MORAL HAZARD IN THEORY

Standard economic analysis and a large number of empirical studies show that as insurance coverage expands and the fraction of healthcare charges paid out-of-pocket—the coinsurance rate—falls, people use more healthcare and become less sensitive to the full price of care. This tendency for people to behave differently when more heavily insured is known as “moral hazard,” but as we’ll see, this altered behavior is a predictable economic response, not really the ethical shortcoming that the term suggests.

Economists further distinguish between ex ante and ex post moral hazard. Ex ante moral hazard occurs when better insurance coverage causes people to reduce their efforts to avoid illness or accidents, because they know the resulting treatment costs will fall less on themselves and more on the insurer. On the other hand, ex post moral hazard happens when more complete insurance coverage causes ill or injured patients to receive more treatment, and perhaps more costly forms of treatment, than might be necessary, because the fraction paid out-of-pocket is now smaller. Part of this ex post moral hazard may reflect changes in patients’ behavior (e.g., seeking treatment from a specialist rather than a general practitioner), but part may also reflect providers’ decisions to treat better-insured patients more intensively (extra diagnostic tests, more costly drugs, etc.) than those with less coverage.

Figure 1 illustrates the potential effects of moral hazard by starting with an uninsured market demand for healthcare (D) and a typical upward-sloped supply of care (S). In this uninsured case, the market determined price is $P^*$ and the quantity of care demanded and supplied is $Q^*$. If consumers have no insurance, the coinsurance rate is one ($c = 1$) and the price paid out-of-pocket ($cP^*$) equals the full market determined price ($P^*$). The resulting total spending for care ($P^*Q^*$), shown by the area $gdch$ in Figure 1, is entirely out-of-pocket.

With the introduction of partial health insurance coverage ($c < 1$), demand rotates to the right ($D'$). This shift in demand increases the market price ($P^*$), utilization ($Q'$) and total spending ($P'Q'$, or the area $gabi$). The increase in utilization illustrates the ex post moral hazard mentioned earlier. Ex ante moral hazard—reduced preventive efforts by well-insured persons—requires a somewhat different model, but the implications are the
same: more insurance boosts utilization, prices, and total spending. Further note that the out-of-pocket price paid by the insured consumer ($cP'$) is now less than the market price of healthcare ($P'$), and total out-of-pocket spending ($cP'Q'$ or the area $gefi$) may be greater or less than the previous uninsured spending ($P*Q*$ or the area $gcdh$), depending on the price-sensitivity of demand and supply.

In the extreme, when consumers are fully covered and nothing is paid out-of-pocket ($c = 0$), demand becomes completely insensitive to the full price, something economists describe as perfectly inelastic demand, shown in Figure 1 by the vertical line labeled $D''$. Price and quantity increase to $P''$ and $Q''$, further expanding total expenditures to $P''Q''$. Yet, because consumers are now fully insured, out-of-pocket spending vanishes. Other barriers to care, such as transaction costs or the perceived effectiveness of care, might limit demand, but the money price is of no direct concern to the fully insured consumer, as evidenced by the fact that many heavily insured patients receive no price information and seldom bother to ask. This highlights one of the potential problems with more complete coverage: the lack of price comparison and consumer “push-back” reduces price competition among healthcare providers. It also helps to explain why price-monitoring—the consumer’s role in most markets—often falls to the health insurer.

MORAL HAZARD IN FACT

The above analysis helps to understand how insurance potentially affects healthcare prices, utilization and expenditures, but it’s overly simple. Healthcare markets are not perfectly competitive. Providers coalesce in group practices and clinics to gain market power in pricing their services and securing payments from insurers, but also to obtain lower prices in their own purchases of healthcare inputs. On the other side of the market, insurers also merge to gain power in their marketing of insurance to employers and individuals and to limit their payments to providers. Even the government, a big healthcare purchaser through Medicare and Medicaid, distorts the marketplace by using its clout to trim prices. [A notable exception was Medicare Part D, where Congress prohibited the government from using its substantial buying power to reduce drug prices for the elderly]. In sum, the perfectly competitive model of the healthcare market is, at best, a rough approximation.

Yet this basic model of how more insurance boosts the demand for care is remarkably consistent with the patterns seen in our healthcare markets over the last half-century.

Many people feel that health insurance coverage has eroded, and for some it undoubtedly has, but that’s not the general long-term pattern for the U.S. population. Since 1960, the average coinsurance rates for nearly all types of healthcare have declined substantially, reflecting the growth of insurance coverage. Average coinsurance rates for the population can be calculated from National Health Expenditure data, published by the Centers for Medicare and Medicaid Services (CMS). The following graph shows the coinsurance rates—the fraction paid out-of-pocket—for various service categories over the period 1960-2014.

Coinsurance rates have declined substantially for nearly all categories of care, a reflection of the growth in private and public insurance coverage over time. Figure 2 shows that, over the period 1960-2014, large reductions occurred in the share paid out-of-pocket for: dental care (96.0% to 40.3%), nursing home care (74.4% to 26.5%), drugs (96.0% to 15.0%), physician services (59.5% to 9.0%) and hospital care (20.6% to 3.2%). These figures are based on data for the entire population, some of whom have little or no insurance ($c = 1$), so for the insured population, average coinsurance rates are even lower than shown in the graph.

**Figure 2: Tracking Coinsurance Rates, Percent Out-of-Pocket, 1960-2014**

![Figure 2: Tracking Coinsurance Rates, Percent Out-of-Pocket, 1960-2014](image)

Source: Calculations by the authors, based on U.S. National Health Expenditure data from the Centers for Medicare & Medicaid Services (CMS)
But have these large reductions in coinsurance rates (i.e., more insurance coverage) had the predicted effects on prices, utilization, and total expenditures in each category? The answers to these questions are complicated a bit by things like population growth and inflation. To control for such changes, let’s first look at the price of each type of healthcare relative to the general Consumer Price Index (CPI). Each of these relative price indices is normalized to 1.0 in 1960 and is shown in Figure 3.

Earlier, in Figure 2, we saw that the coinsurance rates for various categories of care have declined considerably since 1960, and according to the basic analysis embodied in Figure 1, such changes should have increased healthcare prices. Figure 3, shows the prices of hospital care, physician services, dental care, and prescription drugs relative to the general Consumer Price Index (CPI). [BLS nursing home price data are only available from 1996 onward, so that category is dropped in Figures 3 and 4.] To facilitate comparison, each of these relative price indices has been normalized to 1.0 in 1960. For example, the relative price of hospital care is now about 10 times what it was in 1960. The relative prices of both physician services and dental care are roughly twice what they were in 1960, while relative drug prices fell from 1960 to 1981, but since then have risen. This turnaround in the pattern for drug prices coincides with the rapid spread of drug insurance in the 1980s, as shown earlier in Figure 2 by the sharp drop in the drug coinsurance rate. During that period, health maintenance organizations (HMOs) and other forms of “managed care” often attracted new members by expanding coverage to drugs and other previously uncovered services; more conventional health plans quickly followed suit. Later, we’ll see further effects of this particular expansion of drug coverage.

The relative price patterns shown in Figure 3 are important, but even more important in understanding consumer behavior in health care markets are the relative out-of-pocket prices of various types of care, shown in Figure 4, because they take into account the changes in coinsurance rates. Each relative out-of-pocket price index is constructed by multiplying the appropriate relative price index in Figure 3 by the coinsurance rate for that type of service (from Figure 2) at each point in time.

The pattern in Figure 4 is more complex. The relative out-of-pocket prices for physician services and...
prescription drugs have generally declined, quite considerably. For hospital care, the relative out-of-pocket price didn’t vary much from 1960 to 2002, but has increased more recently. For dental care, the relative out-of-pocket price fell during the 1970s, remained fairly stable for more than a decade, but since the mid-1990s has generally increased and then flattened out again in recent years.

These relative out-of-pocket prices are the ones that should most influence the demand for various types of care, so let’s see if they have accompanied any changes in consumers’ use of healthcare. Space precludes an analysis of each category, but let’s focus on one that has received much attention: prescription drugs. We can derive an index of drug use per capita by dividing per capita drug spending by the drug price CPI, and then seeing if this measure of individual drug consumption is related to the relative out-of-pocket price of drugs shown above; Figure 5 shows the results.

As the relative out-of-pocket price has declined to about 1/6 its 1960 level, per capita prescription drug use has increased nearly 8-fold, as measured by our index of drug consumption. Other factors, particularly the spread of direct-to-consumer drug advertising, have likely contributed to this expansion of drug use, but it appears that the “moral hazard” effect of more heavily insured patients has played an important role. Similar effects can be seen for other categories of healthcare that have become more heavily insured. These patterns may reassure economists about the validity of basic economic concepts, but they do pose major challenges for our healthcare system.

TOO MUCH INSURANCE?
As noted at the outset, health insurance is a highly valued product and, from an individual’s perspective, more coverage—a lower coinsurance rate—is invariably regarded as a good thing. But it’s also a classic economic example of the “fallacy of composition.” What’s good for the individual may be harmful if it holds for everyone. In particular, the dramatic expansion in our health insurance coverage since 1960 has enhanced security for a large segment of the population, but it also may have played a major role in boosting market prices, utilization, and total healthcare spending. This strain on the system has created challenges for patients, providers, insurers and the government, and the higher market prices have made it particularly difficult for anyone who remains uninsured.

It’s unlikely that as a society we can easily relieve the pressure on the healthcare system by “disinsuring,” but we do need to find a way to structure health insurance that broadly meets our needs for economic security, effective care, and good health, yet also encourages better health habits and more prudent and effective use of the healthcare system. There have been promising small-scale experiments with innovative forms of insurance coverage, including some that have met with consumer and employer approval A future paper will explore these innovative health insurance plans and their potential for protecting individuals and families from high healthcare costs without exacerbating the problem. Public acceptance is crucial if we want health insurance reform to have meaningful results and also be politically viable, but finding a model that also garners the support of insurers and healthcare providers is critical and difficult, but maybe not impossible.