that unsold ads, in all categories, are on average more expensive than all ads.

- A reduced price will be necessary to successfully sell my car

4. Comparing ads placed by individuals to ads placed by car reselling businesses, we obtain the following:

adv	success_rate	failure_rate
Individuals	27.75	9.76
Businesses	23.01	14.77

Table comparing sales rates between ads posted by Individuals and ads posted by Businesses

Overall, Businesses tend to have a lower success rate as well as a higher failure rate with their car listings compared to Individuals. This can be caused higher prices that businesses advertise at since they need to account for profit margins as well.

- It is more ideal to sell your car directly to potential buyers than to go through a car reseller.

5.

Additional insights:

a. There is no need to add Extra Features (ABS, Air Conditioning, Air Bags, etc.) to your ad, as the number of extra features does not seem to affect success or failure:
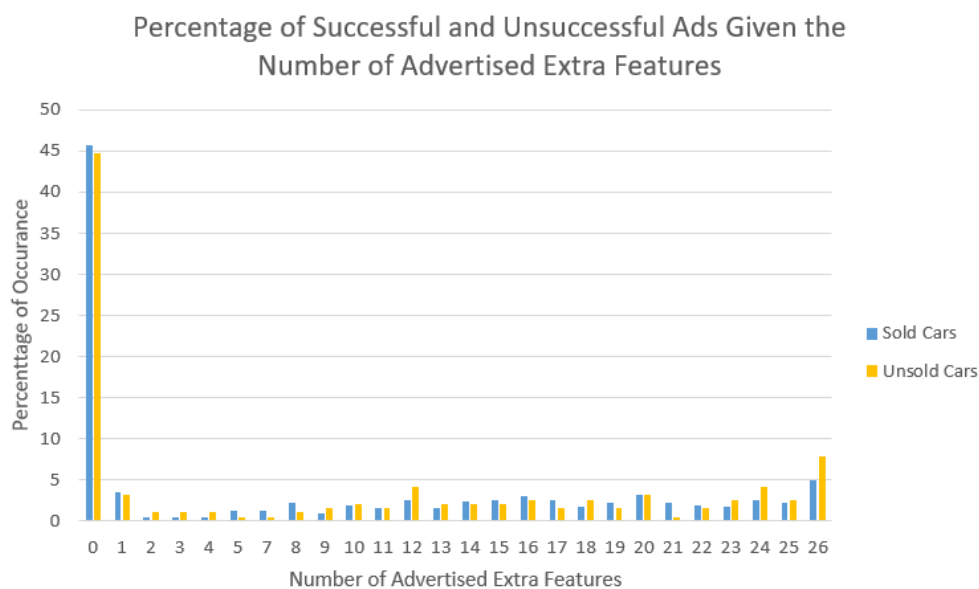
Bar graph demonstrating the indifference of buyers towards advertised extra features

b. Both successful and unsuccessful ads have relatively similar Title and Description lengths, as well as number of photos:

state	title_length	description_length_range	image_number_range
Sold in 1 Week	13 - 44	12 - 291	6 - 9
Sold in 2 Weeks	10 - 42	0 - 257	6 - 9
Sold in 3 Weeks	9 - 46	0 - 309	6 - 8
Sold in 4 Weeks	9 - 46	0 - 244	6 - 9
Unsold	11 - 44	0 - 318	6 - 9

However, going through the list of successful and unsuccessful ads, I was able to notice that sold ads tend to have a better cover photo of their car that shows the front of the car at an angle which also reveals either the left hand or right-hand side. On the other hand, unsold ads tend to have cover photos of the interior, roof or back of the car.

Add to that, when comparing Titles for sold and unsold ads, I could observe that sold ads tend to have the following structure for their titles:

- o   Shorter Titles {Car_Brand} {Car_Model} {Production_Year}.
- o   Longer Titles {Car_Brand} {Car_Model} {Production_Year}, {Description_of_Condition} {Description_of_particular_feature}.

    Example: BMW E46 1999, Very Clean with Black Leather Interior

Unsold ads tend to miss key elements such as the Car Brand or Production Year in shorter titles. They also tend to include random specs and information in longer titles such as mileage, number of cylinders, transmission type with the words "Limited Edition", "Rare".

Disclaimer:

While the qualitative Analysis of Title, Description, Photos is not currently possible due to my limited technical skills, the above was gathered while skimming through the different ads, noting down some observations, and using common sales/marketing logic to interpret.

IV) Solving the Problem

With the knowledge gained from my analysis of the market, sold, and unsold ads, I can now be confident that selling my car, despite the current economic crisis, is still a possibility.

With it falling into the Economy category, it has the highest chance for a successful sale. I also do not need to worry about entrusting the sale to a reseller as I have greater odds of selling the car then they do.

I am also able to confirm that the single most valuable factor that contributes to an ad's success is its price. When posting my ad, I will need to study the competition (similar ads for the similar car) in order to strategically price my vehicle in a range that falls 3% cheaper than the average price and 11% cheaper than the most expensive and/or least viewed car.

Finally, using an attractive and descriptive Title, a clear high quality cover photo (accompanied by 5 to 7 secondary photos), and a short description (0-300 characters) will help in generating more views and in turn increase the chances of a sale.

Do you wish to sell your car on OLX? Then here is a step-by-step guide to figuring out the parameters of your ad:

1. **Determine what Price Category your car falls into**
   You can do so by comparing it with listings for the same brand, car model and production year +/- 2 years.
2. **Prepare a list of competitors' ads to understand the price at which you will be posting your ad**
   - Get the average price for all listings that have the same brand, car model, and production year (+/- 2 year).
   - Calculate the `number of views` / `number of days since published` to understand the popularity of the ads.
   - Price your ad using the below breakdown depending on the category:
       - **Economy:** 2.3% cheaper than the average – 11% cheaper than the average unpopular ads
       - **Standard** 6.6% cheaper than the average – 11.3% cheaper than the average unpopular ads
       - **Premium** 0.5% pricier than the average – 5% cheaper than the average unpopular ads
       - **Luxury:** 2.3% pricier than the average – 0.4% pricier than the average unpopular ads
3. **Take nice pictures of your car and use them**
   - Wash and clean your car
   - Take 4-5 pictures of the exterior from all four corner angles and 2-3 of the interior to showcase the dashboard and seats
   - Use a photo that shows the front of the car as the cover photo
4. **Select a compelling title with a simple yet well rounded structure**
   - Title structure: {Car_Brand} {Car_Model} {Production_Year}, [{Description_of_Condition} {Description_of_one_particular_feature}].
5. **Write a short descriptive paragraph**
   - Cite the reason behind your decision to sell your car
   - Put in information you think may be useful or that are strong selling points such as but not limited to:

Mileage, power of the engine, upgrades done to the audio system, material of the interior, the condition of the car and the maintenance etc.

6. **Do not waste your time filling in Extra Features, just skip it**.

You can find my own OLX ad **HERE**

Python and SQL Scripts as well as raw data files can be found on **GitHub**