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What Makes Life Meaningful?

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Introduction

The famous writer, Mu-Jung Hsi, once said, "*I always feel that life itself should have a meaning, and we are definitely not doing it in vain."* But we cannot really know that if we will live in vain or not, so we started to think about the meaning of "a meaningful life".

Living in Taiwan, we can easily observe that our value education let lots of people be afraid of failure. And we think this phenomenon will somehow affect how people define "meaningful" and think about themselves. In our opinion, if we know which kind of people tend to think their life unmeaningful, policy makers can do some efforts to make more people consider their life meaningful and therefore benefit the atmosphere of the whole society.

Consequently, to find out the purpose of our lives, we eager to know what's meaningful in our life journey that worthwhile for us to experience. In other words, we want to find out **the characteristics which affect whether people consider their life meaningful or not**.

What's more, due to a p-value that equals to zero from the above mentioned question, we have also figured another extended topic. That is, **the characteristics which affect whether people suffered insomnia or not**.

Literature Review

Meaning of life can be concerned from lots of perspectives, and for economists, researchers have focused relationships between happiness, meaningful life, and output (Kavčič and Avsec 2014).

Also, René T. Proyer, Hubert Annen, Nadine Eggimann, Andrea Schneider and Willibald Ruch (2012) have discussed how work-satisfaction related to life-satisfaction. And D Firth (2008) has figured about meaningful relationships and worthwhile life.

All of the above mentioned research focused on a single type of factor which affects how people consider their life meanings. Thus, we aimed our research target to find other characteristics from different categories that cause vital effect on people's acknowledge about life meaning.

Data

We took advantage of a survey on Survey Research Data Archive (SRDA), Academia Sinica, which is conducted by Ly-yun Chang and Pei-shan Liao, and named **2007 Taiwan Social Change Survey (Round 5, Year 3): Social Stratification** as our data source since it has more complete data than the Taiwan Social Change Survey in other years such as 2012 and 2017 that is more recent from now.

This survey used stratified three-stage probability proportional to size sampling and successfully interviewed 2040 people over 18 years old who live in Taiwan. And the interviews were done face-to-face between July 2007 to September 2007.

Also, for some methods that have been used in this survey, we referred to **Analysis of Complex Survey Data: The Application of SAS and STATA**, Pei-

Chun Hou (2010), since Hou's paper used some examples from our target survey and it makes us more clear of the sampling method.

For the dependent variable of our first model, we selected the question "In this week, how often do you consider your life meaningful?" In the original questionnaire, the answers are separated into "Almost everyday", "Every two days", "One to twice a week", "Never" and "Others". And we transferred the frequency words into normalized value in Table 1 below to conduct the following statistical process.

Table 1. Normalized Values of Answers to the Question

Answer to the question	Normalized value
Almost everyday	1
Every two days	0.5
Once to twice a week	0.2
Never	0
Others	Consider it as missing and remove.

And for our extended model, we want to find out which factors affect the answer to question "In this week, how often do you suffer insomnia problems?" And in the original questionnaire, the answers are also separated into "Almost everyday", "Every two days", "One to twice a week", "Never" and "Others", so we use the same normalized value as the previous model to conduct regression.

Then, for our independent variables, we have 31 independent variables that related to characteristics, family, financial status, mental health, and hobby. And we will explain those significant ones in the empirical results section.

Empirical Methods

Using STATA to analyze the data, first we organized the source data, removed the missing data as well as the system errors, transferred the data into calculatable forms and tried to find the variables we can use in our model.

Then, we generate the two models below by multiple linear regression and checked if there exist relationships as we predict.

Model 1. Frequency of Feeling Life is Meaningful in a Week

$$
\begin{aligned}
&Frequency\ of\ Feeling\ Life\ is\ Meaningful\ in\ a\ Week \\
&\quad = \beta_0 + \beta_1 Gender + \beta_2 Age + \beta_3 North + \beta_4 Marriage \\
&\quad + \beta_5 Live\ with\ Spouse + \beta_6 Taiwanese + \beta_7 Family\ Income \\
&\quad + \beta_8 Part\ Time + \beta_9 Change\ Job + \beta_{10} Lose\ Job \\
&\quad + \beta_{11} Social\ Class + \beta_{12} Air\ Conditioner \\
&\quad + \beta_{13} Head\ of\ Household + \beta_{14} Loan + \beta_{15} Mortgage \\
&\quad + \beta_{16} Children(7{\sim}15) + \beta_{17} Elders(over\ 65) + \beta_{18} Tennis \\
&\quad + \beta_{19} Basketball + \beta_{20} Baseball + \beta_{21} GetClose\ to\ Nature \\
&\quad + \beta_{22} Arts\ Exhibition + \beta_{23} Taiwanese\ Opera + \beta_{24} Puppetry \\
&\quad + \beta_{25} Chinese\ Song + \beta_{26} Chicken\ Soup\ for\ the\ Soul \\
&\quad + \beta_{27} Fantasy\ Novel + \beta_{28} Light\ Reading + \beta_{29} Surfing \\
&\quad + \beta_{30} Camera + \beta_{31} KTV
\end{aligned}
$$

Model 2. Frequency of Insomnia in a Week

$$
\begin{aligned}
&Frequency\ of\ Insomnia\ in\ a\ Week \\
&= \beta_0 + \beta_1 Gender + \beta_2 Age + \beta_3 North + \beta_4 Marriage \\
&+ \beta_5 Live\ with\ Spouse + \beta_6 Taiwanese + \beta_7 Family\ Income \\
&+ \beta_8 Part\ Time + \beta_9 Change\ Job + \beta_{10} Lose\ Job \\
&+ \beta_{11} Social\ Class + \beta_{12} Air\ Conditioner \\
&+ \beta_{13} Head\ of\ Household + \beta_{14} Loan + \beta_{15} Mortgage \\
&+ \beta_{16} Children(7\sim15) + \beta_{17} Elders(over\ 65) + \beta_{18} Tennis \\
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&+ \beta_{22} Arts\ Exhibition + \beta_{23} Taiwanese\ Opera + \beta_{24} Puppetry \\
&+ \beta_{25} Chinese\ Song + \beta_{26} Chicken\ Soup\ for\ the\ Soul \\
&+ \beta_{27} Fantasy\ Novel + \beta_{28} Light\ Reading + \beta_{29} Surfing \\
&+ \beta_{30} Camera + \beta_{31} KTV
\end{aligned}
$$

Finally, we used VIF value to check if collinearity exists and verified the final model, and the results are shown in fig.1.

Figure 1. VIF of Independent Variables

Variable	VIF	1/VIF
Marriage	6.33	0.158081
Live_with_~e	6.25	0.160115
Mortgage	3.53	0.283390
Loan	3.52	0.284201
Light_Read~g	1.90	0.525793
Basketball	1.82	0.549840
Baseball	1.77	0.565061
Age	1.74	0.573285
Gender	1.56	0.640559
Surfing	1.54	0.650599
Tennis	1.49	0.670173
Camera	1.48	0.676898
Chicken_So~l	1.41	0.709223
Puppetry	1.38	0.726020
Taiwanese_~a	1.35	0.738890
Arts_Exhib~n	1.34	0.744793
Head_of_Ho~d	1.32	0.757335
Social_Class	1.29	0.774072
Family_Inc~e	1.27	0.786857
Chinese_Song	1.23	0.812279
Get_Close_~e	1.22	0.822723
Elders_Ov~65	1.21	0.829622
Air_Condit~r	1.20	0.833515
Lose_Job	1.20	0.834833
Change_Job	1.20	0.834980
KTV	1.16	0.862474
Fantasy_No~l	1.15	0.867365
Part_time	1.14	0.874184
Taiwanese	1.14	0.874187
North	1.13	0.883016
Children_~15	1.13	0.884828
Mean VIF	1.82	

Empirical Results

In this section, we will show the outcome of the regression as well as our speculation about the reasons which lead to this outcome. As shown in fig. 2 below, after removed the missing data and system errors, there are 522 observations left. And the root-mean-squared-error, r-square value, chi-square value and P-value of two models are also shown in fig. 2.

Figure 2. Basic data of two models

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
Meaningful	**522**	**31**	**.4008486**	**0.1248**	**74.41**	**0.0000**
Insomnia	**522**	**31**	**.2695142**	**0.1079**	**63.13**	**0.0006**

Then, the results of multiple linear regression are shown respectively in fig. 3 and fig. 4 on the next page. And we organized it into a coefficient table as table 2 as well as marked those significant ones.

Figure 3. Result of Model 1

Meaningful	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender	-.0270077	.0462861	-0.58	0.560	-.1179514	.0639361
Age	-.0008313	.0022746	-0.37	0.715	-.0053003	.0036378
North	-.042177	.0382123	-1.10	0.270	-.1172571	.0329031
Marriage	.1383251	.1375077	1.01	0.315	-.1318523	.4085026
Live_with_S~e	.0073229	.1288229	0.06	0.955	-.2457905	.2604363
Taiwanese	.016466	.0091757	1.79	0.073	-.0015626	.0344946
Family_Income	.0090474	.0022169	4.08	0.000	.0046916	.0134032
Part_time	.1112365	.0931485	1.19	0.233	-.0717832	.2942562
Change_Job	-.0557715	.0560517	-1.00	0.320	-.1659028	.0543597
Lose_Job	-.0264904	.0454701	-0.58	0.560	-.1158308	.0628501
Social_Class	.1527718	.131175	1.16	0.245	-.1049631	.4105067
Air_Conditi~r	-.0090943	.0743106	-0.12	0.903	-.1551011	.1369126
Head_of_Hou~d	.1031651	.0427511	2.41	0.016	.0191669	.1871633
Loan	-.1042966	.0717448	-1.45	0.147	-.2452621	.0366689
Mortgage	.0148791	.073594	0.20	0.840	-.1297197	.1594779
Children_7_15	-.0145016	.0406898	-0.36	0.722	-.0944495	.0654464
Elders_Ove~65	-.069762	.0489431	-1.43	0.155	-.1659261	.0264022
Tennis	-.0243644	.0566188	-0.43	0.667	-.1356101	.0868813
Basketball	.0153171	.0531667	0.29	0.773	-.0891458	.1197801
Baseball	-.0410962	.0501112	-0.82	0.413	-.1395555	.0573632
Get_Close_t~e	.0015464	.0404789	0.04	0.970	-.0779873	.08108
Arts_Exhibi~n	.0535553	.046148	1.16	0.246	-.0371171	.1442276
Taiwanese_O~a	.0659494	.0606958	1.09	0.278	-.0533067	.1852056
Puppetry	.055092	.0581623	0.95	0.344	-.0591863	.1693704
Chinese_Song	-.0522891	.0422622	-1.24	0.217	-.1353266	.0307484
Chicken_Sou~l	.0695278	.0423335	1.64	0.101	-.0136499	.1527055
Fantasy_Novel	-.0269667	.0471735	-0.57	0.568	-.119654	.0657207
Light_Reading	.0242107	.0510017	0.47	0.635	-.0759983	.1244197
Surfing	-.0546758	.0460819	-1.19	0.236	-.1452183	.0358667
Camera	.0504931	.0483695	1.04	0.297	-.0445441	.1455302
KTV	.007533	.0441135	0.17	0.864	-.079142	.0942079
_cons	.1784843	.1923475	0.93	0.354	-.1994435	.556412

Figure 4. Result of Model 2

Insomnia	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender	.0313392	.0319989	0.98	0.328	-.0315328	.0942112
Age	-.0022672	.001635	-1.39	0.166	-.0054796	.0009451
North	.032849	.0256255	1.28	0.200	-.0175005	.0831985
Marriage	-.1968364	.0609517	-3.23	0.001	-.3165954	-.0770774
Live_with_Spouse	.0859872	.0383949	2.24	0.026	.0105482	.1614261
Taiwanese	-.0004908	.0059275	-0.08	0.934	-.0121372	.0111556
Family_Income	-.003774	.0013786	-2.74	0.006	-.0064827	-.0010653
Part_time	-.0496798	.0675265	-0.74	0.462	-.1823571	.0829976
Change_Job	-.0160288	.0385742	-0.42	0.678	-.0918199	.0597624
Lose_Job	.0616167	.0342755	1.80	0.073	-.0057283	.1289617
Social_Class	-.1155708	.09629	-1.20	0.231	-.304763	.0736214
Air_Conditioner	-.0124923	.0553456	-0.23	0.822	-.1212363	.0962516
Head_of_Household	.0053471	.0271756	0.20	0.844	-.0480479	.0587422
Loan	.0449624	.0530805	0.85	0.397	-.0593311	.1492559
Mortgage	-.0507369	.0532258	-0.95	0.341	-.1553158	.0538421
Children_7_15	-.0514774	.0261306	-1.97	0.049	-.1028193	-.0001356
Elders_Over_65	.0441244	.0344781	1.28	0.201	-.0236187	.1118675
Tennis	.0363012	.0395744	0.92	0.359	-.0414553	.1140577
Basketball	-.0572077	.0417685	-1.37	0.171	-.1392752	.0248598
Baseball	.0417319	.0370303	1.13	0.260	-.0310259	.1144897
Get_Close_to_Nature	.0353085	.0249747	1.41	0.158	-.0137622	.0843793
Arts_Exhibition	-.0008579	.0291272	-0.03	0.977	-.0580875	.0563717
Taiwanese_Opera	.0663161	.0379097	1.75	0.081	-.0081696	.1408017
Puppetry	-.0511309	.0332605	-1.54	0.125	-.1164816	.0142199
Chinese_Song	-.0616679	.027226	-2.27	0.024	-.1151621	-.0081738
Chicken_Soup_for_the_Soul	.0187412	.0252408	0.74	0.458	-.0308523	.0683348
Fantasy_Novel	.0358594	.0345559	1.04	0.300	-.0320366	.1037554
Light_Reading	.0184117	.0350809	0.52	0.600	-.0505157	.0873392
Surfing	.0070622	.0292184	0.24	0.809	-.0503465	.0644709
Camera	-.014951	.0338528	-0.44	0.659	-.0814656	.0515636
KTV	.0491395	.0310966	1.58	0.115	-.0119596	.1102385
_cons	.451084	.1532702	2.94	0.003	.1499361	.7522319

Table 2. Coefficient Table

	Meaningful	Insomnia
Gender	-0.0270	0.0313
Age	-0.0008	-0.0023
North	-0.0422	0.0328
Marriage	0.1383	-0.1968**
Live with Spouse	0.0073	0.0860
Taiwanese	0.0165*	-0.0005
Family Income	0.0090***	-0.0038*
Part-time	0.1112	-0.0497
Change Job	-0.0558	-0.0160
Lose Job	-0.0265	0.0616**
Social Class	0.1528	-0.1156
Air Conditioner	-0.0091	-0.0125
Head of Household	0.1032**	0.0053
Loan	-0.1043	0.0450
Mortgage	0.0149	-0.0507
Children (7-15)	-0.0145	-0.0515**
Elders (Over 65)	-0.0698	0.0441
Tennis	-0.0244	0.0363
Basketball	0.0153	-0.0572*
Baseball	-0.0411	0.0417
Get Close to Nature	0.0015	0.0353
Arts Exhibition	0.0536	-0.0009
Taiwanese Opera	0.0659	0.0663*
Puppetry	0.0551	-0.0511
Chinese Song	-0.0523	-0.0617**
Chicken Soup for the Soul	0.0695*	0.0187
Fantasy Novel	-0.0270	0.0359
Light Reading	0.0242	0.0184
Surfing	-0.0547	0.0071
Camera	0.0505	-0.0150
KTV	0.0075	0.0491*
Constant	0.1785	0.4511***

Pseudo R-squared	0.1248	0.1079
N	522	522

z statistics in parentheses
*p < 0.1, **p < 0.05, ***p < 0.01

From the coefficient table, we can see that family income is significant in both models. Since family income vitally affects not only our material life but our spiritual life, we think it is the main reason that it is significant in both models.

Then, for the model of life meanings, ability of speaking Taiwanese, being household or not and hobby of reading chicken soup of the soul exists positive relationships to life meanings. Thus, we can know that responsibility and deeper explore of the world can somehow cause positive effect on life meanings.

Going to the model of insomnia, we can see that there are several kinds of people that tend NOT to suffer insomnia problems. For married people and those who have their own children, we can see that people owning good relationship with family members can get sustenance of soul. People who like to play basketball may get tired after intense games then fall asleep easily. And for those who have a hobby of listening Chinese songs, we think they can release emotions through resonances with the lyrics since Chinese is the most frequently used language in Taiwan.

On the other hand, there are also three elements that leads to insomnia problems. That is, situation of losing fob, hobby of watching Taiwanese Opera and going to KTV. Of course, losing job brings on quite a few stress and negative emotions and bring people away from the brilliance of life. And as we known, most Taiwanese Opera are played at night; therefore, people who cannot fall asleep may have more chance to have this hobby. Lastly, most people tend to go to KTV at night, so having this hobby may let people don’t feel sleepy at night.

For the difference between the two models, we think it may due to the

foundation of the two questions. Meaning of life may affected by acknowledge about the world and how you discover it. But for insomnia problems, it will be affected by one's own experience more.

Discussion

Now we know which factors may lead to a meaningful life, if we look at this topic from the perspective of a policy maker, policy makers may make more people feel their life meaningful by offering Taiwanese education and chicken soup for the soul or raising household income.

For Taiwanese education, as we known, motivative for learning a language often comes from TV programs, dramas, and animas. Thus, policy makers may invest on attractive Taiwanese works to motivate more people, especially the youth to learn Taiwanese. And for chicken soup for the soul, we think we can broaden the range to not only books. Make the atmosphere of society more positive by sharing warm stories may be a choice. Last but not least, for the hardest one, raising household income, policy makers may offer more forward-thinking ideas to benefit the whole country.

Conclusion

Though the regression models, we can know the elements which affect whether people consider their life meaningful and whether people suffer insomnia problem. But for general characteristics such as age and gender, the effects are less in our model.

Thereby, we can conclude that concerning life meanings and insomnia problems, we should focus on peoples' hobbies, life experiences and financial status instead of focusing on their general characteristics.

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