

Crack dealing in the 80's

Chicago, January 1984 The Gangster Disciple Nation, a Chicago-based gang, has just opened a new franchise in Grand and Noble neighborhood. The new franchise is managed by a local gang leader and organized as follows : three officers (an enforcer guaranteeing the safety of the gang, a treasurer who watched over the gang's liquid assets and a runner in charge of conveying large quantities of drugs from and to the supplier), and 45 street-level salesmen known as foot soldiers.

The expenses of the gang are reported below:

Table 1: Gang Monthly Expenses

Drug Sales	\$24,800
Dues	\$5,100
Extortionary Taxes	\$2,100
TOTAL MONTHLY REVENUES	\$32,000
Wholesale cost of drugs	\$5,000
Mercenary fighters	\$1,300
Weapons	\$1,300
Funeral & charities	\$2,400
TOTAL MONTHLY COSTS	\$10,000

Monthly gross profit equals to the revenues minus the costs. 25% of the gross profit should be given to the Gangster Disciple Nation's Board of Directors. The local gang leader keeps half of the rest. The remainder is distributed as follows :

- 25% go to the officers
- 75% go to the foot soldiers

1 Why do drug dealers still live with their moms

1. The monthly gross profit is \$22,000. 25% of it go to the Board of Directors, being $0.25 * 22,000 = \$5,500$. The gang leader takes half of the rest, being $(22,000 - 5500) * 0.5 = \8250 . The foot soldiers have 75% of the rest $0.75 * 8250 = \$6,187.5$ and officers 25%, being \$2,062.5. The percentage of the gross profit that goes to the foot soldiers is

$$\frac{6187.5}{22000} = 28.1\%$$

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- There are 45 foot soldiers. So, a foot soldier's monthly income is $\frac{6187.5}{45} = \$137.5$, being $\frac{137.5}{8250} \approx 1.7\%$ of the gang leader income.
There are three officers. So an officer's monthly income is $\frac{2062.5}{3} = \$687.5$, being $\frac{687.5}{8250} \approx 8.3\%$ of the gang leader income.
 - A foot soldier works $50h$ per month. So his hourly income is $\$2.75$, which is $\frac{2.75}{3.35} \approx 82\%$ of the federal minimal wage.
 - Gang dealers still live with their mom because they can't afford to live on their own.

2 Mapping of crack dealing

Table 2: Geographical breakdown of Grand and Noble franchise's monthly drug sales

	Time slots				TOTAL
	6h-9h	12h-15h	19h-22h	22h-1h	
Grand Ave	\$2,300	\$700	\$3,800	\$5,200	\$12,000
Noble St	\$800	\$200	\$3,500	\$3,500	\$8,000
Hubbard St	\$400	\$3,200	\$1,000	\$200	\$4,800
TOTAL	\$3,500	\$4,100	\$8,300	\$8,900	\$24,800

- The best time slot for business is 22h-1h, with $\frac{8900}{24800} \approx 36\%$ of the whole drug sales.
- $$\frac{4800}{24800} \approx 19\%$$
- See the table below

Table 3: Geographical breakdown of Grand and Noble franchise's monthly drug sales between 19h and 22h

	19h-22h
Grand Ave	45.78%
Noble St	42.17%
Hubbard St	12.05%

3 Expanding the business

The gross profit of the Grand and Noble franchise increases by 10% each quarter.

1. The annual growth rate is :

$$\left(1 + \frac{10}{100}\right)^4 - 1 = 1.1^4 - 1 = 0.4641 = 46.4\%$$

2. We use the formula covered in class, the number of years n is :

$$n = \frac{\ln(2)}{\ln\left(1 + \frac{46.4}{100}\right)} \approx 1.8 = 1 \text{ year and 9 months}$$

3. We know that foot soldiers' income is 28.1% of the gross profit, according to the profit distribution rule. So it's proportional to the gross profit. It means that in two years, the income of a foot soldier increases as fast as the gross profit; so his income increases by 46.4% per year.

The purchasing power is the increase of the real income, that is the increase adjusted for inflation. So we have to divide the increase of annual income by the increase of price :

$$\left(\frac{1 + \frac{46.4}{100}}{1 + \frac{5}{100}}\right)^2 = 1.94$$

The purchasing power of a foot soldier has been multiplied by 1.94 in two years, being an increase by 94%.

4 Mexican mules

In early 1984, the gang was importing 1.25kg/month of crack from Mexico at a 20,000 pesos/kg price. The nominal exchange rate between Mexico and the United States is 5 Mexican pesos = \$1. Between 1984 and 1986, the y-o-y inflation rate in the US is the same as in the previous section while the Mexican annual inflation rate is 15%.

1. We suppose that the real exchange rate has not changed. That means that the nominal inflation rate has changed with inflation. If 5 Mexican pesos = \$1 in 1984. In 1986 :

$$5 * \left(1 + \frac{15}{100}\right)^2 = \$1 * \left(1 + \frac{5}{100}\right)^2$$

$$6.6125 \text{ Mexican pesos} = \$1.1025$$

$$6 \text{ Mexican pesos} = \$1$$

2. The price in 1984 of 1kg of Mexican crack was 20,000. It is in 1986, due to inflation :

$$20000 * \left(1 + \frac{15}{100}\right)^2 = 26,450$$

And the price of 1.25kg is $1.25 * 26,450 = 33,062.5$

3. The exchange rate is, in 1986, 6 pesos for \$1. So, the price in US\$ of 1.25kg is :

$$\frac{33062.5}{6} = \$5510.4$$

4. In the US, the inflation has been 5% per two years. We want the price of 1.25 crack in 1984 dollars, that is the price in 1986 adjusted for inflation. We do :

$$\frac{5512.5}{\left(1 + \frac{5}{100}\right)^2} = \$5000$$

A straight-forward way to see it, is that the only driver of prices' change had been inflation, and we know that the price in 1984 of 1.25kg was \$5,000. So the price in 1986, adjusted for inflation, is still \$5,000.

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