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File Name: 23a0148p.06

UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

UNITED STATES OF AMERICA,

Plaintiff-Appellee,

v.

XIAORONG YOU aka Shannon You,

Defendant-Appellant.

No. 22-5442

Appeal from the United States District Court for the Eastern District of Tennessee at Greeneville.
No. 2:19-cr-00014-1—J. Ronnie Greer, District Judge.

Argued: June 14, 2023

Decided and Filed: July 11, 2023

Before: BOGGS, GIBBONS, and McKEAGUE, Circuit Judges.

COUNSEL

ARGUED: John D. Cline, LAW OFFICE OF JOHN D. CLINE, Seattle, Washington, for Appellant. Joseph Palmer, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D.C., for Appellee. **ON BRIEF:** John D. Cline, LAW OFFICE OF JOHN D. CLINE, Seattle, Washington, Jason Liang LIANG LY LLP, Los Angeles, California, Brian A. Sun, NORTON ROSE FULBRIGHT, Los Angeles, California, for Appellant. Joseph Palmer, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D.C., for Appellee.

OPINION

BOGGS, Circuit Judge. A jury convicted Xiaorong You, a chemical engineer, of stealing trade secrets from her former employers. On appeal, You argues that the district court admitted racist testimony that denied her a fair trial, gave jury instructions that mischaracterized the

government's burden of proof as to You's knowledge of the trade secrets and their value to China, and, in calculating her sentence, both improperly considered and unreasonably calculated the loss that she intended to cause.

We affirm You's conviction, but vacate the sentence imposed and remand for resentencing. The district court did not err in its evidentiary rulings, its jury instructions, or its reliance on intended loss. However, in calculating the intended loss, the district court clearly erred by relying on market estimates that it deemed speculative and by confusing anticipated sales of You's planned business with its anticipated profits.

BACKGROUND

I. Facts

In 2012, Dr. Xiaorong You, a foreign-born U.S. citizen of Chinese origin, began working as a chemist for the Coca-Cola Company in Atlanta, Georgia. You's job was to test the chemical coatings used in Coca-Cola's beverage cans. For decades, beverage-can coatings contained bisphenol-A ("BPA"). However, Coca-Cola wanted to use safer "BPA-free" coatings. Six chemical companies developed BPA-free formulas, then tried to sell them to Coca-Cola and other beverage manufacturers.¹ To protect their formulas, these companies entered into nondisclosure agreements with Coca-Cola. You was one of only a few Coca-Cola employees with access to these formulas.

While working for Coca-Cola, You planned to start a new company in China that would manufacture the BPA-free chemical. Partnering with a Chinese chemical company, the Weihai Jinhong Group ("WJG"), You applied for, and later received, business grants from the Chinese government.² In her application for a national grant through China's Thousand Talents program, You stated that she had developed the world's "most advanced" BPA-free coating technology. She claimed that this technology would enable her new company to "break the international

¹The six companies were AkzoNobel, BASF, Dow Chemical, PPG Industries, Sherwin-Williams, and ToyoChem.

²In addition to awarding You and WJG roughly \$150,000, the national and province-level grants promised to subsidize You's salary for four years, reimburse moving expenses, set up a laboratory, provide research funds, and arrange housing and a car.

monopoly” on BPA-free coatings, and ensure that international trade regulations on BPA would not block Chinese exports. You’s application added that the new company would further the government’s “Five Year Plan” and its “Made in 2025” initiative. You and WJG also received a province-level grant from Shandong Province and the Chinese city of Weihai, to whom they had made similar representations. Neither Coca-Cola nor You’s subsequent U.S. employer, Eastman Chemical Company (“Eastman”), knew that You had received these grants or made these representations.

On June 30, 2017, Coca-Cola informed You that she would be laid off in sixty days amid company layoffs. You tried to transfer confidential files of the chemical companies’ BPA-free formulas to a personal hard drive, but Coca-Cola’s network-security protocols blocked the transfer. On her last night as a Coca-Cola employee, You successfully transferred these files to her Google Drive account and then to a USB drive. You certified in her severance agreement that she had not kept any confidential information.

You then joined Eastman in Tennessee. In June 2018, aware that she might lose her job, You copied company files to the same Google Drive account and USB drive holding her Coca-Cola files. Eastman fired You the next day. Eastman knew that You had downloaded company information and asked her to return it. You returned her company laptop and cell phone, on which Eastman found photos of its lab equipment. Eastman employees also accompanied You to her home and retrieved the USB drive. Eastman later reported You to the Federal Bureau of Investigation (“FBI”).

Over the next few months, You prepared to start her company in China. Between August and September 2018, she flew to China twice. On both occasions, You escorted WJG representatives and Weihai city officials to Italy, where they met with executives from Metlac, an Italian chemical company. When You returned to the United States after one of these trips, in September 2018, she was stopped at the airport and questioned. Law-enforcement agents seized her computer, on which, after getting a warrant, they found confidential information belonging to Eastman and the other chemical companies.

The FBI arrested You in February 2019. On You's USB drive and Google Drive account, agents found many of the same files that belonged to Eastman and the other companies. Forensic analysts determined that, after her airport stop, You had renamed these files to remove the names of the companies to whom this information belonged.

II. Procedural History

A grand jury in the Eastern District of Tennessee charged You with conspiracy to commit theft of trade secrets, in violation of 18 U.S.C. § 1832(a)(5); seven counts of possessing stolen trade secrets, in violation of 18 U.S.C. § 1832(a)(3); wire fraud, in violation of 18 U.S.C. § 1343; conspiracy to commit economic espionage, in violation of 18 U.S.C. § 1831(a)(5); and economic espionage, in violation of 18 U.S.C. § 1831(a)(3). After a thirteen-day trial in April 2021, a jury convicted You on all counts.

A. Evidentiary Rulings

1. Barry Naughton

Before trial, the government notified You that it planned to offer expert testimony from Dr. Barry Naughton, an economics professor at the University of California, San Diego, who specializes in China's economy. You moved to exclude Naughton's testimony. The district court held a mid-trial *Daubert* hearing and denied the motion. The court found that Naughton's testimony would help the jury understand the structure of China's government, its "strategies of foreign technology acquisition," and the "role official talent programs play in those strategies." The court also found that the testimony's probative value outweighed any risk of unfair prejudice under Rule 403. The court explained that the testimony was probative of whether the alleged offenses benefitted a foreign government and that nothing in Naughton's testimony was unfairly prejudicial.

At trial, Naughton described the "enormously high priority" that the Chinese government placed on "technology acquisition," including through grants such as its Thousand Talents program. He explained that, while the Chinese government would "rather have legally acquired technology," it was also "interested in acquiring both legally or perhaps gray or even illegally

acquired technology in pursuit of [its] objectives.” Naughton testified that the “general points” of this strategy were “common knowledge within China” because the government “talk[s] about [it] all the time.” He explained that people in China were “proud . . . and I think legitimately so” of “China’s ability to catch up to advanced countries.” When asked whether “scientists with ties to China would be aware of this overall strategy,” Naughton agreed and said, “I think every educated Chinese person is aware of this.”

Next, Naughton described China’s talent-grant programs. Naughton explained that “bring[ing] technology to China that [the applicant] did not own” would not preclude a grant award because “the attitude predominantly in China is catching up, the economic interests of the collectivity of we Chinese people is much more important than the property rights of some foreign company.”

2. *Pier Bocchio*

Before trial, the government moved to introduce the video-recorded deposition of Pier Bocchio, Metlac’s CEO. In his deposition, Bocchio stated that You, together with Weihai city officials, had traveled to Italy and tried unsuccessfully to convince Bocchio to partner with You’s new company. The district court found the video admissible, but it excluded a brief portion in which Bocchio, when asked why Metlac did not want a factory in China, explained that “I didn’t trust the Chinese. Especially they are very well-known to steal the technology. It’s possible.” The district court explained that, although the context showed that Bocchio “was explaining why his company would not enter the market in China, the generalization of a nationality or people as ‘untrustworthy’ could be interpreted as racially motivated.” The district court found that the risk of unfair prejudice outweighed the statement’s probative value, and ordered the statement edited out of the video for trial.

The government prepared an edited video clip, but mistakenly played the unedited video at trial. When he realized that the excluded statement was playing, the prosecutor interrupted and tried to keep the jury from hearing it. At a sidebar conference, the government acknowledged its responsibility for the error and apologized.

The district court found that the statement had played in violation of the court's order, but denied You's request for a mistrial. The court explained that it had excluded Bocchio's statement because it was concerned that "the race of the defendant was going to become an issue." In that context, Bocchio's statement could have a "possible racial connotation" if he were referring to "an individual person of Chinese descent" rather than to the Chinese government. But having heard the evidence, the district court "no longer ha[d] that concern," and concluded that "under these circumstances [Bocchio is] talking about the Chinese government." The district court added that "to declare a mistrial" would be "inappropriate" because "the harm is very, very slight." The district court offered to instruct the jury to disregard the statement, but defense counsel declined, to avoid drawing more attention to the statement.

B. Jury Instructions

In explaining the mens rea requirement for the counts of trade-secret theft, the district court instructed the jury that the government was required to prove that You: (1) "knowingly possessed information knowing that it was stolen or obtained or converted without authorization from the owner"; (2) "knew the information was proprietary, meaning belonging to someone else who has exclusive rights to it"; and (3) "intended to convert the information to the economic benefit of herself or another, knowing or intending that this would injure the owner of the information." Drawing on *United States v. Krumrei*, 258 F.3d 535 (6th Cir. 2001), the court clarified that "the government is not required to prove [that You] knew that all the information met all of the legal requirements of a trade secret." Rather, the government needed to prove only that You "knew that the owner treated the information as a secret and [You] was taking the information without authorization from the owner." The court's instructions on the economic-espionage counts also required proof only that You knew that the information was proprietary.

For her economic-espionage counts, You asked the district court to instruct the jury that a benefit to a foreign government or instrumentality is "more than a benefit that might flow simply from doing business in that country." The district court declined. The court explained that the case on which You relied was "simply a situation where the defendant was doing business in the foreign country." The court noted that, by contrast, the evidence against You suggested "considerable entanglement between the Weihai Jinhong Group and the Chinese government,"

indicating that the “alleged coconspirators . . . were relying on funding from the Chinese government to get this new corporation up and running.” The district court concluded that the proposed instruction was not appropriate in light of the evidence presented at trial.

C. Sentencing

After the jury convicted You on all counts, the district court sentenced her to 168 months of imprisonment. Calculating the anticipated profits that You hoped to earn by using the stolen information to capture the Chinese market for BPA-free can coatings, the district court estimated that You intended to impose \$121.8 million of loss on the victim companies. The district court concluded that, in a market dominated by a few multinational companies, anticipated profits were the “most reasonable measure of loss.” The court estimated that the Chinese market for can coatings totaled \$2.9 billion each year. Assuming that 60% of the can makers in that market were Chinese state-owned companies that would buy from Chinese suppliers, and that only 1% of sales in that market were for BPA-free coatings, the court estimated that You intended to steal \$17.4 million in sales from the victim companies each year. Estimating seven years of profit, from 2021 to 2027, the district court calculated a sales total of \$121.8 million, constituting You’s intended loss. The district court acknowledged that its calculation rested on several “assumptions,” including that the Chinese market for BPA-free coatings would remain fixed, that You would absorb all sales in China from Chinese can makers, and that Chinese can makers were now buying BPA-free coatings in China from the foreign companies.

The district court computed an offense level of 41, including a 24-level enhancement for intended loss between \$65 million and \$150 million, and a criminal-history category of I. The court calculated a Guidelines range of 324 to 405 months of imprisonment and varied downward to impose You’s 168-month sentence.

DISCUSSION

On appeal, You argues that (1) Naughton’s and Bocchio’s testimony denied her a fair trial; (2) the district court’s jury instructions misstated the intent requirements for economic espionage and trade-secret theft; (3) the district court abused its discretion in rejecting her proposed instruction on the economic-espionage counts; (4) these errors, taken together,

rendered her trial fundamentally unfair; and (5) her sentence rested on an improper and unreasonable determination of intended loss. We address each challenge in turn.

I. Expert Testimony

You challenges two evidentiary rulings, arguing that the district court's admission of Naughton's testimony and its denial of her mistrial motion after Bocchio's testimony deprived her of a fair trial. We decline to order a new trial because Naughton's and Bocchio's testimony was not unfairly prejudicial.

A. Naughton's Testimony

You first argues that the district court should have excluded Naughton's testimony under Federal Rules of Evidence 403 and 704(b). We review a district court's decision to admit evidence for abuse of discretion. *United States v. Adams*, 722 F.3d 788, 810 (6th Cir. 2013). A district court abuses its discretion when it improperly applies the law, uses the wrong legal standard, or relies on clearly erroneous findings of fact. *United States v. Cleveland*, 907 F.3d 423, 436 (6th Cir. 2018). However, when a party fails to object to an evidentiary issue at trial, we review it for plain error. *United States v. Collins*, 799 F.3d 554, 574 (6th Cir. 2015). You objected to Naughton's testimony under Rule 403, but not under Rule 704(b). Under plain-error review, we may correct the claimed 704(b) mistake only if You shows (1) an error; (2) that was clear or obvious; (3) that affected her substantial rights; and (4) that affected the fairness, integrity, or public reputation of the proceedings. *United States v. Jones*, 108 F.3d 668, 670 (6th Cir. 1997).

1. Rule 403

Rule 403 allows the district court to exclude evidence if its probative value is substantially outweighed by the risk of unfair prejudice. We "afford[] great deference" to the district court's Rule 403 balancing, *Cleveland*, 907 F.3d at 436 (quoting *United States v. Bell*, 516 F.3d 432, 445 (6th Cir. 2008)), "giv[ing] the evidence its maximum reasonable probative force and its minimum reasonable prejudicial value," *ibid.* (quoting *United States v. Wheaton*, 517 F.3d 350, 364 (6th Cir. 2008)).

The district court did not abuse its discretion in admitting Naughton’s proposed testimony under Rule 403. As the court noted, Naughton’s testimony addressed China’s strategy for acquiring foreign technology and the role that Chinese businesses play in that strategy. Naughton’s statements that scientists in China generally know about, and approve of, China’s emphasis on technology acquisition were helpful in detailing the connection between You’s Thousand Talents application and her plan to benefit the Chinese government by bringing secret formulas to her new company. To the extent that Naughton’s testimony was prejudicial to You, the district court added that You had not pinpointed any specific parts of Naughton’s proposed testimony that were *unfairly* prejudicial.

On appeal, You mainly argues that Naughton’s testimony, together with Bocchio’s, denied You a fair trial. However, the district court admitted Naughton’s proposed testimony before trial under Rule 403. You’s claim that Naughton’s actual testimony deprived her of a fair trial raises a different constitutional challenge, which we address below. *McCleskey v. Kemp*, 481 U.S. 279, 309 n.30 (1987) (“The Constitution prohibits racially biased prosecutorial arguments.”); *United States v. Cabrera*, 222 F.3d 590, 594 (9th Cir. 2000) (“Appeals to racial, ethnic, or religious prejudice during the course of a trial violate a defendant’s Fifth Amendment right to a fair trial.”).

2. Rule 704(b)

Under Rule 704, Naughton “must not state an opinion about whether [You] did or did not have a mental state or condition that constitutes an element of the crime charged,” Fed. R. Evid. 704(b), since ultimate issues are “matters for the trier of fact alone,” *id.* 704(a). Expert witnesses cannot “actually refer[] to the intent of the defendant,” but they may “simply describe[] in general terms the common practices of those who clearly do possess the requisite intent, leaving unstated the inference that the defendant . . . also possessed the requisite intent.” *United States v. Combs*, 369 F.3d 925, 940 (6th Cir. 2004) (quoting *United States v. Frost*, 125 F.3d 346, 383–84 (6th Cir. 1997)).

You argues that Naughton’s testimony “did exactly what Rule 704(b) prohibits” by attributing to “every educated Chinese person” the knowledge that China seeks illegally acquired

technology. You adds that Naughton spoke to You's mindset by describing approval of the Chinese government's approach to foreign-technology acquisition as the "predominant[]" view among "technology policy experts" in China. But Naughton's opinions—that educated people in China are generally aware of China's approach to foreign-technology acquisition, and that technical experts in China "predominantly" valued China's economic interests more than foreign companies' property rights—do not say anything directly about You's thoughts on these topics. Even if they did, You's awareness of China's strategy and her attitude toward China's interests are not elements of the crimes with which she was charged. *See* 18 U.S.C. §§ 1831–32. It does not necessarily follow from this testimony, if credited, that You intended to benefit a foreign government or instrumentality. To so conclude requires an additional "unstated" inference that Naughton left for the jury. *Combs*, 369 F.3d at 940 (citation omitted). Especially under plain-error review, Naughton's testimony did not violate Rule 704(b).

B. Bocchio's Video Deposition

You also suggests that the district court erred in denying a mistrial after Bocchio's statement that he "didn't trust the Chinese" was played for the jury. We review the district court's decision to deny You's motion for a mistrial for abuse of discretion. *United States v. Wandahsega*, 924 F.3d 868, 878 (6th Cir. 2019).

The district court did not abuse its discretion in denying a mistrial. First, the record shows that the government played Bocchio's statement unintentionally and not in bad faith. Second, the district court offered to give the jury a limiting instruction on Bocchio's statement, which You declined. You's decision not to accept a curative instruction "undercuts [her] argument that the comments compromised the integrity of the trial." *United States v. Wimbley*, 553 F.3d 455, 460 (6th Cir. 2009). Third, the court did not err in reasoning that any resulting prejudice was "very, very slight." The court explained that Bocchio's statement was best understood to mean that he did not trust the Chinese government to protect his company's intellectual property, not that he did not trust Chinese people. The context of the question that Bocchio was answering, and of his references throughout the deposition to his interactions with Chinese government officials, confirms the court's reading.

You rejects this reading as implausible. She argues that Bocchio’s reference to the “Chinese” and his statement that “they” are known to steal foreign technology could only have been meant to refer to Chinese people, including You. Rather than dealing in grammatical absolutes when parsing witness testimony, we are better guided by the context in which the statement was made. Moreover, You’s contention that the district court excluded the statement in its pretrial ruling but “change[d] its view” at trial does not undermine the court’s ultimate conclusion—after seeing the video deposition, the prosecutor’s interruption, and the jury’s reaction—that the statement had hardly any prejudicial effect. In sum, Bocchio’s statement was not so prejudicial that it was unfair for the court to continue the trial. *See United States v. Young*, 347 F. App’x 182, 189 (6th Cir. 2009) (affirming denial of mistrial where defendant declined offer of limiting instruction, government did not act in bad faith, and improper remark was “only a small part of the evidence against the defendant”). The district court did not abuse its discretion in denying the motion for a mistrial.

C. Appeals to Racial Prejudice

More broadly, You asserts that Naughton’s and Bocchio’s statements denied her a fair trial because they appealed to racial prejudice. Naughton’s and Bocchio’s testimony, according to You, “invited the jury to distrust [her] by invoking an ethnic, national stereotype.”

Appeals to racial or ethnic prejudice violate a defendant’s Fifth Amendment right to a fair trial. *See McCleskey*, 481 U.S. at 309 n.30. Where such appeals may have “substantial[ly] influence[d]” the outcome of a trial, a new trial is needed. *United States v. Grey*, 422 F.2d 1043, 1046 (6th Cir. 1970).

As discussed above, neither Naughton’s nor Bocchio’s testimony appealed to racial prejudice. In admitting Naughton’s testimony, the district court noted that the testimony was not unfairly prejudicial and did not nudge the jury to decide You’s case on any improper basis. Naughton’s testimony supported a theory of prosecution that focused on You’s individual conduct. By testifying that scientists in China generally knew about, and approved of, certain practices of the Chinese government, Naughton suggested, without appealing to racial or ethnic stereotypes, that You intended to benefit that government. Similarly, the jury likely interpreted

Bocchio's statement as suggesting that he distrusted the Chinese government, not that he distrusted You as a person of Chinese origin.

You argues that we must consider the broader context of her trial, held shortly after the COVID-19 pandemic had peaked and at a time when many blamed China and the Chinese for the virus's spread. Naughton and Bocchio, she claims, "poisoned a trial that occurred in an already poisonous atmosphere." You may be right that the COVID-19 pandemic "required special care that anti-Chinese bias did not infect" her trial. However, the record shows that the district court was sufficiently careful. For example, the court acknowledged the COVID-19 virus's origin in China and the recent spike of anti-Asian hate crimes in America when it excluded as unfairly prejudicial the testimony from a different government witness. For each witness, the district court considered the testimony's capacity to evoke an improper emotional response from the jury. At all times, the district court ensured that You was being tried for her crimes, not for her status as a person of Chinese ethnicity.

The cases on which You relies do not bolster her claim that the prosecution appealed to racial prejudice. In *United States v. Cabrera*, 222 F.3d 590 (9th Cir. 2000), a police officer repeatedly referenced Cubans in his testimony to suggest their propensity for drug dealing. *Id.* at 592. These comments had the "effect of putting the . . . Cuban community on trial, rather than sticking to the facts" of the individual defendants' conduct. *Id.* at 596. By contrast, the challenged testimony in this case described practices of the Chinese government. References to the "attitude" of educated Chinese professionals toward those practices were made only as necessary to connect You's grant applications with her intent to benefit the government. You's other cases similarly featured testimony that invited the jury to distrust the defendants based on their national origin. See *United States v. Vue*, 13 F.3d 1206, 1211–13 (8th Cir. 1994) (reversing convictions because of testimony discussing the involvement in drug smuggling of persons of Hmong descent); *United States v. Rodriguez Cortes*, 949 F.2d 532, 541–42 (1st Cir. 1991) (reversing admission of evidence of defendant's Colombian ethnicity that prosecution had used to suggest that he was likely to be associated with other Colombian conspirators); *United States v. Doe*, 903 F.2d 16, 18–28 (D.C. Cir. 1990) (reversing conviction where prosecutor had emphasized defendant's Jamaican ancestry). The government's case against You focused on her

individual conduct. It did not invite the jury to put her “racial and cultural background into the balance in determining [her] guilt.” *Vue*, 13 F.3d at 1213.

II. Jury Instructions

A. Mens Rea Requirements

You challenges the district court’s jury instructions because they did not require proof that she knew that the information she stole met all of the legal requirements of a “trade secret.” Although the instructions required proof that You knew that the information was proprietary and that You took the information without permission, You contends that the instructions were insufficient because they failed to require proof that she knew that (1) the owners had taken “reasonable measures” to protect the information; and (2) the information was valuable, in part, because it was secret.

Although erroneous jury instructions are generally reviewed for abuse of discretion, we review their “legal accuracy” de novo. *Hurt v. Com. Energy, Inc.*, 973 F.3d 509, 523 (6th Cir. 2020) (quoting *United States v. Blanchard*, 618 F.3d 562, 571 (6th Cir. 2010)). We review unpreserved objections to jury instructions for plain error. *United States v. Houston*, 792 F.3d 663, 666 (6th Cir. 2015). You seeks de novo review. The government seeks plain-error review, claiming that You failed to preserve her claim.

1. No Plain Error

You challenges the jury instruction on a ground that she did not raise below, subjecting it to plain-error review. To preserve an error in the jury instructions, You “must inform the court of the specific objection and the grounds for the objection.” Fed. R. Crim. P. 30(d). Below, You objected to a proposed jury instruction’s use of “proprietary,” which she thought “expand[ed] the Sixth Circuit’s definition.” When the district court suggested an instruction that removed the word “proprietary” but still required only “that the defendant knew the information belonged to someone else who had exclusive rights to it,” You agreed that the court’s suggestion “probably answers our objection.” On appeal, however, You argues that the district court should not have

relied on the underlying *Krumrei* decision from which the district court derived its “proprietary” instruction.³

You had objected to the district court’s instruction to the extent that it improperly *expanded on Krumrei*, but she ultimately conceded *Krumrei*’s relevance, which she cannot now dispute. See *United States v. Williams*, 612 F.3d 500, 507 (6th Cir. 2010). You points to instances in the record where she asked that the instruction require that You knew or believed that the stolen information was a trade secret. As we discuss below, this argument does not address what the government must prove to establish that knowledge. You’s argument, on appeal, that the jury had to find that she knew that the stolen information satisfied each element of the statutory definition of trade secret is a point that she did not make below. Accordingly, we review this instruction for plain error. *Houston*, 792 F.3d at 666.

Under that standard, You cannot show that the alleged error in the jury instructions affected her substantial rights. An error affects a defendant’s substantial rights when it “creates a ‘reasonable probability’ that the flawed . . . jury instruction led to a flawed conviction.” *United States v. Henry*, 797 F.3d 371, 375 (6th Cir. 2015) (quoting *United States v. Marcus*, 560 U.S. 258, 262 (2010)). The evidence supports a finding that, even with a correct instruction, the jury would have found that You had the necessary knowledge.

First, the evidence suggests that You knew of the “reasonable measures” that the companies took to protect their information. You certified in her severance agreement with Coca-Cola that she had not kept confidential information. She also knew of Coca-Cola’s efforts to prevent unauthorized downloads of confidential information, because those security protocols had blocked her own attempts to download confidential files. Likewise, she knew of Eastman’s similar efforts when Eastman learned that she had downloaded its files and accompanied her to her house to retrieve her hard drive. The jury instructions required the jury to find that You

³In *Krumrei*, the defendant challenged as unconstitutionally vague the EEA’s definition of “trade secret,” particularly its “reasonable measures” requirement. 258 F.3d at 538. The court rejected that claim, holding that “the defendant need not have been aware of particular security measures taken” by the owner. *Id.* at 539. Rather, it was enough that he knew that the information was “proprietary,” meaning “confidential information to which he had no claim.” *Ibid.*

knew “that the owner treated the information as a secret,” which effectively required her to know about “reasonable measures” because You’s awareness of the latter is how she knew the former.

Second, the evidence also suggests that You knew that this information was valuable because it was secret. In her Thousand Talents application, You emphasized the value of the information as the world’s “most advanced” BPA-free coating technology, and claimed that it would help “break the international monopoly” on BPA-free coatings. You’s plan to start a new company in China would work only if the technology that she brought with her was both valuable and secret. You could not intend to “convert the information” to her own economic benefit, “knowing . . . that this would injure the owner,” as the court instructed the jury, if she did not also believe that this information derived “independent economic value” from its secrecy.

You responds that this alleged error tainted her conviction because she “hotly contested” at trial that the stolen information constituted trade secrets. Citing testimony from one of her expert witnesses, You claims that this dispute raised doubt as to whether she knew that the information constituted trade secrets. But You’s witness spoke only to whether the information was in fact, by legal definition, a trade secret, offering an opinion that the jury rejected by convicting You on every count, including those that required proof that the information was a trade secret. The district court’s jury instruction was not so plainly erroneous as to warrant reversal.

2. *No Error*

Even under de novo review, the challenged jury instructions were correct. The EEA punishes for economic espionage anyone who, “intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly . . . receives, buys, or possesses a trade secret, knowing the same to have been stolen or appropriated, obtained, or converted without authorization.” 18 U.S.C. § 1831(a)(3).

The EEA also punishes:

(a) Whoever, with intent to convert a trade secret, that is related to a product or service used in or intended for use in interstate or foreign commerce, to the economic benefit of anyone other than the owner thereof, and intending or knowing that the offense will, injure any owner of that trade secret, knowingly—

...

(3) receives, buys, or possesses such information, knowing the same to have been stolen or appropriated, obtained, or converted without authorization.

Id. §1832(a)(3).

Information is a “trade secret” only if its owner has taken “reasonable measures” to keep it secret and the “information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by[] another person.” 18 U.S.C. § 1839(3).

The district court correctly instructed the jury on the mens rea requirements for You’s counts of economic espionage and trade-secret theft. The jury did not need to find that You knew that the information met each element in the EEA’s definition of a “trade secret.” It was enough for the jury to find that You knew that she was taking “confidential information to which [s]he had no claim.” *Krumrei*, 258 F.3d at 539.

You argues that the district court’s instruction omitted “from what [she] had to know the two most salient features of a trade secret,” namely that the owner took reasonable measures to keep its information secret and that the information derives value from its secrecy. However, it is worth stressing that the court’s instruction did nothing to water down the meaning of “trade secret” as defined in 18 U.S.C. § 1839(3) or that definition’s relevance to You’s conviction. In a separate instruction, the district court asked the jury to find whether the stolen information were trade secrets. In drawing on *Krumrei*, the district court did not rewrite the trade-secret definition but rather detailed precisely what You needed to *know* about the stolen information to bring her conduct within §§ 1831–32. As to that requirement, it was enough to show that You knew that she was taking the companies’ confidential information without their permission.

You contends that *Krumrei* does not govern this case. There, the defendant challenged as unconstitutionally vague the EEA’s definition of “trade secret,” particularly its “reasonable measures” requirement. *Krumrei*, 258 F.3d at 538. “Regardless of his knowledge of those specific measures,” the defendant “knew that the information was proprietary”—which, for this court, was enough for him to know “that his actions fell well within” the bounds of the EEA. *Id.*

at 539. In addressing vagueness, this court established what intent was needed to violate the statute. Just as the *Krumrei* defendant did not need “notice of any of the security measures taken by” the trade-secret owner, *id.* at 538, You did not need to know the technical particulars of the stolen information to know enough for a conviction under the EEA. Knowing that the information was proprietary was enough for a conviction, even if the jury did not expressly find that You knew the value of keeping this information secret or the specific measures used to protect it.

You argues that the EEA’s plain language requires the government to prove that she knew that the companies’ stolen files were trade secrets. Read in isolation, certain clauses in the EEA might support that reading. *See* 18 U.S.C. § 1831(a)(3) (punishing a person who “knowingly . . . receives, buys, or possesses a trade secret”); *id.* § 1832(a)(3) (punishing a person who “with intent to convert a trade secret . . . knowingly . . . receives, buys, or possesses such information”). However, the statutory text sandwiches “knowingly” between other clauses, each with its own mens rea requirement. *See id.* § 1831 (“Whoever, *intending or knowing* that the offense will benefit any foreign government [or] foreign instrumentality . . . knowingly possesses a trade secret, *knowing* the same to have been stolen . . . without authorization”) (emphases added); *id.* § 1832(a)(3) (“Whoever, *with intent* to convert a trade secret . . . to the benefit of anyone other than the owner thereof, and *intending or knowing* that the offense will injure any owner . . . knowingly possesses such information, *knowing* the same to have been stolen . . . without authorization”) (emphases added). That additional language sets out the same intent requirements on which the district court instructed the jury, namely that the defendant must know that she is taking confidential information without authorization. It also provides context on what “knowingly” modifies in §§ 1831 and 1832. It does not follow, for example, that the word “knowingly” extends to § 1839’s statutory definition of a trade secret. Nothing about the “ordinary meaning” of the statute’s text or the “ordinary interpretive practice” of its words suggests that Congress used the word “knowingly” to refer to an additional set of elements in a different part of the EEA, especially where Congress had included other mens rea clauses. *Flores-Figueroa v. United States*, 556 U.S. 646, 657 (2009); *cf. United States v. X-Citement Video, Inc.*, 513 U.S. 64, 68 (1994) (noting that the “most natural grammatical reading” of a

statute would not understand the term “knowingly” to modify elements “set forth in independent clauses separated by interruptive punctuation”).

To support her interpretation, You relies on three recent Supreme Court decisions. In each case, the Court interpreted a different criminal statute “that introduces the elements of a crime with the word ‘knowingly’” and applied that word to each element of the crime in the statutory clause. *Flores-Figueroa*, 556 U.S. at 652; see *Ruan v. United States*, 142 S. Ct. 2370, 2374–75 (2022); *Rehaif v. United States*, 139 S. Ct. 2191, 2194 (2019). These cases are instructive to the extent that they suggest what the EEA’s “knowingly” clauses might require if read in isolation. See *Flores-Figueroa*, 556 U.S. at 650 (noting that “knowingly” modifies not only the statute’s “transitive verb[s]” but also the object of those verbs). However, they “express no view . . . about what precisely the Government must prove to establish” her knowledge with respect to other statutory clauses, *Rehaif*, 139 S. Ct. at 2200, where the object or category in question “involves complicated legal issues,” *id.* at 2207 (Alito, J., dissenting). The issue in this case is over how specific You’s knowledge must be for a complicated statute with multiple mens rea clauses, concerning a complex concept of intellectual property. Knowing that the stolen information is proprietary is enough. *Krumrei*, 258 F.3d at 539. Knowing the facts that technically make the information a trade secret, as the district court put it, “puts a higher burden on the government than the law requires.”

The presumption of scienter also suggests that these cases cannot bear the weight that You gives them. That presumption “requires a court to read into a statute only that *mens rea* which is necessary to separate wrongful conduct from ‘otherwise innocent conduct.’” *Carter v. United States*, 530 U.S. 255, 269 (2000) (quoting *X-Citement*, 513 U.S. at 72). In *Flores-Figueroa*, *Ruan*, and *Rehaif*, the Court applied “knowingly” to statutory clauses that “play[ed] a critical role in separating a defendant’s wrongful from innocent conduct.” *Ruan*, 142 S. Ct. at 2379; see *Rehaif*, 139 S. Ct. at 2195; *Flores-Figueroa*, 556 U.S. at 656–57. As discussed above, the text in §§ 1831 and 1832 includes several other mens rea requirements. Reading the word “knowingly” to modify each definitional element of “trade secret” would do little, then, to “advance the purpose of scienter,” *Rehaif*, 139 S. Ct. at 2197, by “separat[ing] those who understand the wrongful nature of their act from those who do not,” *id.* at 2196 (quoting

X-Citement, 513 U.S. at 72 n.3). A defendant who knowingly takes, without permission, confidential property that belongs to someone else, knowing that her act will injure the owner or benefit a foreign government, cannot reasonably claim that she acted innocently. It is true, as You notes, that she cannot be convicted under §§ 1831 and 1832 unless the information at issue is in fact a trade secret. But the statutes' overall structure assures us that we do not risk criminalizing otherwise lawful conduct by declining to extend the requirement of knowledge to each element of § 1839(3).

Finally, You's interpretation clashes with Congress's purpose in enacting the EEA. Consider, for example, a hacker who knowingly keeps ill-gotten confidential information. That hacker might not know of certain measures that a company uses to protect its secrets, or of the value derived from the information's secrecy, but we would hardly doubt that he knows enough to satisfy the statute's mens rea element. Yet You's interpretation would create a loophole for those who knowingly retain confidential information that they obtained without permission, and which they know they should not have. It would not have made sense for Congress to criminalize economic espionage and trade-secret theft but exempt those defendants who know that they have taken proprietary information without permission yet lack knowledge of the legal definition of a trade secret or whether the information happens to meet each element of that definition. *See United States v. Feola*, 420 U.S. 671, 678 (1975) (declining to require proof that a defendant knew the victim's status as a federal officer because such a requirement would frustrate Congress's purpose of protecting officers).

B. Proposed "Benefit" Instruction

You argues that the district court abused its discretion by refusing to instruct the jury that proof of her intent to "benefit" a foreign government or instrumentality required "more than a benefit that might flow simply from doing business in that country." We review a district court's decision not to give proposed jury instructions for abuse of discretion. *United States v. LaVictor*, 848 F.3d 428, 453–54 (6th Cir. 2017). The refusal to give requested instructions constitutes reversible error only if (1) the instructions correctly state the law; (2) the instructions are not substantially covered by other instructions given to the jury; and (3) the failure to give the instructions impairs the defendant's theory of the case. *Id.* at 454.

The district court’s refusal to give You’s “benefit” instruction did not impair You’s defense, which was based on the idea that You’s new company was not a foreign instrumentality. *See* 18 U.S.C. § 1831(a). A “foreign instrumentality” includes “any . . . business organization, corporation, firm, or entity that is substantially owned, controlled, sponsored, commanded, managed, or dominated by a foreign government.” *Id.* § 1839(1). You’s joint venture with WJG was not merely a private company but a “foreign instrumentality,” substantially “controlled” and “sponsored” by the Chinese government. *Ibid.* You applied for, and received, funding from the Chinese government to jumpstart her new company. Weihai city officials also accompanied You and WJG on their trips to Italy “in pursuit of national objectives” to “open up the Chinese market” and “develop Chinese industry.” As the district court noted when it rejected You’s proposed instruction, this evidence showed “considerable entanglement between [WJG] and the Chinese government.”

You rejects her company’s classification as a foreign instrumentality, and claims that her defense was impaired because the government referenced only minor benefits to the Chinese government, such as potential tax revenue from You’s new company. Even accepting You’s argument that her venture was no instrumentality and that tax revenues were not a sufficient benefit, the evidence reveals other benefits—beyond the perks of doing business—that You intended to confer on the Chinese government. You claimed in her grant applications, for example, that her company would further the government’s strategic initiatives and help Chinese exports avoid violating international trade regulations. The jury would have reached the same verdict on You’s espionage counts with her proposed instruction.

III. Cumulative Error

You contends that the errors alleged above, taken together, were so prejudicial as to require a new trial. To prevail under cumulative-error analysis, You “must show that the combined effect of individually harmless errors was so prejudicial as to render [her] trial fundamentally unfair.” *United States v. Underwood*, 859 F.3d 386, 395 (6th Cir. 2017) (quoting *United States v. Warman*, 578 F.3d 320, 349 n.4 (6th Cir. 2009)). However, “the accumulation of non-errors cannot collectively amount to a violation of due process.” *Ibid.* (quoting *Campbell v. United States*, 364 F.3d 727, 736 (6th Cir. 2004)). As discussed above, the district court

committed no errors with the government's expert-witness testimony or its own jury instructions. Even if You could show an error, plain or otherwise, she cannot show that it deprived her of due process.

IV. Sentencing

Finally, You argues that the district erred in relying on the Guidelines commentary on intended loss to enhance her sentence under U.S.S.G. § 2B1.1. And to the extent that the district court could consider intended loss to enhance her sentence, You argues that the district court clearly erred in determining it.

A. Relying on Intended Loss

Whether the district court erred in relying on the Guidelines commentary to calculate a defendant's Guidelines range presents a legal question that we review de novo. *See United States v. Riccardi*, 989 F.3d 476, 481 (6th Cir. 2021).

For theft and fraud offenses, the Guidelines instruct courts to increase a defendant's Guidelines offense level "in incremental amounts based on the 'loss' from the offense." *Ibid.* (quoting U.S.S.G. § 2B1.1(b)(1)). Section 2B1.1, however, does not define "loss." The Sentencing Commission's Guidelines commentary explains that, generally, loss is the "greater of actual loss or intended loss." U.S.S.G. § 2B1.1 cmt. n.3(A). The commentary defines "actual loss" as the "reasonably foreseeable pecuniary harm that resulted from the offense," *id.* § 2B1.1 cmt. n.3(A)(i), and "intended loss" as "the pecuniary harm that the defendant purposely sought to inflict," *id.* § 2B1.1 cmt. n.3(A)(ii).

When "determining whether to defer to the Guidelines commentary," we apply the framework set forth in *Kisor v. Wilkie*, 139 S. Ct. 2400 (2019). *United States v. Phillips*, 54 F.4th 374, 379 (6th Cir. 2022). In *Kisor*, the Court clarified when we must defer to an agency's interpretation of its own regulations. First, the regulation must be "genuinely ambiguous" after we "exhaust all the 'traditional tools' of construction," including analyzing the regulation's "text, structure, history, and purpose." *Kisor*, 139 S. Ct. at 2415 (quoting *Chevron U.S.A. Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 843 n.9 (1984)). Second, if the regulation is ambiguous,

the agency's reading must fall within its "zone of ambiguity." *Id.* at 2416. Even then, we must decide whether the "character and context" of the reading entitle it to deference. *Ibid.* That is, the reading must be the agency's official position, "implicate [the agency's] substantive expertise," *id.* at 2417, and reflect "fair and considered judgment," *ibid.* (quoting *Christopher v. SmithKline Beecham Corp.*, 567 U.S. 142, 155 (2012)).

Applying *Kisor*'s framework, we defer to the Sentencing Commission's interpretation of "loss." First, a genuine ambiguity exists. This court, canvassing several dictionaries, found that the term "loss" in § 2B1.1 has no one definition and "can mean different things in different contexts." *Riccardi*, 989 F.3d at 486. Although *Riccardi* declined to declare "loss" ambiguous, its reasoning makes it easy for us to conclude that the definition of loss "has no single right answer." *Kisor*, 139 S. Ct. at 2145.

You points to a recent Third Circuit case, *United States v. Banks*, 55 F.4th 246 (3d Cir. 2022), to argue that "the ordinary meaning of the word 'loss' is the loss the victim actually suffered." The court in *Banks*, however, conceded that "loss" could include intended loss in other contexts. *Banks*, 55 F.4th at 258. It held only that, in the context of a § 2B1.1 enhancement "for basic economic offenses," loss meant actual loss. *Ibid.* But without consulting the "traditional tools" of the commentary's "structure, history, and purpose" to reach that conclusion, *Kisor*, 139 S. Ct. at 2145, *Banks*'s attempt to impose a one-size-fits-all definition is not persuasive. *See Phillips*, 54 F.4th at 382–83 ("[L]iteral or dictionary definitions of words will often fail to account for settled nuances or background conventions that qualify the literal meaning of language and, in particular, of legal language." (quoting *United States v. Tate*, 999 F.3d 374, 378 (6th Cir. 2021))). The context and purpose of the Guidelines clarify that "loss" can also mean intended loss in the § 2B1.1 context. The Guidelines note that the purpose of estimating "loss" is to assess "the seriousness of the offense and the defendant's relative culpability." § 2B1.1 cmt. (background); *see id.* App. C Supp., at 104–05 (Amend. 793) (noting "the Commission's belief that intended loss is an important factor" because it focuses "specifically on the defendant's culpability"). You's interpretation would lead to vastly different sentences for similarly culpable defendants where one defendant successfully stole trade secrets

but the other did not. For someone like You, who was arrested before causing actual loss, including losses that she intended is a reasonable way to gauge her culpability.

For these reasons, the Commission's commentary also falls "within the zone of ambiguity" of § 2B1.1. *Kisor*, 139 S. Ct. at 2416. Because federal theft statutes can "cover a broad range of conduct with extreme variation in severity," the loss caused or intended allows courts to issue sentences that reflect defendants' "relative culpability." § 2B1.1 cmt. (background); *see also id.* § 1B1.3 (requiring that a defendant's offense level be determined in part by "all harm that resulted" from the defendant's crimes and by "all harm that was the object of such acts").

Finally, the character and context of the Commission's reading entitles it to deference. The Guidelines commentary represents the official position of the Commission. *Phillips*, 54 F.4th at 385. The commentary implicates the Commission's expertise in "[d]eveloping proportionate penalties for hundreds of different crimes by a virtually limitless array of offenders." *Mistretta v. United States*, 488 U.S. 361, 379 (1989). And it also reflects the Commission's "fair and considered judgment." *Kisor*, 139 S. Ct. at 2417 (citation omitted). Included in the Guidelines since its inception, the Commission's commentary is no "ad hoc pronouncement." *Phillips*, 54 F.4th at 385. Therefore, the district court properly considered intended loss in calculating You's Guidelines range.

B. Calculating Intended Loss

"Determining the value of a trade secret . . . is no easy task." *United States v. Howley*, 707 F.3d 575, 582 (6th Cir. 2013). But district courts need not reach an exact figure for the loss that a victim suffered or the amount of harm that a defendant caused or intended to cause; a "reasonable estimate" will do. *Ibid.* (quoting U.S.S.G. § 2B1.1 cmt. n.3(C)). Because district courts are well positioned to assess the evidence and estimate loss, we review the district court's determination of the amount of loss attributable to You for clear error. *United States v. Warshak*, 631 F.3d 266, 328 (6th Cir. 2010).

"Even a reasonable estimate, however, requires some explanation." *Howley*, 707 F.3d at 582. The district court's reasoning reveals that it failed to follow its own logic in two important

ways. First, the district court used estimates that it had rejected earlier in its analysis. The district court declined to calculate anticipated profits based on You's projections in her Thousand Talents application of over \$220 million in future profits, rejecting them as speculative and "likely inflated" due to "puffery." You's estimate of \$7 billion for the annual world can-coating market, the court noted, was likely "intended to entice the Chinese government into issuing a grant." Yet, in estimating the annual Chinese market for can coatings to equal \$2.9 billion, the district court appears to have relied on an estimate that was also in You's Thousand Talents application—the same source whose projections the court had previously dismissed. We need not take a side on this inconsistency by determining whether You's projections were indeed speculative, but we ask the district court to resolve it.

The district court's confusion of profits with sales compounds this error. Although the court claimed to determine the loss amount based on anticipated profits, the numbers it estimated were of You's anticipated sales. *See United States v. Xu*, 2022 WL 16715663, at *7 (S.D. Ohio Nov. 5, 2022) (calculating anticipated profit in a trade-secrets case by multiplying revenues by the profit margin). The problem is not solely that the district court used sales rather than profits to assess You's intended loss, but rather that it did not stick to its choice. An internally inconsistent estimate is not a "reasonable" one. § 2B1.1 cmt. n.3(C).

The government responds that "it was not unreasonable" to assume that marginal costs would be low in a concentrated market where the companies had already spent millions of dollars developing their BPA-free formulas. This argument fails for several reasons. First, the court likely would have indicated that it meant to discount all costs from its calculation. For profit to match revenue, there must be zero cost. That means no operating expenses, no manufacturing costs, no research and development costs, or anything else. It is difficult to believe that, by equating revenue with profit, the court would have made such a significant assumption without noting it, especially when the court identified other, more complex assumptions in its model. Second, the district court never mentioned "marginal costs," or signaled that it cared nothing about those costs rather than the sunk costs of developing BPA-free technology—an investment that the competing companies likely would not have made unless they expected to recoup it. Nor is it clear, at least without some evidence, that marginal costs

would be very low or nonexistent in the can-coating context. A “reasonable reduction” that accounted for You’s anticipated profit margin might well have brought You’s total intended loss below \$65 million and affected her Guidelines range. In deciding to calculate anticipated profits, the district court needed to pick some profit margin—arguably, any margin between 0% and 100%. Its failure to do so was clear error.

Finally the government claims that any error was harmless because the court could have calculated You’s intended loss in other ways to reach the same or higher offense-level. An error in calculating the Guidelines range is harmless only if the government can show “*with certainty*” that the error at sentencing did not cause the defendant to receive a more severe sentence.” *United States v. Gillis*, 592 F.3d 696, 699 (6th Cir. 2009) (quoting *United States v. Lanesky*, 494 F.3d 558, 561 (6th Cir. 2007)). On remand, the district court may well calculate a similar figure for intended loss. And even if its new number varied from its original calculation, the court still could order the same sentence for You. But we cannot be certain that the district court, after correcting its error, would issue the same sentence again. *See United States v. Castilla-Lugo*, 699 F.3d 454, 459 (6th Cir. 2012); *Gillis*, 592 F.3d at 699. The district court already rejected as “inappropriate” the Guidelines’ suggested method of calculating intended loss by estimating the competing companies’ costs of developing the BPA-free technology. *See* U.S.S.G. § 2B1.1 cmt. n.3(C)(ii). As to its chosen approach of estimating anticipated profits, the court deemed speculative the government’s suggestion of using You’s Thousand Talents projections. The district court on remand might again look to anticipated profits, tweak its model, and reach a loss amount that corresponds with a lower Guidelines range and, subsequently, a lower sentence.

CONCLUSION

For the foregoing reasons, we **AFFIRM** You’s conviction, but **VACATE** and **REMAND** the district court’s sentence.