

JANUARY 24, 2018 | NUMBER 97

## Making a *Narco*

### Childhood Exposure to Illegal Labor Markets and Criminal Life Paths

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**I**llegal markets and the associated crime are critical concerns in developing countries and marginalized areas of rich countries, as exemplified by the impact of the drug trade from Peru and Colombia on the inner cities of the United States. While most research in this area has focused on enforcement measures, little has pinpointed the root causes that are within the reach of policy. Understanding how criminal careers begin is especially important because once individuals embark on a criminal career, they are unlikely to turn back.

Crime is geographically concentrated, and recent evidence documents the lifelong consequences of growing up in a bad neighborhood. Another area of literature has shown how parental decisions, particularly those related to human capital investments, can have long-term consequences. Might location-specific factors during childhood, and parental responses, catalyze criminal careers?

My research finds that exposure to illegal labor markets during childhood leads to the formation of industry-specific human capital at an early age, putting children on a criminal life path. When the economic benefit of illegal activities increases in areas suitable for coca production, parents significantly increase the use of child labor for coca farming. This experience increases children's criminal capital and the chances that they remain in the cocaine industry. As adults,

affected children are more likely to be incarcerated for violent and drug-related crimes and to have lower earnings, and they are less likely to trust state institutions. However, I also show that policies that target the incentives surrounding these early investments can mitigate exposure to illegal labor markets. In particular, conditional cash transfers that encourage schooling can reduce child labor in the illegal sector and thus reduce drug production in coca-suitable areas. This policy addresses an underlying cause of future criminality by limiting the formation of criminal capital while simultaneously increasing formal human capital.

To isolate causal channels, I take advantage of drug enforcement policies in Colombia that shifted coca leaf production to Peru, where 90 percent of coca production is used to produce cocaine. In 1999, Colombia, then the world's largest cocaine producer, implemented Plan Colombia, a U.S.-supported, military-based interdiction intervention. One of the main components was aerial spraying of coca crops in Colombia. This generated higher prices and expanded coca production in Peru, where production doubled in districts with the optimal agro-ecological conditions. By 2012, Peru had become the world's largest cocaine producer.

This setting yields three useful sources of variation: (a) cross-district or cross-school/village variation in coca-growing suitability; (b) over-time variation in coca prices; and

(c) differential exposure to coca growing across cohorts (during sensitive ages) within location-time cells. I measure coca suitability in three ways: coca production in 1994 (before the events examined in my analysis), satellite-image data showing where coca is grown, and a coca suitability index based on the optimal conditions to grow coca. Time variation comes from changes in the black market price of coca induced by the U.S.-supported eradication program in Colombia. Differential exposure arises because children within a district or village experience the coca boom at different ages and because of variation in coca suitability across districts, villages, and schools.

To examine these sources of variation, I build a detailed panel of administrative data for a variety of labor market, schooling, and crime outcomes. First, I use a geocoded school panel and satellite images of coca fields that allow me to link each school to a particular coca geographic cell and isolate how human capital accumulation is affected in the short run. Second, I use confidential administrative data on the 2015 and 2016 universe of Peruvian inmates, which includes information on village of birth, date of birth, length of sentence, education, family characteristics, and previous occupation. Furthermore, black market prices of coca are obtained from United Nations surveys.

These data allow me to track cohorts that were exposed to high coca prices during key ages across areas with different coca suitability. In this way, I can analyze whether exposed children are more likely to be incarcerated in adulthood. I first show that investments in children's human capital are affected by the cocaine industry. The increase in coca prices induced by Colombia's anti-drug policy leads to a large and significant increase in child labor in areas suitable for coca production. Children between the ages of 6 and 14 are most affected, with the largest effects on those between 12 and 14. Consistent with an impact on child labor, when coca prices double, test scores decline for primary school students located in high-coca areas. The probability that affected students fail a grade increases by more than 20 percent. In addition, the relatively high earnings in the cocaine industry induce some secondary school-aged children to drop out of school. In particular, the dropout rate for students beginning secondary school increases by 27 percent. This large effect corresponds exactly to the years when most children drop out of school in Peru.

I then ask how early-life exposure to illegal labor markets affects children's long-run outcomes at the ages of 18 to 40. I find that individuals who grew up in coca-producing areas and experienced high coca prices during childhood are about 30 percent more likely to be incarcerated and have 20 percent

lower earnings than their counterparts. The effects are concentrated among children who experienced high coca prices in their early teens, the ages when child labor increases the most.

The second focus of this paper is to understand the mechanisms driving criminal careers. Two potential mechanisms exist. First, exposed children have lower formal education. Previous literature has found that having lower formal human capital can lead to crime. Second, individuals may acquire skills specific to the illegal sector, such as knowledge about transforming coca into cocaine, knowledge about smuggling, or connections to buyers.

I find evidence that the increase in criminality is mainly driven by human capital specific to the illegal drug industry. First, those who are affected by the price shock are more likely to be convicted of violent and drug-related crimes, but not other types of crimes such as property crime, sexual assault, or white-collar crime. Second, I find that similar price shocks that affect legal commodities such as coffee and gold increase child labor, yet have no effect on the likelihood of future criminality. I also show that individuals from districts where most of the coca is grown for traditional medical and religious purposes are not involved in crime later in life even though they have lower schooling. Third, I show that these negative effects are found not only for those from coca areas who remain in coca-growing districts as adults, but also for those who move to districts without coca production. This finding implies that the long-term effects are caused not by contemporaneous exposure to the cocaine industry during adulthood but rather by exposure during childhood. Finally, I find that an overwhelming majority of individuals who are in prison because of the price shock report that they were involved in illegal activities before the age of 18. Moreover, most of the affected individuals reported farming as their last occupation, indicating that they likely started their criminal career growing coca.

These results also have broader implications in terms of state legitimacy. In line with the criminal capital channel, individuals involved in the illegal industry may learn to navigate an industry that operates outside the rule of law and consequently lose trust in public institutions. I find that children affected by the expansion of the illegal industry are less likely to believe democracy works well and have lower trust in the police and the national government when they are adults. This finding has important implications for state capacity and may limit the government's ability to combat organized criminal groups and drug cartels.

Having shown that criminal careers can develop during childhood, I then analyze how policy can address the underlying mechanisms that lead to future criminality by changing

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parental incentives in the affected areas. I exploit the gradual rollout of a conditional cash transfer program (CCT) during the period of high coca prices. The program provided monetary transfers to parents with the condition that children attend school on a daily basis.

Consistent with the hypothesis that parental responses during childhood matter, I find that conditional cash transfers can mitigate the negative effects of growing up during the expansion of the cocaine industry. I show that coca areas that implemented the program experienced a significant reduction in coca production and child labor. This effect leads to better schooling outcomes even when prices are high.

These results suggest that CCTs should be targeted toward coca-suitable districts in order to mitigate the effects of high coca prices. However, policymakers must also account for a “balloon effect”—if illegal production drops in one area, it may expand in nearby areas. I show that reducing coca production by incentivizing schooling in one district leads to an increase in child labor in neighboring districts if those districts are also suitable for producing coca. This result mirrors the shift of coca production to Peru when eradication increased in Colombia.

Overall, I provide new evidence that childhood environment and parental responses can affect criminality later in life. I argue that the formation of human capital is important for understanding the perpetuation of illegal industries and the geographic concentration of crime. In contrast, much of the previous literature on crime has focused on enforcement, which can often lead to increased violence. I find that location-specific factors and parental responses are a root cause of crime. Furthermore, I show that policies that target parents taking into account location-specific factors reduce the development of criminal careers. In other words, if location-specific factors affect parental incentives to use child labor and thus “create” criminality, then location-specific policies may be needed to target these incentives.

**NOTE:**

This research brief is based on Maria Micaela Sviatschi, “Making a *Narco*: Childhood Exposure to Illegal Labor Markets and Criminal Life Paths,” September 21, 2017, <http://www.micelasviatschi.com/research/>.

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