From:	Dan Ciuriak
To:	Canadians Concerned about Ukraine
Date:	August 12, 2022
Re:	**COUNTING THE COST (III)**

Our third Intelligence Memo shows the largest cost of the Ukraine invasion: the human cost.

To an individual, life is priceless. However, governments conducting cost-benefit analysis to evaluate regulatory policies routinely and bloodlessly assign a value to a "statistical life" (VSL) and by derivation to the value of a statistical life year (VSLY). These methods are also used by insurance companies and courts in setting awards for wrongful death or injury, by manufacturers in making decisions about tolerance of risks of malfunction in their products, and, importantly for the present purposes, they have been applied to quantify the human costs of war.

VSL methodologies vary as do estimates of VSL across countries – the potential benchmarks for Ukraine, Russia and other countries affected by the war – including in particular famine-impacted African states – span a wide range. Moreover, what governments are willing to pay out in establishing liability limits, versus what courts are prepared to assign, versus what regulators determine in the abstract can be very different. However, as we often say that the human costs of a war are far greater than the material costs, it is useful to run the numbers to calibrate how we think about Russia's invasion of Ukraine.

In my new C.D. Howe Institute working paper, I adopt high and low estimates based on the literature to establish a range. Given an estimate of VSL, the value of a statistical life year (VSLY) can be derived based on assumptions about life expectancy and a discount rate that establishes how much higher we place the value of a year of life year now compared to many years in the future.

An estimated VSL can be directly used to assign a cost to a death in war. The cost of injury can also be established based on the estimated VSL and the "disability weight" attributed to the injury. For example, a disability weight of 0.3 implies a given injury – say the amputation of a limb – is equivalent to 30 percent of the value of a statistical life. In the absence of detailed information on the nature of injuries, I make a simplifying assumption that the average disability weight is 0.25. The death toll and costs of injuries starts with those of military combatants. The extent of military casualties, both deaths and wounded, on both sides is difficult to accurately estimate, since this is strategically important information and so is withheld by governments. However, based on mid-range estimates of casualties from available sources, these costs of this war – which is already one of the bloodiest in modern history – already tally in the hundreds of billions: US$155 billion to US$270 billion based on low and high estimates of VSL.

But by far the largest toll, taking into account both immediate death and injury, but also the life-shortening effect of war-induced trauma, is on civilians.

The civilian casualty toll is entirely in Ukraine. This figure is very difficult to estimate. The small number of confirmed deaths published by international agencies does not include the vast majority of the civilian toll in the heavily affected war zones, which are mostly under Russian control.

In areas where Ukraine has retaken control, the story is horrific: there is now confirmation that 1 in 10 civilians who remained in occupied Bucha was killed. In Mariupol, the mayor estimated civilian deaths in excess of 20,000 out of a pre-war population of 400,000.

Taking into account the estimates for Mariupol and factoring in the number of heavily destroyed cities in the path of the Russian military's advance, I assume a figure of 40,000 lives lost and 50,000 more seriously injured, many permanently maimed. No matter which end of the range for VSL that is applied, the statistical value of lost lives of civilians is huge; on the order of between US$60 and 120 billion so far.

Beyond physical death and injury, trauma affects the 37 million Ukrainians who are outside Russian-controlled Crimea and Donbas as random-seeming Russian strikes create constant fear. This trauma also has its costs – and these costs can be outsized compared to the actual deaths and injuries.

While it is well established that stress impacts negatively on life expectancy, placing a specific value on this reduction is difficult.

On average across a range of stress cases, heavy stress has been estimated to shorten life expectancy by 2.8 years. This provides a point of reference for the evaluation of the human cost of this war, given estimates of populations at risk and the applicable VSLY.

This yields a figure of US$2.5 trillion on the low-end. Using the top end estimates of the war-generated stress to the Ukrainian population brings the total to US$5.4 trillion.
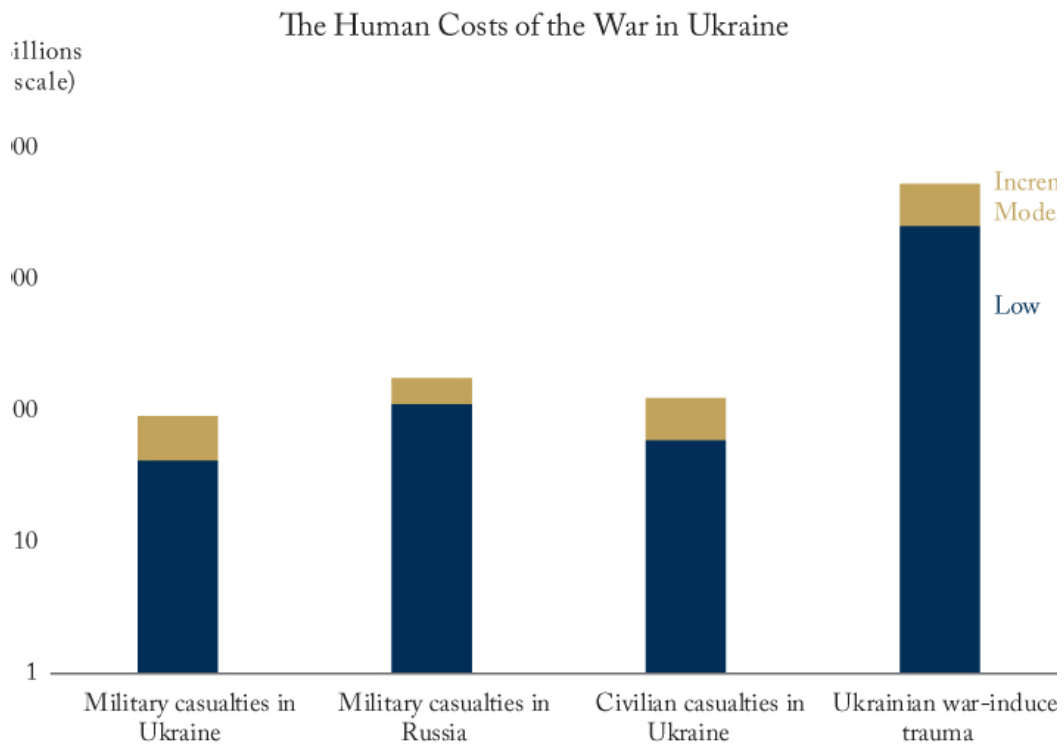
These are the truly "hidden" costs of war. They are shocking. But are they real? As one benchmark, we can take the difference in life span within a non-war jurisdiction between those who live in precarity and those who don't. For example, in Canada, the difference in life expectancy between those in the lowest quintile of neighbourhood incomes and those in the highest quintile is on the order of 4-5 years. These differences are larger than the estimate used above to calculate the impact of the often combined shock of loss of home, of a job, of community, of family, even of country that is now the experience of Ukrainians.

I put out these estimates of the human costs as placeholders for more refined ones that researchers will develop with better information in the coming years. But we should expect the figures to be large – and to confirm that the human costs are indeed greater than the already large material costs.

Dan Ciuriak is Fellow-in-Residence with the C.D. Howe Institute, Senior Fellow with the Centre for International Governance Innovation, and Director and Principal, Ciuriak Consulting Inc.

The Human Costs of the War in Ukraine

Source: Author's calculations.