

Business statistic



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Results This paper aims to reveal the result of the analysis of the 62 unscheduled repair reports randomly selected to give a clear prediction of the total repair cost based on the number of hours of operation of the equipments for A & A Industrial Products. The Statistical Package for Social Science (SPSS) was utilized.

Figure 1

Scatter Plot

Figure 1 shows the pictorial relationship between hours of operation and repair cost. It is shown in the scatter plot the relationship is almost positively perfect as reflected by the r value of .989 which according to Hurlburt , this coefficient of correlation is “ very high” (376). Also, as seen in Table 1, the r squared was found to be 0.977. This means that 97.7% of the changes in the number of hours of operation cause the changes in the total repair cost.

Table 1

Relationship between Repair cost

and Hours of operation

Variables

R

R Square

Repair cost and Hours of operation

.989

.977

Likewise, by the use of the regression analysis, it was found that the equation of predicting the repair cost in terms of the number of hours of operation is:

Repair Cost = -22537.938 + (104.942)*(Hours of Operation)

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The actual repair cost for each of the number of hours of operation which was recorded is presented below together with the predicted repair cost found using the equation.

Repair Cost

Hours of

operation

Predicted repair cost

11823. 13

291

8000. 13697

13972. 69

307

9679. 20639

11697. 91

309

9889. 09007

15119. 35

312

10203. 91559

14591. 34

325

11568. 15949

16228. 46

354

14611. 47281

16155. 88

360

15241. 12384

17676. 72

367

15975. 71672

19802. 38

394

18809. 14636

20567. 51

403

19753. 62291

18962. 25

405

19963. 50659

18513. 72

405

19963. 50659

19160. 13

410

20488. 21578

20930. 79

419

21432. 69233

19227. 53

432

22796. 93623

20324. 06

433

22901. 87807

23625. 64

443

23951. 29646

21298. 56

450

24685. 88933

23329. 88

464

26155. 07507

23190. 44

465

26260. 01691

21941. 18

467

26469. 90058

24962. 49

478

27624. 26081

26002. 04

488

28673. 6792

25865. 2

495

29408. 27207

30041. 39

506

30562. 63229

32055. 21

520

32031. 81803

31062. 16

522

32241. 70171

31368. 16

524

32451. 58539

31347. 16

525

32556. 52723

34771. 52

528

32871. 35274

35137. 3

534

33501. 00378

32662. 09

536

33710. 88745

35039. 73

547

34865. 24768

36181. 38

548

34970. 18952

35316. 75

554

35599. 84055

35593. 64

558

36019. 6079

35800. 4

568

37069. 02629

36458. 7

579

38223. 38652

39026. 16

587

39062. 92123

40711. 63

589

39272. 8049

41423. 7

591

39482. 68858

41093. 23

593

39692. 57226

41027. 82

595

39902. 45594

39433. 56

606

41056. 81616

40832. 13

607

41161. 758

45175. 04

640

44624. 83868

44624. 5

641

44729. 78052

44994. 35

644

45044. 60603

43652. 54

644

45044. 60603

46024. 74

646

45254. 48971

47684. 44

652

45884. 14074

46191. 67

655

46198. 96626

45513. 51

661

46828. 61729

47420. 04

662

46933. 55913

48078. 79

674

48192. 86119

49139. 47

683

49137. 33774

47934. 56

685

49347. 22142

51414. 33

699

50816. 40716

60686. 7

760

57217. 85932

58862. 21

771

58372. 21955

61650. 91

783

59631. 52161

64142. 73

791

60471. 05632

Reference:

Hurlburt, Russell Understanding Behavioral Statistics

Brooks/Cole Publishing Company, NY USA. 2001

Appendices

Analysis Output

(Linear Regression)

Model Summary^b

Model

R

R Square

Adjusted R Square

Std. Error of the Estimate

1

. 989a

. 977

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. 977

2035. 62385

a. Predictors: (Constant), Hours_operation

b. Dependent Variable: Repair_cost

ANOVA^b

Model

Sum of Squares

df

Mean Square

F

Sig.

1

Regression

1. 080E10

1

1. 080E10

2605. 924

. 000^a

Residual

2. 486E8

60

4143764. 448

Total

1. 105E10

61

a. Predictors: (Constant), Hours_operation

b. Dependent Variable: Repair_cost

Coefficientsa

Model

Unstandardized Coefficients

Standardized Coefficients

t

Sig.

B

Std. Error

Beta

1

(Constant)

-22537.938

1127.020

-19.998

.000

Hours_operation

104.942

2.056

.989

51.048

.000

a. Dependent Variable: Repair_cost